# Animals in Extensive Production Systems

VETS30031 / VETS90123

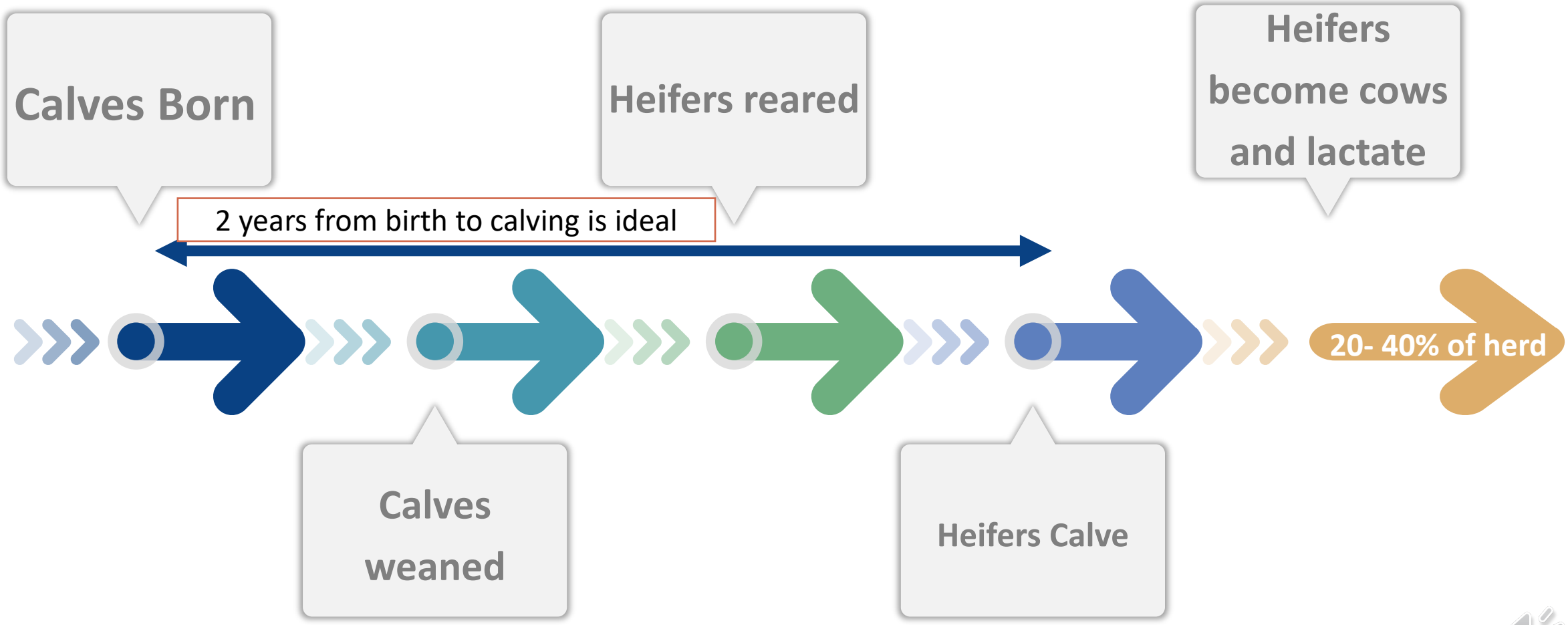
THE UNIVERSITY OF MELBOURNE

## Lifecycle of a dairy cow – Heifer rearing and joining

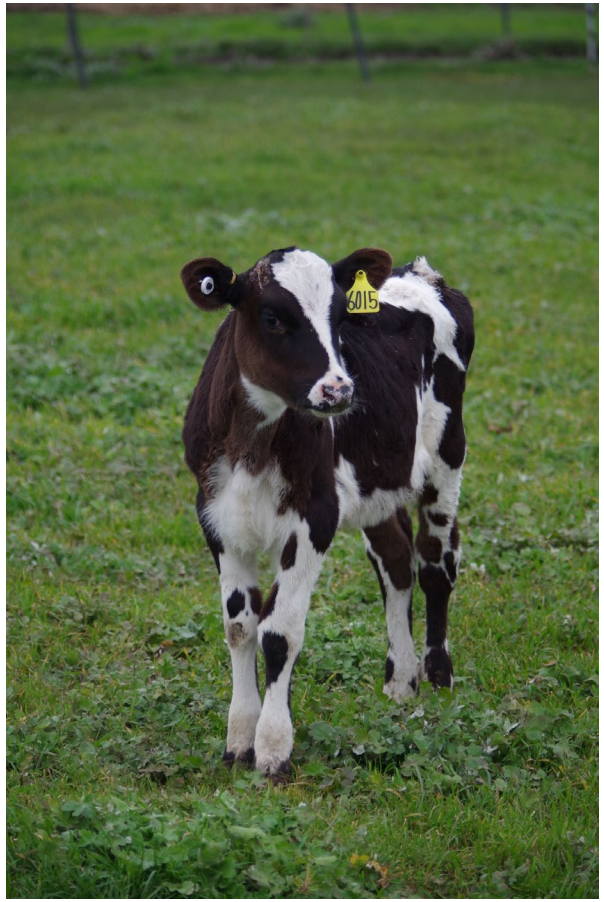
David Beggs

dbeggs@unimelb.edu.au

# Calf to cow cycle



# The aim of Heifer rearing




# Heifers cost the farmer to rear!

- Heifers are expensive to rear!
- It's important that it be done well

- For a 400 cow herd, with 25% replacement rate, how much will this cost the farmer per year?

Table 1: Typical costs of rearing a heifer to 24 months of age (excluding labour).

| | |
|---|---|
| Cost at birth | $320 (6 straws semen, energy cost to make calf, risk of death of cow) |
| Feed to weaning | $90–$250 (depending on level of concentrate use) |
| Risk of death—calf | $10 (if 3%) |
| Cost to joining | $370 (assuming feed costs 2 c/MJ) |
| Joining costs AI | $40–$80 |
| Cost to calving | $400 |
| Risk of death—cow | $35 (if 2%) |
| Animal health | $50 (e.g. drenching, vaccinating) |
| **Total** | **Approximately $1300–$1500** |

Source: Dairy Australia

# Rearing heifers

How big should a heifer be?

And why?

85% of mature bodyweight at calving

# What is the ideal Heifer?

1. Gets in calf quickly as a heifer
2. Calves without problems
3. Produces well
4. Gets back in calf
5. Lots of times
6. Recoups her rearing costs quickly!

Heifers that meet their target weights do these things better

Google “Heifers on Target” to see the calculator tools

**Heifer Target Weight Chart Tool**

| | | |
|---|---|---|
| Calving start date: | 1/06/2022 | |
| Calving weight: | 510 | |
| Required Growth Rate: | 0.64 | kg/day |

| Date | Target (kg) | Age (Months) |
|---|---|---|
| 1/10/2020 | 119 | 4 |
| 1/11/2020 | 139 | 5 |
| 1/12/2020 | 158 | 6 |
| 1/01/2021 | 178 | 7 |
| 1/02/2021 | 198 | 8 |
| 1/03/2021 | 216 | 9 |
| 1/04/2021 | 236 | 10 |
| 1/05/2021 | 255 | 11 |
| 1/06/2021 | 275 | 12 |
| 1/07/2021 | 294 | 13 |
| 1/08/2021 | 314 | 14 |
| 1/09/2021 | 334 | 15 |
| 1/10/2021 | 354 | 16 |
| 1/11/2021 | 374 | 17 |
| 1/12/2021 | 393 | 18 |
| 1/01/2022 | 413 | 19 |
| 1/02/2022 | 433 | 20 |
| 1/03/2022 | 451 | 21 |
| 1/04/2022 | 471 | 22 |
| 1/05/2022 | 490 | 23 |
| 1/06/2022 | 510 | 24 |

# There are economic reasons too

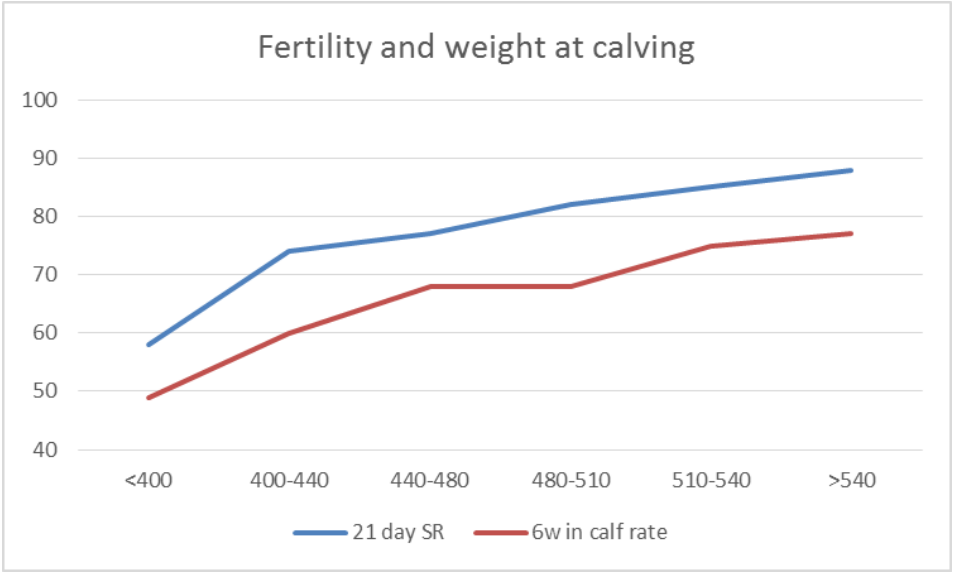
Production – cows produce 7 litres of milk extra for each 1kg BW at calving

Fertility – puberty is related to body weight, so bigger heifers are more fertile at joining

Fertility after calving bigger heifers compete better and get in calf quicker

Longevity – they last longer in the herd as well

There are less calving difficulties



# How much is 50kg bw worth over 100 heifers?

For a heifer calving 50kg heavier than her herd mates there is an increase of 1041 litres of milk, 38.5kg butterfat and 42.5kg protein (81kg MS) over the first three lactations.

Depending on the farming system, this equates to an extra $400 to $500 in milk income per heifer.

The cost of achieving an extra 50kg liveweight (at 3c per MJ) is likely to be about $70, and the energy cost of producing this extra milk is about $160.

$450 – 160 – 70 = $220 / heifer or up to $22,000

# Ideal heifer benchmarks

**Ideal heifers (benchmarks):**

1. 90% in calf after 6 weeks of joining
2. calve at 22 to 26 months of age
3. 85% to 90% of mature body weight at calving (which will vary with production level)
4. first calver 100 day in calf rate of 60% (year round) or a 6 week in calf rate of 75%
5. production of heifers vs mature cows should be >85%
6. the ratio of second calvers to first calvers should be >85%

# Ensuring heifers grow well

- Weaning to 9 months, nutrition is key –
  - Diet high in energy and protein
- 9 months to joining (15 months) –
  - Less energy and protein than younger heifers but rising plane of nutrition

Table 7: The typical energy required for growth and maintenance, and the protein level required in the diet for heifers of different weights.
Adapted from Holmes & Wilson (1987).

| BW | Maintenance | Growth | Protein |
|---|---|---|---|
| Kg | MJ ME/day | MJ ME/day | % |
| 25 | 6 | 10.4 | 17 |
| 50 | 10 | 13.2 | 17 |
| 75 | 14 | 14.6 | 17 |
| 100 | 17 | 19.8 | 17 |
| 125 | 20 | 21.5 | 17 |
| 150 | 24 | 23.3 | 17 |
| 175 | 27 | 25.0 | 17 |
| 200 | 29 | 26.7 | 17 |
| 225 | 32 | 28.4 | 17 |
| 250 | 35 | 30.0 | 15 |
| 275 | 38 | 31.7 | 15 |
| 300 | 40 | 33.3 | 15 |
| 325 | 43 | 34.9 | 15 |
| 350 | 45 | 36.4 | 14 |
| 375 | 47 | 38.0 | 14 |
| 400 | 49 | 39.5 | 14 |
| 425 | 52 | 40.9 | 14 |
| 450 | 54 | 42.4 | 14 |
| 475 | 56 | 43.8 | 14 |
| 500 | 58 | 45.2 | 14 |

Source: Dairy Australia

# Heifers on Target Calculator

SHARE PRINT

Introduction | Calculate Growth rate required | Heifer Target Weight Chart | Calculate Growth Rate from Diet | Estimate Extra Production | Estimate Reduced Culling | Exam

This app will help you check whether your heifers are likely to reach their target weights.

The Estimate Extra Production tool lets you estimate the extra production that might be achieved if heifers reach a target of 85% of the production of the mature cows.

The Estimate Reduced Culling tool helps you see the impact of heifers being lost early from the herd.

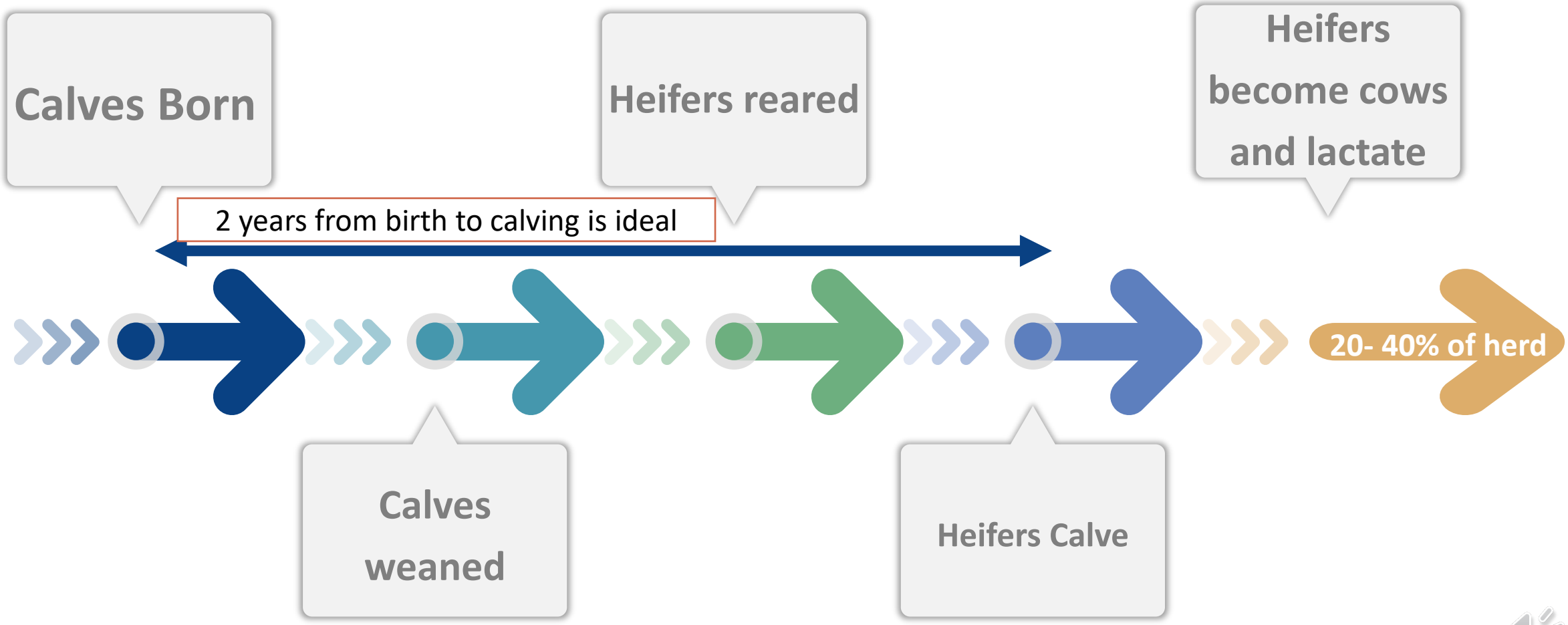
The weight calculator tool will let you enter the current weight and the target weight of your heifers and will help calculate the growth rate required to achieve your target weight.

The Growth Calculator tool will allow you to enter the diet you are feeding, and to see whether this diet is likely to achieve the growth rates you need

Update Reset Print

Google “Heifers on Target”

# Calf to cow cycle



THE UNIVERSITY OF MELBOURNE

**AEPS – DAIRY WEEK 1**