



PRODUCTIVITY & PROFITABILITY



Maximising Dorper Reproductive Performance in Challenging Environments

Presenter: Anne Collins, AC Ag Consulting





Maximising Dorper Reproductive Performance in Challenging Environments

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AC Ag Consulting

Overview

- ❑ PDS outcomes *“Maximising Dorper Reproductive Performance”*
- ❑ Key management strategies addressed
 - Condition scoring
 - Pregnancy scanning
 - Fit to join assessment - ewes & rams
 - Feed budgeting
- ❑ New MLA project – *“Quantifying and Improving Reproduction Performance of Shedding Sheep”*

To suggest future topics scan here:

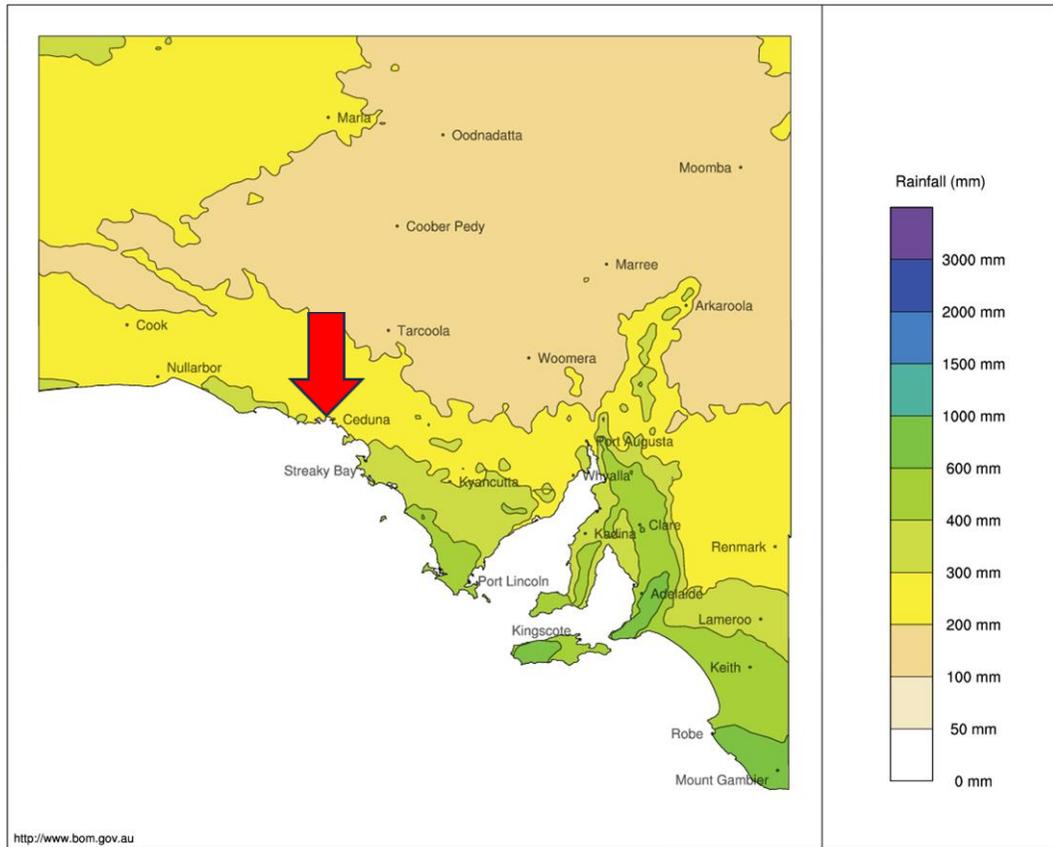


MLA PDS

Maximising Dorper Reproductive Efficiency



Average annual rainfall 30-year climatology (1991 to 2020)
Australian Bureau of Meteorology



- Far West Coast SA
- 250mm annual rainfall
- Mixed farming
- 2020 – 2022
- Tracked individual ewes
- Different joining strategies

AC Ag Consulting

Nutrien
Ag Solutions



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PDS Project Outcomes

With attention to detail in ewe and ram management, and adoption of best management practices, reproduction rates can be improved in Dorper flocks run in a low rainfall cereal zone.



Key Observations

1. **Condition score** has a significant impact on conception and weaning rates in mature ewes.



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Key Observations

1. **Condition score** has a significant impact on conception and weaning rates in mature ewes.
2. In ewes less than two years old, **bodyweight** appears to be more important in determining conception rates.
3. **Twin bearing ewes** given the same nutrition as single bearing ewes throughout pregnancy will be on average 0.25 condition score lighter.
4. **Lactation** has a very significant impact on condition score. Wet ewes will be at least 1.5 condition score less than dry ewes, given the same nutrition.



To suggest future topics scan here:

Key Observations cont.

5. To successfully run a **six-monthly joining** program in a low rainfall cereal zone environment requires a significant investment in supplementary feeding, and the requisite infrastructure and labour.



Key Observations cont.

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6. **Individual ewes** within the flock contribute significantly more to profitability than their peers.



Key Observations cont.

5. To successfully run a **six-monthly joining** program in a low rainfall cereal zone environment requires a significant investment in supplementary feeding, and the requisite infrastructure and labour.
6. **Individual ewes** within the flock contribute significantly more to profitability than their peers.
7. **Pre-joining ram inspection** is an effective and easily adopted management practice.



Key Observations cont.

8. Without feed tests and **feed budgeting**, it is impossible to know if different classes of animals are receiving adequate nutrition to meet their requirements



Key Observations cont.

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9. Unsound **udders** are a potential source of production loss and should be monitored and culled for.



Key Observations cont.

8. Without feed tests and **feed budgeting**, it is impossible to know if different classes of animals are receiving adequate nutrition to meet their requirements
9. Unsound **udders** are a potential source of production loss and should be monitored and culled for.
10. Effective **record keeping** is required to measure and record key performance indicators, in order to understand your flock's performance, make decisions and track the impact of any changes to management.



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Limitations of a PDS

- Very small sample sizes
- Observations/demonstrations of impact of different management strategies
- Not scientific trial
- Followed now by much bigger research project (discussed later)



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Biannually joined flock

- 1000 White Dorper ewes
- Was trialling 6-monthly joining for first time
- Joined April and November
- 115 sil mixed age ewes eID tagged
- Recently achieving around 110% marking



To suggest future topics scan here:



Biannually joined flock

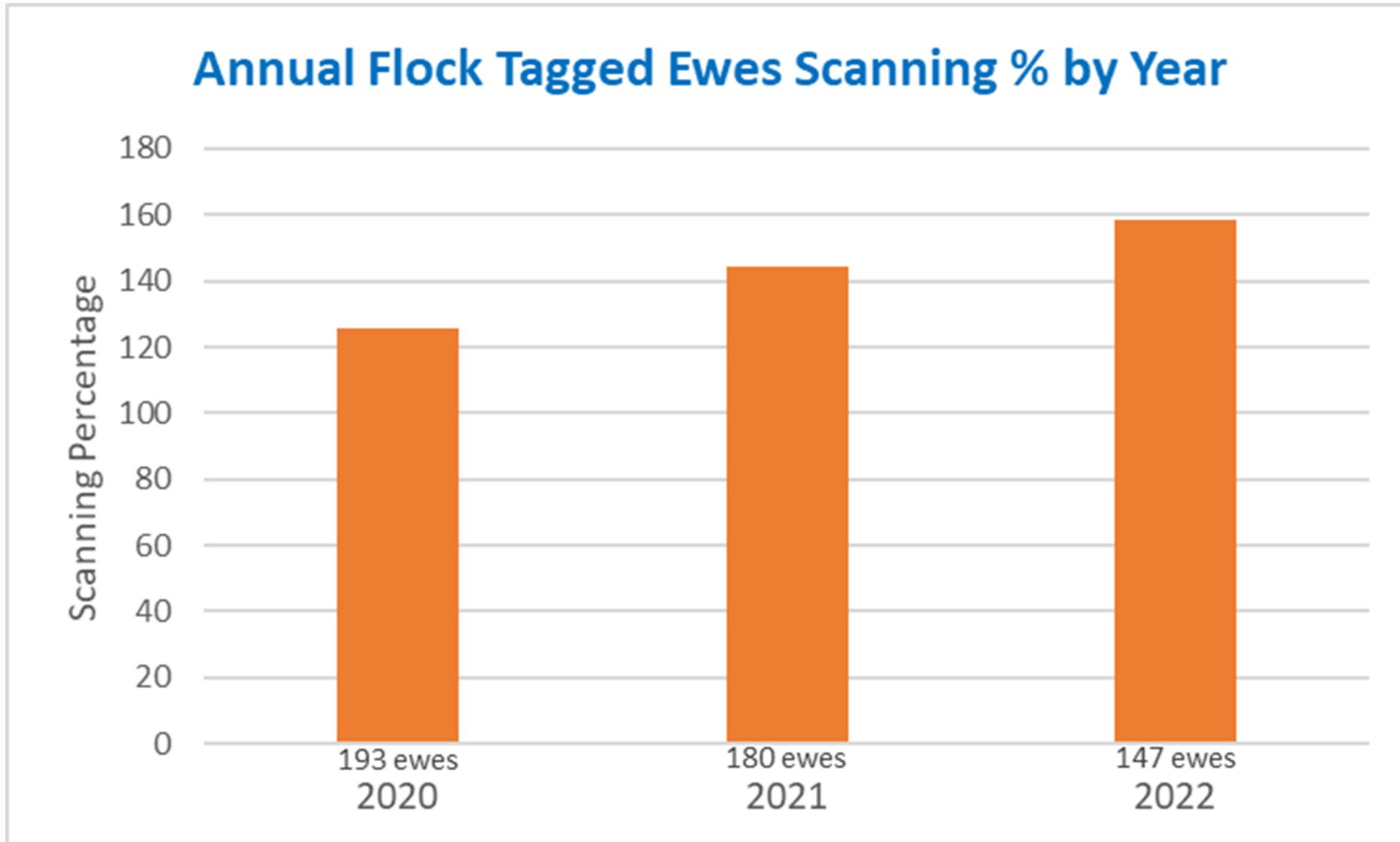
- 1000 White Dorper ewes
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- 115 sil mixed age ewes eID tagged
- Recently achieving around 110% marking

Annually joined flock

- 1500 total White Dorper ewes
- Joined early January each year
- 200 2018 ewes that had been sil as maidens eID tagged
- Recently achieving 110% in mature ewes & 50-74% in maidens



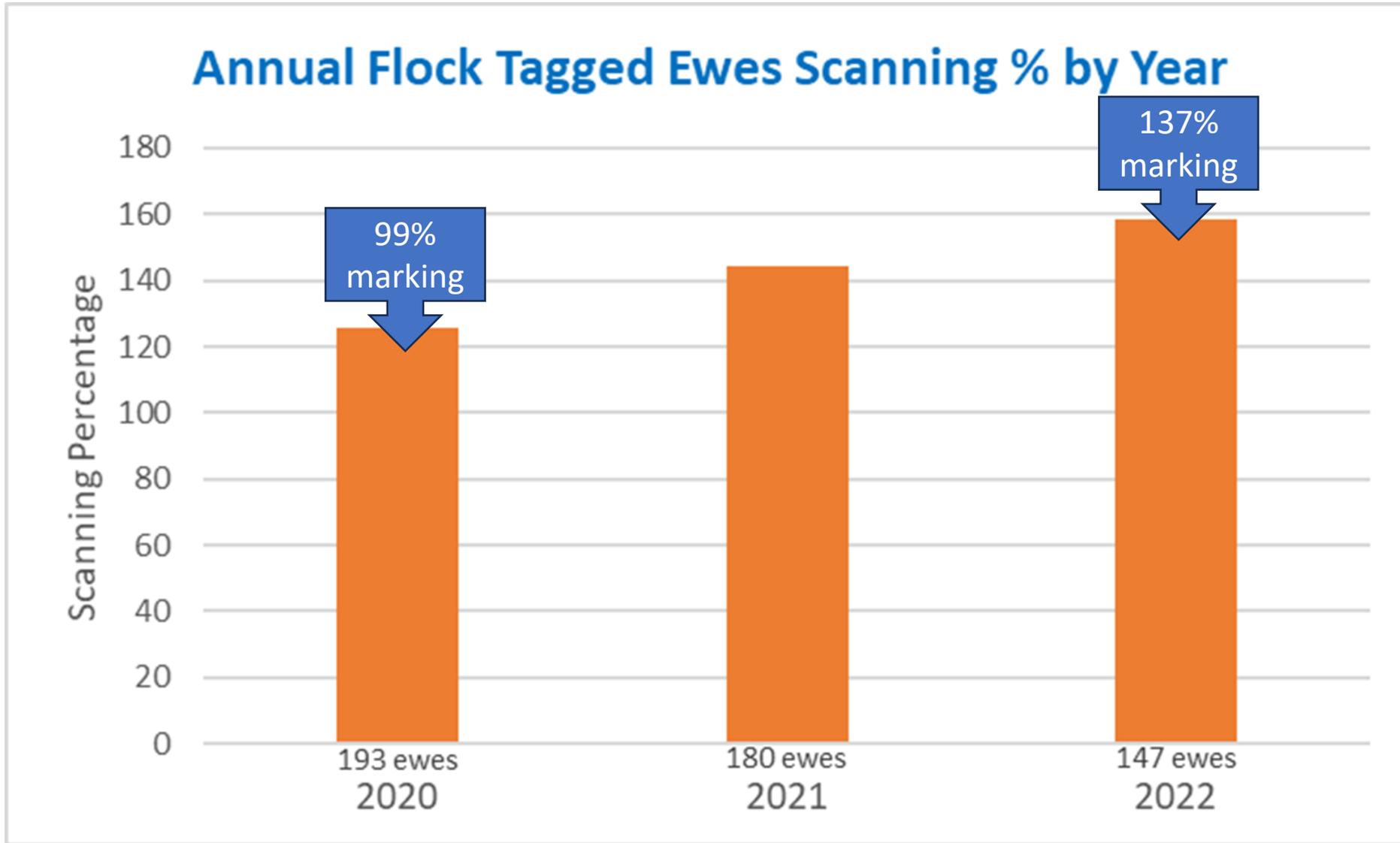
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Condition Scoring

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Condition Scoring



- No group members using at start of project
- 3 separate training sessions
- Able to demonstrate some relationship between CS and conception rates, ewe preg status and lactation status



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Condition Scoring



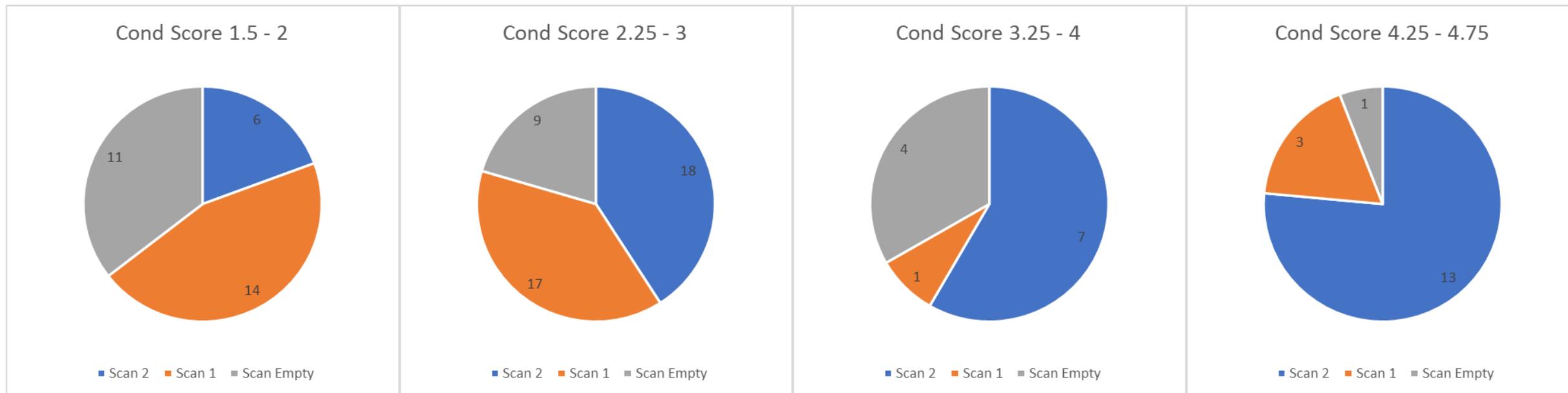
How to Condition Score		
Condition Score 1 	Backbone The bones form a sharp narrow ridge. Each vertebra can be easily felt as a bone under the skin. There is only a very small eye muscle. The sheep is quite thin (virtually unsaleable).	Short Ribs The ends of the short ribs are very obvious. It is easy to feel the squarish shape of the ends. Using fingers spread 1cm apart, it feels like the fingernail under the skin with practically no covering.
Condition Score 2 	Backbone The bones form a narrow ridge but the points are rounded with muscle. It is easy to press between each bone. There is a reasonable eye muscle. Store condition- ideal for wethers and lean meat.	Short Ribs The ends of the short ribs are rounded but it is easy to press between them. Using fingers spread 0.5cms apart, the ends feel rounded like finger ends. They are covered with flesh but it is easy to press under and between them.
Condition Score 3 	Backbone The vertebrae are only slightly elevated above a full eye muscle. It is possible to feel each rounded bone but not to press between them. (Forward store condition ideal for most lamb markets now. No excess fat).	Short Ribs The ends of short ribs are well rounded and filled in with muscle. Using 4 fingers pressed tightly together, it is possible to feel the rounded ends but not between them. They are well covered and filled in with muscle.
Condition Score 4 	Backbone It is possible to feel most vertebrae with pressure. The back bone is a smooth slightly raised ridge above full eye muscles and the skin floats over it.	Short Ribs It is only possible to feel or sense one or two short ribs and only possible to press under them with difficulty. It feels like the side of the palm, where maybe one end can just be sensed.
Condition Score 5 	Backbone The spine may only be felt (if at all) by pressing down firmly between the fat covered eye muscles. A bustle of fat may appear over the tail (wasteful and uneconomic).	Short Ribs It is virtually impossible to feel under the ends as the triangle formed by the long ribs and hip bone is filled with meat and fat. The short rib ends cannot be felt.



To suggest future topics scan here:



First six-monthly joining (April 2020) Preg Scan Result by Joining Cond Score



84%

120%

125%

171%

Overall conception: 118%

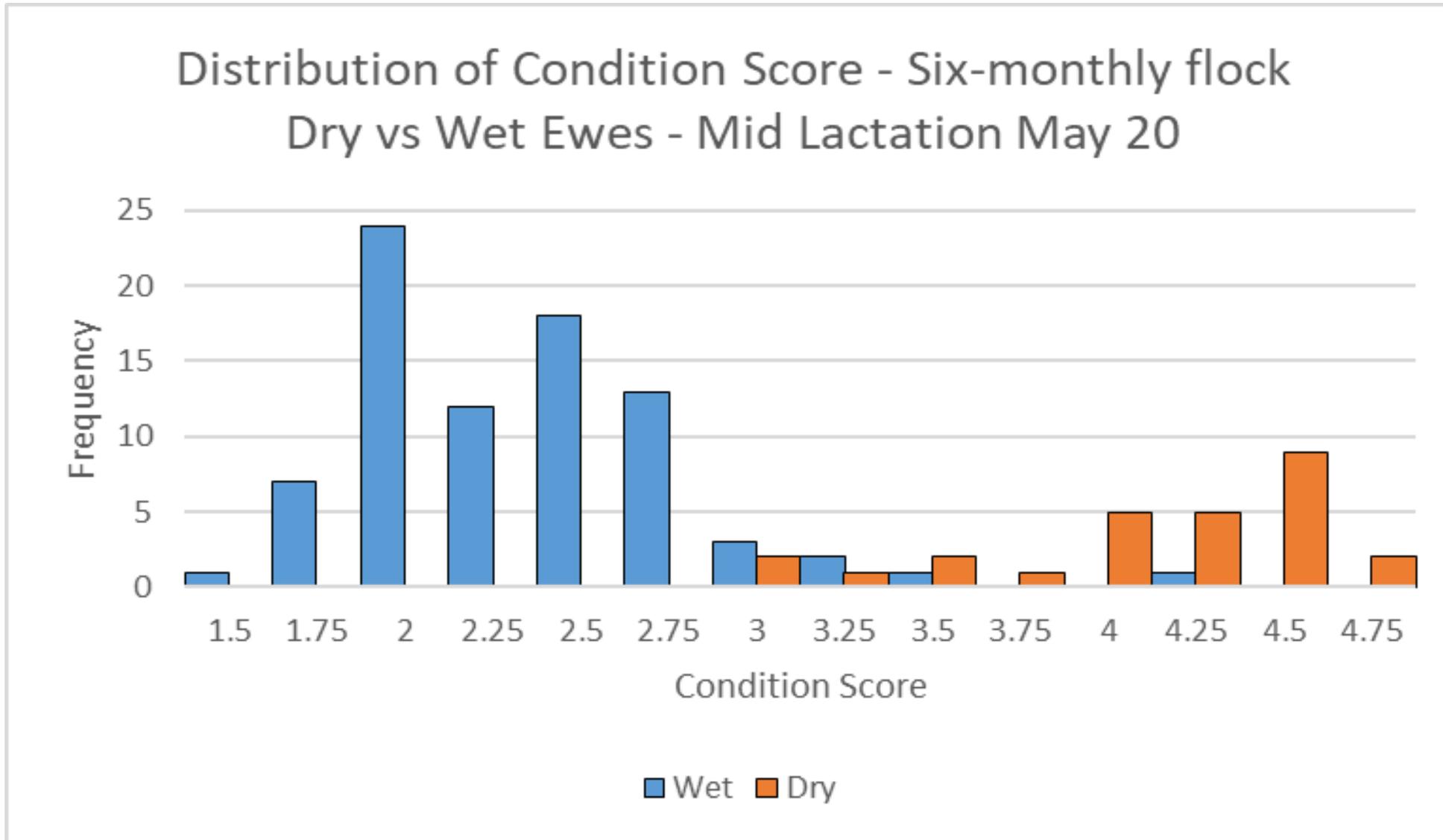
Foetal survival: 59%



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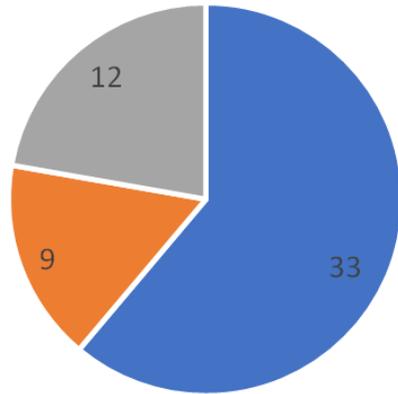


To suggest future topics scan here:



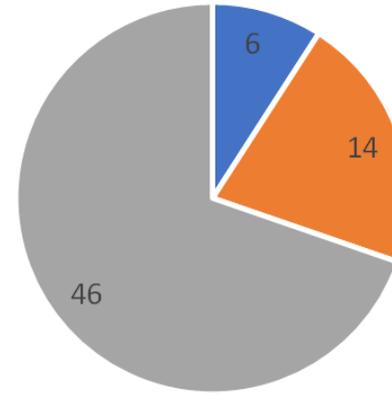
Six-monthly flock January 2021 Preg Scan Result by Lactation Status at Joining (Nov 2020)

Dry in November (avg CS 3.89)
(139% foetuses)



■ Scan 2 Jan ■ Scan 1 Jan ■ Scan 0 Jan

Wet in November (avg CS 2.38)
(39% foetuses)



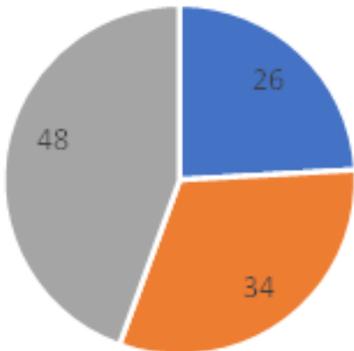
■ Scan 2 Jan ■ Scan 1 Jan ■ Scan 0 Jan



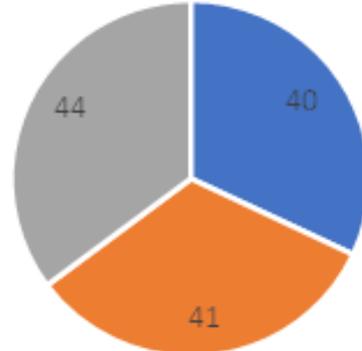
To suggest future topics scan here:

Six-monthly flock Preg Scan Result by Joining Condition Score – All Data Aggregated

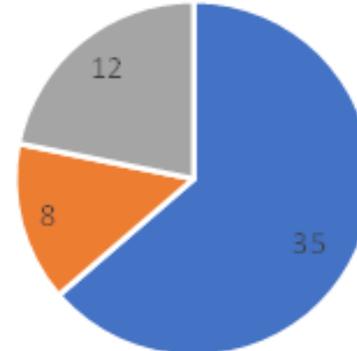
Condition Score 1-2
(Potential 80%)



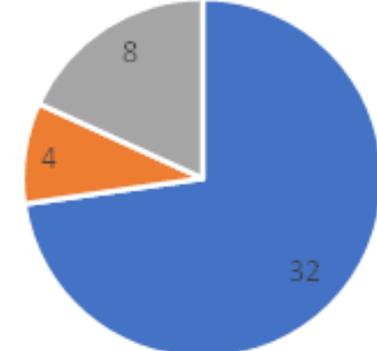
Condition Score 2.25 - 3
(Potential 97%)



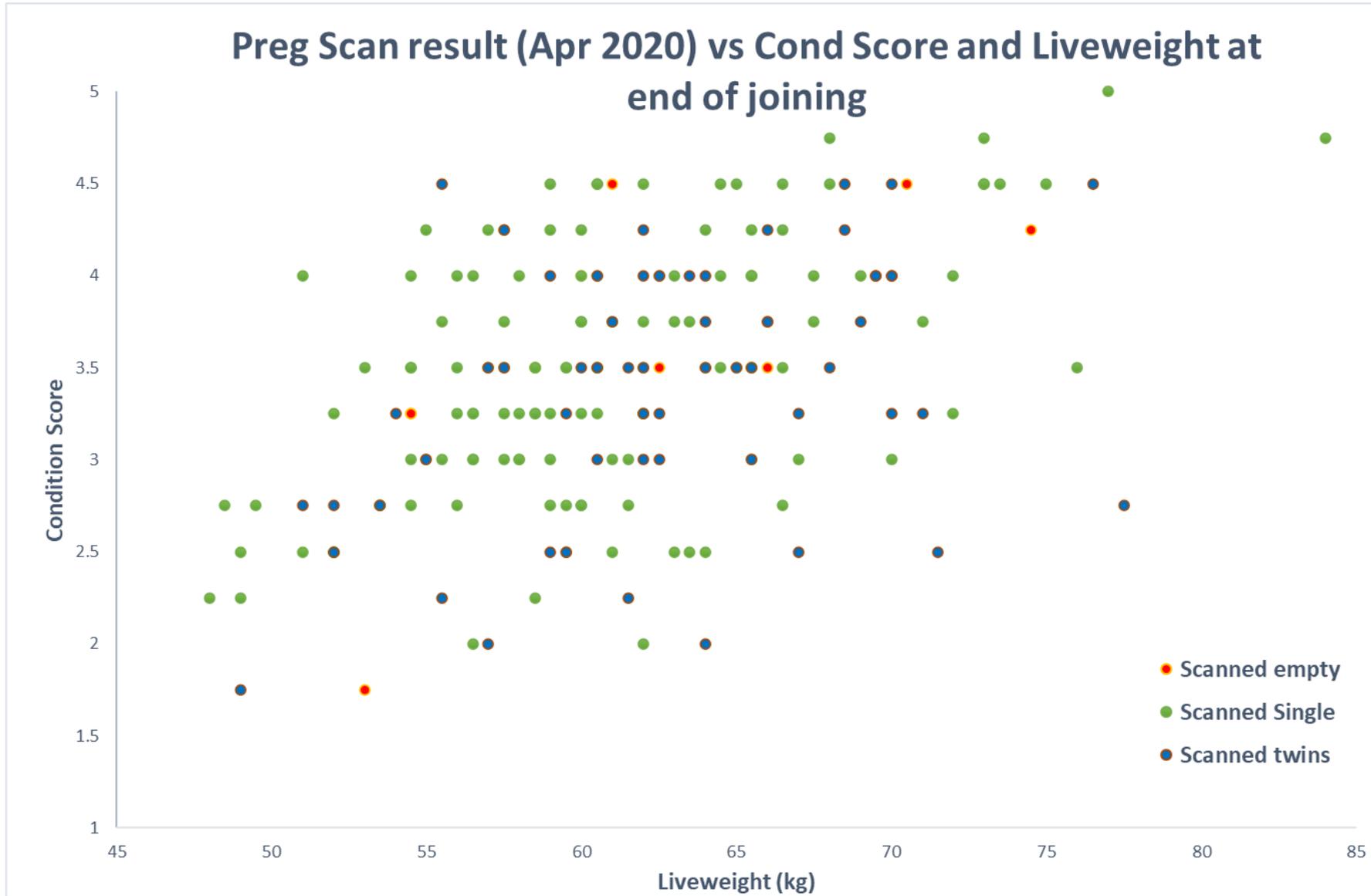
Condition Score 3.25 - 4
(Potential 142%)



Condition Score 4.25 - 4.75
(Potential 155%)



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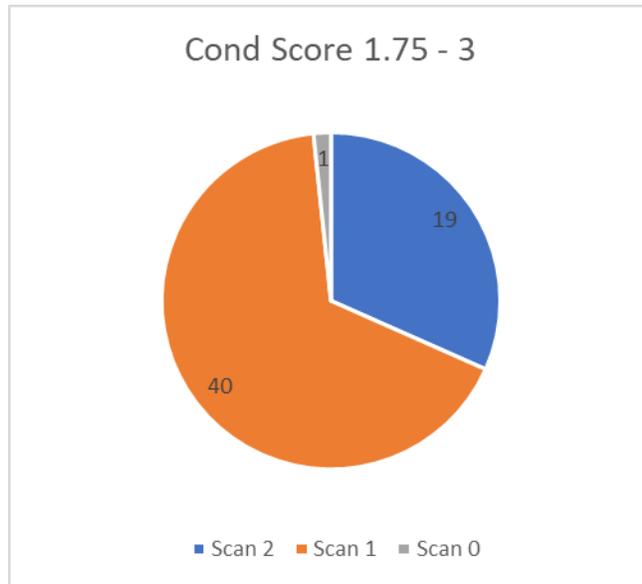


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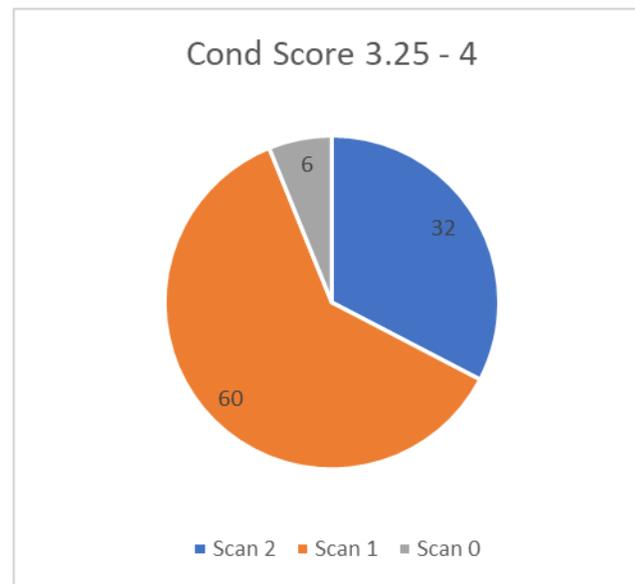


Annual Flock April 2020 Preg Scan Result by Joining Cond Score

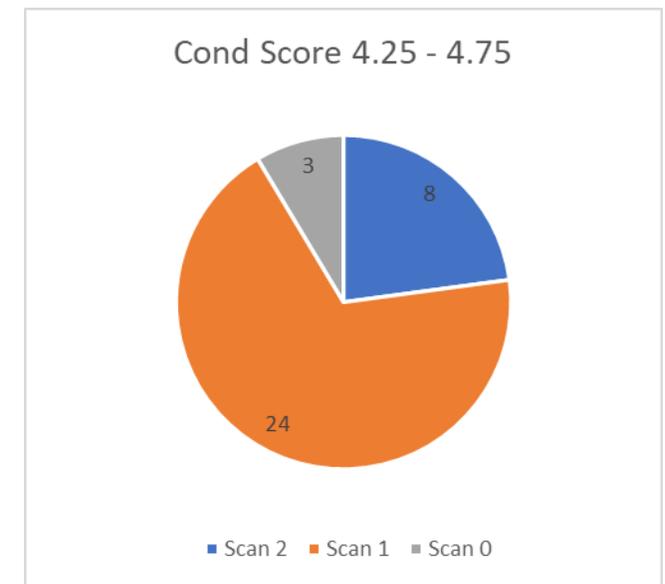
Ewes 18months at joining



130%



127%



114%

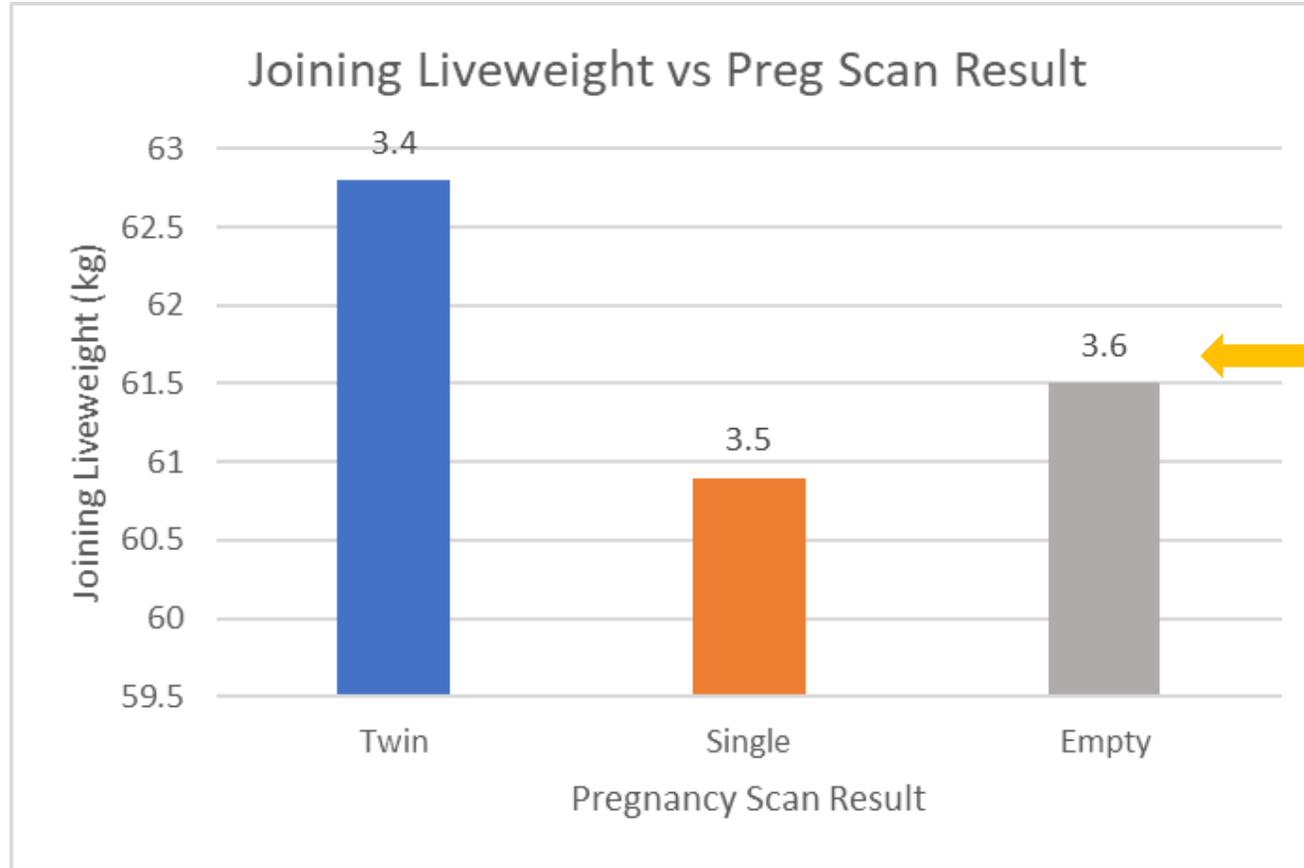
To suggest future topics scan here:



To ask questions head to [slido.com](https://www.slido.com) and enter #May0524

Annual Flock April 2020 Preg Scan Result by Joining Liveweight

Ewes 18months at joining



← Average Condition Score for each group

To suggest future topics scan here:



Scan Result by Joining Liveweight and Cond Score (Annual Join Flock) (ewes 18mths at joining)

60 kg & under liveweight

	Total no. ewes	Avg LWT	Avg CS	Potential
1-3 score	39	54.8	2.6	123%
>3-4 score	40	57.1	3.5	105%
> 4 score	8	57.6	4.3	125%

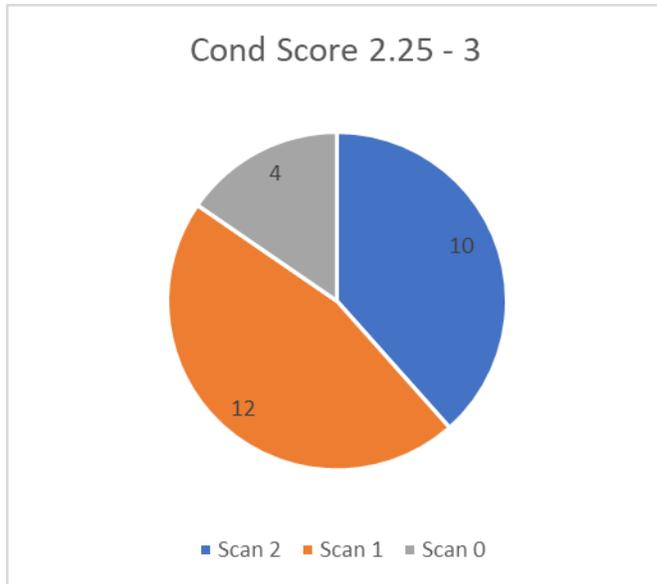
Over 60 kg liveweight

	Total no. ewes	Avg LWT	Avg CS	Potential
2-3 score	21	64.7	2.7	143%
>3-4 score	58	65.1	3.7	141%
> 4 score	27	68.8	4.5	111%

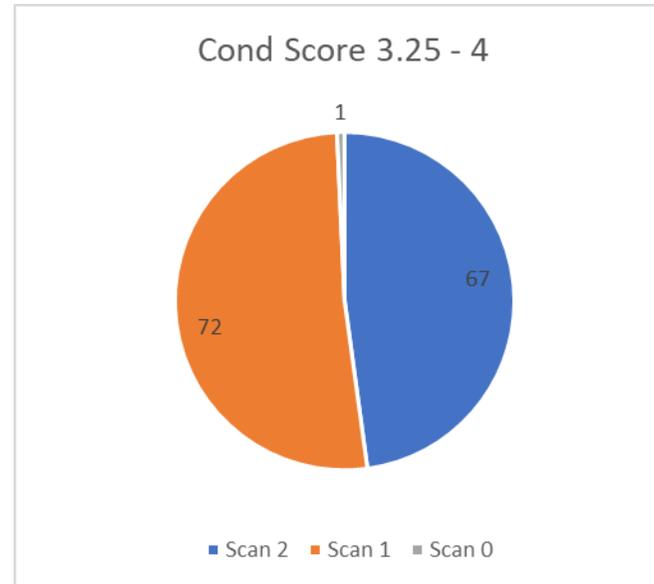


Annual Flock April 2021

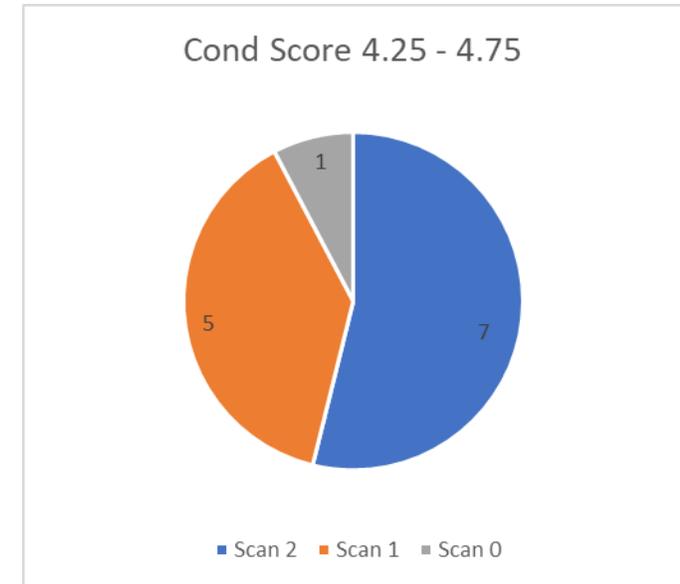
Preg Scan Result by Joining Cond Score (Feb '21)



123%



147%



146%



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Pregnancy Scanning

To suggest future topics scan here:



Pregnancy scanning – know what you are working with

1. Identify empty ewes
2. Differentiate between single and multiple bearing ewes
3. Ability to plan lambing paddocks, mob sizes & feed budgeting
4. Compare number of foetuses with number of lambs & weaners



Pregnancy Scanning

Typical pregnancy scanning costs (2022)*

	Pregnant/ Empty	Multiples
Scanning contractor		
Contract cost (\$/hd)	\$0.50	\$0.75
Travel (\$/hd)	\$0.02	\$0.02
Throughput (hd/day)	3,000	2000
Farm provided labour		
Yard work (labour units)	2	2
Cost (\$/hd)	\$0.17	\$0.26
Mustering (\$/hd)	\$0.06	\$0.06
Other costs		
Repairs & maintenance*	\$0.08	\$0.08
Total Cost	\$0.83	\$1.17

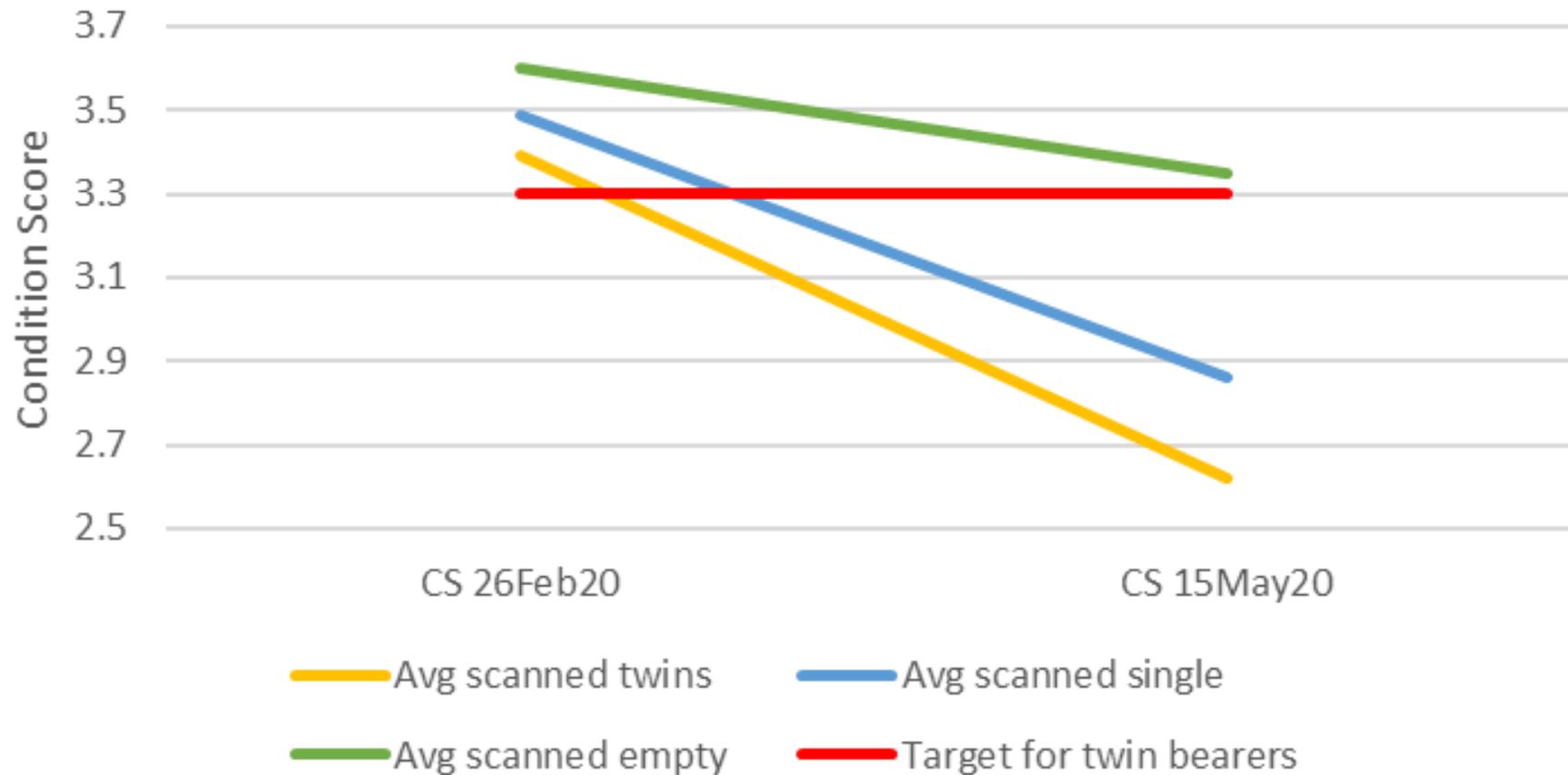


*Taken from “Pregnancy Scanning Sheep - A guide for producers” (unpublished)



To suggest future topics scan here:

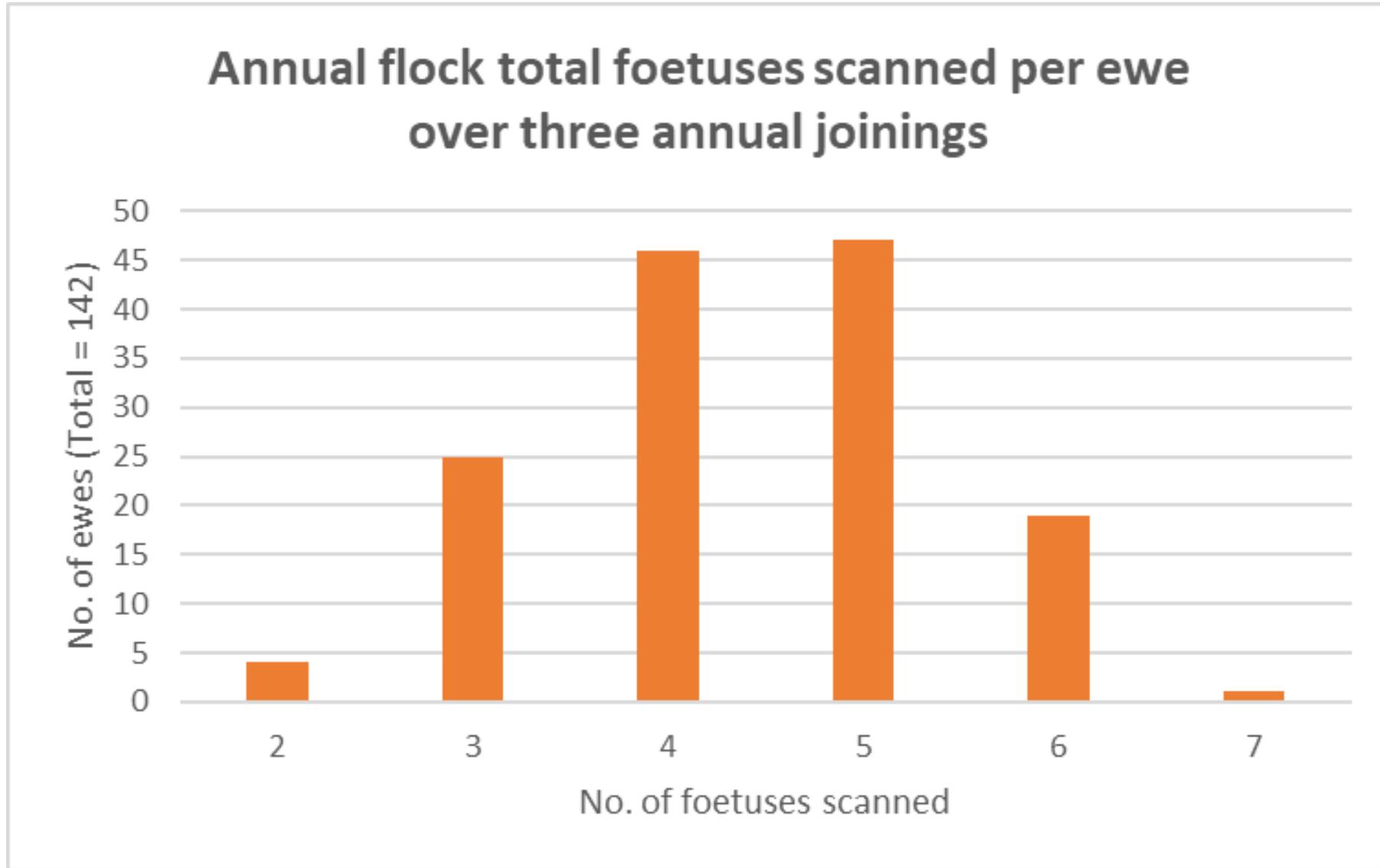
Annual flock ewes Change in CS from end of joining to pre-lambing



Annual flock ewes Change in CS from end of joining to pre-lambing



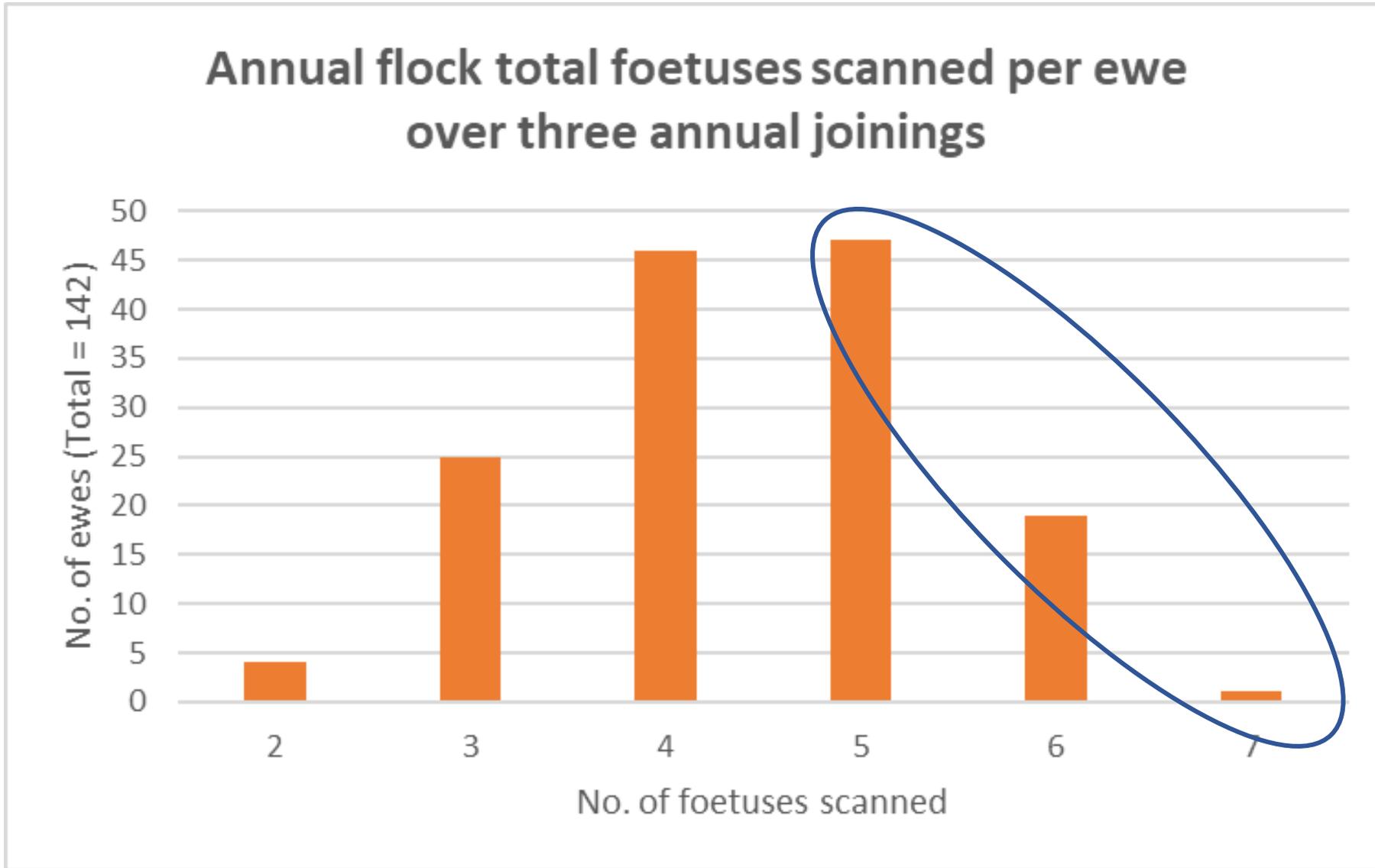
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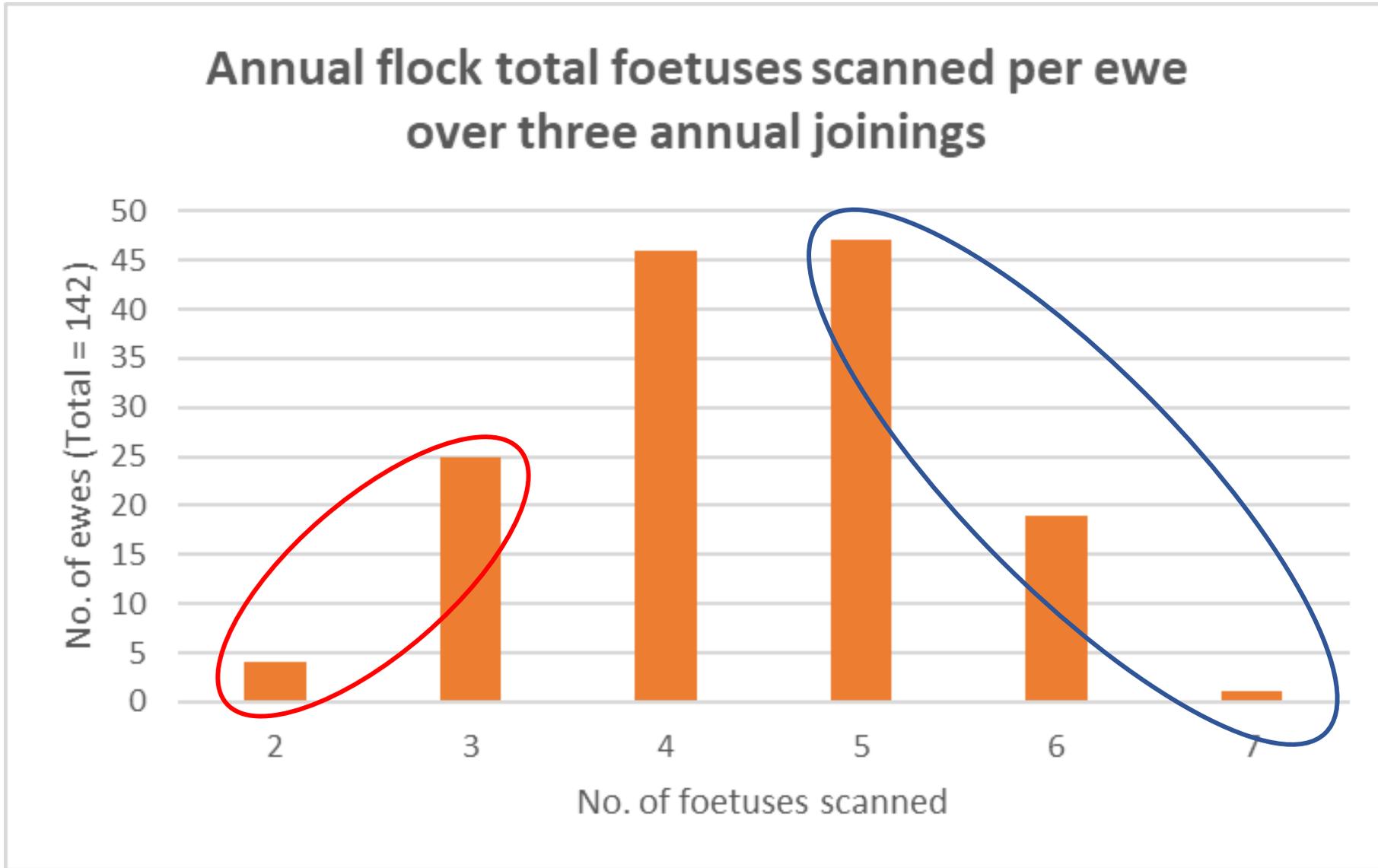
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Fit to Join

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Ram inspection 12 weeks pre-joining



Check the 5 'T's 12 weeks prior to joining



Testes: no lumps; at least 34cms for mature rams



Toes



Tossle: in working order



Teeth



Torso: 3.5 Cond Score



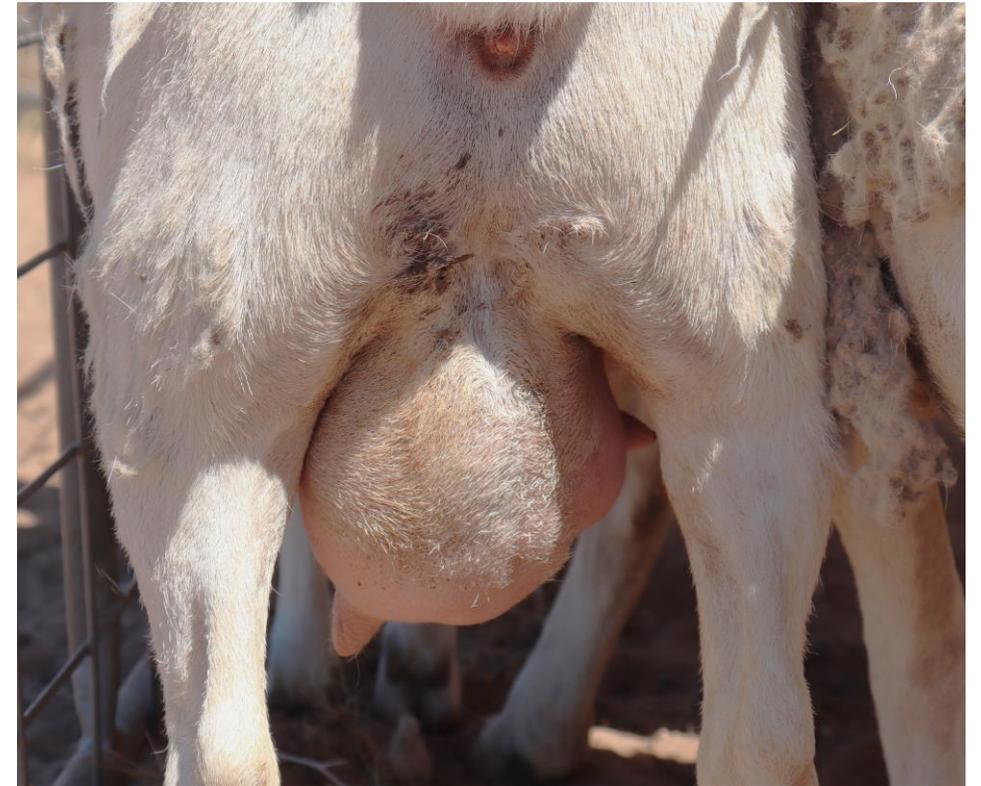
To suggest future topics scan here:



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Ewe inspection pre-joining

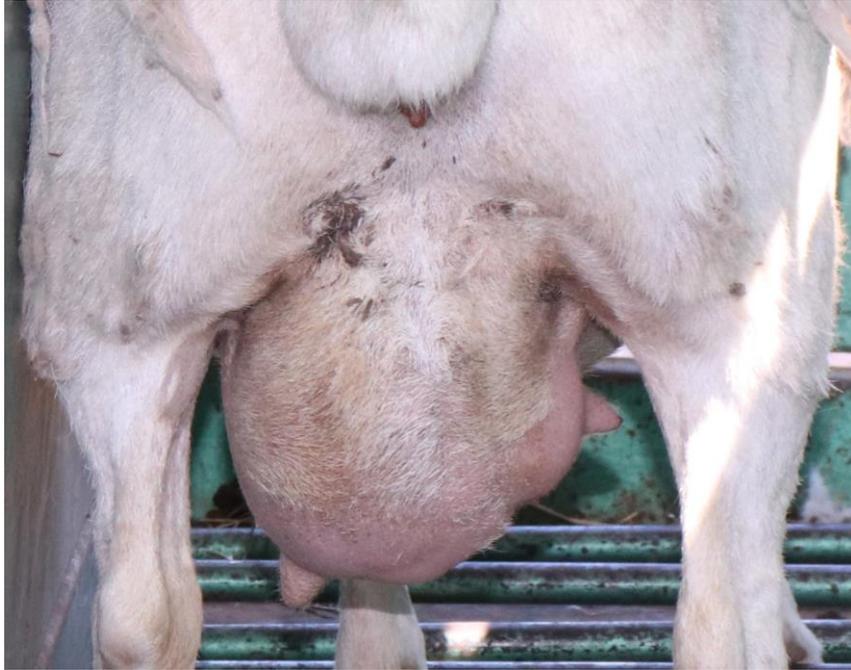
- Fit to join
- Feet
- Udder
- Teeth/cond score



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One sided udder Challenge when rearing twins Consider for culling



- Right side not functioning
- Plug over teat visible
- May be due to lamb favouring one side but could be one side dysfunctional



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Udder with likely compromised functionality



- Issues with this udder not apparent visually
- When put hand on one side is hot and lumpy
- Likely to result in permanent reduction in milk production



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Feed Budgeting

To suggest future topics scan here:



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Feed budgeting



To suggest future topics scan here:



Take away actions

1. Learn how to **condition score** your animals, actually do it and use the results to make management decisions.
2. Ensure both rams and ewes are **fit to join** prior to mating through the use of physical examinations and attention to nutrition
3. **Pregnancy scan** ewes and manage accordingly. Quit or remate empties, feed twins, manage singles. Wet/dry ewes at lamb marking.
4. Understand feed requirements of different classes of stock and use feed tests for effective **feed budgeting**.
5. **Measure** and record key performance indicators. *“If you don’t measure it, you can’t manage it.”*



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Quantifying and Improving Reproductive Performance of Shedding Sheep



- Quantification of annual and lifetime reproductive performance (4 yrs of data)
- Understand the causes of reproductive wastage in shedding sheep
- Development of resources and management strategies to improve reproductive efficiency of shedding sheep
 - Influence of CS, liveweight at joining and lambing
 - Recommendations for joining ewe lambs
 - Seasonality of cycling and what influences
 - Relationship between shedding and growth and repro rate
 - Successful accelerated joining



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Project Format

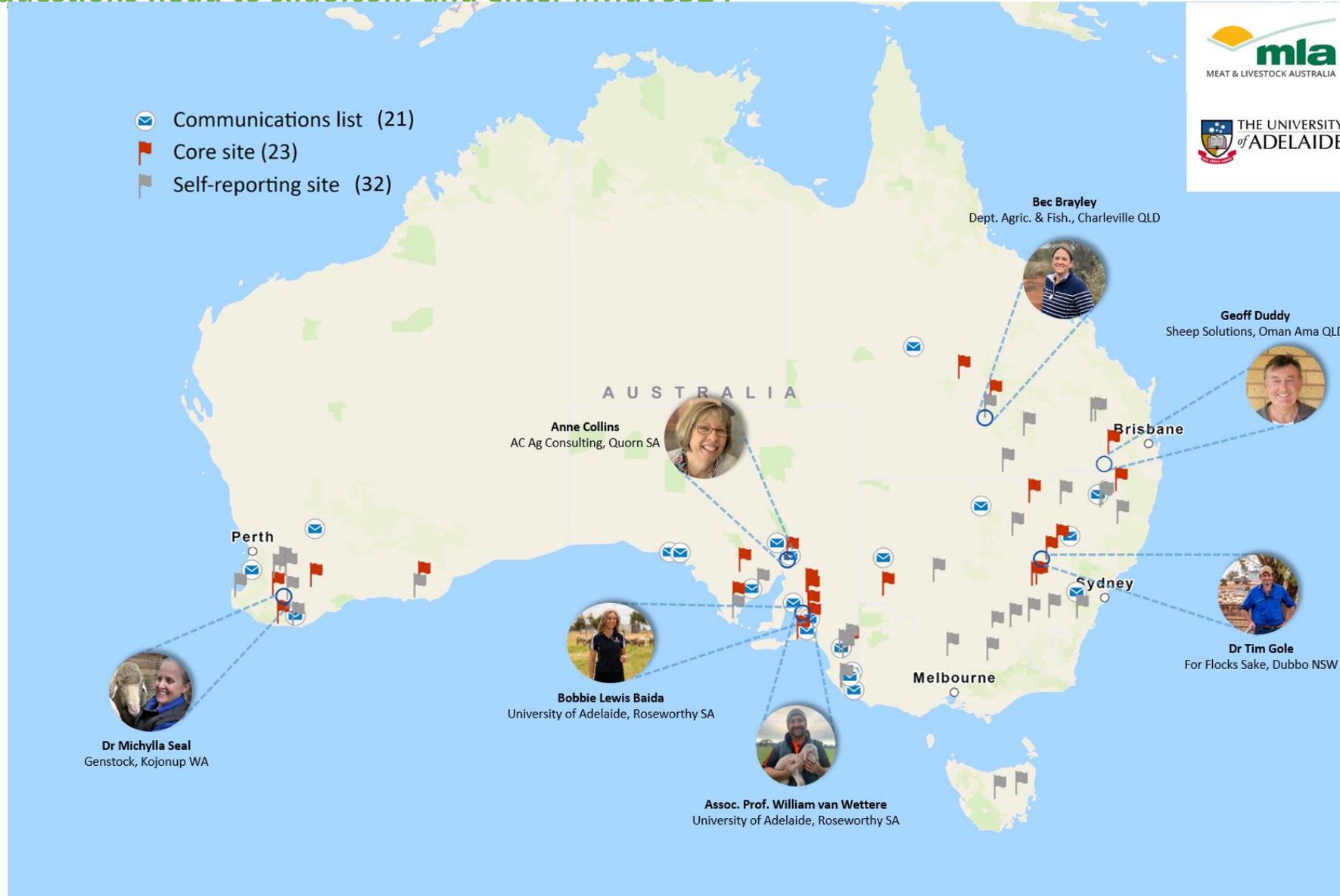
- 93 responses to expression of interest nationally
- 23 core flocks
- 32 self-reporting flocks
- Dorper, White Dorper, Australian White, UltraWhite, Kojak, SheepMaster, Wiltipoll and Nudies
- Annual, 8-monthly, 6-monthly joining



To suggest future topics scan here:



To ask questions head to [slido.com](https://www.slido.com) and enter #Mav0524



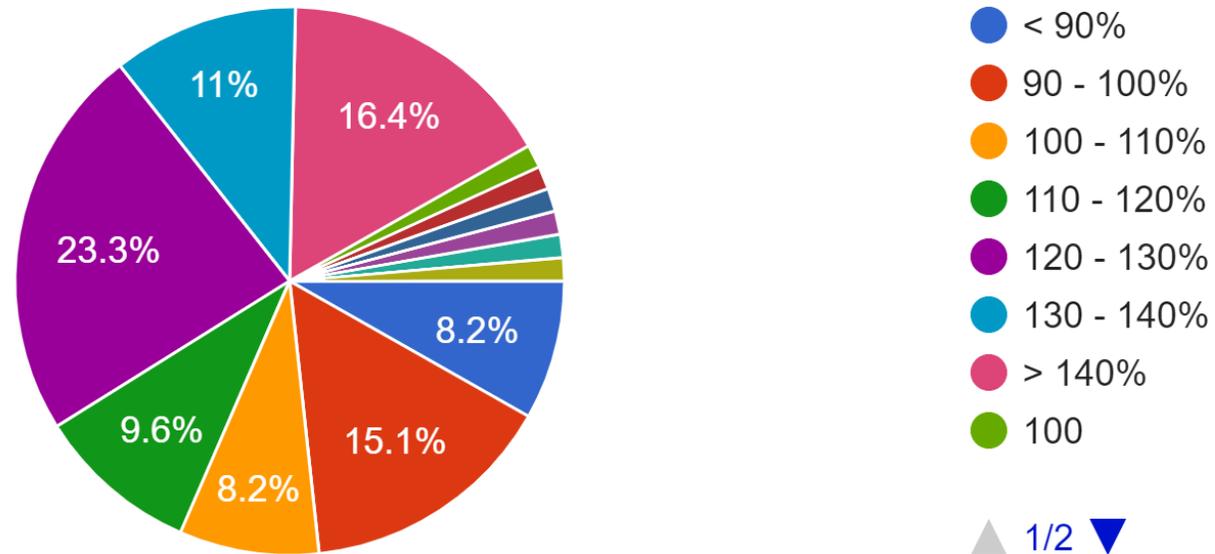
To suggest future topics scan here:



Survey responses on preg scanning rates

What is the average pregnancy scanning result of your whole ewe flock? (%)

73 responses

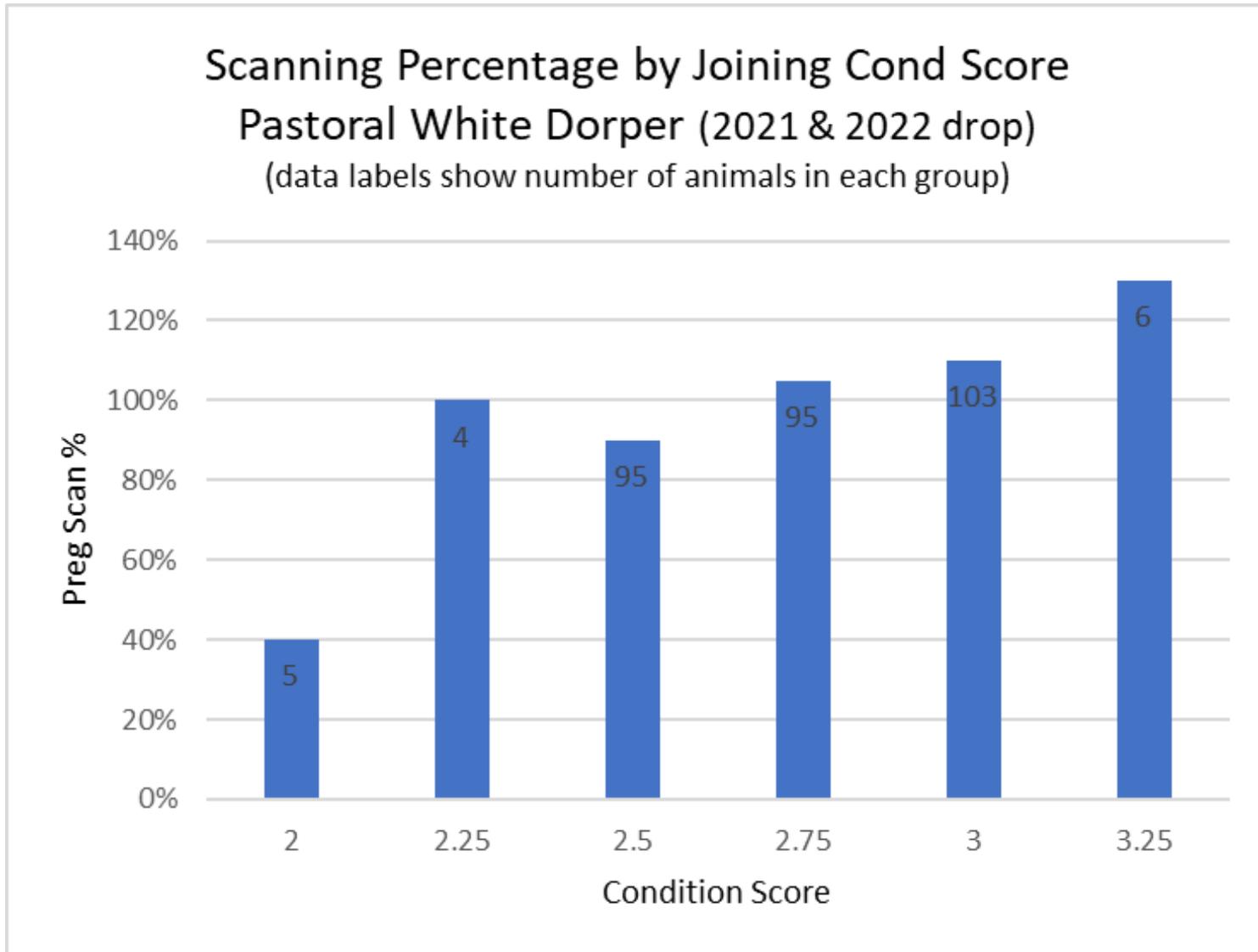


- < 90%
 - 90 - 100%
 - 100 - 110%
 - 110 - 120%
 - 120 - 130%
 - 130 - 140%
 - > 140%
 - 100
- ▲ 1/2 ▼



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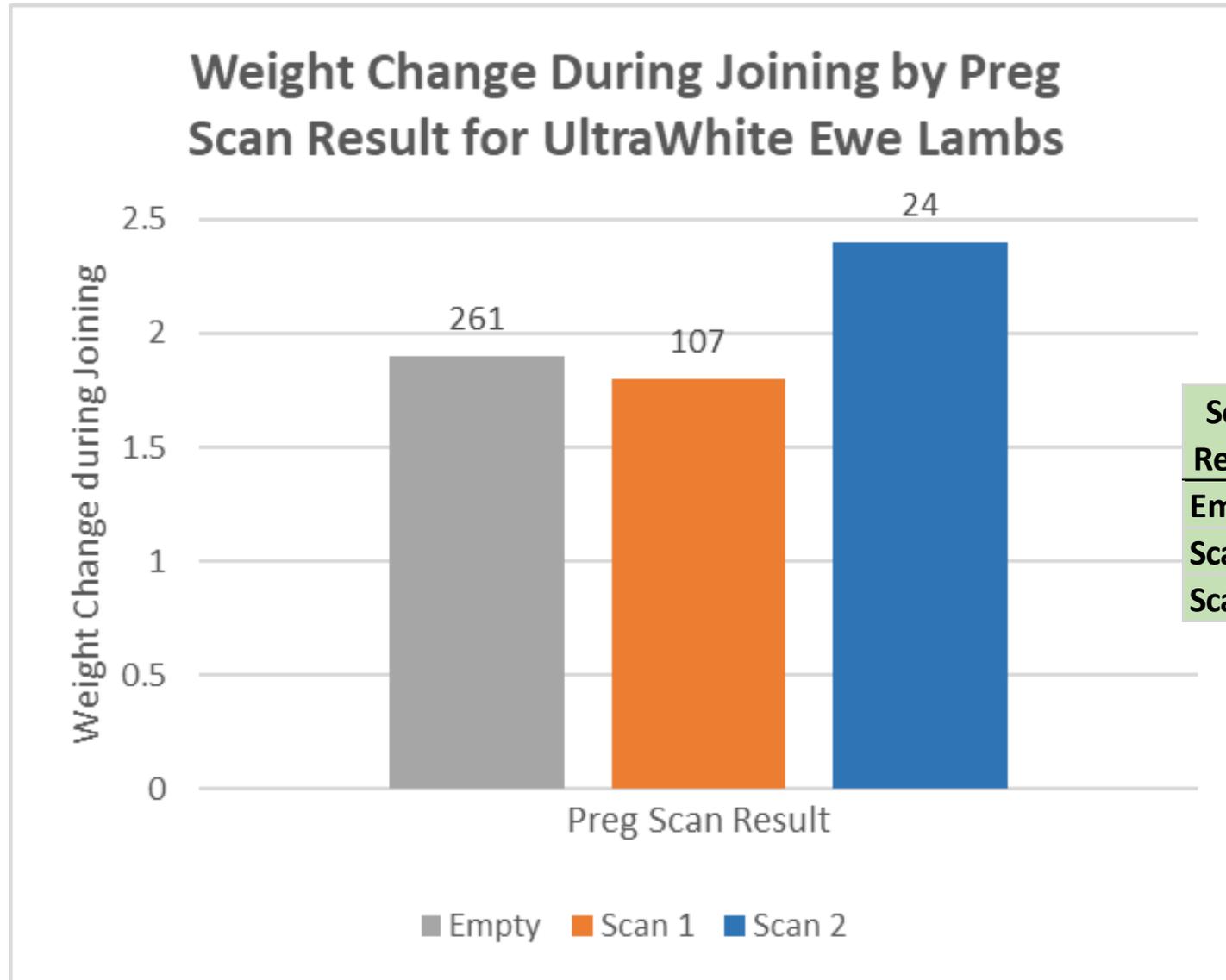


Overall scan percentage 101%
(rams removed at scanning)



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Scan Result	Avg Pre-Join Wt	Weight Change	Pre-Join CS	Daily Weight Gain (g/day)	Count
Empty	52.1	1.9	3.5	45.4	261
Scan 1	52.8	1.8	3.5	43.4	107
Scan 2	53.1	2.4	3.5	56.9	24

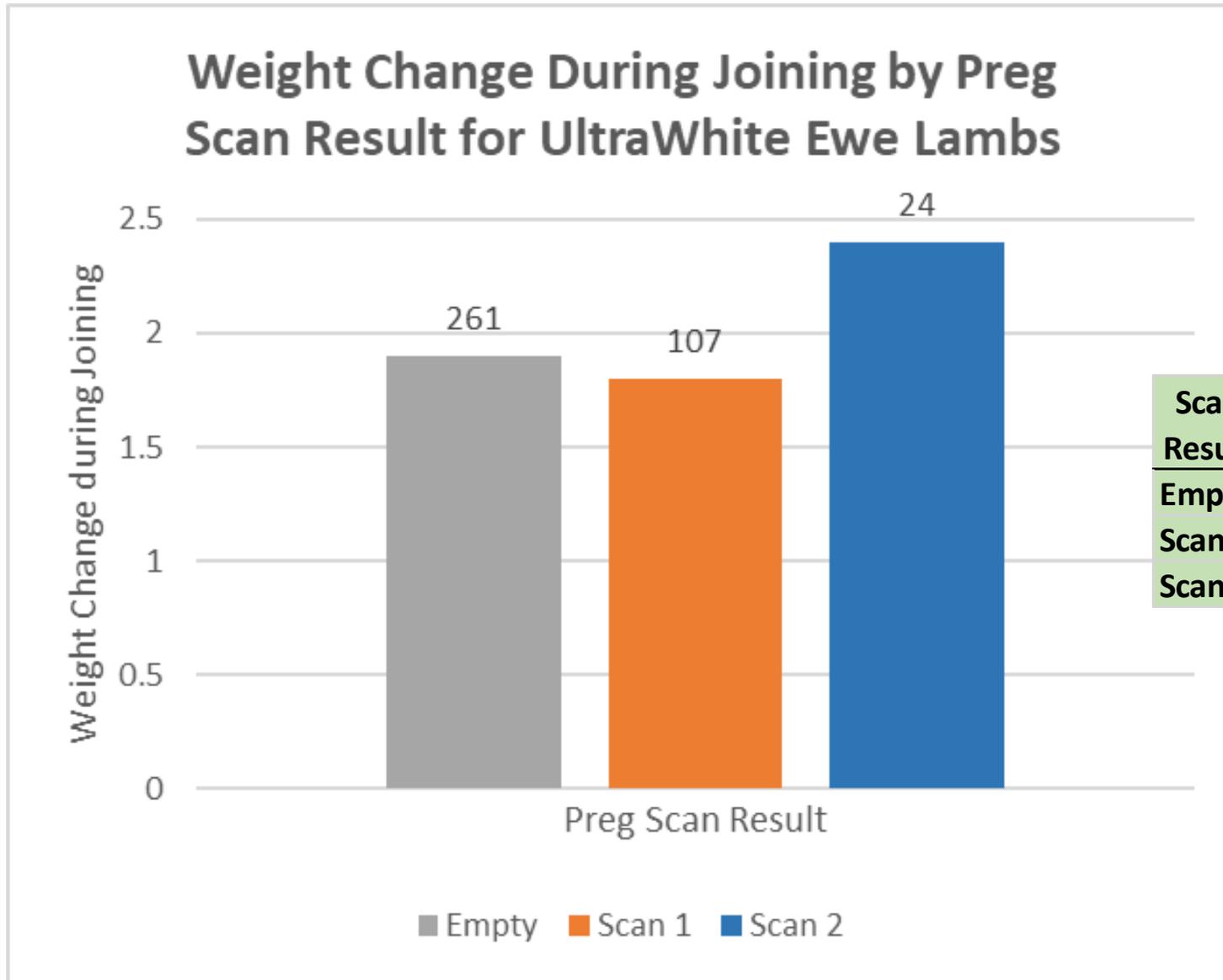
Scan Percentage = 39.8%



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Scan Result	Avg Pre-Join Wt	Weight Change	Pre-Join CS	Daily Weight Gain (g/day)	Count
Empty	52.1	1.9	3.5	45.4	261
Scan 1	52.8	1.8	3.5	43.4	107
Scan 2	53.1	2.4	3.5	56.9	24

Scan Percentage = 39.8%



To suggest future topics scan here:



Take Home Messages



Taking care of the ‘basics’ will return an increase in lambs weaned and is a worthwhile investment of time and money

- Utilise **condition scoring** as a management tool to inform management & feeding decisions
- Ensure ewes and rams are **fit to join**
- **Pregnancy scan** for multiples and manage accordingly
- Understand feed requirements and do **feed budgeting**
- “**Measure to Manage**”



To suggest future topics scan here:



Tools and Resources



- MLA Fit to Join <https://www.mla.com.au/research-and-development/livestock-production/reproductive-efficiency/sheep-reproduction-strategic-partnership-srsp/fit-to-join--improving-ewe-and-lamb-survival-through-pre-joining-assessment/>
- How to condition score – Making more from sheep http://www.makingmorefromsheep.com.au/wean-more-lambs/tool_10.1.html
- PDS Report write up <https://www.mla.com.au/research-and-development/reports/2023/l.pds.2017---pds-maximising-dorper-reproductive-performance/>
- MLA Donor Company project - Quantifying and improving reproductive performance of shedding sheep www.mla.com.au/shedding-sheep

Those interested in receiving occasional email updates should send their contact details to bobbie.lewisbaida@adelaide.edu.au



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Thank you



- MLA funded the PDS
- Daniel Schuppan, Nutrien Ag Solutions
- Far West Eyre Peninsula Dorper Producers Group



AC Ag Consulting

Anne Collins M: 0427 486 115 E: ACAgConsulting@bigpond.com

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