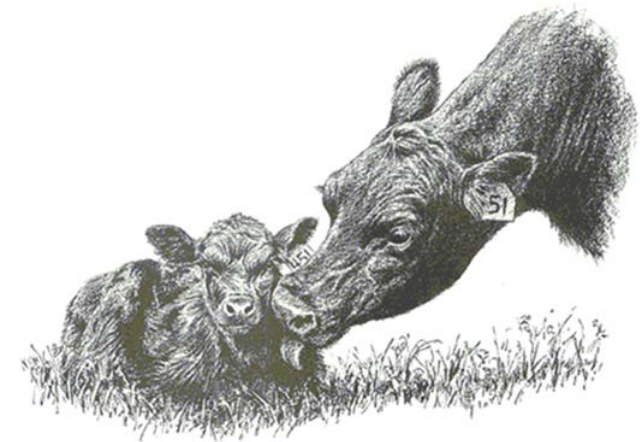




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Optimising female management and productivity in beef breeding enterprises



Dr Shane Thomson
Holbrook Veterinary Centre



Outline:

- Beef breeding enterprise profit drivers.
- What is female fertility?
- How can fertility drive profitability?
- Pregnancy rates vs. conception patterns and average calving dates.
- What should my breeding targets be?
- Economics of managing female fertility!



Introduction — profit drivers:

8 — stocking rate

4 — fertility

2 — growth rate

1 — carcass

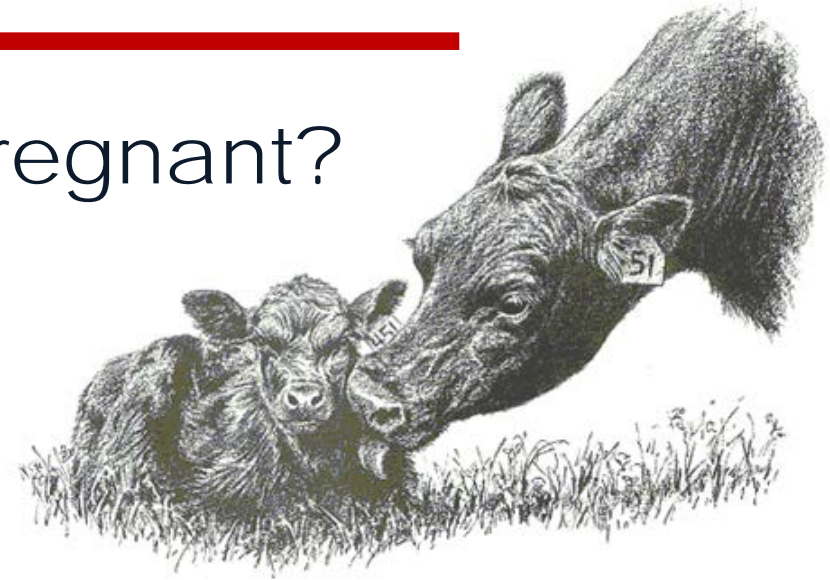
Relative influence on beef enterprise profitability...

Beef breeding profit drivers:

- Important aspects of high-profit herds:
 - Stocking rate (fertiliser, pastures and pasture utilisation)
 - Time of calving (matching pasture growth with animal requirements — minimising supplementation)
 - Matching production system to the environment
 - Labour efficiency (effective systems and planning, well-designed and maintained facilities and equipment)
 - Understand and manage the risks of high production
 - **Herd fertility** — management decisions

Fertility — what is it?

- Ability for a cow to become pregnant?
 - Calve unassisted?
 - Raise a calf to weaning?
- ✓ All of the above and to do it early in the calving period, every 12 months, starting as a two-year-old heifer.



What influences herd fertility?

1. Females (cows and heifers)
 - Heifer retention and development
 - Body condition at calving
 - Feed available post calving
 - Days post calving
2. Diseases
 - Vibriosis, pestivirus, leptospirosis?
3. Bulls
 - Pre-existing bull fertility problems
 - Bull failures during the joining period



What influences herd fertility?

1. Genetics

- CRC III work on subcutaneous fat EBVs (high SC fat EBV heifers conceive easier)
- Fertility traits have low heritability → days to calving EBV (0.1) vs. 600D weight EBV (0.35)

2. Management

- Your management decisions will have the greatest effect on your herds fertility!

Managing fertility:

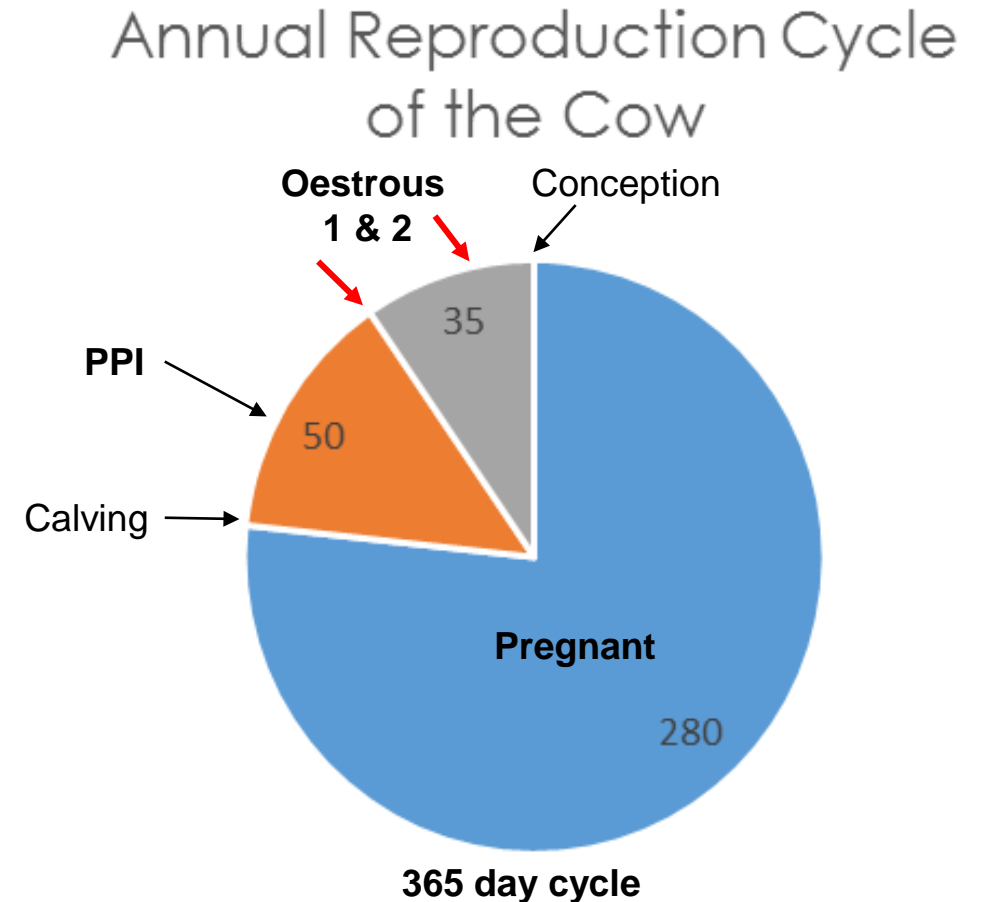
- Heifer development (nutrition)
 - Weight at joining
 - Growth post joining and dystocia management
- Time and length of calving period
- Cow body condition at calving and nutrition post calving
- Time of weaning
- Disease control programs
- BULL MANAGEMENT



Annual cattle reproduction cycle:

The aim is for a productive cow to wean one calf each year.

- For a cow to calve at the same time each year:
 - Each cow has two oestrous opportunities with the bull to conceive for a calving at the same time, or earlier, the following year.
 - Nutrition and body condition score (BCS) must be appropriate for cows to maintain an annual cycle — not much room for error!
 - Very difficult to move cows earlier in the calving period.
 - PPI will vary heavily with cow age, body condition score and nutrition post calving.



What is a high-fertility herd?

HERD A

- 98% pregnant
- 10-week joining
- 40% of calves born in the first three weeks

• **LOW FERTILITY**

HERD B

- 90% pregnant
- 6-week joining
- 70% of the calves born in the first three weeks

• **HIGH FERTILITY**

How does fertility affect profitability?

- High fertility is **not** high pregnancy rates.
- It is the **CONCEPTION PATTERN**
 - Having a large number of calves born unassisted early in the calving period (first cycle).
- Fertility has a large effect on herd profitability
 - Increase average age (and weight) of calves
 - Increase ongoing performance of females within herd and reduced dystocia
- Fertility has a low heritability → it is about making the correct management decisions and placing selection pressure on individuals within the herd.



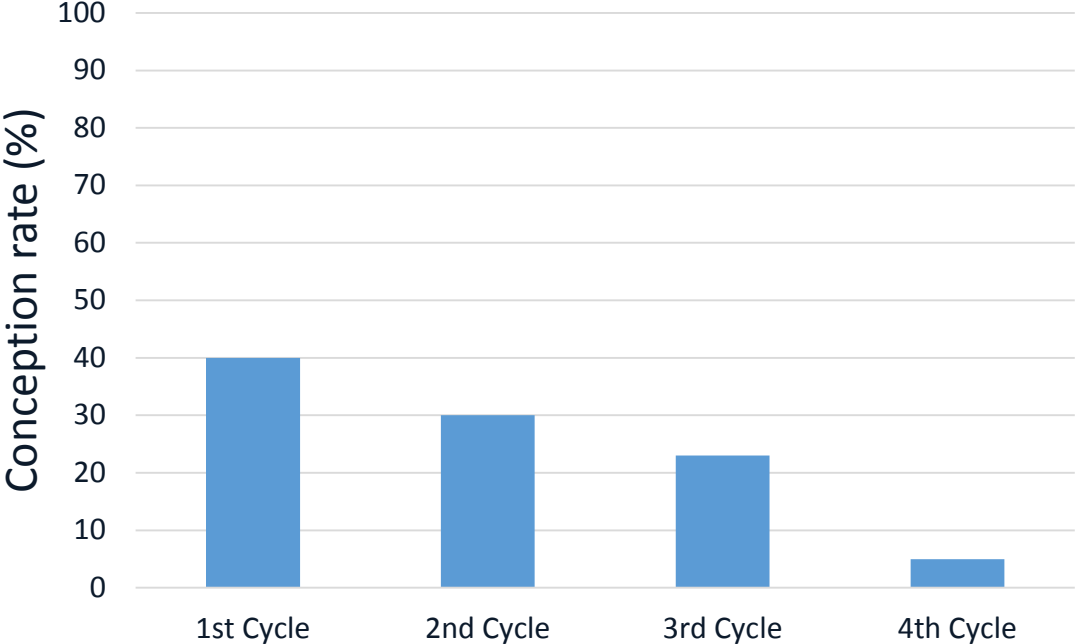
Conception pattern:

- Conception pattern vs pregnancy rate
- Ways to measure conception pattern
 - Early-aged pregnancy diagnosis
 - Recording calved numbers after each cycle of calving
- By analysing your conception pattern you can gain the confidence in your ability to shorten your joining period.
- **Profitability is driven by *when* the cows are pregnant, not *if* they are!**

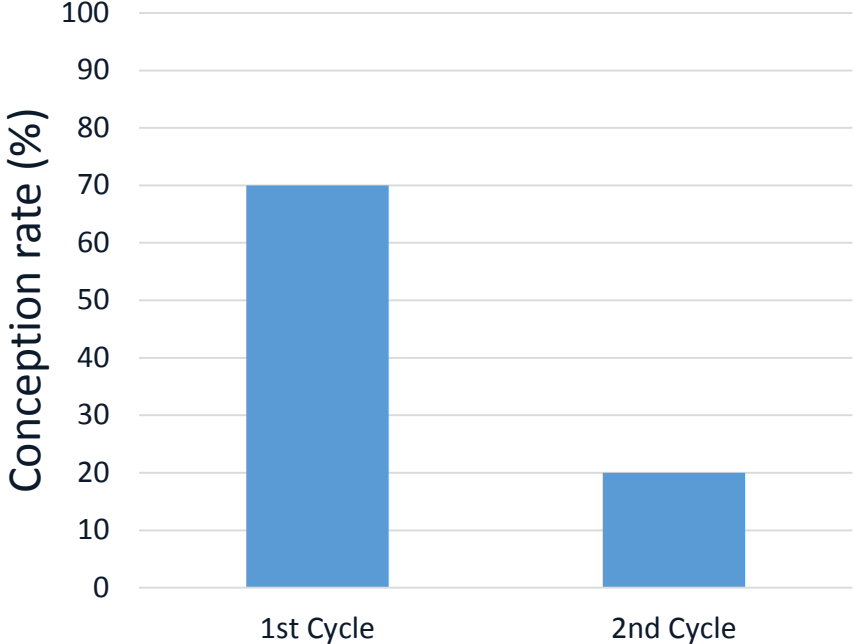


Conception patterns – calving graphs:

LOW FERTILITY
Pregnancy rate = 98%
10-week calving

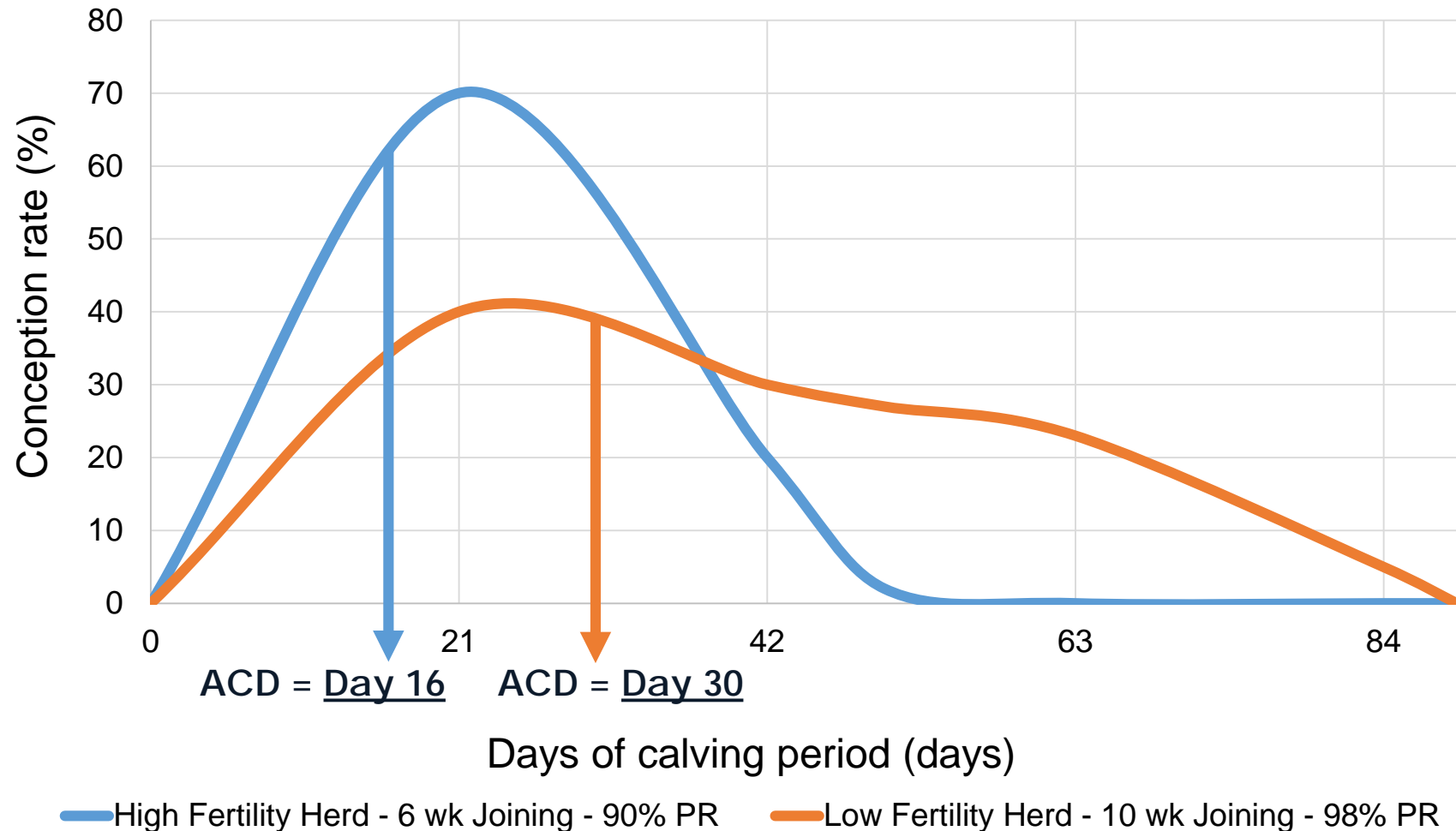


HIGH FERTILITY
Pregnancy rate = 90%
6-week calving



Average calving dates (ACD):

Calving histogram — average calving dates



High fertility — what is it?

It is not high pregnancy rates!

It is **EARLY AVERAGE CALVING DATES**
indicating **TIGHT CONCEPTION PATTERNS!!**

What are my target breeding rates?

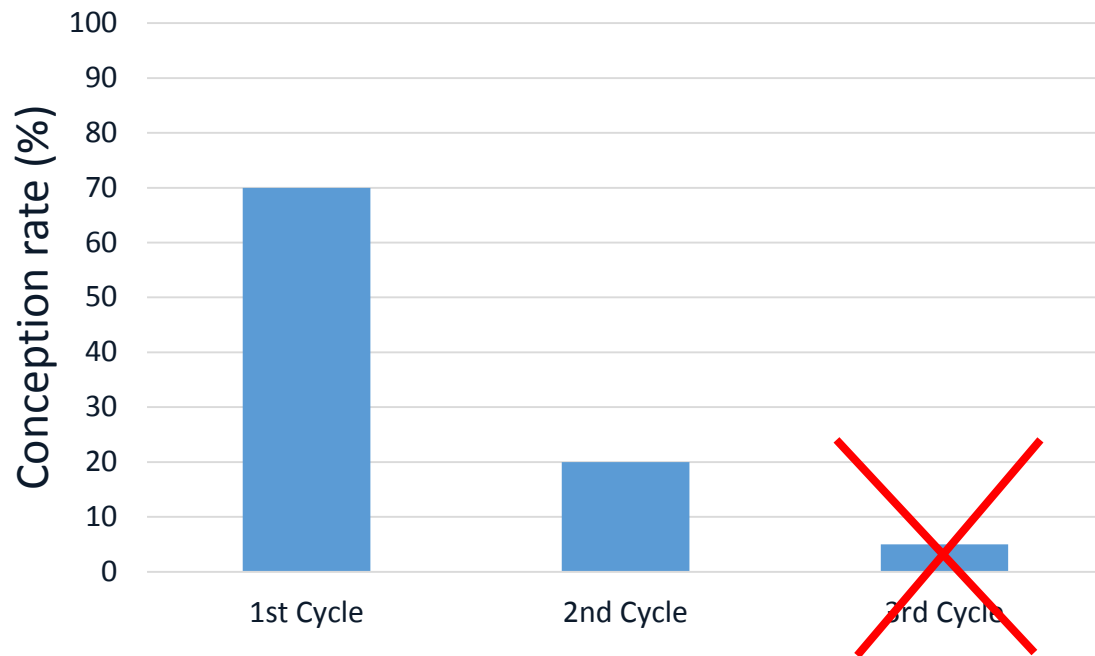
- How many cows do I want to calve?
- What pregnancy rate do I actually need?

Self Replacing Beef Herd	
100	Calving Herd Size
40	Retained Heifers (80% heifer retention)
-15	Foetal Losses and CFA Cows
125	Total Females Joined
80%	Pregnancy Rate Required

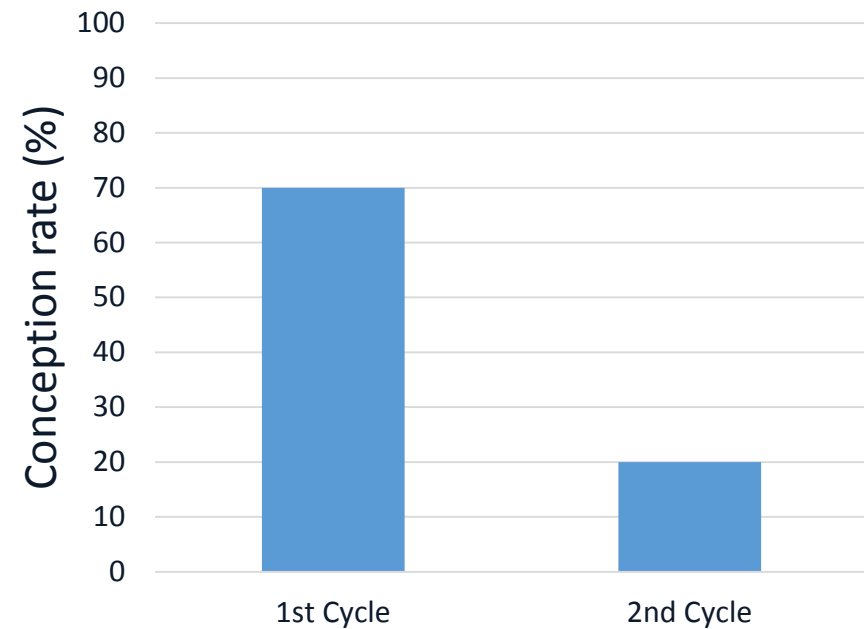
- Therefore; target the early calvers!

What are my target breeding rates?

High fertility — eight-week calving
Pregnancy rate = 95%



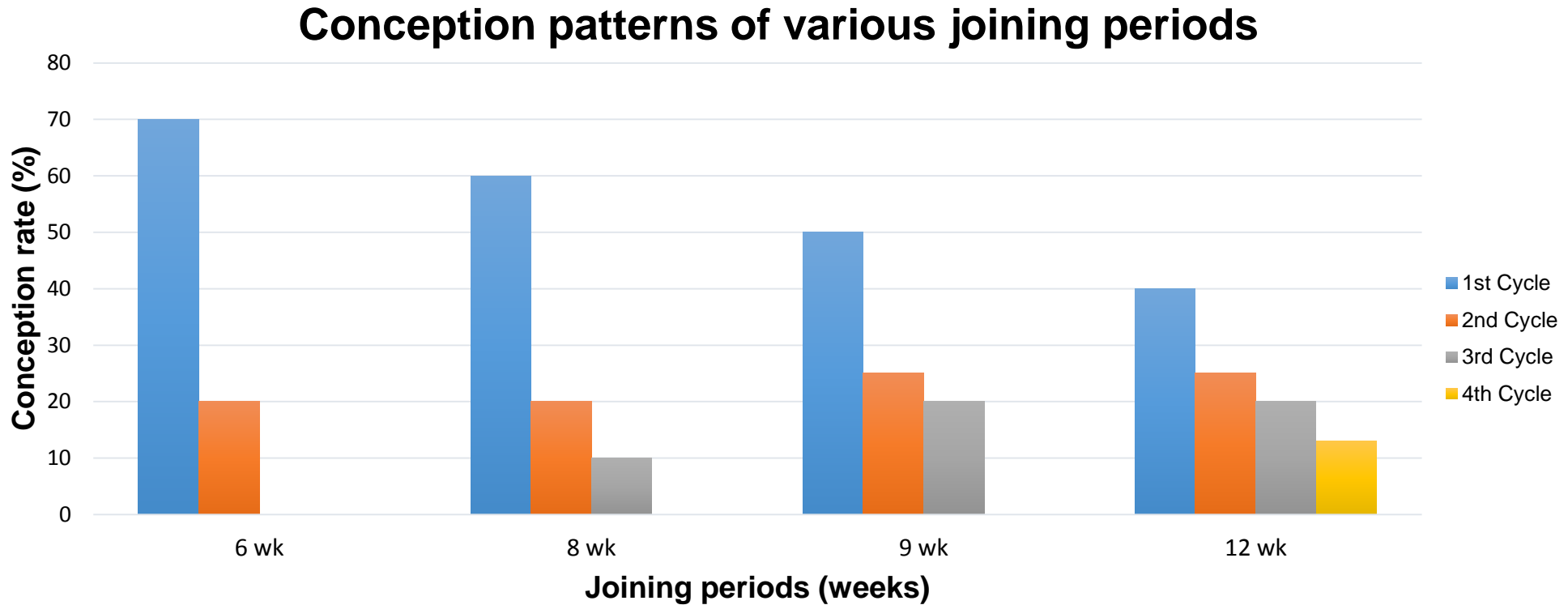
High fertility — six-week calving
Pregnancy rate = 90%



Economics of average calving dates:

- A calf will grow at 1kg/ day, at current prices of \$3.50/ kg LWT, this means a calf born at the start of an eight-week joining period, relative to a calf born at the end is $1\text{kg/ day} \times 56\text{ days} = \mathbf{56\text{kgs heavier}}$, or $56\text{kg} \times \$3.50/\text{kg LWT} = \mathbf{\$196\text{ higher in value}}$ come sale time.
- If we look at the movement in average calving date (ACD) of the whole drop:
 - For every 100 calves born, each day results in about 100kg LWT gain
 - On current prices (\$3.50/kg LWT) $\rightarrow 100\text{kg/ day} \times \$3.50/\text{kg LWT} = \$350$
 - **Moving ACD by one day increases income by \$350/100 calves**
- Therefore moving from a **10-week joining (ACD = 30)** to a **6-week joining (ACD = 16)** is worth **\$4900 per 100 calves**.

Calving histograms – average calving dates:



	6 wk	8 wk	9 wk	12 wk
Pregnancy Rate	90%	90%	95%	98%
Average Calving Date	16	20	25	33
\$ Value	\$60	\$46	\$28	\$0
\$ Value per 100 hd Herd	\$5,950	\$4,550	\$2,800	\$0

Benefits of shorter joining periods:

- Benefits are long term and perpetuating;
 - Early calves generally result in early pregnancies as maiden heifers; which result in females remaining early calvers throughout their reproductive life.
- Improving time efficiencies reduces labour costs (major expense).
- Lighter calves have a higher cost of feed and animal health relative to the older/ heavier calves — removes tail to weaner mob.
- Assisting decision making in the face of drought conditions or forced sale
 - Must have the information.
- No difference between calves from heifers or cows.
- Marketing an even line.



Where do I start?

- With the **HEIFERS!**
- Develop a growth curve chart for your heifers
 - Understand critical mating weights
 - Determine, record and achieve target weights
- All energy needs to be invested into the period between weaning and second joining — this is our job.
- Join 90% of your heifers — heavier sale options for heifers.
 - Let the bull do the culling!
- Starting females as early calvers is the biggest step to managing an early calving herd.

Top take home messages:



1. Beef fertility starts with **heifer management**
2. **Fertility = management = targeting average calving dates not pregnancy rates**
3. **Profitability** is driven by **when cows are pregnant**, not if they are!
4. Aim for **6 – 8 week joining periods**
5. These management changes are **free!**
6. **Mitigate risk** in high performance herds

Tools, resources & training:

- MLA – More Beef from Pastures
 - Online manual
 - Regional workshops
- MLA MBfP — calving histogram calculator
- Ultrasound early-aged pregnancy testing
- Heifer growth curve charts and weighing scales
- Clipboard and pen



RED MEAT UPDATES

TASMANIA

Thank you

Dr. Shane Thomson

Holbrook Veterinary Centre

18 Byng Street, Holbrook NSW 2644

02 6036 2374 / 0499 986 838

