Management of Bulls For Optimum Fertility

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Fertility

- Tend to focus on the cow
- Bull often overlooked
- At least 20% of bulls are sub fertile or infertile

Targets

- At least 95% of cows in calf in 9 – 10 week period (3 cycles)
- Barren Cows – no more than 5%
- At least 65% of cows calved in first 3 weeks
- Cows calving in 6 weeks – 90%
- Calves reared – 94%

Therefore need

- Cows & heifers to be healthy and cycling
- A conception rate of 60-70% to each service

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Fertility Results

QMS survey averages – Calves reared/ 100 cows/heifers to the bull			
	Bottom third	Average	Top third
Calves reared per 100 cows / heifers to the bull	83	87	91
Extra calves if reach 94% target	11	7	3
Extra value	£7,425	£4,725	£2,025

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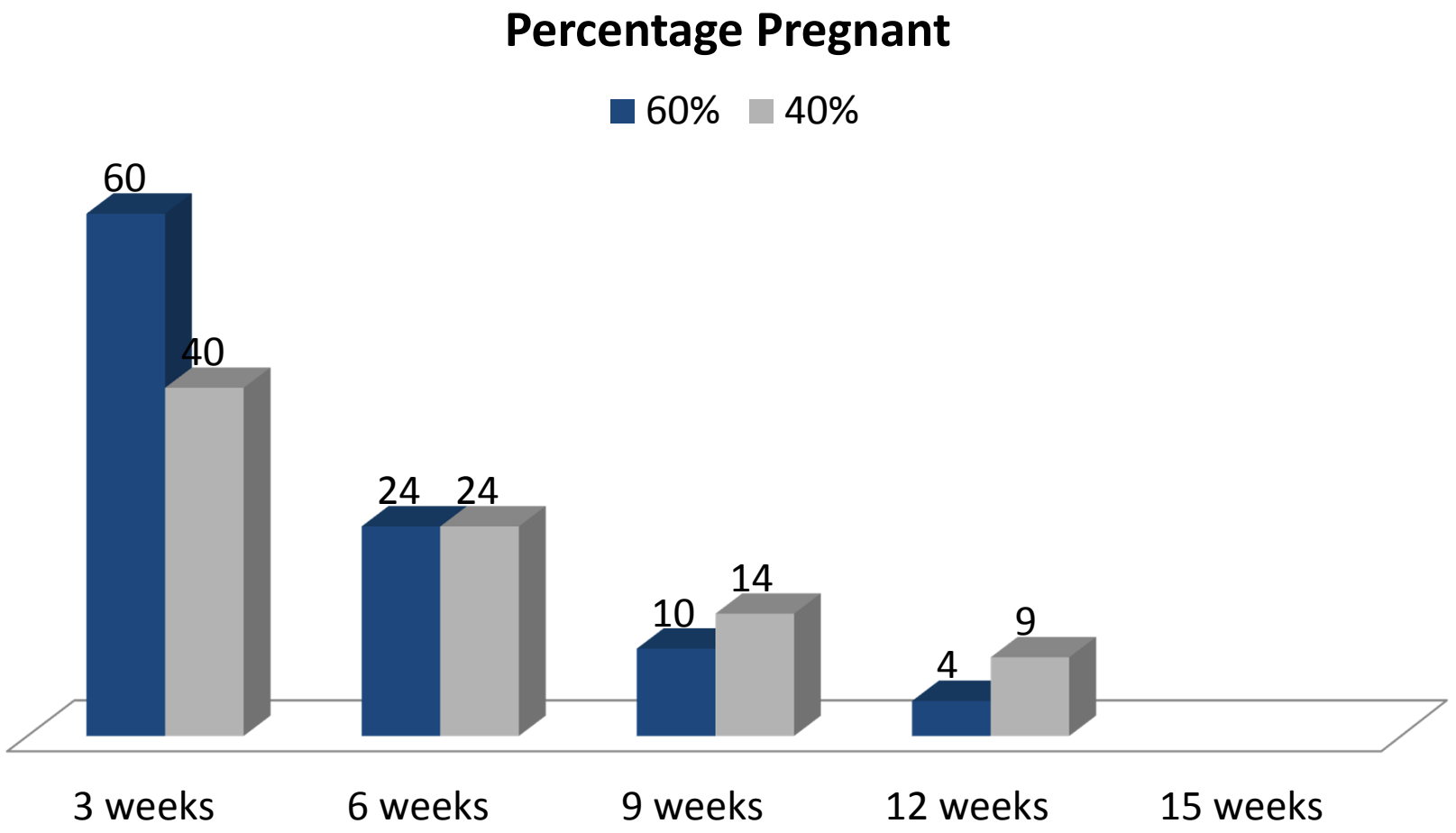
Conception rates



Actual recorded figures

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Impact of calving pattern					
	Age @ wean	Wt @ wean	Calve pattern % Best	Calve pattern % Moderate	Calve pattern % Poor
1st 3 wks	230	309	68	35	13
2nd 3 wks	209	285	21	20	15
3rd 3 wks	188	261	11	20	16
4th 3 wks	167	236	0	18	38
5th 3 wks	146	212	0	5	14
6th 3 wks	125	188	0	2	4
Av wean age			220	199	180
Av wean wt			299	274	252
Wean value (£2.25/kg)			£673	£617	£567
Difference				-£56	-£106

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Conception rates

60%

- 94% pregnant in 9 weeks
- Feasible with a healthy bull
- 1 bull, 9 weeks, 60% conception

40%

- 76% pregnant in 9 weeks

30%

- 66% pregnant in 9 weeks

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Advantages of compact calving

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- Less time checking cattle
- Less late calving – reduced risk of difficult calvings
- Bigger, even batches of calves
- Easier nutrition
- Reduced disease risk
- More cows in season around same time
- Higher weaning weights
- Higher sale weights / quicker finishing

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Longevity

- Survey of 600 bulls
- Average age at culling – 5.8 years
- Average bull only works for 4 years

Productivity of Bulls

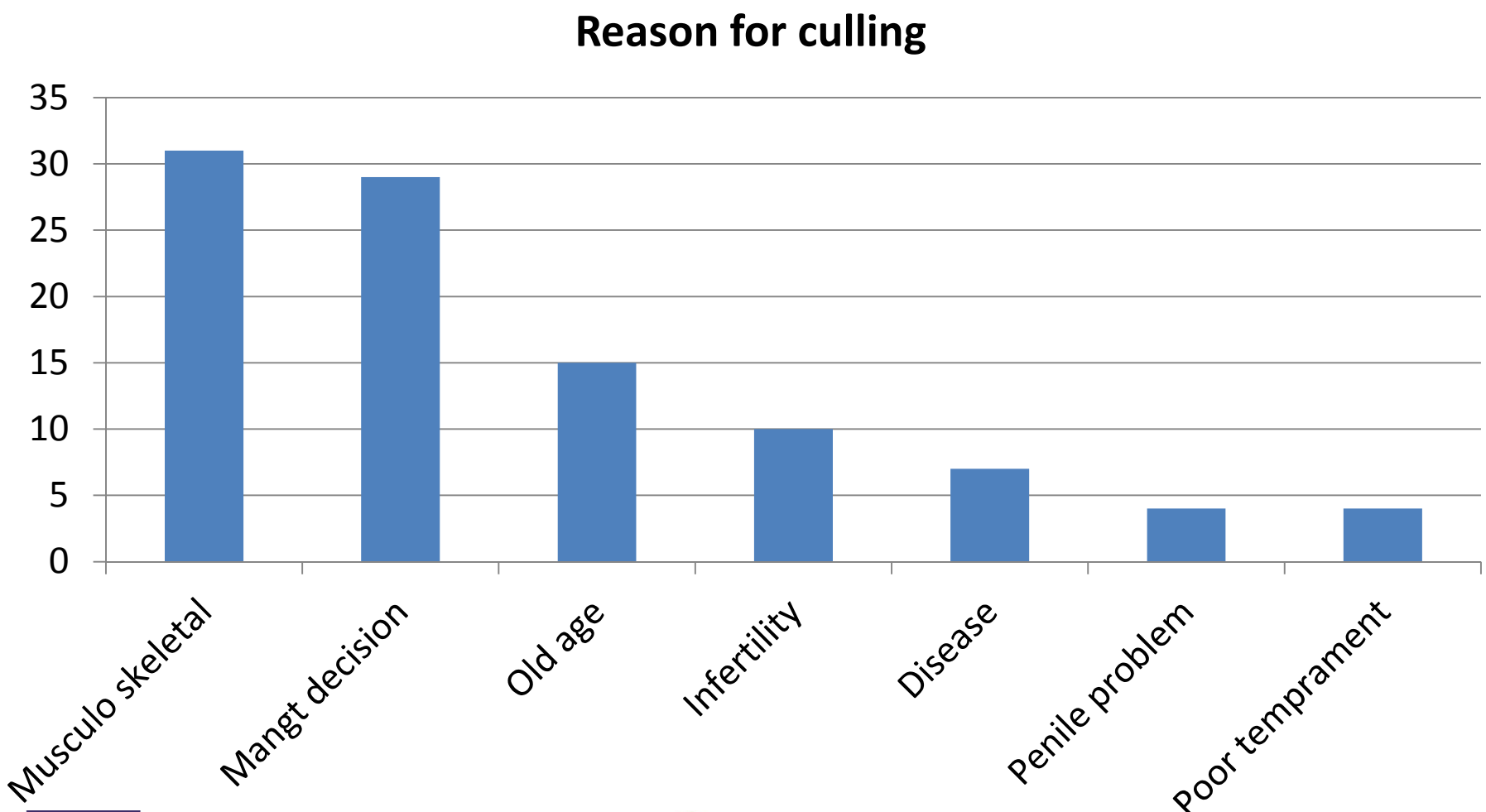
- Purchase price - £4500
- Cull price - £1,500

	Poor	Average	Excellent
No Cows sired/yr	30	35	50
No cows pregnant	8	32	48
No calves weaned/yr	7	30	47
Working life (yrs)	2	4	8
Total calves weaned	14	120	376
Depreciation cost/calf	**£214**	**£25**	**£8**

(single calving period)

- Target 200 calves at least

Reasons for Culling



Bull fertility

Bulls must be able to

- Maintain body condition
- Repeatedly mount and serve cows on oestrus
- Good libido
- Produce sufficient high quality semen
- Place fertile semen in cows
- Absence of disease
- Have a long working life
- Sexual athlete

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Management Factors

- Nutrition / body condition score
- Injury / lameness
- Disease control / vaccination
- Bull : Cow ratio
- Social dominance / groups

Body Condition / Nutrition

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- Bulls should be fit, not fat (CS 3.0 – 3.5)
  - avoid high levels of concentrate (reduces breeding performance)
- Obese bulls can have sub optimal semen quality
- Thin bulls often have semen quality & libido problems
- Assess bulls for loss of condition during mating
- Ensure CS stays above 2
- For a 1 tonne bull, 1 CS is approx 130 kg of weight

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Body Condition / Nutrition

- Grow until 3.5 year old
- Normally need to regain 0.75 of a CS over 180 day winter
- Eg 1000kg bull would need to gain 0.54 kg/day for 180 days
  - Eg 55 kg silage, 2.50 kg conc
- If need to gain more weight, start feeding earlier rather than increasing concentrates
- If can't avoid feeding large amounts of concs, feed twice per day
  - Eg 1000kg bull, to regain 1.25 CS
  - Feed for 210 days at 0.77kg/day
  - Silage 45kg, conc 5.25kg (fed twice)

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New Bulls - Nutrition

- Show condition/forward condition ??
- May need to manage diet change and environment change carefully. Gradual changes
- Change of diet – rumen needs time to adjust. Need to know feed system the bull was on (ask for a bag of the actual feed). Aim to prevent upsetting health / temperament etc as affects sexual performance
- Forced bulls more likely to have problems with arthritis in the hind legs and back
- Give bulls **at least** 2 months from purchase to introduction to females
- Plan ahead when purchasing bulls

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Lameness

- Common problem leading to poor performance
- Avoid laminitis – source bulls direct from breeders? (animals that have not been forced for sales)
- If buy at sales, find out what rations were fed and adjust gradually if needed
- Sudden change from high concentrate to forage ration may induce laminitis - gradual
- Check feet regularly – any trimming done at least 2 months before mating
- Lameness reduces libido and ability to mate

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Lameness

- Select bulls with good legs and feet
- Exercise
- Lameness is the most common cause of bull failure
- Pain – raised cortisol – reduce LH and testosterone = semen quality problems
- Annual foot trimming

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Testicular problems

- Scrotal circumference – direct relationship with fertility
- Bulls should achieve certain standards by certain ages – if fail then often sub fertile
- In general, size matters
  - at least 32 cm at 18 months
  - at least 34 cm at 24 months
- (will differ for different breeds)
- Infection of testicles can cause infertility
- Bulls can have temporary degeneration of sperm producing cells for various reasons (stress, lameness, toxaemia etc)

Semen Testing

- Increasing numbers of bulls now tested
- 6 – 8 weeks prior to service
- Identify infertile bulls, avoid need to rotate bulls
- Actual figures – 386 bulls tested, 33% failed (21% clinical defects, 12% poor quality semen)
- Rank bulls for semen quality – best bulls capable of 50 cows
- Does not give an indication of libido
- Allows time to purchase a replacement if necessary

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Sub Fertile bulls

- If sub fertile, can test second time prior to mating (any obvious reason for being sub fertile – lame, disease etc)
- Do you have time to get a replacement if needed??
- Possibly have enough bull power ??
- Can plan ahead
- Always ask vet advice
- Increasingly, sub fertile bulls are culled
  - Annual cost for a bull (depreciation, variable costs, fixed costs etc of £1,000 to £1,500)

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Injury

- Various injuries / abnormalities
  - can affect the ability of the bull to mount and deposit semen in the correct place
  - Pre breeding check to pick up
  - Can also happen during the mating season

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Disease

- Vaccination / treatments need to match the cows – BVD, IBR, Lepto
- Many high health scheme bulls may be naive
- Complete vaccine course at least 2 – 4 weeks prior to mating
- Don’t forget parasite control for bulls (especially young bulls. May not have age acquired immunity.)
- Sharing bulls carries a high risk of disease eg campylobacter (test?)

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Disease – purchased bulls

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- Biosecurity – consider diseases the bull might be carrying
- Isolate new bull for at least 21 days until have –ve test results
- Health status of the herd bought from (IBR, Johnes, BVD etc)
- Bulls from non accredited herds – test during quarantine period
- Pre purchase blood tests
- Vaccinate if required before joins herd
- Treat for fluke, gut worms, lice & mites (vet)
- Campylobactor (causes serious fertility problems)
- Ideally buy 3 months before use

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Reproductive system

- Check for various conditions
  - Ruptured penis (swelling in front of the scrotum)
  - Corkscrew deviation (acquired condition)
  - Penile papilloma (viral tumours)
  - Prolapsed prepuce

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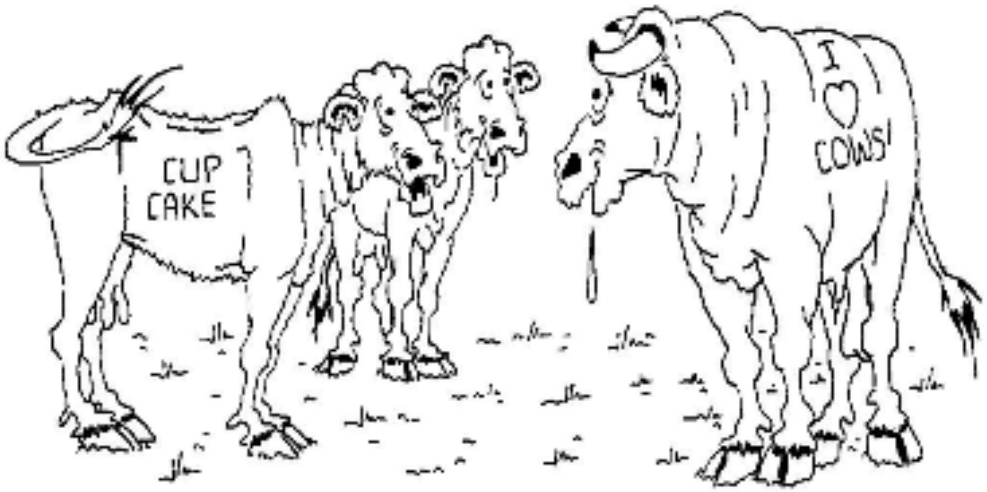
Bull : Female ratio



- Young bulls - traditionally approx 15
- Mature bulls – traditionally 35 – 40
- With semen & bull testing, could potentially increase to 50 cows per bull ??

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Choosing a bull

Important Factors:

- Fertility
- Ease of calving
- Potential growth rates of progeny & weight of progeny at weaning
- Conformation of progeny
- Suitability for farm situation – what traits matter to you
- Market demand for calves
- Cost
- Feet and general health
- EBV's
- Temperament

- Use a combination of EBV's and the eye

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Young Purchased Bulls

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- Buy in advance to allow time to settle
- Isolate for 1 month
- Try to buy a bull that is semen tested (If not, test him once home)
- If in forward condition, lose condition gradually
- Find out diet prior to purchase (stable rumen)
- Feed concs in 2 feeds/day for 1 month after purchase (for forward bulls that have been on a high conc diet)
- Probably not seen much grass prior to sale – likely to need supplementary feed when turned out
- After quarantine house where can see other animals, human activity etc

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- May have had little contact with cows
- Most have little idea of what is expected
- Pen where can see cows/other bulls working
- Take 1 mature cow to him & allow to serve 2 – 3 times
- Avoid over working – tend to be enthusiastic but have low semen reserves
- Remove from cows if too much condition is being lost

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Observe during mating period

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- Ensure bull is serving normally at the start of the mating period.
- Record and monitor 21 day returns
- Libido / serving capacity is very variable in bulls

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Management for Fertility

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- Ensure body condition is correct / suitable nutrition
- Vaccination & parasite treatments prior to mating
- Breeding soundness examination / semen testing
- Lameness / foot trimming
- Correct bull : female ratio
- Monitor during the mating period.

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The value of improved fertility

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	Rear 87% calves, Av calving period		
Calves reared	87		
Av wt / calf weaned (kg)	274		
Av calf wt weaned / cow (kg)	238		
Average price (£)	2.25		
Output / cow (£)	536		
Change in output (£)			
Change / 100 cow herd (£)			

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The value of improved fertility

FARM ADVISORY SERVICE

	Rear 87% calves, Av calving period	Rear 94% calves, Av calving period	
Calves reared	87	**94**	
Av wt / calf weaned (kg)	274	274	
Av calf wt weaned / cow (kg)	238	**258**	
Average price (£)	2.25	2.25	
Output / cow (£)	536	**580**	
Change in output (£)		**44**	
Change / 100 cow herd (£)		**4400**	

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The value of improved fertility

FARM ADVISORY SERVICE

	Rear 87% calves, Av calving period	Rear 94% calves, Av calving period	Rear 94% compact Calving
Calves reared	87	**94**	94
Av wt / calf weaned (kg)	274	274	**299**
Av calf wt weaned / cow (kg)	238	**258**	**281**
Average price (£)	2.25	2.25	2.25
Output / cow (£)	536	**580**	**632**
Change in output (£)		**44**	**96**
Change / 100 cow herd (£)		**4400**	**9600**

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Thank You

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