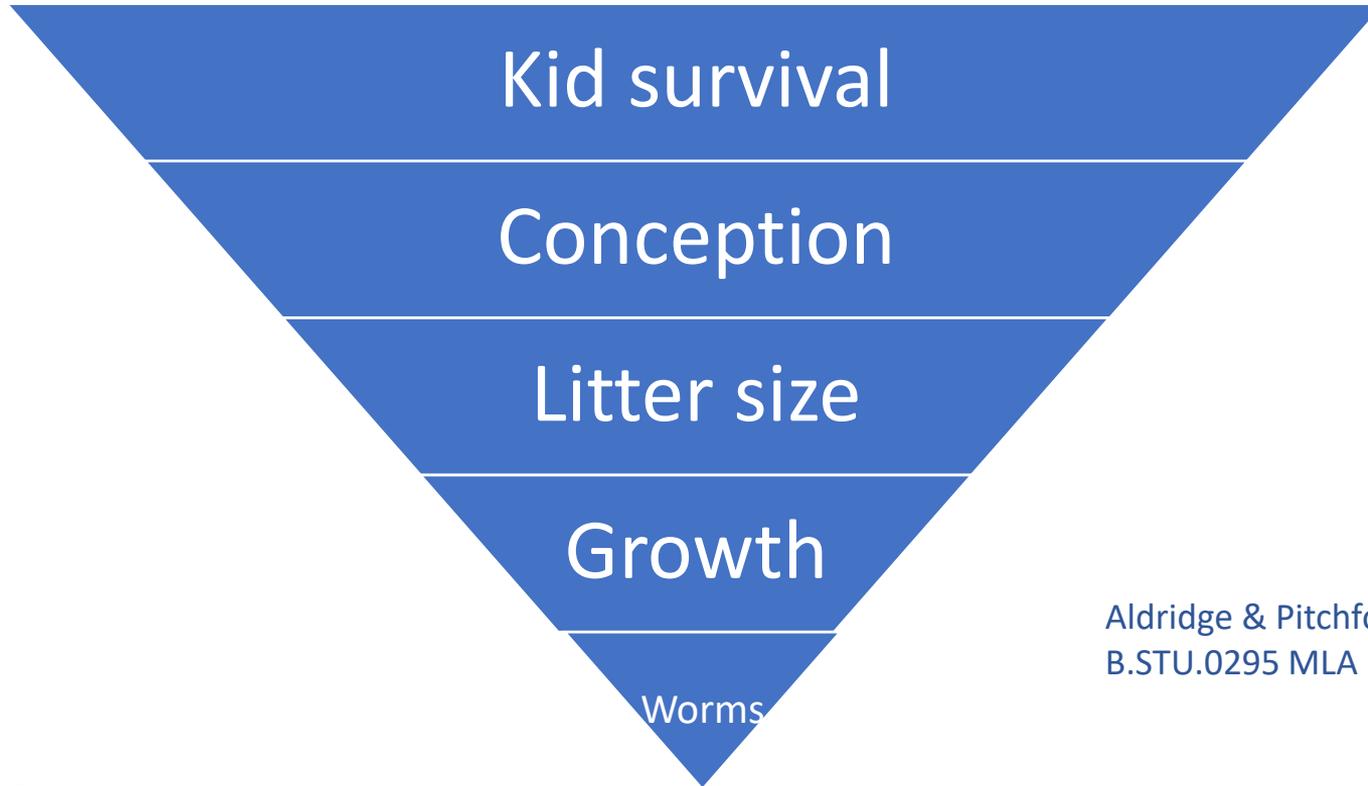# Managing your goat system in a variable environment
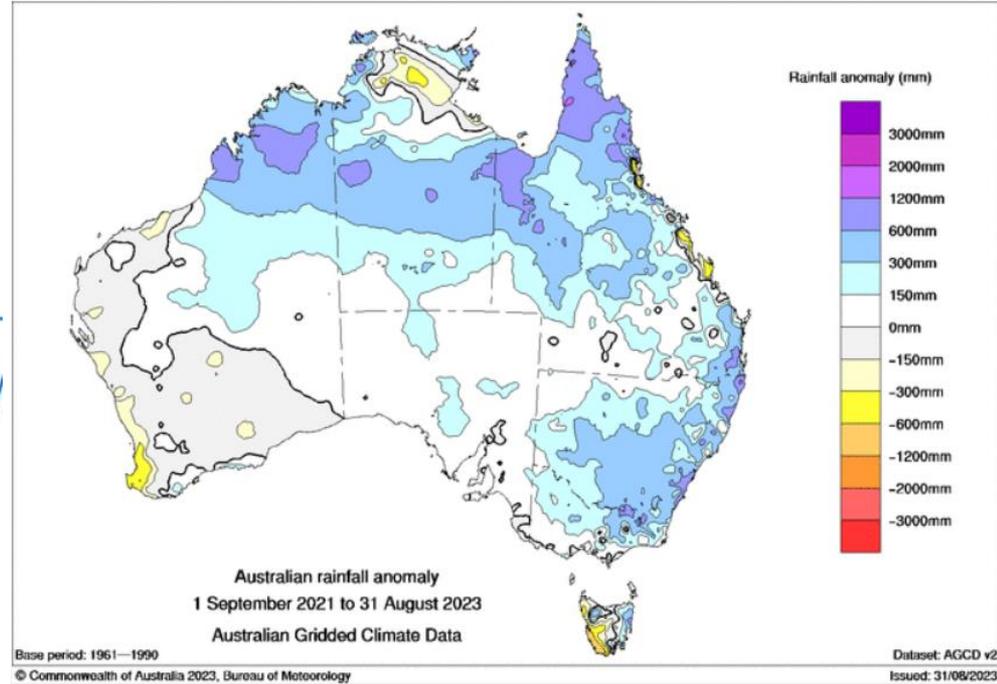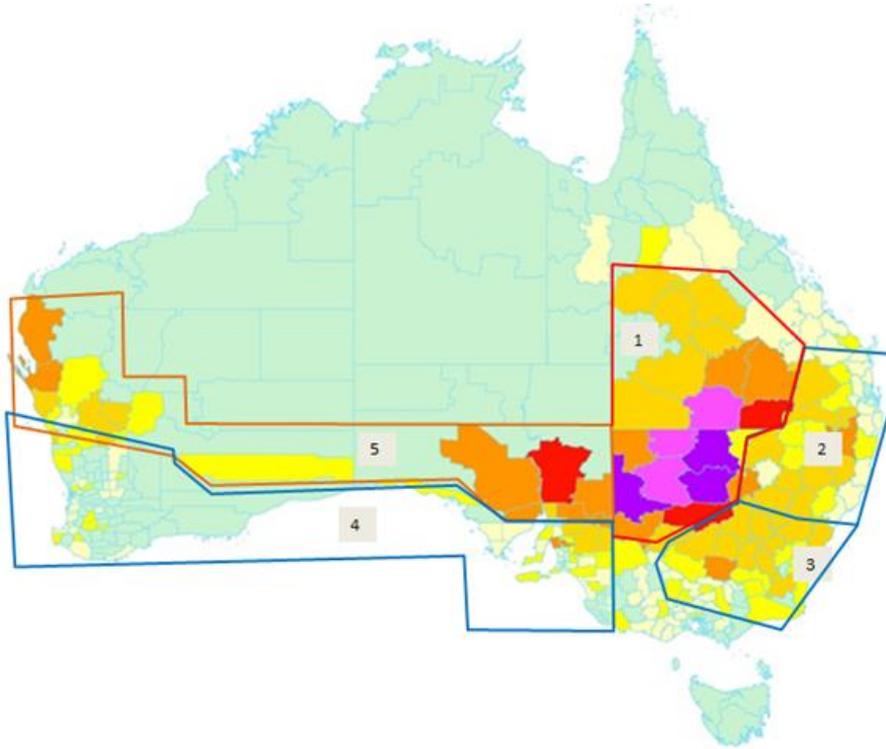
Dr Gordon Refshauge

NSW DPI

"1000 does and 1000 billies were in that paddock. Eight months later, 6000 animals came out of there"

Key profit drivers → Self replacing herd

Kid survival

Conception

Litter size

Growth

Worms

Aldridge & Pitchford (2019).
B.STU.0295 MLA Report

Australian rainfall anomaly
1 September 2021 to 31 August 2023
Australian Gridded Climate Data

Rainfall anomaly (mm)

Base period: 1961—1990

© Commonwealth of Australia 2023, Bureau of Meteorology

Dataset: AGCD v2

Issued: 31/08/2023

Back to basics – goat reproduction

- Oestrous cycle is 21 days (like a cow)

- Pregnancy is maintained by corpora lutea (like a pig)

- Gestation length is 5 months (like a sheep)

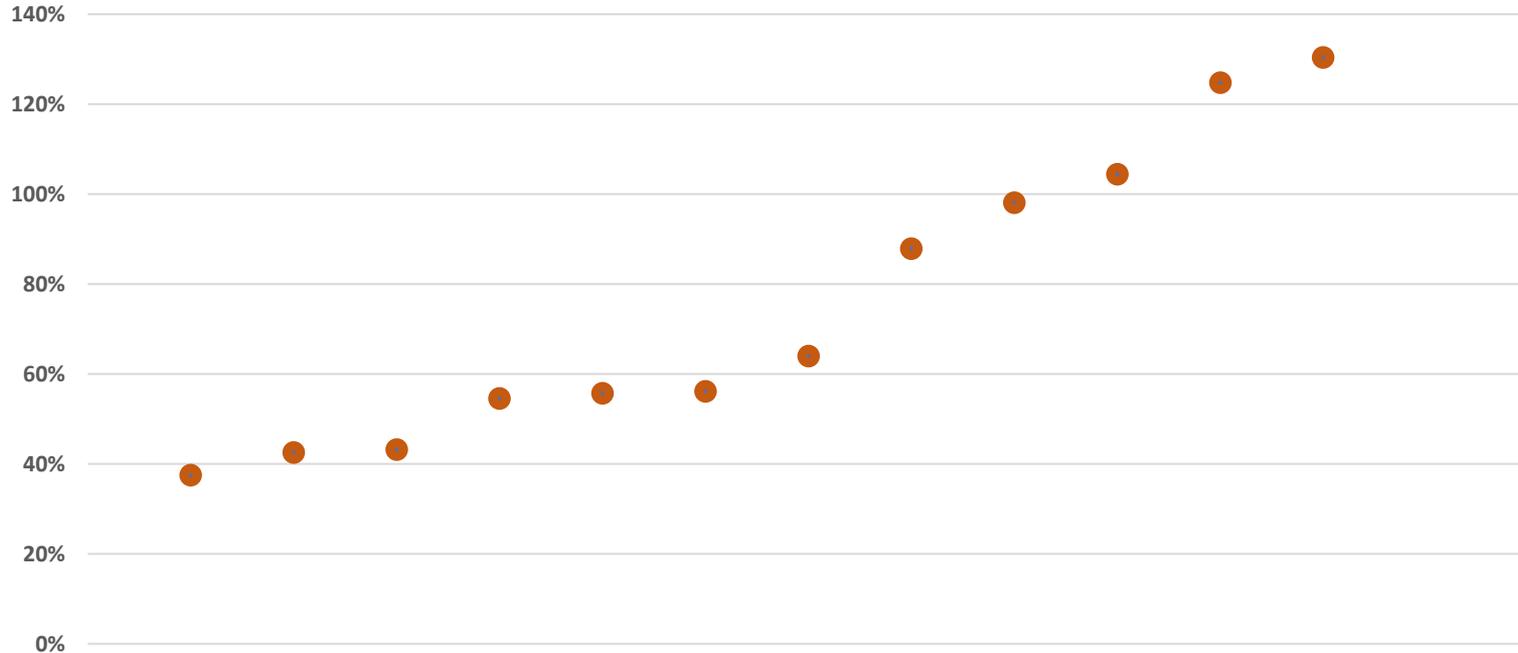- Reproduction is sensitive to nutrition (up & down regulation)

Back to basics – key metrics of reproduction

- **Conception rate**: 85 - 89% mating season, <50% off-season

- **Litter size**: 1.6 - 2.0 kids per doe kidding

- **Kid mortality**: 7 - 20%

- No. Kids Weaned per Doe Joined: NKW/DJ (Con*Litter size*Kid Mortality)

Distribution of NKM/DS, during a drought year
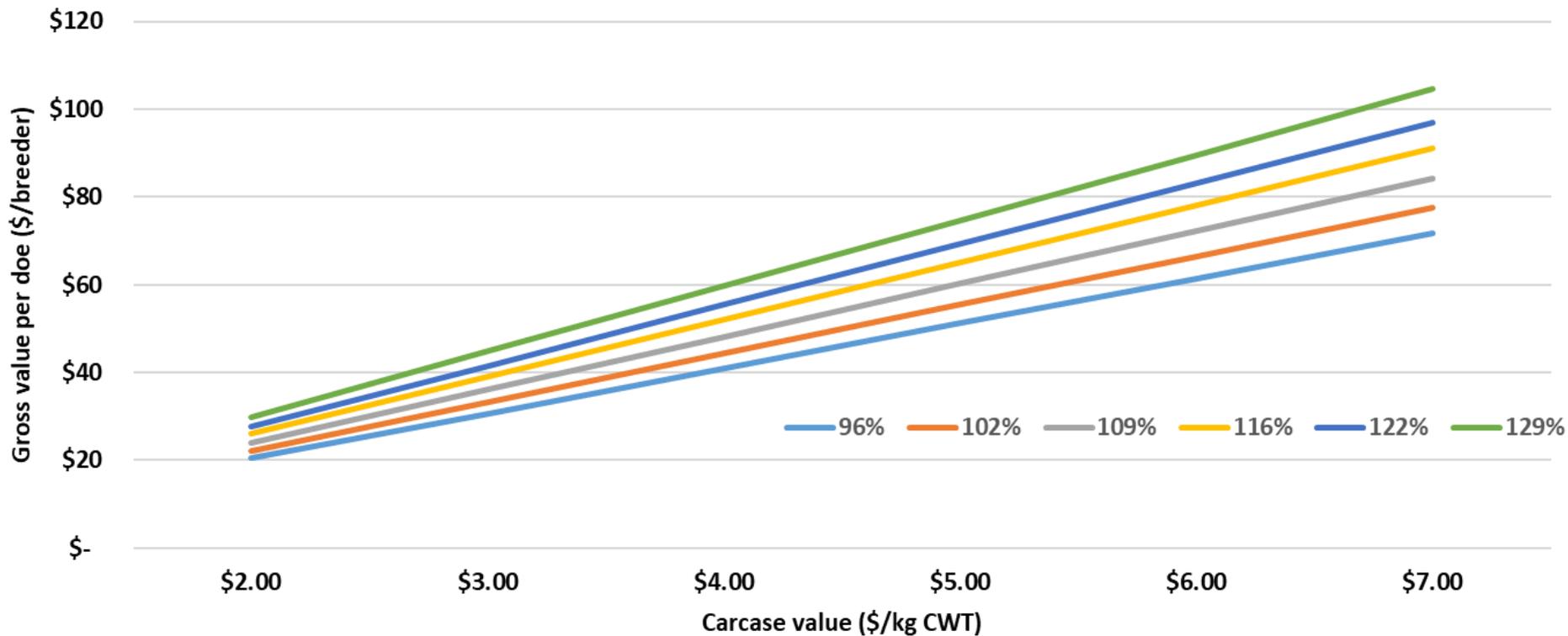
Kids marked/doe scanned

Refshauge et al. (2020). B.GOA.1905. MLA Reports

Goat reproduction rates, during a drought year

- Problems with kid survival, during drought.
- It's worse in maidens

	Adult (4)	Maiden (4)	P value
Does pregnant/doe scanned	**0.84 ± 0.08**	**0.85 ± 0.03**	n.s.
Kids scanned/doe scanned	**1.44 ± 0.17**	**1.45 ± 0.03**	n.s.
Kid survival	**0.54 ± 0.09**	**0.35 ± 0.08**	0.07
Kids marked/doe scanned	**0.75 ± 0.15a**	**0.53 ± 0.08b**	0.03

Refshauge & Atkinson (2022). AAAS.

meatup
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Gross value per doe across a range of weaning rates and prices (14.2 kg CWT)

Strategies to counter a poor market

How are you going to manage TGP if you don't know what the demand for feed is going to be?

- Pregnancy scanning

As numbers are reduced to manage TGP, which animals do you retain?

- Feet, Mouth & **Udder** assessment

Pregnancy scanning

- Some rangeland producers use scanning, sometimes
- Drought management tool – identify which females to sell

- Pregnancy status: 40 days gestation, up to kidding
- Litter size: 40 to 100 days gestation
- 3 cycle mating = 63 days + 40 days after buck removal = 103 days

- ROI from scanning will be derived from converting the information into actions and plans

Udder inspection – what we know from sheep

- 60% of losses will be due to 25% of breeding females Haughey (1982) WT&SB

- Lambs lost to poor udder ewes 1.5x more likely to die Smith et al. (2023) SSRN
- Those lambs are 4.6x more likely to starve to death Smith et al. (2023) SSRN

Dry = Either abortion loss OR wasn't pregnant

Was pregnant, no milk = lambed/kidded & lost

Rearing at least 1.

A guide to visual assessment of goats

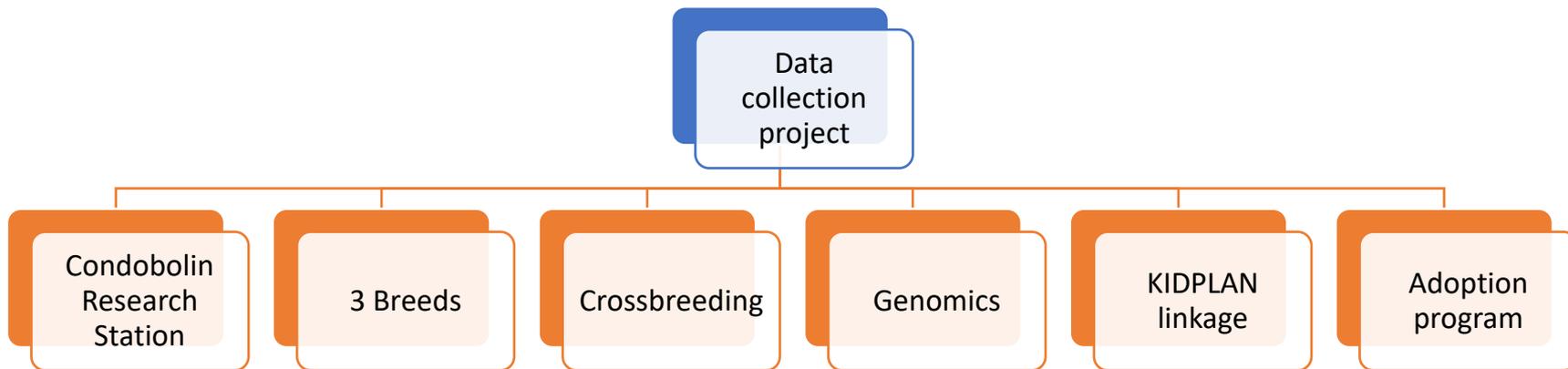# Upcoming NSW-based goat projects

- Measured Goats

- Going Ahead with Goats in the Western Division

Measured Goats

- 2023/24 – 2028/29

- 8000 kids

- Boer, Red, Rangeland

- Focus on genomics & multi-breed analysis

Measured Goats Project – what is it?

Measured Goats Project – Contracted traits to measure

Performance	Carcase	Health	Reproduction	Structural	Pedigree
Marking wt	Eye muscle depth	Worm egg count	Conception	Feet and legs	Sire
Weaning wt	Rib fat		Litter size	Udder at marking	Dam
Post weaning wt	Condition score		Rearing ability	Coat colour	70k SNP
Yearling wt (females)			Weaning rate	Hair	
Adult wt (females)				Horn/Poll	

Overlay opportunities - need additional funding

Performance	Carcase	Health	Reproduction	Structural
Birthweight	Eating quality	Thermal tolerance	Kidding ease	Testicle count
		Hermaphrodite	Maternal behaviour	
		Methane	Semen morphology	

Going Ahead with Goats in the Western Division

- Extension and Adoption skills development project

- Stipend support for 2 honours and 1 Masters students

- Research with adoption focus
  - Easy to adopt management practices

- Incorporating RFID to demonstrate production benefits

Take home messages

- Pregnancy scan at mid-pregnancy to help manage TGP

- Assess the udders of your nannies at marking, this will always pay dividends.

- Measured Goats - large-scale genetics resource flock at NSW DPI's Condobolin Agricultural Research and Advisory Station.

- The Going Ahead with Goats in the Western Division (GAWD) project focus on knowledge, skills and some easily adoptable research.

Tools and resources

Measured Goats - https://www.mla.com.au/research-and-development/Genetics-and-breeding/goatgenetics/

Going Ahead with Goats - https://www.lls.nsw.gov.au/what-we-do/our-major-projects/going-ahead-with-goats-project

Reducing Kid Loss - https://www.mla.com.au/news-and-events/industry-news/project-quantifies-kid-loss/