

# BEEF SUCKLER HERD FERTILITY

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Milfeddygon Deufor

# Why is fertility important?

- Aim of efficient suckled calf production can be defined as achieving the maximum output (kg) of saleable beef per breeding cow per year
  - Maximize the **number of calves** weaned per cow mated per year
  - Maximize the **weaning weight** of calves
    - Compact calving period

# Why a compact calving period?

- >12 weeks is inefficient
- <10 weeks cows and 6 weeks heifers -
  - Simpler management of cows and calves
  - Even weaning weights
  - Reduced production costs
  - Reduced labour input
  - Better calf health (spread from older to younger)
  - Heavier, more fertile home-bred heifers at service
  - **Greater financial return**

# How to measure fertility?

## Mating period data collection sheet

	Target	Cows	Heifers
Total number mated			
Number of bulls run			
Date bulls put with cows			
Date bulls removed	<70 days		
Number pregnant at PD (if done)	>95%		
Number aborted	<2%		
Total number barren	<5%		

# How to measure fertility?

- **Calving period data collection sheet**

	Target	Cows	Heifers
<b>Total number calved per 100 cows put to the bull</b>	>95% of mated		
Total number calves born (include dead calves, twins etc.)			
<b>Total no. calved in 1st 3 week period of calving</b>	>65%		
Total calved in 2nd 3 week period			
Total calved in 3rd 3 week period and beyond			
Total number calves born dead	<2%		
Total number calves born live but died < 4 weeks of Age	<2%		
Number of calves died aged 4 weeks – weaning	<1%		
<b>Calves weaned per 100 cows/ heifers put to the bull</b>	>94%		

# Key Performance Indicators

- **% cows calving of mated**
  - **TARGET > 95%**
  - Reflects overall herd fertility
  - Influenced by cow and bull factors
  - If consistently getting > 5% barren –
    - Failure to conceive?
    - Embryonic/foetal death/ abortion?
      - Young or old cows?
      - Difficult calving?
      - Calving date relative to calving period?

# Key Performance Indicators

- **% cows calved in 1<sup>st</sup> 21 days of calving period**
  - **TARGET > 65%**
  - Reflects overall herd fertility efficiency
  - Higher average weaning weight
  - Tight calving pattern
  - Shows cows and bulls are fertile
- Use date bull in plus 285 days as start of 21d period and include all early calvers

# Key Performance Indicators

- **Calves weaned / 100 cows and heifers mated**
  - **TARGET > 94%**
  - Reflects overall fertility output including calf mortality
  - If consistently below target –
    - Poor cow fertility?
    - Poor bull fertility?
    - Calf losses birth to weaning?



# How to achieve these targets?

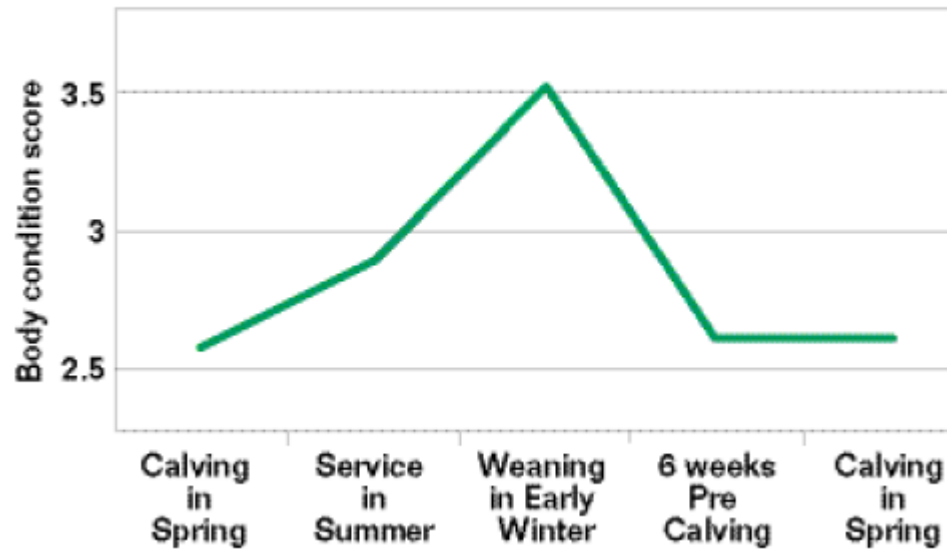
1. Cow body condition and nutrition
2. Replacement heifer management
3. Reducing dystocia and calf losses
4. Controlling diseases that affect fertility
5. Monitoring bull fertility

# 1. Cow body condition and nutrition

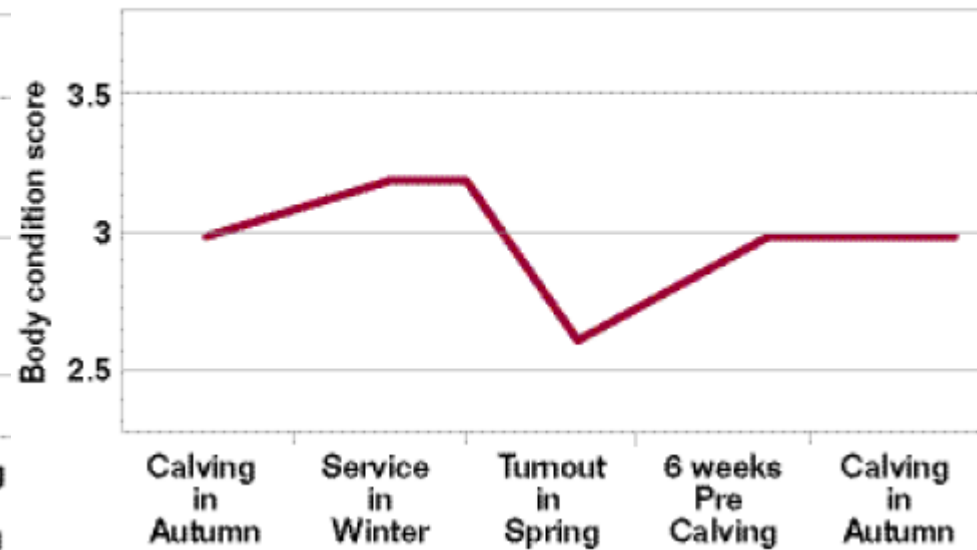
- Return to heat after calving is controlled by –
  1. Suckling the calf
    - inhibits release of hormones that activate ovaries
    - Effect wanes as calf suckles less frequently
  2. Body condition score (BCS) **AT CALVING**
    - Spring calving target - **2.5**
    - Autumn calving target - **3**

# 1. Cow body condition and nutrition

**Spring Calvers**



**Autumn Calvers**



# 1. Cow body condition and nutrition

- Suckler cow ovaries are inactive after calving
- Takes 35-40 days for the uterus to recover after calving
- Takes 50-60 days from calving for average/good BCS cows to have fertile oestrus (heat)

# 1. Cow body condition and nutrition

- Poor BCS **at calving** is a major cause of **delayed return to oestrus** and poor fertility
  - Extended anoestrus (no heat) period 70d++
- Thin cows, especially heifers that are still growing and suckling a calf most at risk
- Poor grass growth
- Poor nutrition
- Calving difficulties (fat cows)

# 1. Cow body condition and nutrition

The effect of stage of calving within calving period on rebreeding opportunities

Calving early      Calving late

anoestrus  
8 weeks

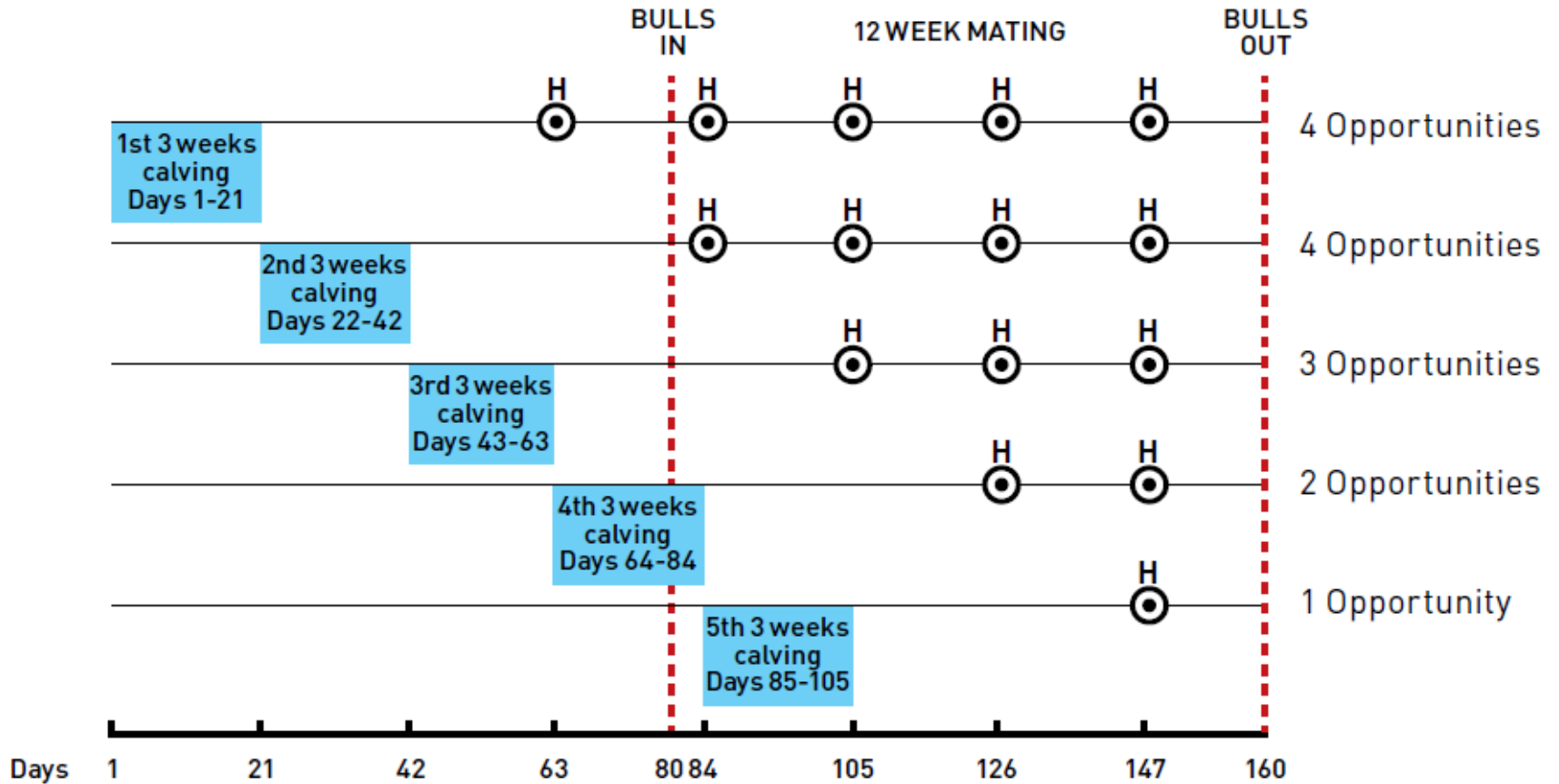
0      4      10      12      15      18      21      weeks

Calving period

Mating period



# 1. Cow body condition and nutrition



# 1. Cow body condition and nutrition

- Early calving cows in good BCS have more opportunities to be re-bred
- Thin cows/ heifers calving later will have extended anoestrus period and likely be barren
- Target of >65% calving in 1<sup>st</sup> three weeks of calving period important



# 1. Cow body condition and nutrition

- Manage BCS all year round to prevent cows getting too thin/ too fat
- Aim for target BCS 6 weeks before calving
- Vary weaning time to manipulate BCS
- Group according to BCS – fat/at target/thin
- Keep heifers separate or with thin group – extra energy
- Mineral deficiencies are uncommon
- Disease – Liver fluke, Johne's....

## 2. Replacement heifer management

- Breed replacement heifers from bulls with good maternal EBVs

	Signet (UK)	BreedPlan (Australia)
Calving ease	√ maternal calving ease	√ calving ease daughters
200 day milk	√	√
Age at first calving	√	
Scrotal size	√	√
Fertility	√ calving interval	√ days to calving
Size		√ mature cow weight
Longevity	√	

## 2. Replacement heifer management

- Calving at 2 year old is the most efficient
- Need adequate bodyweight not age
- Early maturing breeds and crosses easier
- 65% of mature bodyweight at 1<sup>st</sup> mating (15 months)
  - 420Kg if 650kg cows
- 85% of mature bodyweight at 2<sup>nd</sup> mating
- Remember cows still growing at 3<sup>rd</sup> mating

## 2. Replacement heifer management

- Pick from calves born early (1<sup>st</sup> month)
  - Growth rate 0.85kg/day + possible
  - Heritable fertility characteristics – genetically more fertile
- BVD, Leptospirosis etc. vaccination (>2weeks)
- Fluke and worm treatment
- Trace elements?

## 2. Replacement heifer management

- Easy calving bull
- 6 week mating period only
- AI? 2 cycles. Synchronisation?
- At least 85% should be in-calf in 6 weeks
  - Breed more to allow for wastage
  - Do not keep empties for breeding – poor fertility
- Aim to calve 2-3 weeks before cows start
  - More time to recover
- Manage as separate group through to 2<sup>nd</sup> mating?

# 3. Reducing dystocia and calf losses

- Difficult calvings - increase calf losses
  - reduce fertility
  - cost money
- Assisted calvings and caesareans will delay uterine involution
- increased chance of
  - uterine infections
  - retained placenta
  - uterine prolapse
  - extended anoestrus
- **Reduced chance of conceiving in next mating period**

# 3. Reducing dystocia and calf losses

- Causes of dystocia-
  - Over-conditioned/fat cows
  - Older calving heifers become over-conditioned/fat
  - Heifers not sufficiently well-grown
  - Excessive dam nutrition
  - Poor bull choice
- Extended calving periods allow problem cows to conceive late and get fat before calving
- **More dystocia – longer calving period next year**
- **Longer calving period – fat cows – no control**
- **Vicious cycle!**

### 3. Reducing dystocia and calf losses

- Thin cows lack stamina to calve and have poor colostrum quality
- Restrict intakes for summer and autumn calving cows
- Watch BCS
- Do not over feed in last 6 weeks of gestation
  - Get BCS right and just maintain it



# 3. Reducing dystocia and calf losses

- Use EBVs to select bulls
  - Low birth weight
  - Short gestation length
  - Good Calving Ease (Direct)
- Use Calving Ease (Daughters)/ Maternal Calving Ease to choose sires for replacement heifers
- Select heifers based on internal pelvic dimensions
- Benefits of Hybrid Vigour (5-10%)

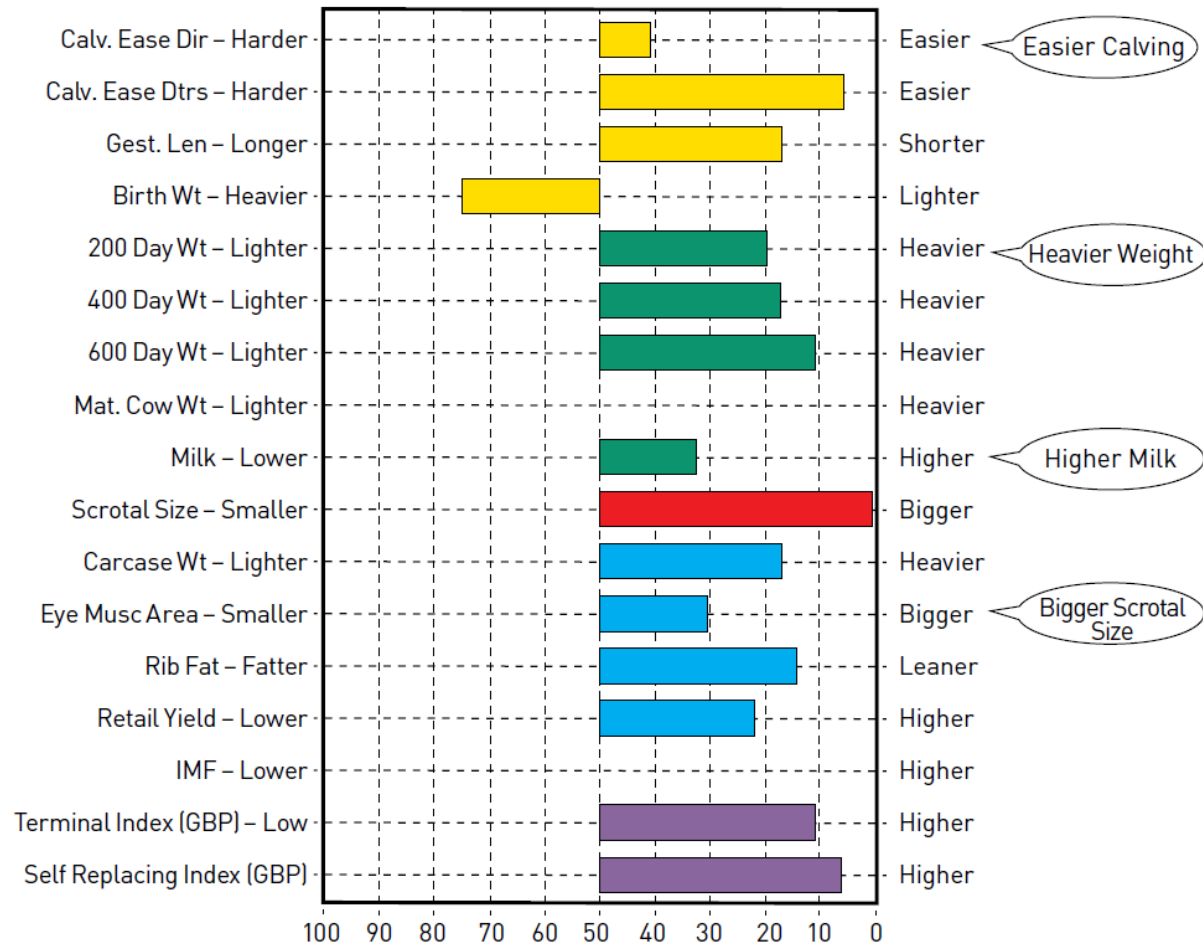
### 3. Reducing dystocia and calf losses



# 3. Reducing dystocia and calf losses

	Terminal sire	Breeding heifer replacements	Use on heifers
Ease of calving direct	✓	✓	✓
Ease of calving daughters		✓	
Gestation length			✓
200 day milk		✓	
400 day weight	✓	✓	
Also consider	beef value/retail meat yield	scrotal size (link with fertility)	

# 3. Reducing dystocia and calf losses



# 4. Controlling diseases that affect fertility

- Many diseases can -
  - affect bull and cow fertility
  - cause abortions
  - impact calf mortality and growth rate
- Bovine Virus Diarrhoea (BVD)
- Leptospirosis
- Venereal Campylobacteriosis
- Infectious Bovine Rhinotracheitis (IBR)
- Neosporosis
- Salmonella
- Liver Fluke
- Johne's Disease

## 4. Controlling diseases that affect fertility

- Apparently healthy **carrier animals** are the most common route of introduction
- Control can be by
  - treatment
  - culling
  - vaccination
  - biosecurity
  - combination of these

## 4. Controlling diseases that affect fertility

- Identify problems if not hitting targets
- Investigate abortions
- Manage risks by herd health planning
- Biosecurity measures can keep them out and prevent re-introduction once cleared
- Replacement policy?
- Purchase stock based on health status
- Adopt quarantine procedures for incoming stock

## 5. Monitoring bull fertility

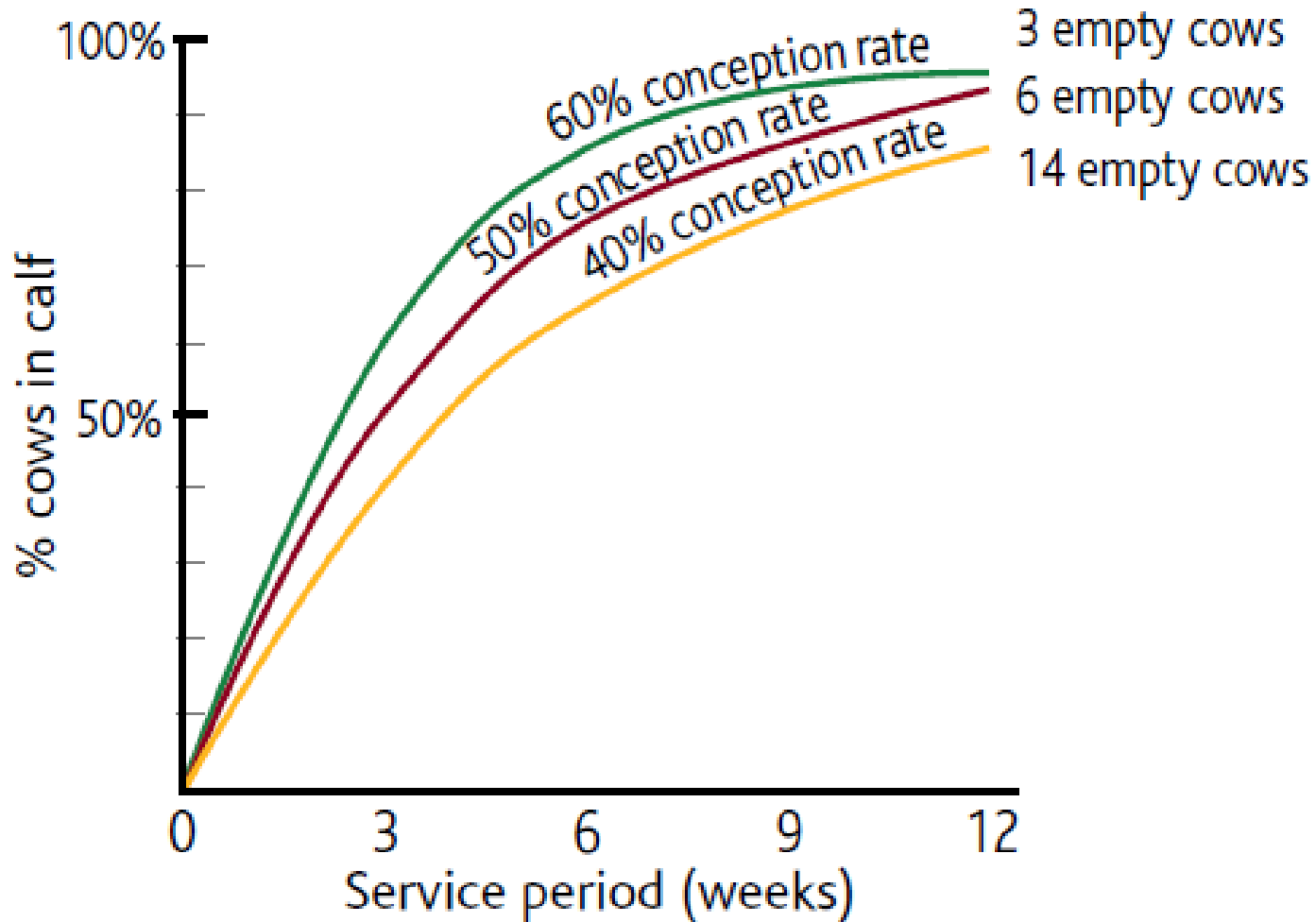
- Select bulls on –
  - Conformation
  - Legs
  - Feet
  - scrotal circumference
  - EBVs



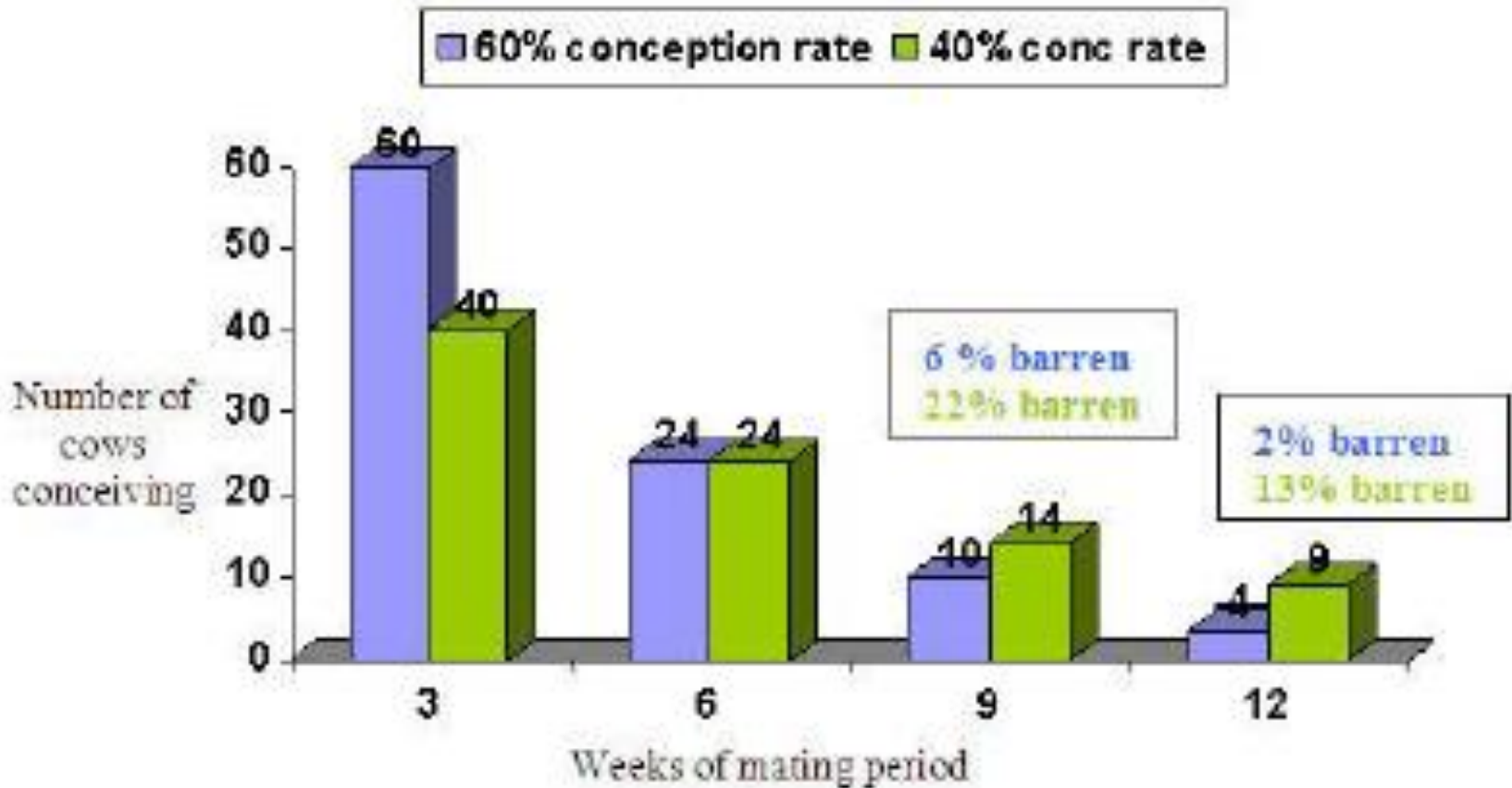
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- A fully fertile bull is expected to –
  - achieve at least 90% pregnancy in 50 disease free, fertile, cycling cows over a 9 week period
  - achieve at least 60% pregnancy rate to each service
- **20-40%** of unselected bulls are **sub-fertile**
- Infertile bulls are rare

## 5. Monitoring bull fertility



# 5. Monitoring bull fertility



# 5. Monitoring bull fertility

- How can you tell?
- Bull Breeding Soundness Examination
  - Physical soundness
  - Semen evaluation
- Sperm take 61 days to form so think ahead
- Body condition score 3
- Locomotion – legs and feet

## 5. Monitoring bull fertility

- Routinely perform bull Pre-Breeding Exam **one month** before bull is required
- Can identify sub-fertile bulls
- Can identify high performing bulls too
- Can adapt cow numbers to bull fertility
- Observe carefully during mating period
  - Libido/willingness
  - Ability to mount and serve correctly

## 5. Monitoring bull fertility



## 5. Monitoring bull fertility



## 5. Monitoring bull fertility

- Things can change.....
- Monitor for returns to heat 21 days after bulls turned out with cows
- Running multiple bulls or rotating bulls can mask sub-fertile performance
- Do not over-work young bulls (20 cows)



## 5. Monitoring bull fertility



## 5. Monitoring bull fertility



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Thank you for your attention