awi Australian Wool Innovation Limited

# MOVING TO A NON-MULESED MERINO ENTERPRISE IN THE RANGELANDS

## WITH FOCUS ON LIFETIME WELFARE & PRODUCTIVITY

5TH MAY 2021

GEOFF LINDON AWI

# PRESENTATION OVERVIEW

- Breech strike history overview
- Causes of flystrike
- Effect of mulesing
- NWD Wool production by micron
- Breech strike control tool box
- Are there profitable, naturally breech strike resistant Merinos
- Wool grower’s biggest concerns about NM enterprises
- The steps to go non-mulesed
- More Information

# BREECH STRIKE - A LONG AND COMPLEX ISSUE

- 1880s Highly wrinkled Vermont's were imported, fad ceased in 1905
- 1890s Blowfly entered Australia, took 40 years to spread across all States
- 1930s JWH Mules developed mulesing, removal of excess breech & tail wrinkle
- 1970s Mulesing widely adopted to control fly strike, took 30 – 40 yrs, less mulesing in Qld & Tas due to lower climatic risk, SA "tail stripping" but technically still mulesing
- 1980s Blow fly enters New Zealand, start mulesing then cease by 2018 - lower climate risk,
- 1980s Emergence of Animal Welfare and Animal Rights lobby groups

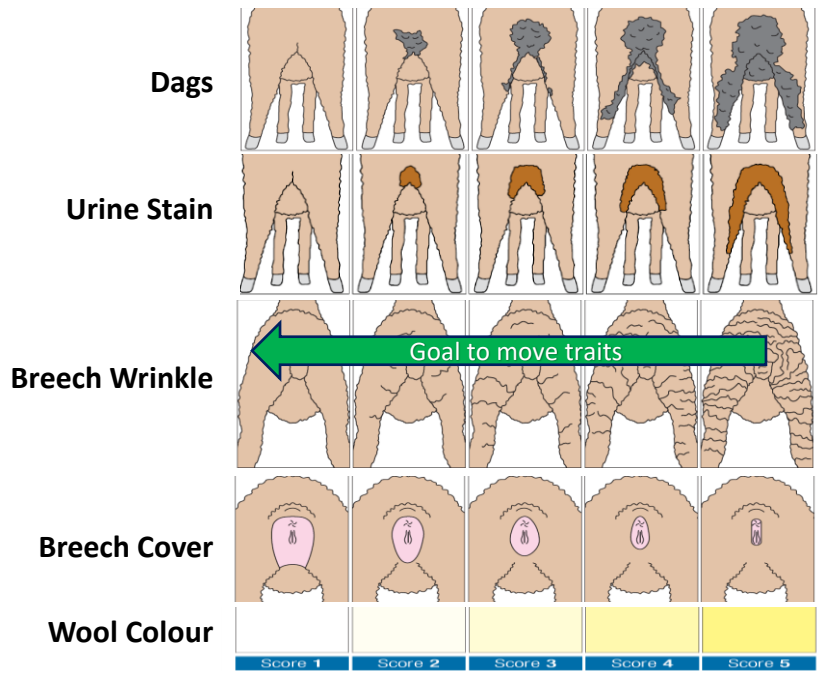
- Since 1950's ongoing R&D to find replacement for mulesing; invasive alternates proved difficult

  Macro changes since mulesing started, changing markets & Merino type, improved pastures, higher stocking rates, less labour

  SRS breeding for low wrinkle commences
- 2009 Breeding Values for breech traits released along side productivity & resilience traits
- 2020s Increasing resistance to control chemicals, dicyclanil (Clik) and cyromazine (Vetrazin)

# HOW TO REDUCE RISK OF BREECH STRIKE

**Key Breech Indicator Traits**




## *Breech Strike is reduced by*

***1. Sheep Selection & Breeding – <u>slow long term but permanent gain</u>***

***2. Shearing and Crutching – removing breech wool; <u>2 to 4 times per year</u>***

***3.Improved worm control – less dags; <u>drenching up to five times per year</u>***

***4.Use of prevention chemicals – <u>up to 3 times per year</u>***

***5.Mulesing***

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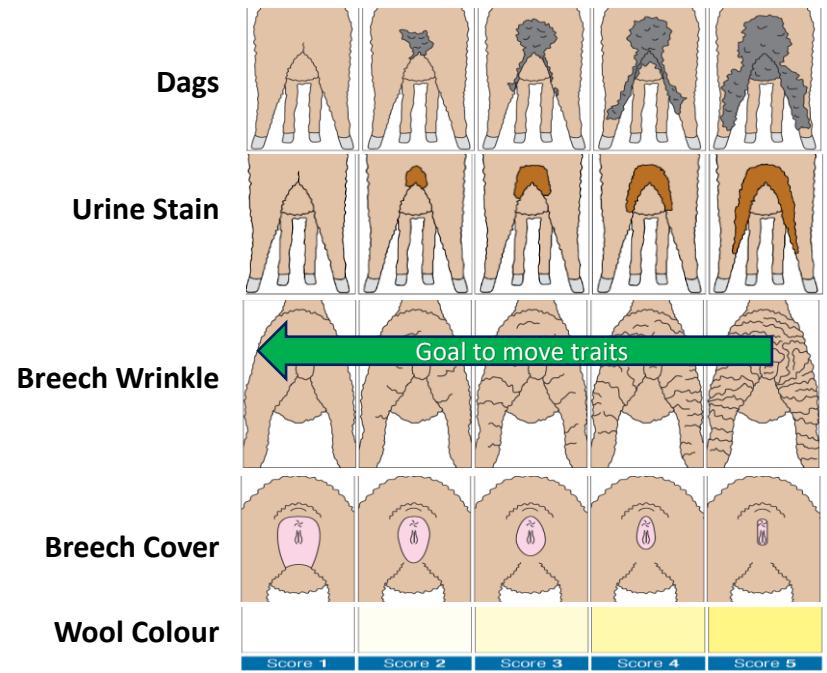


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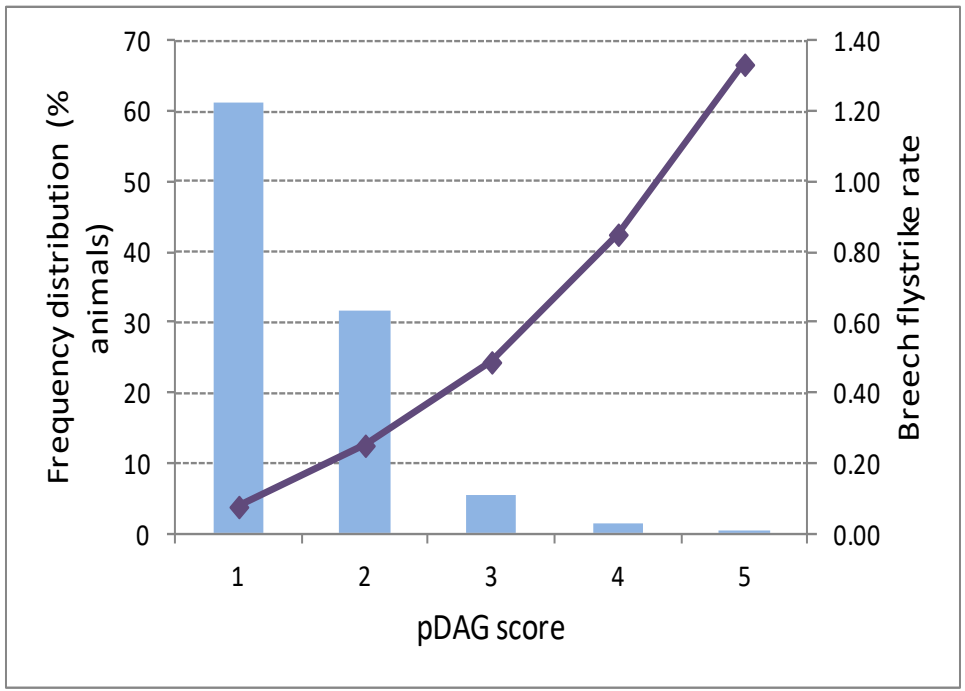
***4.Use of prevention chemicals – up to 3 times per year***

***5.Mulesing***

**Aim is all sheep; dags 2 score and less, urine stain 2 score and less, wrinkle 2 score and less, wool cover 3 score and less; lower scores = less risk**

# THE LEADING CAUSES OF BREECH STRIKE - DAGS

(Note: Sheep were crutched at normal times but had no other preventative treatments)



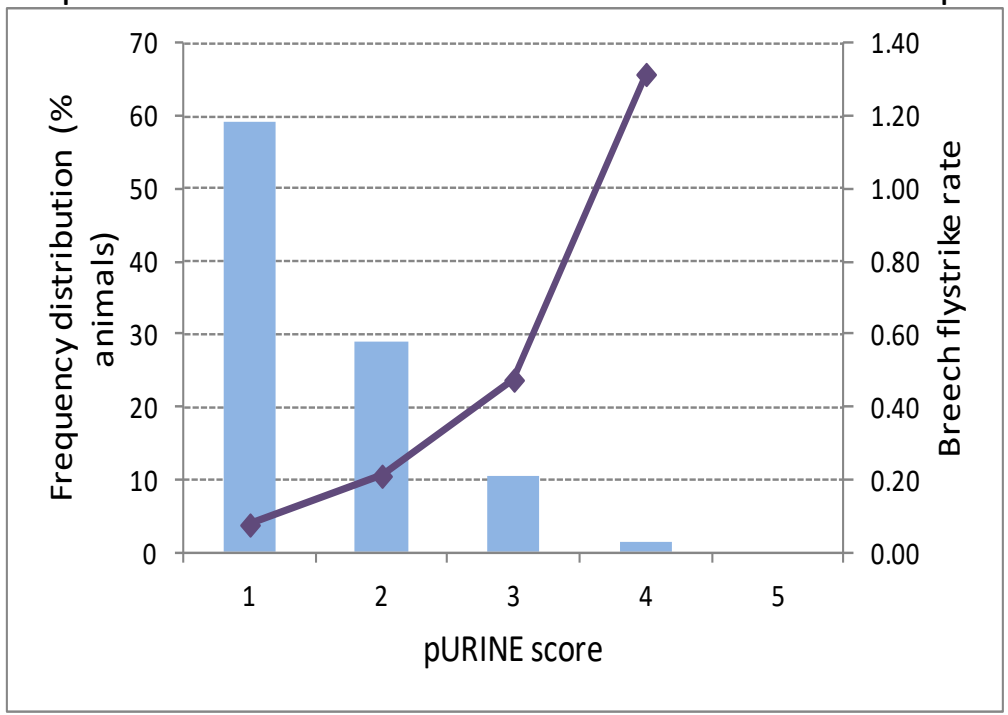

Source: AWI Breeding for Breech Strike Resistance Project, CSIRO Armidale 2005 to 2014

Peak 135%

***Risk of Breech Strike increases with increasing dags***

# THE LEADING CAUSES OF BREECH STRIKE – URINE STAIN

(Note: Sheep were crutched at normal times but had no other preventative treatments)



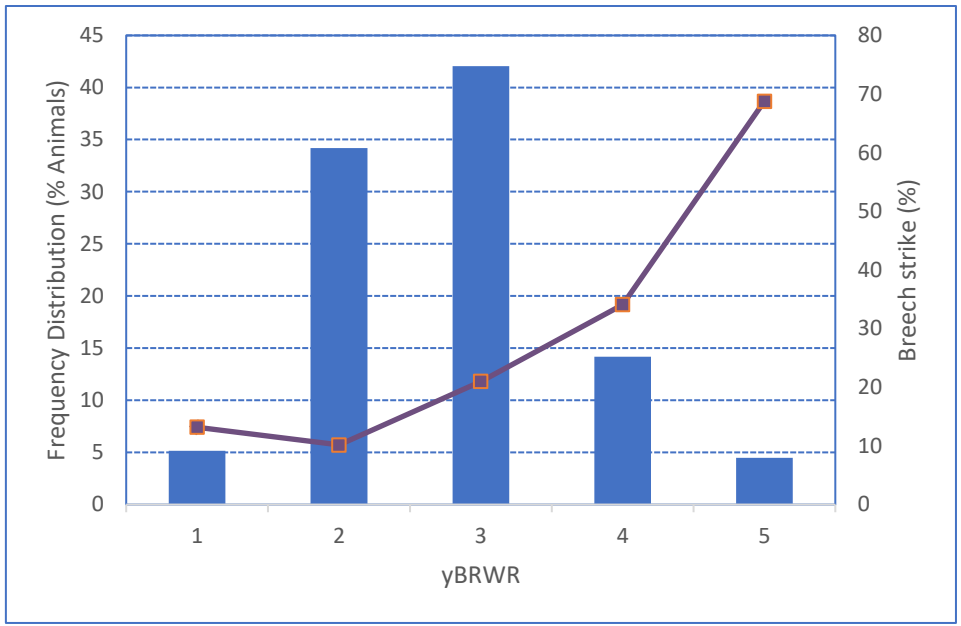

Peak 135%

***Risk of Breech Strike increases with increasing Urine Stain***

Source: AWI Breeding for Breech Strike Resistance Project, CSIRO Armidale 2005 to 2014

# THE LEADING CAUSES OF BREECH STRIKE – BREECH WRINKLE

(Note: Sheep were crutched at normal times but had no other preventative treatments)



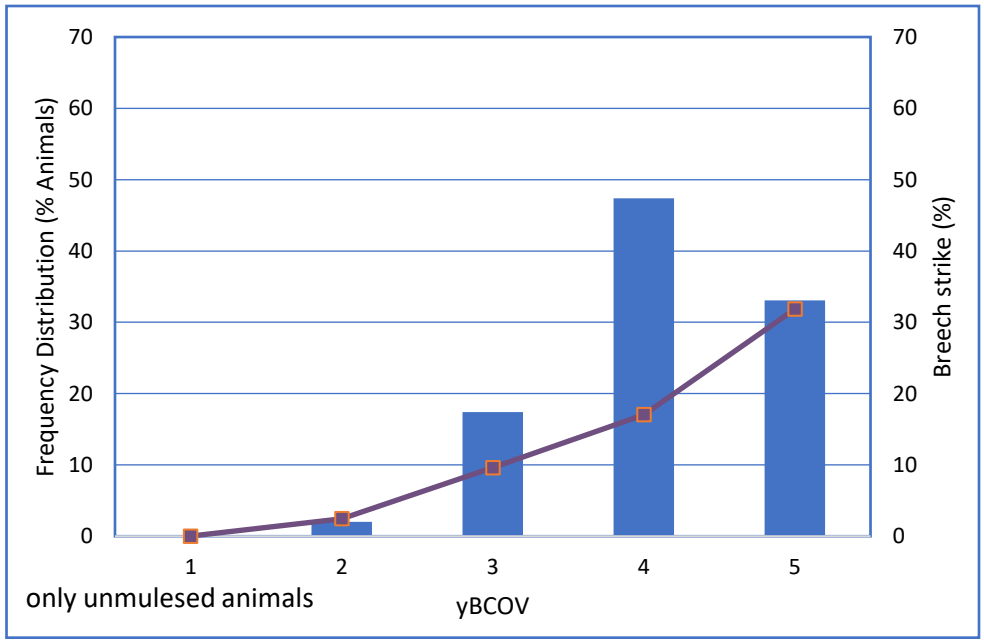

Source: AWI Breeding for Breech Strike Resistance Project, CSIRO Armidale 2005 to 2014

Peak 70%

***Risk of Breech Strike increases with increasing breech wrinkle***

# THE LEADING CAUSES OF BREECH STRIKE – BREECH COVER

(Note: Sheep were crutched at normal times but had no other preventative treatments)

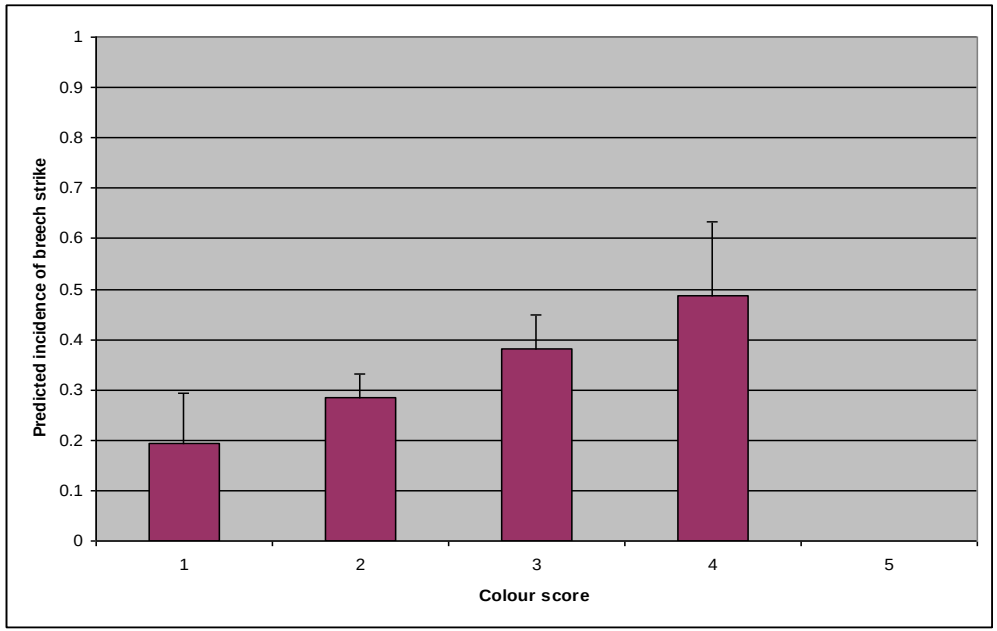



Peak 30%

***Risk of Breech Strike increases with increasing breech cover***

Source: AWI Breeding for Breech Strike Resistance Project, CSIRO Armidale 2005 to 2014

# THE LEADING CAUSES OF BREECH STRIKE – WOOL COLOUR

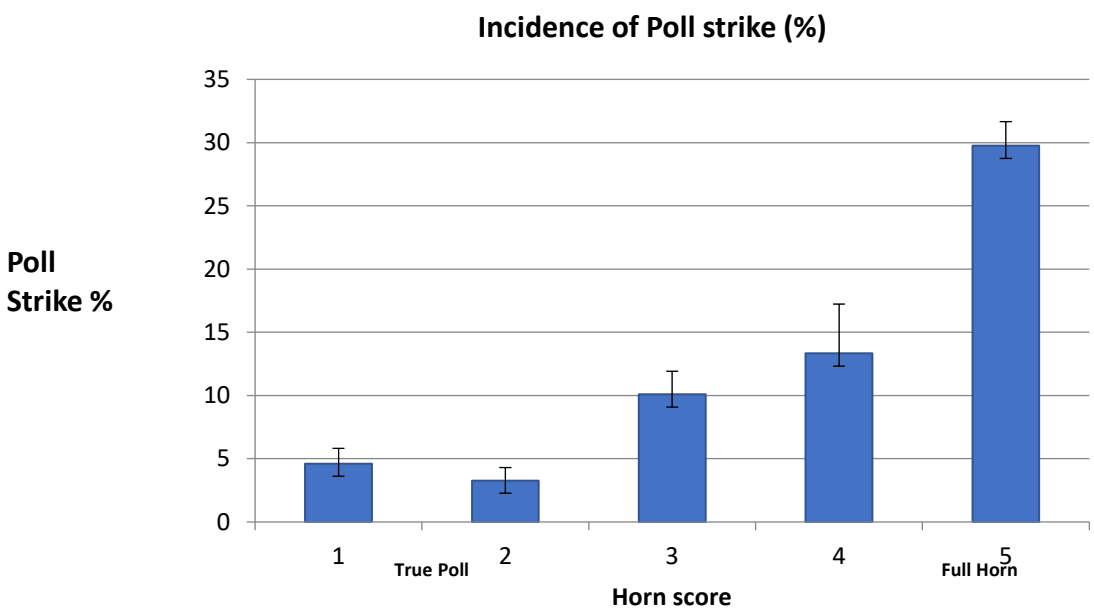



***Risk of Breech Strike increases with wool colour***

***Risk of Body Strike increases with wool colour, micron and micron varibility***

Source: AWI Breeding for Breech Strike Resistance Project, DAFWA Mt Barker 2005 to 2009

# LEADING CAUSE OF POLL STRIKE

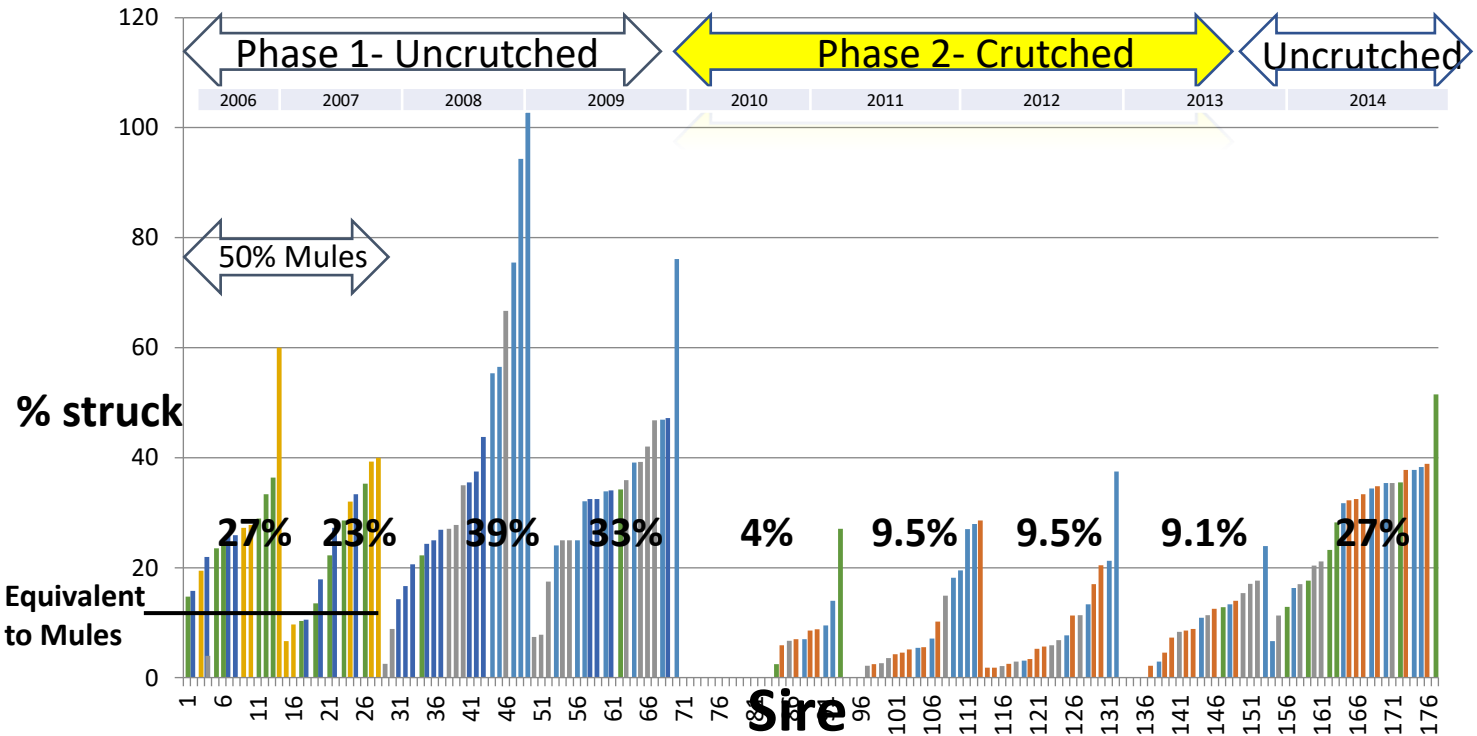



***The risk of poll strike is lower with polled rams***

***Nationally, 66% of rams are polled, in SA 90%, Tas 43%***
(AWI 2017 Husbandry Survey)

Source: AWI Breeding for Breech Strike Resistance Project, DAFWA Mt Barker 2005 to 2014

# Large Differences in Breech Strike Between Sire Progeny Groups and Years Mt Barker DAFWA




***Risk of breech strike varies between sires and years***

Source: AWI Breeding for Breech Strike Resistance Project, DAFWA Mt Barker 2005 to 2014

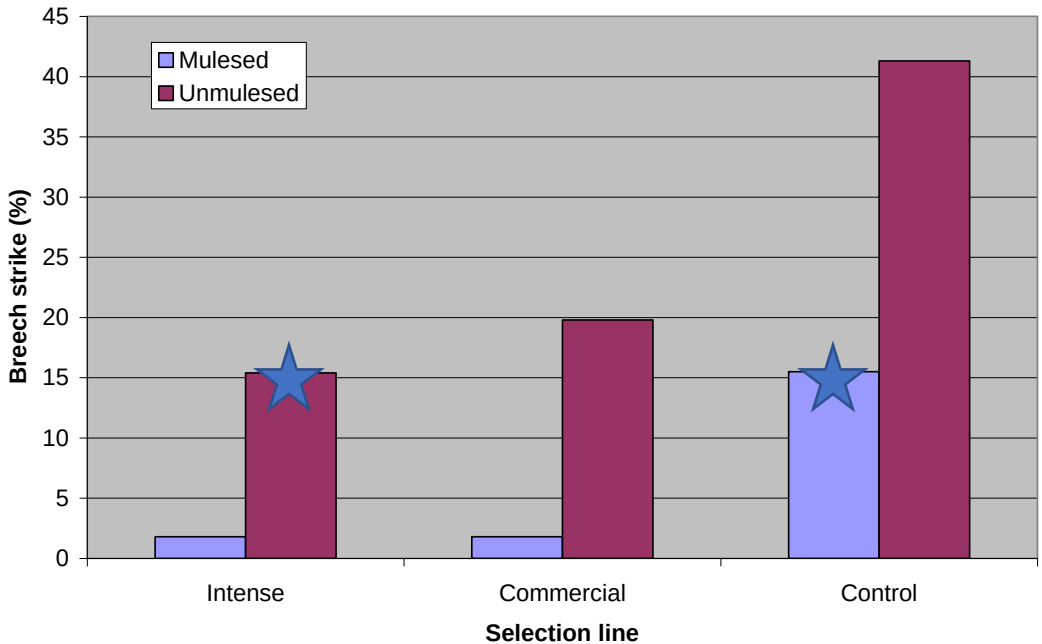
# EFFECT OF MULESING ON WEANER BREECH STRIKE RATES

(Note: Sheep were crutched at normal times but had no other preventative treatments)

Intense Line Rams & ewes selected only for low risk of breech strike on visual traits. "Single trait selection"

Commercial Line
Only rams selected

Control Line
Random selection for both rams & ewes




***Mulesing had a major impact on reducing breech strike with large reductions in strike in each selection line***

***Mulesing reduced breech strike by 90%***

***Breeding had a major impact on reducing breech strike. Mulesed "control line" similar to unmulesed "intense line"***

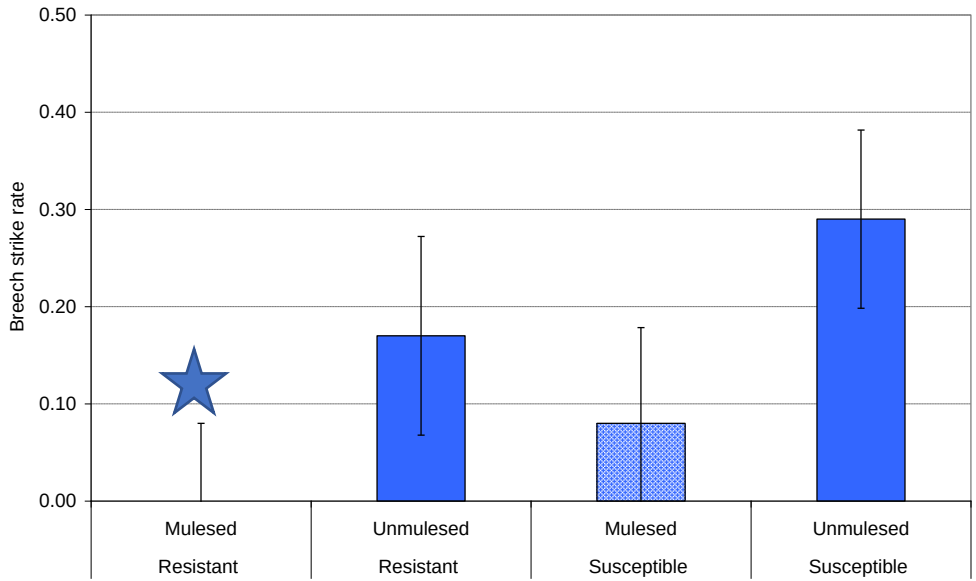
Source: AWI Breeding for Breech Strike Resistance Project, CSIRO Armidale 2005 to 2009

(Note; this outcome was achieved in 5 years by the introduction of low wrinkle sires and almost single trait selection in low dag country. To continue the trial for the next phase many of the outside progeny were culled due to a high incidence of body strike.)

# EFFECT OF MULESING ON BREEDING EWE BREECH STRIKE RATES

(Note: Sheep were crutched at normal times but had no other preventative treatments, Armidale low dag country)

***Mulesing sheep bred to be resistant, is very effective in reducing strike to very low levels***




***From a range of trials; mulesing reduces starting wrinkle by 1.0 score, urine by 0.5 score and dags 0.4 score***
(Source; CSIRO Armidale & Clip trials)

***Breeding and mulesing has a large impact on reducing the reliance on chemicals. (But high dags can swamp the benefits of mulesing and breeding)***

Selection line and mulesing group effects on breech strike rate in breeding ewes in 2011-12

Source: AWI Breeding for Breech Strike Resistance Project, CSIRO Armidale 2005 - 2014

# WOOL PRODUCTION BY MICRON 2019-2020 SEASON

***NWD Categories by Micron Ranges (AWEX 2020; Rangelands wool tends to be higher micron)***

| | <18.6 µm | | 18.6 – 20.5 µm | | 20.6 – 22.5 µm | | 22.5 – 24.5 µm | | >24.5 µm | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. Bales | % | No. Bales | % | No. Bales | % | No. Bales | % | No. Bales | % | No. Bales | % |
| NM | 49,255 | 35 | 24,000 | 17 | 7,786 | 6 | 8,725 | 6 | 50,317 | 36 | 140,083 | 100 |
| CM | 17,054 | 48 | 9,078 | 26 | 2,939 | 8 | 594 | 2 | 5,556 | 16 | 35,221 | 100 |
| PR | 171,382 | 45 | 149,076 | 40 | 36,765 | 10 | 4,433 | 1 | 15,215 | 4 | 376,871 | 100 |
| M | 54,294 | 31 | 63,335 | 36 | 23,250 | 13 | 5,108 | 3 | 28,454 | 16 | 174,441 | 100 |
| ND | 79,319 | 30 | 98,209 | 37 | 28,862 | 11 | 12,366 | 5 | 49,987 | 19 | 268,743 | 100 |
| **Total** | **371,304** | **29** | **343,698** | **25** | **99,602** | **7** | **31,226** | **2** | **149,529** | **10** | **995,359** | **100** |

# WOOL PRODUCTION BY MICRON 2019-2020 SEASON

***Micron Ranges by NWD Categories (AWEX 2020 rangelands wool tends to be higher micron)***

| | <18.6 µm | | 18.6 – 20.5 µm | | 20.6 – 22.5 µm | | 22.5 – 24.5 µm | | >24.5 µm | | Total | |
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# HOW TO REDUCE RISK OF BREECH STRIKE

***Breech Strike Control Tool Box***

1. Sheep Selection & Breeding – slow long term but permanent gain
2. Crutching – removing breech wool; (nil to 4 times per year)
3. Improved dag control – (limited in rangelands)
4. Prevention chemicals – (up to 3 times per year)
5. Mulesing

***Can rangeland woolgrowers stop mulesing, re balance the tools, and increase lifetime welfare and productivity?***

# ARE THERE PROFITABLE, NATURALLY FLYSTRIKE RESISTANCE MERINOS? - YES! INCREASINGLY AVAILABLE

Within Merino type; low wrinkle and cover has been associated with low fleece weight, but this is changing, particularly for medium Merinos.

Can be achieved by visual classing and raw data alone. (Sire Evaluation results)

Breeding Values provide the objective evidence and assessment of progress

Last 15 years, fat, muscle, worm egg count, breech traits have been added to Merino Breeding objectives. Breeders now seeking resilience and fly resistance.

Progress with breech traits much more difficult in Saxon and Fine Merino types.

# ARE THERE PROFITABLE, NATURALLY FLYSTRIKE RESISTANCE MERINOS? - YES! INCREASINGLY AVAILABLE

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Blue shading top 10%

Higher Micron, High Index Sires with Leading Breech Trait ASBVs (MERINOSELECT web search)

| Sire Born | ACFW % | YFD Mic | YFAT mm | YWt kg | WEC | NLW % | EBWR Sc | ECOV Sc | LDAG Sc | DP+ Index |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 34 | 0.6 | 1.1 | 17 | -71 | 2.0 | -1.4 | -0.3 | -0.3 | 210 |
| 2016 | 27 | -0.5 | 0.6 | 11 | 18 | 0 | -1.0 | -0.3 | 0.1 | 187 |
| 2017 | 40 | -0.1 | -0.6 | 11 | - | 4 | -1.1 | -0.2 | 0.0 | 192 |
| 2017 | 25 | -0.7 | 1.5 | 16 | -17 | 20 | -0.7 | -1.3 | -0.5 | 255 |
| 2019 | 21 | -0.6 | 1.0 | 11 | - | 10 | -1.0 | -0.7 | -0.3 | 204 |

**Target ASBVs ( Rangelands are a very diverse wool growing "region")**

| **Wrinkle Country** | **High** | **Mid** | **Low** |
|---|---|---|---|
| Target Wrinkle ASBV | < -1.0 | -0.6 | -0.3 |
| Target Cover | -0.6 ? | Adult Fleece+25% ? | |

# ARE THERE PROFITABLE, NATURALLY FLYSTRIKE RESISTANCE MERINOS? - YES! INCREASINGLY AVAILABLE

Moderate Micron, High Index Sires with Leading Breech Trait ASBVs (MERINOSELECT web search)

| Sire Born | ACFW % | YFD FD | YFAT mm | YWt kg | WEC | NLW % | EBWR Sc | ECOV SC | LDAG SC | MP+ Index |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 12 | **-1.8** | 0.7 | 8 | -48 | 17 | **-0.5** | -0.8 | -0.1 | 193 |
| 2017 | 26 | **-1.7** | 0.8 | 10 | - | 10 | **-0.5** | -0.8 | - | 201 |
| 2018 | 16 | **-1.4** | 0.6 | 17 | - | 15 | **-0.6** | -1.4 | 0.1 | 198 |
| 2018 | 34 | **-1.8** | -0.4 | 16 | -6 | 0 | **-0.4** | 0.2 | -0.1 | 202 |
| | | | | | | | | | | |

Lower micron Merinos tend to have higher breech wrinkle and cover, but they will still suit some rangeland areas.

**Note these are AI sires, need to be able to buy these types consistently as true to type flock rams.**

# WHAT ARE WOOL GROWER'S BIGGEST CONCERNS ABOUT BREECH STRIKE CONTROL IN A NON-MULES ENTERPRISE

Can I keep the risk of breech strike low enough, managing low levels of strike

Can I access labour; shearers, on farm staff

How would I manage a fly wave, floods, do I have enough yards, equipment

**From 2017 survey of NM woolgrowers**

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What are the discounts for NM surplus sheep sales, how to minimise

Can I get a sufficient premium for my wool?

Is everyone in the business on board

**From 2017 survey of NM woolgrowers**

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What are the discounts for NM surplus sheep sales, how to minimise

Can I get a sufficient premium for my wool?

Is everyone in the business on board

Chemical resistance now and into the future

Are there naturally resistant, productive NM Merino types for my country

Are there consultants, stock agents, classers, ram sellers that can help

**From 2017 survey of NM woolgrowers**

# STEPS TO MOVE TO A NON-MULES ENTERPRISE

## Plan, plan and plan, just don't stop

Get Merino type right first:  wrinkle, dags, wool cover, productivity.

Short joining and lambing's help.

Is rotational grazing an option, leads to easier surveillance in extensive areas.

Is the business determined to make this work.

Will other enterprises take my focus at important times.

Can I still go on leave when good for family.

Seek advice, consultants, sheep classer, wool and stock agents.

**From 2017 survey of NM woolgrowers**

# TAKE HOME MESSAGES

- Natural low wrinkle & cover can lower risk of breech strike similar to mulesing without increasing chemical use
- Get Merino type right:  there are new low wrinkle, low wool cover, more resilient and productive Merinos being bred.
- All sheep need to be low wrinkle and cover, not just the average.
- Get tail length right at marking
- Set production targets (genetic and actual) for **your country.** Target adult fleece traits rather than young Yearling measures
- To go Non-Mulesed: Plan, plan, plan: just don't stop mulesing. Think lifetime welfare. Re balance fly control tool box, it's a change to the whole business.
- Ideally ram supplier has a similar breeding objective to ram buyer
- Seek advice, consultants, sheep classer, wool and stock agents.

# OTHER INFORMATION ?

- https://www.wool.com/flystrikelatest

  See Sheep Breeding Industry Communications section
  - Planning for a Non Mulesed Merino Enterprise
  - Breeding naturally breech strike resistant Merinos Part 1 and 2
  - Visual Sheep Scores Guide
  - Rate of Genetic Gain in Reducing Breech Flystrike
  - Industry Trends

  Other sections on the flystrike latest page includes
  - Flystrike Program Overview
  - Non-Invasive Management Practices
  - Analgesia and Anaesthesia
  - Education Extension and Promotion
  - Woolgrower Surveys
  - 2020 Flystrike RD&E Technical Update Reports
  - Wool Market Premiums and Discounts

- https://www.wool.com/sheep/genetics/ See Stockmanship and Merino Visual Classing

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# OTHER WEBSITES

www.flyboss.com.au

www.makingmorefromsheep.com.au

www.sheepgenetics.org.au

www.awex.com.au

www.merinosuperiorsires.com.au

www.wool.com/mlp

***GET ADVICE FROM YOUR LOCAL VET, WOOL BROKER & RAM BREEDER***

Australian Wool Innovation: Feedback@wool.com
AWI helpline 1800 070 099 (free call in Australia)