Optimising suckler herd fertility

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Contents

The information in this booklet was compiled by AHDB and Joe Henry, Black Sheep Farm Health.

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Introduction

Optimising fertility is critical to the success of any suckler herd. Nutrition, health and genetics all play a part.

Maintaining a compact calving period and taking steps to cull unproductive cows is key. Tools such as recording and benchmarking performance, pregnancy diagnosis and body condition scoring (BCS) can help producers increase cow output.

This manual explains how these tools are used. For example, it outlines the BCS targets for each stage of the production cycle of autumn- and spring-calved cows. It also shows how appropriate feeding, breeding and health management can help.

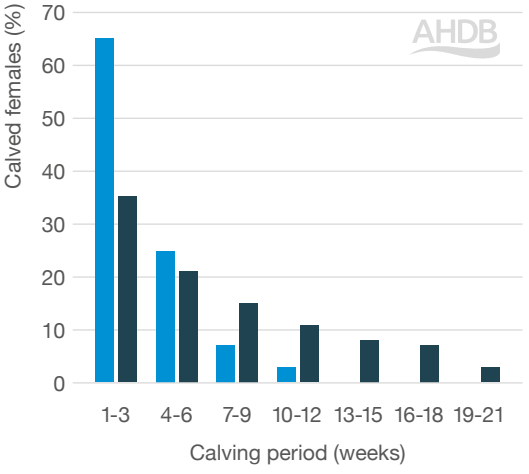
It examines the particular requirements of heifers and the bull – for, no matter how fertile the cow, if she is not in good working order, she will never get in calf.

How fertility affects profitability

The profitability of a suckler herd is directly related to the kg of calves sold from the herd each year. The kg is made up of the number of calves and their weight. So optimising fertility needs to take priority in any herd management decision.

The table below shows a comparison of a herd with a 65% conception rate (Herd A) versus a herd with a 35% conception rate (Herd B).

Herd A will have 98% of its calves conceived within four cycles (12 weeks), Herd B will have 95% of its calves conceived within seven cycles (21 weeks).



Source: AHDB

Herd A Herd B

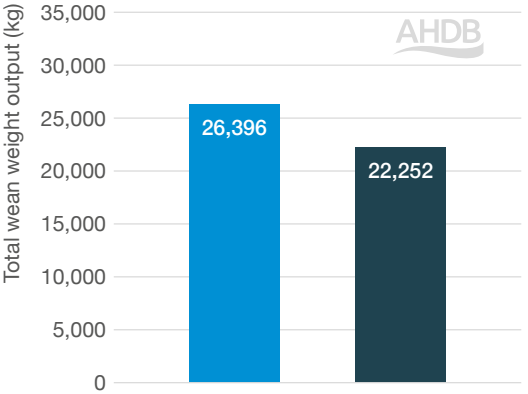
Figure 1. Calving spread shown for two herds

Farmbench figures for 2018 suggest there is room for improvement to reach the target of 94 calves born per 100 cows or heifers put to the bull.

Increasing the fertility of a suckler herd will result in:

- Increased number of calves weaned
- Increased weight of those calves at a single weaning point
- Reduced length of calving period
- Reduced calving interval leading to more calves produced per year
- Heavier and more fertile heifers at mating

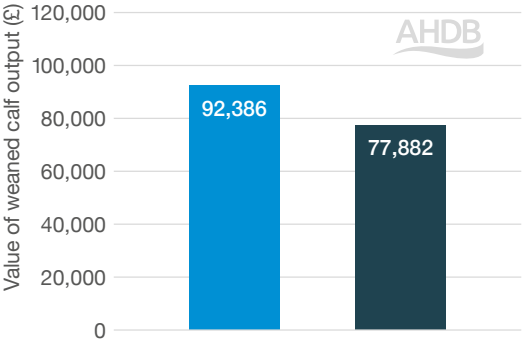
The effect of the above points will result in increased weaning weight (see Figure 2) and therefore value (see Figure 3).



Source: AHDB

Herd A Herd B

Figure 2. Effect of herd fertility and calving spread has on weaning weights (based on calving spread shown in Figure 1)



Source: AHDB

Herd A Herd B

Figure 3. Effect herd fertility and calving spread has on value of weaned calf* (based on weaning weights shown in Figure 2) as a result of calving spread shown in Figure 1)

* This is based on a £3.50 per kg liveweight

In a 100-cow herd, increasing the number of calves reared per 100 cows put to the bull by just 2% could increase calf sales by £1,500–£1,800 per year[†]. Increasing weaning weights by 10 kg for every calf would increase output by almost £2,000.

Relatively small improvements can make a significant difference to the bottom line. Reducing calving spread is an effective way of increasing herd output and has many other management advantages. The more calves born in the first three weeks, the older they are, on average by weaning, so the heavier they will be (Figure 2). Those calving earlier have a longer period to prepare the uterus for another pregnancy.

[†] Based on 250 kg calf at £3.50 per kg

Top tip

Calculate how many calves are born in each three-week period from the start of calving to see how quickly cows conceive relative to each three-week oestrus cycle. Where the date the bull joined the group is known, calculate start of calving as that date plus the gestation length for the breed, e.g. 285 days, and add in any earlier-born calves to the first three weeks. This avoids any abnormally early born calves affecting the figures.

Use the AHDB tools, such as the **Herd notebook** to record these figures, available in hard copy or online at **ahdb.org.uk**

Managing fertility by recording

Recording performance at herd level and for individual cows and calves is essential for managing fertility. It reveals the most fertile animals that are profitable to keep and those that should be culled. It is a worthwhile investment in time and effort.

Achieving reproductive targets underpins suckler herd profitability. Below are some of the main industry targets for suckler herds.

More information can be found in AHDB's **Managing beef replacement heifers** manual.

Improving fertility requires a planned approach. Where replacements are managed to calve early in the season and late-calving cows are culled, real improvements can be made year-on-year.

Keeping good records will make it easier to identify where problems are arising and to investigate the cause.

Table 1. Comparing performance against standard targets

	Industry target	Your performance
Calves born per 100 cows/heifers put to the bull	>95%	
Calves weaned per 100 cows/heifers put to the bull	>94%	
Cows calving within first three week period	>65%	
Mature cows with assisted calvings	<5%	
Age at first calving	24 months	
Calving period	<12 weeks	
Empty cows	<5%	
Calf mortality – during pregnancy	<2%	
Calf mortality – birth to weaning	<3%	

Maintaining a compact calving period

Improving herd fertility not only means producing more calves each year but also getting cows in-calf quickly, resulting in a tighter calving period.

Achieving a tight calving season requires discipline in terms of the period of time the bull runs with the herd. To achieve a tight calving pattern, use the following key principles:

- Bulls in with cows for nine weeks
- Bulls in with heifers for six weeks
- Only those heifers that become pregnant in a short six-week breeding season should be kept for breeding, allowing the others to be finished or sold. This means that only the most fertile heifers join the herd. While heritability of fertility is relatively low (due in part to the numerous other factors), only breeding of those that get in calf early then selects for better fertility by default

The following benefits will be seen:

- Simpler management of cows and calves
- An even batch of calves
- Increased weaning weights
- Less labour requirement at calving
- Fewer calf health problems
- Poor performing cows cannot hide
- Reduced production costs
- Greater financial returns
- Improved fertility genetics of herd

Options for shortening the calving period:

- Take the bull out after nine weeks with the cows; earlier with the heifers
- Cull cows calving outside the target calving period each year (5–10% of total herd)
- Sell in-calf cows or those with calves at foot that fall outside the target calving period and retain/purchase more heifers
- When there is more than one calving period, bring in replacements for one period only and allow the other calving season to gradually disappear
- Ensure heifers joining the herd will calve early in the calving season

Choosing a calving period

Given the high feed requirement of lactating cows and youngstock, it makes sense to choose a calving period when good-quality cheap feed is available. Often, this means matching calving date to grass growth while also considering availability of labour and facilities.

Spring calving allows cows to mobilise excess body condition during the expensive winter feeding period, when they are dry. However, excessive weight loss should be avoided, as this can delay the return to oestrus after calving and reduce colostrum quality.

Beware of the empty cow

In herds with more than one calving season, or where calving is all year round, it is easy for an infertile cow to slip from one calving season to another, extending her calving interval beyond the desired 365 days. Keeping these less fertile cows is not cost-effective and they should be sold or culled.

Examine calving records to identify cows with extended calving intervals.

Identify problem areas

Reasons for poor fertility include both bull- and cow-related factors, such as:

- Heifer and cow nutrition, and BCS
- Difficult calvings
- Herd health status
- Management of replacement heifers
- Bull selection, soundness and fertility

In herds where artificial insemination (AI) is used, heat detection and AI technique and timing can be added to this list.

If the number of cows and heifers producing a live calf is a concern, categorise those females that fail to do so, whether:

- Empty – not in calf at end of breeding season
- Aborted – conceived but did not hold
- Died
- Culled

Identify the reasons why problems might have occurred and plan with the vet to avoid them in future.

Pregnancy diagnosis (PD)

It is vital that any cows not in calf at the end of the mating period are identified promptly. Options for PD are shown in Table 2. Observing heats is a useful management aid, but is an unreliable indicator of pregnancy.

Table 2. Analysis of different pregnancy diagnoses

	Manual palpation	Ultrasound scanning
Who	Vet	Vet/technician
Timing	From eight weeks (more success if done after five months)	From six weeks
Notes	Not good for accurate or early calving date predictions	More accurate calving date prediction, which is useful for identifying problems

Culling

Culling is a valuable tool to improve the herd's performance by removing cows that are not performing well and are costing, rather than earning, the business money.

Deciding which suckler cows to cull each year should be based on four key considerations:

- Is the cow in calf and predicted to calve inside the target calving period?
- Does her historical performance, and that of her calves, justify her staying in the herd?
- Is her health status acceptable?
- Is she easy to work with?
- Is she the type of cow suitable for your system?

Analyse why breeding animals are culled from the herd to find where problems exist. For example, if there are many empty first calvers, was this due to difficult calvings, the consequence of a particular sire or inadequate nutrition pre-calving leading to poor BCS at calving?

Body condition score (BCS)

Body condition scoring is a practical tool for managing the nutrition and fertility of suckler cows and heifers. It is used to assess their nutritional status at different times during the year.

Body condition scoring involves feeling across the animal's backbone and ribs for coverings of fat. In the UK, a score of 1 (very thin) to 5 (obese) is most commonly used (see Table 3).

For most suckler cows, one body condition score unit relates to about 13% of liveweight, so for a 650 kg cow, one BCS would be 84 kg.

Table 3. BCS descriptors and implications

BCS	Description	Implications
1	Very lean	Poor fertility or downer cow if pregnant, poor calf vigour
2	Commercial working range	
3		
4	Very fat	Poor fertility, increased calving difficulty
5	Obese	

Cow condition should be monitored throughout the year and assessed at key time points, including around calving, service, weaning or housing (see Table 4).

Table 4. Target BCS for cows and heifers

	Spring-calving herds	Autumn-calving herds
Calving	2.5–3.0	3.0
Service	2.5	2.5
Housing/ weaning	3.0–3.5	2.5–3.0

It is recommended that younger cows and heifers calve at BCS 3 because they have an additional feed requirement for growth over maintenance and lactation.

It is advisable to group cows by BCS and feed accordingly. The ideal would be to have three groups:

- Fat cows
- Cows on target
- Thinner cows and first calvers that need additional feeding

How to assess BCS

Cows should be handled on the loin area, ribs and the tail head to assess the level of subcutaneous fat.

When assessing BCS, handle cows on their left side, as seen from behind (Figure 4), because large amounts of kidney fat on the right hand side can be misleading.

- Grip the outer edges of the loin with the thumb curled under the ledge formed by the horizontal processes of the spine. The ball of the thumb is used to feel the thickness of fat over the bone
- The ribs are scored using the flat of the hand and fingertips to feel the amount of fat over them
- Feel fat deposits around the tail head and over the pelvic bone with the fingers

Assessment should be carried out quietly and carefully. An overall visual assessment is also important.

It is advisable that the same person does the body condition scoring each time for consistency.

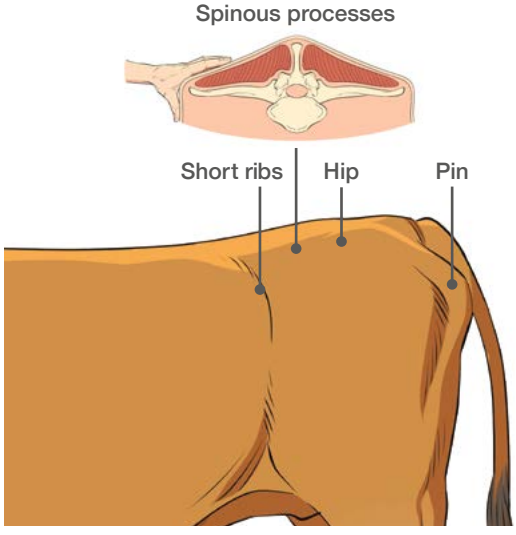
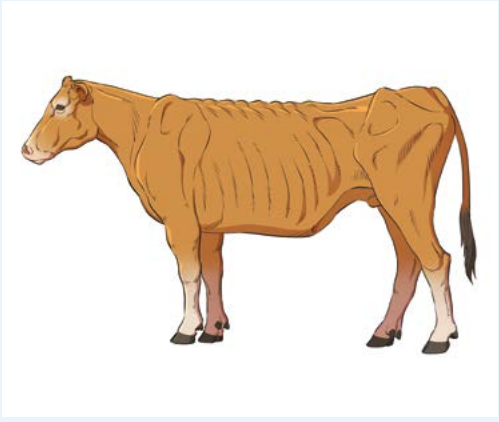
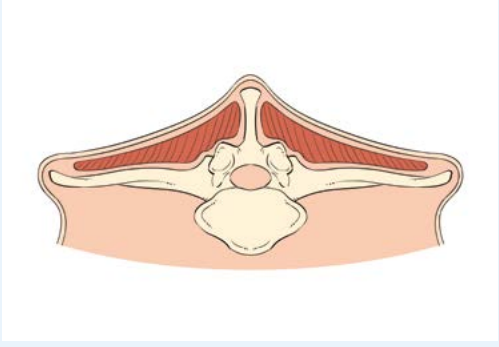


Figure 4. Handle cows on their left side, as seen from behind

BCS 1





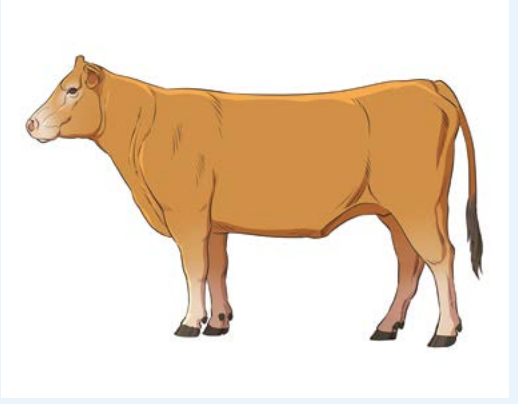
Loin

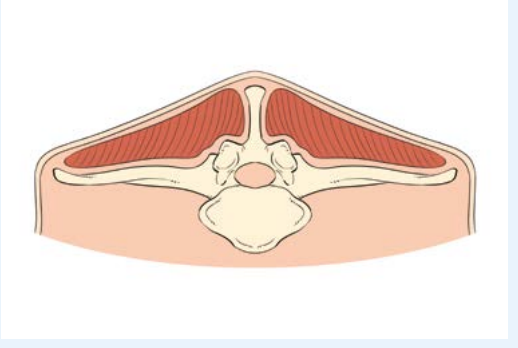
Horizontal processes can be identified individually with ends rounded.

Tail head

Shallow cavity, but pin bones prominent; some fat under the skin.

BCS 3





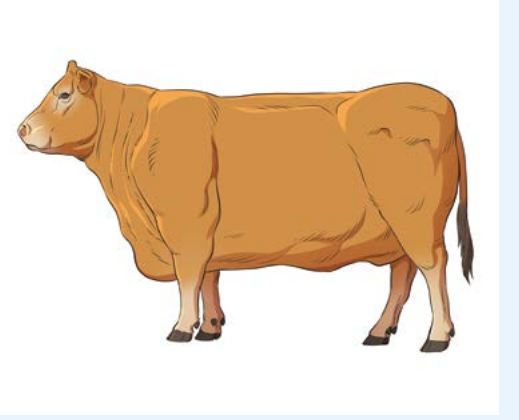
Loin

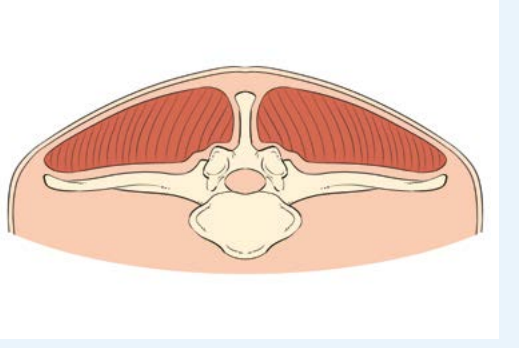
End of horizontal processes can only be felt with pressure; only slight depression in loin.

Tail head

Fat cover over whole area, but pelvis can be felt with firm pressure.

BCS 5





Loin

Cannot feel processes and has completely rounded appearance.

Tail head

Completely filled with fat folds, and patches of fat evident, soft to touch.

Impact on fertility

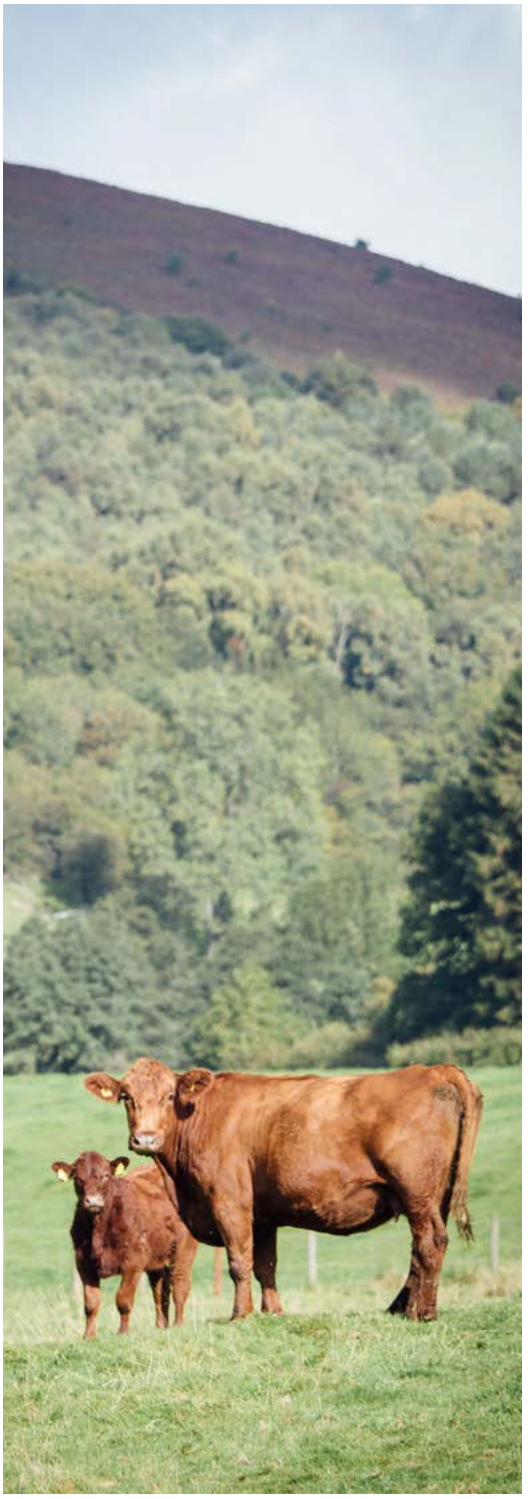
Body condition at calving has a critical impact on subsequent fertility. Feeding and grazing management should revolve around achieving target BCS 6-8 weeks before calving, then maintaining body condition during the final pre-calving period (see Table 5).

An approach is to get the vet to body condition score while pregnancy diagnosing. Depending on the season, cows of BCS of 4 or greater are put onto a diet, and those of BCS of 2 or less are put onto better feeding earlier. This avoids excess feeding in the last three months, which, due to partitioning, can increase foetal weight before cow weight. Having genetics for easy calving and short gestation allows cows to be kept slightly fitter at calving, which increases their fertility, as shown in Table 5.

Table 5. Effect of BCS at calving on calving interval in suckler cows

BCS at calving	Calving interval (days)
1–1.5	418
2.0	382
2.5–3.0	364

Source: Drennan and Berry (2006)



Feeding to improve fertility

The hormones associated with fertility and nutrition are closely linked. Under normal conditions, dietary energy is the main factor limiting the reproductive performance of suckler cows.

Nutrition before calving will have a greater impact on time to first oestrus after calving than nutrition after calving.

Spring-calving cows should calve at BCS 2.5–3 and then be fed on a rising plane of nutrition to mating. Autumn calvers should calve at BCS 3 and maintain this score through mating to six weeks beyond.

Cows have about 80 days in which to recover from calving and become pregnant again, if they are to maintain a 365-day calving interval. Nutrition from six weeks before calving through to six weeks after service is critical. This is because oocyte (egg) viability and embryo survival can be affected by excessive loss of body condition during this period.

Minimising negative energy balance in early lactation by providing high-quality feeds will also promote ovulation. The egg that will be fertilised to make the next calf will be produced while the cow is still pregnant with the first one.

Weaning the suckled calf

The time of weaning provides a useful means of manipulating BCS.

With spring calvers, be prepared to wean calves from six months of age if any cows are particularly thin to preserve body condition of the cow and avoid having to feed high levels of relatively expensive bought-in feeds during the winter.

In autumn-calved herds, delaying weaning until 10 months of age can avoid cows putting on excess condition in mid to late pregnancy. Alternatively, calves can be weaned earlier and feed supplied to the cow controlled.

At weaning, check the condition of all cows and heifers, and group according to BCS and feed as required. If space for separate groups is limited, keep heifers, first calvers and thin cows separately from the main herd, i.e. to ensure they continue to reach target liveweight and condition for the subsequent breeding season.

Essential micronutrients

Copper, selenium, iodine and vitamin E are essential for optimising suckler cow fertility, with iodine and selenium essential for calf vitality. Ask the vet to take blood or biopsy samples from some cows to identify any deficiencies.

It is important that a specific dry cow mineral is fed 4–6 weeks before calving. Switching to a high magnesium supplement one month pre-calving helps to reduce the incidence of slow-calving cows. If deficiencies of selenium and iodine are present, using a bolus one month pre-calving can help to improve calf survival and will continue working for bulling if a compact breeding period of nine weeks is used.

Suckler cows, particularly those up to three months calved, are at risk of hypomagnesaemia (grass staggers) when grazing lush grass in cold, wet conditions. You can provide supplementary magnesium and offering hay, straw or silage while at grass can help.

For more information, see **Feeding suckler cows and calves** manual.

Breeding to improve fertility

Breeding fertile replacements is an important means of improving herd fertility and crucial for long-term profitability.

To produce replacement heifers, use the bull or AI sire at the start of the breeding period. This means potential breeding females will be born early in the season and are likely to reach target weight for the start of the following breeding period. It also means they were born from the most fertile cows.

Estimated breeding values (EBVs) provide an assessment of an animal's breeding potential for a specific trait. There is a range of EBVs for important traits related to breeding productive suckler cows, as shown in Table 6 and Table 7. For more information, see **Choosing bulls** manual.

Table 6. Fertility EBVs

EBV	Impact of sire with superior EBVs
Age at first calving	Heifers that are reproductively active and able to conceive at an early age
Scrotal circumference	Bulls' daughters have better fertility and reach puberty earlier. Male progeny are also more fertile
Calving interval/days to calving	Females have a shorter interval between successive calvings
Longevity	Cows that have a long productive herd life, in part due to improved fertility
Gestation length	Calves born sooner mean cow has more time to prepare for another pregnancy

Table 7. Calving ease EBVs

EBV	Impact of sire with superior EBVs
Calving ease maternal/ daughters	Female progeny will require less assistance when they calve themselves as breeding females
Calving ease direct	Progeny will require less assistance when they are born
Birth weight	Calves will be smaller at birth and are likely to be born easily
Gestation length	Calves are born sooner with fewer calving difficulties

Gestation length is important, both for ease of calving and fertility. It helps infertility by allowing more recovery time of the cow before mating. For example, a bull with a 290-day gestation compared with a 280-day gestation will have calves that will be born, on average, five days quicker. This is five days extra before the mating to allow the uterus to fully recover. Although five days does not seem much, the time from birth to first time bulling is approximately 45–50 days for a beef cow, so this is 10% improvement. Choosing bulls/semen from known short gestations has had a positive impact on kg of calves reared per cow mated and shows how crucial this parameter is. In terms of calving ease, there are EBVs that relate to the ease with which a calf is likely to be born, as well as how easily a female will calve when she produces her own calves.

Breeding strategies to produce replacements must also take into account other traits including growth rate, milking ability and temperament. See Table 8 for growth and milk EBVs.

Heifers must reach their target weight by first service and go on to produce calves that grow efficiently, so genetics for good growth are important. They must also have sufficient milk to enable fast rates of calf growth to weaning.

Table 8. Growth and milk EBVs

EBV	Impact of sires with superior EBVs
200-day growth EBV	Heavier calves at 200 days of ages
200-day milk EBV	Females that produce more milk

Female sexed semen is available for suckler herds. This can be used as a tool to ensure that replacement females are bred from the most productive cows.

Difficult calvings

Calvings that require assistance greatly increase the risk of reproductive problems in the following breeding season (see Table 9) and reduce calf survival. This is because bruising and infection of the cow slows the time to first bulling.

Table 9. The impact of assisting cows to calve in subsequent breeding season

Calving history	Number of cows	Subsequent breeding season success rate (%)
No assistance	81	96
Assisted by stockperson	9	25
Assisted by vet	6	34
Caesarean	4	75

The main causes of calving difficulties are:

- Calves that are too big – due to excessive dam nutrition or incorrect sire choice
- Dam is poorly grown – or not mature enough to calve
- Dam is overfat
- Abnormally small or abnormally shaped pelvis

Nutrition

Planned management of cow nutrition, with regular assessment of body condition, can reduce problem calvings. Similarly, making sure maiden heifers are well grown at service and fed well to allow them and their calves to continue growing after service will encourage easier calvings.

Do not feed excessively in mid to late pregnancy, as this will increase the birth weight of the unborn calf, leading to calving difficulties, without improving the body condition of the cow.

Equally, limiting feed to reduce calf birth weight during the last month of pregnancy can do more harm than good. It reduces cow fertility and colostrum quality, causes problems for the calf and reduces the cow's stamina at calving.

The best option is to adjust feed rates at weaning to gradually change body condition, aiming for cows to be in the correct BCS six weeks before calving and then to maintain BCS to calving, while considering supplementation of young or thin cows.

Top tip

Blood sample six cows one week pre-calving to do a metabolic profile to check cows will be producing enough quality colostrum.

Breeding

You can use EBVs to select bulls that will reduce the incidence of calving problems. Choose sires with:

- Low birth weight EBVs
- Short gestation length EBVs
- Good EBVs for direct calving ease

Calving the cow

Only intervene when a calving is not proceeding normally. Assisted and difficult calvings increase the risk of uterine infections, e.g. endometritis (whites), which can significantly delay the onset of cycling after calving.

Once calving begins, monitor progress. If nothing has happened after the cow has been straining for 30 minutes, check the calf is presented correctly.

Do not wait too long to call the vet as if the cow has been calving too long, it can impact calf survival.

After the water bag is first seen or has broken, heifers can be left for up to 2 hours and cows for 1 hour. If there is a problem, decide if it can be handled without veterinary assistance.

Top tip

Always wear full-length gloves and use a lot of lubrication to assist the smooth passage of a live calf.

Disinfect any calving equipment between each calving. Powder disinfectant helps maintain a dry calving environment and should be used before additional bedding is given to each cow after calving.

For more details on successful calvings, read the **Minimising calving difficulties** online series at **ahdb.org.uk**

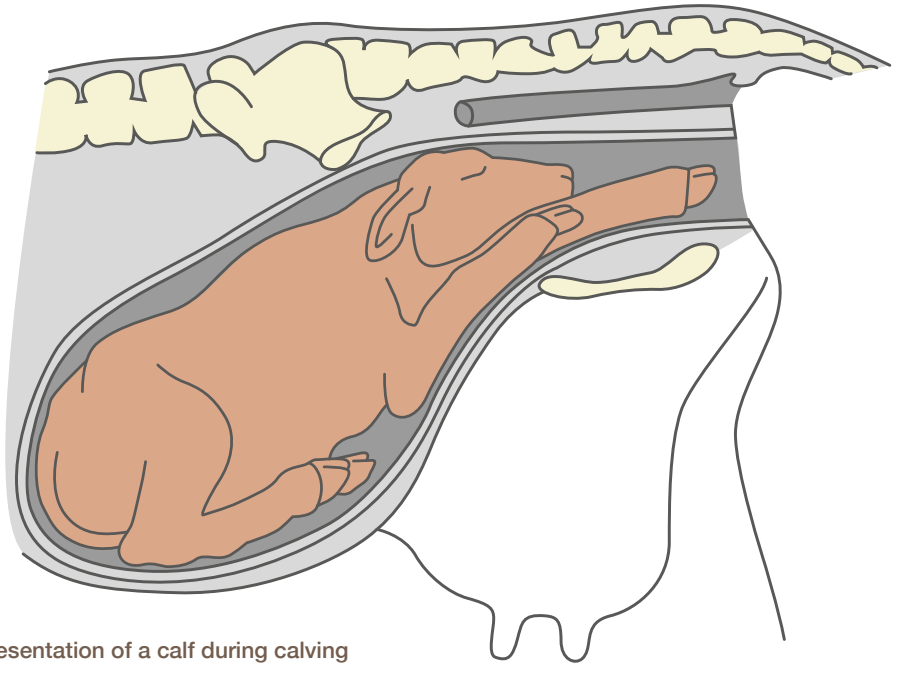


Figure 5. Ideal presentation of a calf during calving

Bull fertility

Bull fertility is important for maintaining a compact calving period, maximising the value of the calf crop and overall herd profitability.

While few bulls are infertile, i.e. not capable of getting a cow in calf, many are sub-fertile and will produce fewer calves than a fertile bull.

A breeding soundness examination, performed by the vet, is a sound investment before the start of the breeding season, to test semen quality and physical attributes.

In the UK, 25% of bulls fail a pre-breeding examination.

The bull must be in good health at least 10 weeks before the breeding season begins. Semen production takes 60 days, so forward planning to make sure the bull is in optimum condition is essential.

Preparation for work

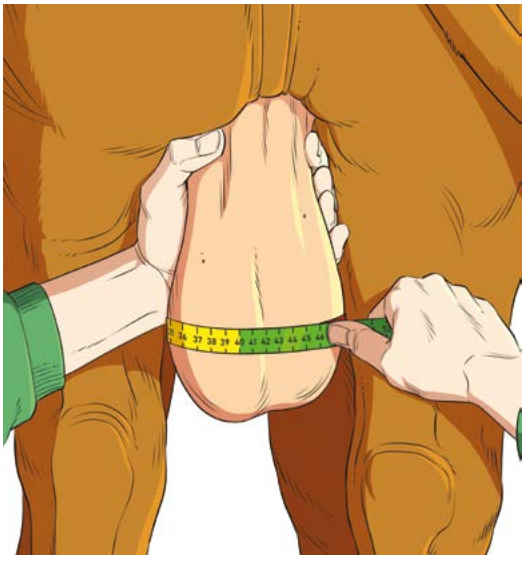
- Ask the vet to test the breeding soundness of the bulls 10 weeks before he is required to start mating
- Check the bull's body condition – ideally BCS 3
- Quarantine new bulls for four weeks after purchase for health screening and ration acclimatisation
- Avoid sudden ration changes and do not overfeed, as this can reduce fertility and lead to feet problems
- Check feet and legs well in advance of serving time. Bad cases of lameness can affect semen quality and reduce fertility for weeks after treatment
- Provide exercise where possible, e.g. site feed and water at opposite ends of the field

Scrotal measurement

Measurement of the scrotal circumference is an important check as it is highly correlated to daily semen production. The greater the testicular circumference, the greater the serving capacity of the bull.

The testicles should be measured at their widest point once the neck of the scrotum has been squeezed to force testicles down.

You can order AHDB's bull testicle tapes at **ahdb.org.uk**



While at work

- Watch the bull working to check he is serving cows effectively
- Pregnancy diagnose the cows and heifers early, to identify an infertile or sub-fertile bull. Even bulls that have passed a breeding soundness examination can go lame or suffer reduced fertility during the breeding season
- Record cows being mated and watch for signs of cows repeatedly coming on heat

For more information on bull health, see the **Choosing bulls** manual.

Health issues

Most health problems affect fertility, some more severely than others.

One of the most common ways of introducing health problems is buying or bringing in infected cattle.

Knowing the health status of new animals is important, as is keeping them separate from other cattle until a suitable quarantine period has passed and monitoring and testing have confirmed they are healthy.

Bovine viral diarrhoea (BVD) *Neospora*, infectious bovine rhinotracheitis (IBR) and Johne's disease should be actively managed in all suckler herds.

You can find out more about these fertility-affecting diseases in AHDB's **Beef diseases directory**.

Lameness

Lameness can reduce fertility by reducing cow body condition. Lame cows are also more likely to lie on their newborn calf. Find the cause of the lameness and put in place appropriate treatment and control measures. If a beef cow has misshapen cleats, she should be trimmed and not mated again as it is likely to reoccur. In the US, there are foot score guidelines for foot angle and cleat splaying.

For more information see the **Beef diseases directory** available in hard copy and online at **ahdb.org.uk**

Minimising risk

Sourcing breeding cattle from herds of accredited herd health status minimises the risk of buying in disease. Individual animals can be screened immediately before purchase or when in isolation after purchase. Always consider the TB status of cattle coming onto the holding and take appropriate action.

For more information, see the **Beef diseases directory** available at **ahdb.org.uk**

Top tips

- Practise effective biosecurity, such as isolating incoming stock while health testing is done, as this will minimise the risk of introducing disease
- Purchase cattle of known high health status from accredited herds
- Maintain good boundary fences to avoid contact with neighbouring livestock
- Implement an active herd health plan and review annually with the vet
- Vaccinate the herd appropriately to protect health status
- Provide a clean environment using effective disinfectants to clean buildings and keep calving areas clean, well bedded and mucked out regularly
- Keep feeding areas and equipment clean

Managing replacement heifers

Heifers that calve for the first time at two years old will produce more calves than heifers that calve for the first time at three years old. If managed well, calving at two years can significantly improve herd productivity. It allows fewer groups of stock to be kept and at least 10% more productive cows in the herd than when calving heifers at three years old.

Calving at two years also reduces the time between generations, leading to a faster rate of genetic improvement in the herd.

Successful calving at two years relies on meeting liveweight targets as the heifers grow to maturity, as shown in Table 10.

Choosing replacement heifers

When selecting heifer replacements, the earliest born are most likely to reach puberty and get in calf at an early age. So aim to select heifers born in the first six weeks of the calving period that have grown well. Check that heifers are physically sound and easy to handle.

Pre-breeding checks

As well as considering the weight and age of heifers pre-service, it can be useful to ask the vet to do some simple checks:

- To check that heifers are cycling before service
- To measure the pelvic area to reduce risk of calving difficulties. This enables heifers with an abnormally small or an abnormally shaped pelvis to be removed from the herd
- Check for reproductive tract abnormalities and/or freemartins

Top tips

- Manage heifers to reach puberty at around 12 months of age. This allows them to start cycling before they are introduced to the bull
- Mate heifers over a shorter period than the main herd so they can calve early in the calving season. This allows them more time to recover from calving and get back in calf
- Breed to an easy-calving bull or AI sire to minimise calving difficulties

The outcome of this should be a long-lived animal that is a productive member of the herd.

Table 10. Example growth rates and liveweight targets for replacement heifers aiming to calve at 24 months

Mature cow weight (kg)	Growth rate from birth to service (kg/day)	First service (15 months of age) 65% of mature weight	Start of second breeding season 85% of mature weight	Start of third breeding season 95% of mature weight
		Target liveweight for replacement heifers (kg)		
600	0.80	390	510	570
650	0.85	423	553	618
700	0.90	455	595	665

For more details, see **Managing beef replacement heifers**.

Breeding options

Artificial insemination is now commonly used in dairy and pedigree beef herds, enabling you to hand-pick bulls according to your EBVs. For a relatively small cost, you can purchase semen from high genetic merit sires, speeding up genetic progress in your herd and increasing the value of calves. It also avoids the need to have both terminal and maternal stock bulls for herds breeding your own replacements.

Synchronisation is a means of encouraging a batch of females to come bulling together so they can all be served at the same time. It is commonly used for females being AI'd, as it enables AI to be carried out at a fixed time without the need for observing heats. It can also be useful for tightening calving periods. For example, using synchronisation can allow up to two-thirds of cows to become pregnant on day one of mating, something a bull will never achieve. This is why the majority of beef heifers in the US are synced.

Advantages and disadvantages of AI and synchronisation

In both cases, attention to detail is critical to achieve success.

Artificial insemination

Advantages

- Access to top-quality, high-accuracy genetics without large investment in a bull
- Avoids year-round cost of keeping a bull and the need for a maternal bull as well as a terminal bull, if breeding replacements
- Wide choice of bulls
- Bulls can be selected that are specifically suitable for heifers, e.g. easy calving traits
- Reliable semen quality
- Avoids disease threats of buying in stock from outside the herd
- Sexed semen available for breeding replacement heifers

Disadvantages

- Heat detection required unless cows are synchronised. Without synchronisation, requires time spent observing natural heats, ideally 20 minutes three times daily
- Conception depends on numerous factors, including a competent technician, and is typically 50–70% successful
- Additional labour and handling facilities are required
- Cow/heifer temperament is important

Synchronisation

Advantages

- Minimises labour requirement at AI and calving
- Avoids need for heat detection if using fixed time insemination
- Facilitates AI, giving access to high genetic merit sires
- Can be used to tighten calving blocks
- Allows calves to be born earlier in the season so improving weights at weaning
- Enhances reproductive performance of cattle by allowing cows to calve earlier in the season and having more recovery time before the start of the next service period

Disadvantages

- Additional upfront cost
- Need to handle stock several times
- Can require 20% more heifers to be mated if only given two opportunities to conceive to AI
- It can interrupt normal oestrus cycle if not holding
- Additional cost required

For more information, see the **AI and oestrus synchronisation of beef cattle** at **ahdb.org.uk**

The suckler cow production calendar

Record details of your herd's physical performance using the **Herd notebook**.

Spring calvers are usually weaned carrying excess body condition, which they lose slowly up to six weeks before calving. BCS of autumn calvers needs to be controlled to avoid cows being too fat at calving.

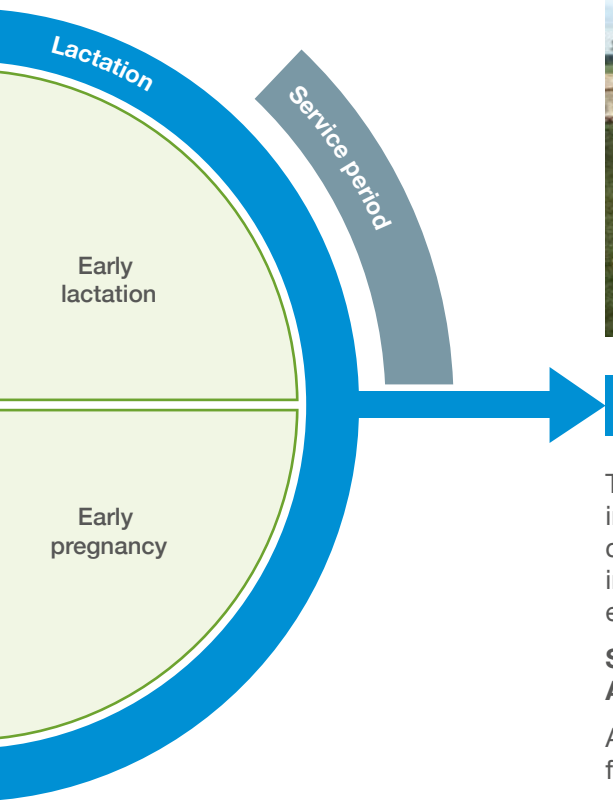
Spring calving BCS 3.0–3.5
Autumn calving BCS 2.5–3.0

Calving

Spring calving BCS 2.5–3.0
Autumn calving BCS 3.0

Oestrous should be observed and service period should start six weeks after calving. Cows need to be back in calf 12 weeks (80 days) after calving.

The average gestation length for commonly used terminal sires is 280–290 days, leaving only 80 days for the uterus to recover after calving and for the cow to start cycling again and become pregnant. Achieving a 365-day calving interval depends on a cow being in good body condition and fit and healthy after calving.



Service and early pregnancy

Thin cows will struggle to conceive. Aim to increase BCS from calving to six weeks after conception to encourage bulling activity, implantation of the embryo and to reduce early losses.

Spring calving BCS 2.5–3.0
Autumn calving BCS 2.5–3.0

Avoid any loss of BCS during mating and for six weeks after end of service period.

Further information

Other publications from AHDB

- Feeding suckler cows and calves
- Choosing bulls manual
- Minimising calving difficulties
- Beef diseases directory
- Managing beef replacement heifers
- Herd notebook
- Bull testicle tapes

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Produced for you by:

AHDB Beef & Lamb
Middlemarch Business Park
Siskin Parkway East
Coventry
CV3 4PE

T 024 7647 8834
E comms@ahdb.org.uk
W ahdb.org.uk

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