



## dairy herd replacements and reproduction

Animal Production Systems  
A4005C17

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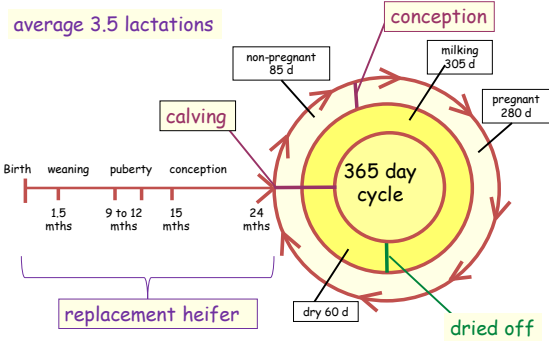
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### the dairy production cycle



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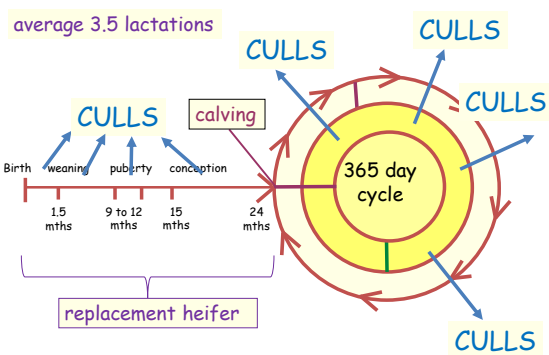
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### the dairy production cycle



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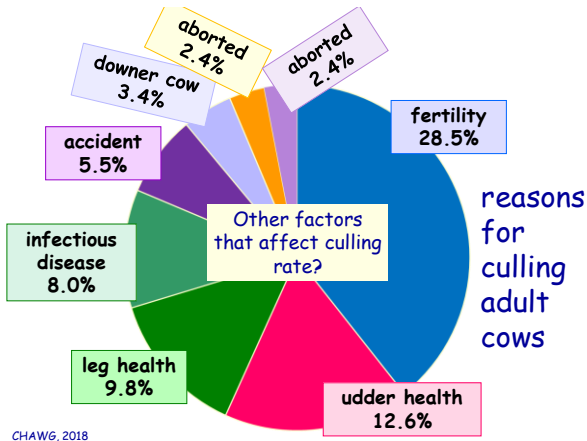
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replacing cull cows

expanding the herd




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how many replacement heifers per 100 cows?

25%

25 replacement heifers enter milking herd per year

2 years of age

15% losses during rearing

30 heifer calves born

total - 60 dairy breed calves born

fewer with sexed semen

bulls heifers

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## options for replacements

home-reared heifers from own herd

breeding

need labour, buildings, land

contract reared, home-bred heifers

reduce labour, buildings, land

the rearer

flying herd, buy in replacement cows, heifers

all cows to beef bull

biosecurity market

reduce labour, buildings, land

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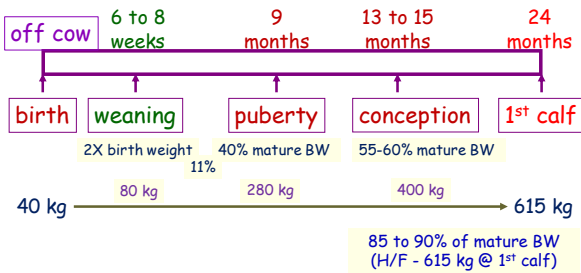
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## Key stages of heifer rearing

aim for first calving at 24 months




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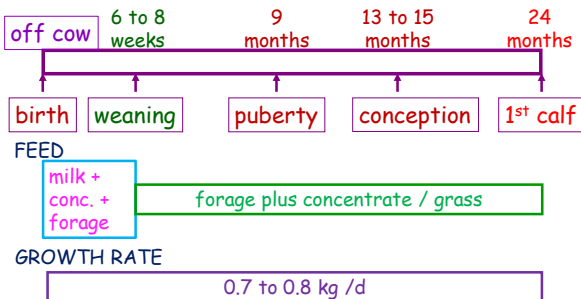
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## feeds and growth targets for heifer rearing

colostrum

£2.87 / day over 24 months




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1. Quantity

2. Quality

### colostrum management



- 10 % of body weight within 2h of birth
- 3 to 4 litres for H/F calf
- 50 g/l IgG
- 'green' colostrometer
- >20% Brix refractometer
- = 150 g IgG intake




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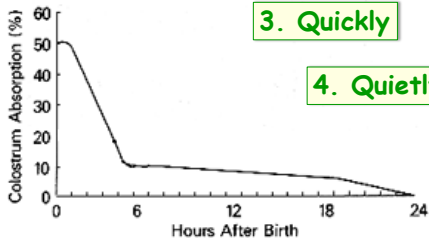
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### colostrum absorption



3. Quickly

4. Quietly

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### milk feeding

legal requirement that calves <28 days are fed milk twice a day

whole milk

waste milk antibiotics in milk

transition milk not individually penned

calf milk replacer 56 days to weaning

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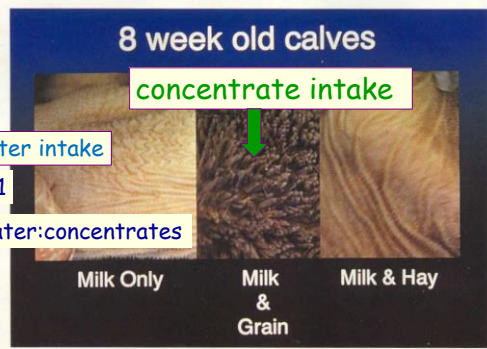
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THE IMPORTANCE OF FEEDING GRAIN is shown by these photos of rumen interiors. The calf fed both milk and grain has much more developed fingerlike projections. Because of these papilli, the calf has more rumen surface with which to absorb protein, energy, and other nutrients.

Dr. Kincaid, WSU

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### dairy cow reproduction

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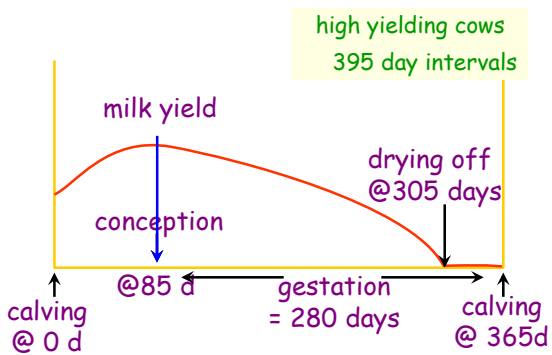
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### achieving a 365 day calving interval




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## targets to achieve 365 d CI

monitor  
performance

- > days to first service - 60 days
- > serves per conception - 1.8
- > calving to conception interval - 85 days  
gestation length 280 to 285 days

manage  
performance

- > pregnancy rate - >54%
- > heat detection rate - >67%
- > culling for failure to conceive - <7%

£5 / day over target calving interval (Esslemont, 2003)

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## oestrous cycles

heat    bulling

- oestrus - every 21 days    on - bull
- 4 heats before 85 days
- oestrus lasts for 0.5 to 24 h
- depends on:
  - age of cow
  - BCS
  - stage of lactation

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## detecting oestrus

important  
when AI is  
used

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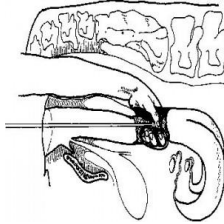
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## artificial insemination

AI 12 h after standing oestrus

AM / PM rule




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## artificial insemination

- + pros
- + improve genetics
- + match bull to individual cow
- + reduced transmission of STDs
- + don't need to keep a bull
- + safety

- cons
- dependant on oestrus detection
- skilled AI technician
- reduce genetic diversity

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## selecting bulls to use for AI

Buttercrest **SUCCESS JH1F**  
 IATOLA X ROCKET X EXCEED

THE FACTS

PLI	£134
MILK kg/305	411
FAT kg/305	19.8
FAT %	0.04
PROTEIN kg/305	14.9
PROTEIN %	0.02
RELIABILITY %	74

What type of cow do you want to be milking in 3 years time?

PLI - profitable lifetime index    fertility    lifespan

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## breeding record for each cow

- date of calving
- all oestrus dates
- AI and/or service dates
- result of pregnancy diagnosis
- any fertility treatments given by vet

measure  
performance

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## infertility

main causes:

poor oestrus detection

disease BVDV

Neospora

poor nutrition

energy balance

high milk yield

BCS

lameness

£5 / day over target  
calving interval

lost yield

vet treatment

shorter herd life

lost calf sales

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## Summary

- reasons for culling cows
- replacement heifer rearing
- fertility in cows
  - targets
  - oestrus and oestrous cycles
  - artificial insemination
  - breeding records

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