

Body condition scoring suckler cows

Summary

- **Body condition scoring requires little training, no additional equipment and negligible extra time when cows are handled for other routine purposes.**
- **Use of condition scoring could benefit the farm enterprise and reduce its carbon footprint by ensuring that winter feed is allocated to cows that most need it, thereby reducing the economic and environmental burden from inefficient feed use.**
- **Appropriate cow body condition helps to give calves the best start in life. Calf viability and growth are improved by a moderate condition score and avoiding large swings in condition over time.**
- **Condition score spring calving cows early in pregnancy to give time to gradually adjust the diet.**

Introduction

Most Scottish beef cattle are pregnant over the winter and calve in the spring. Providing feed over the winter is costly and most farmers aim for spring calving cattle to gain fat during the summer grazing season and to lose fat over the winter. Additionally, obesity at the time of calving is believed to lead to calving difficulties and is a further reason to allow condition loss over the winter. However, changes in fat level could affect development of the fetal calf and its subsequent ability to thrive after birth. Managing body condition is a balancing act; too lean and calving ease, calf survival and cow fertility may suffer; too fat and calving ease may suffer and feed is wasted.

In the UK, body condition is scored on a scale from 1 (very lean) to 5 (obese). Condition scoring is a simple, quick and free approach to maximise the chance that a cow weans a healthy calf each year. However, Scottish Government funded work at SRUC suggested that only 4% of farmers use the recommended condition scoring approach (described below).

Large variation in body condition exists on most farms, even between animals of the same breed and similar age, suggesting that there is ample opportunity to more closely manage body condition. Cow body condition was recorded in mid and late pregnancy on 3256 spring calving cows from 37 herds in Scotland and northern England. The sample of animals represented the breeds most commonly found in the industry. Figure 1 shows the condition score distribution in mid-pregnancy, at the time of housing, and in late pregnancy (on average 47 days before calving). The condition score targets are around score 3 to 3.5 in mid-pregnancy and 2.5 to 3.0 at calving. Only 37% of cows were within this target range in mid-pregnancy and 46% were within the target range in late pregnancy. It should be noted that the autumn was unusually mild and the grazing season was particularly long before these animals were housed. Also note that the cows in our dataset may have changed condition in the final 47 days of pregnancy.

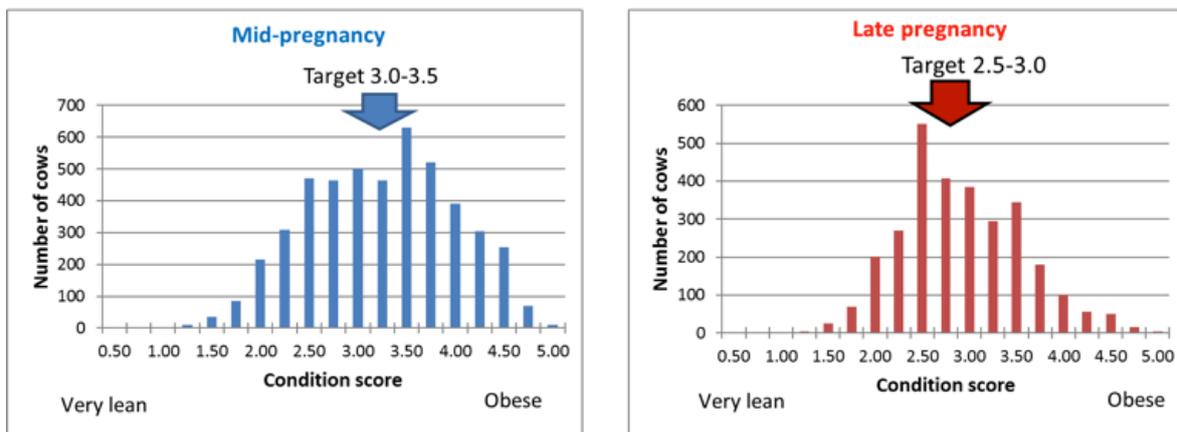


Figure 1: Variation in body condition score of 3256 spring calving suckler cows on 37 Scottish and English farms in the autumn of 2016 (left graph) and spring of 2017 (right graph).

Figure 2 shows the change in body condition from mid to late pregnancy. Most animals above a target condition score of 3 to 3.5 in mid-pregnancy lost condition as pregnancy progressed, but some lost more than one condition point in a period of only 12 weeks, indicating quite sudden and major weight loss of more than a kilogram per day for a 700kg cow. Meanwhile, others that were above the target of score 3 to 3.5 in mid-pregnancy actually gained condition, wasting feed.

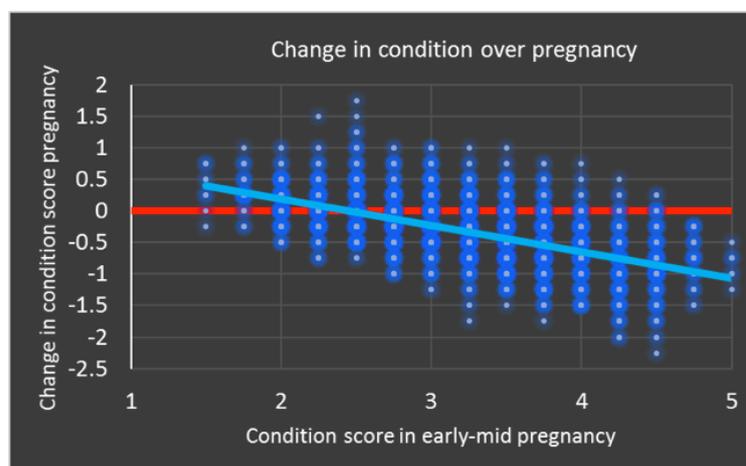


Figure 2: Change in body condition score over pregnancy in spring calving cows on Scottish and northern English farms. The horizontal axis shows the condition score at the time of winter housing. Cows above the red line gained condition over pregnancy; those below the red line lost condition. The blue line shows the average trend.

Benefits of condition scoring

Condition scoring gives a straightforward way to assess the suitability of feed provision and takes 10–20 seconds per cow when handled for other routine procedures. Condition scoring provides a more useful indicator of fat cover than body weight since weight is affected by cow size and stage of pregnancy.

Obesity is often said to be a risk factor for calving difficulty, but this link may be weaker than often believed. Two recent studies have failed to find an effect of obesity (calving at greater than score 3.5) on the need for calving assistance based on an SRUC dataset of 2366 spring calving cows and a University of Edinburgh dataset of 984 spring calving cows. Conversely, cows calving at a condition score of less than 2.5 had a greater risk of calving problems in the University of Edinburgh study. Unless cows are very obese, it does not seem justified to put them on a severely restricted diet to encourage condition loss, particularly if this risks making some of the cows in the group too lean.

Some of the effects of body condition are subtle. A large body of literature in a range of species has shown that maternal stress, including nutritional challenges, can have undesirable effects on the behaviour, health, welfare and growth of the resulting offspring. Neonatal vigour is susceptible to maternal stress in other species and it is reasonable to expect the same effect in cattle. Vigour is critical to calves gaining colostrum to ensure adequate intake of the immunoglobulins needed for an effective immune system. In the SRUC dataset of 2366 cows, animals that were 'lean' in late pregnancy (condition score 2 or less) had calves that were 7% less vigorous than other cows. Therefore, vigour is suppressed if the cow is lean in late pregnancy, and particularly if she loses substantial amounts of condition over pregnancy. This effect was apparent after we took account of the effects of the calf sex, size, breed, farm, calving date and cow age on calf vigour. It is also likely that cow condition will affect subsequent fertility.

On some farms, spring calving cows may receive a poorer quality of feed or a smaller amount of feed in the last few weeks of pregnancy as this is perceived to reduce calving problems by reducing fetal size. This is a risky strategy that is not without costs. Cows that lost more than 0.5 condition score points between housing and 47 days pre-calving had calves that were 13% smaller at birth than cows that gained more than 0.5 points. However, the growth rate of the calves born from mothers that lost most condition was suppressed by a small amount (2%), and this growth penalty persisted until weaning. Although this effect on growth rate may seem small, other biological penalties for the calf could result from feed restriction in pregnancy that have not yet been studied, in addition to the suppression of vigour outlined above. Severely restricting feed in late pregnancy also risks the cow being in a low energy status and becoming exhausted during delivery which will lead to calving problems. Furthermore, low energy status will also risk the production of poor quality colostrum.

Taken together, our results indicate that obesity during the earlier stages of pregnancy in spring calving cows followed by substantial condition loss as pregnancy progresses is likely to lead to less vigorous, smaller and slower growing calves. **Maintaining condition at a moderate level throughout pregnancy and avoiding major changes in condition is likely to be the optimum strategy for cow and calf.**

How to condition score

The recommended approach is to condition score using the hands to palpate fat depth on restrained animals. Although assessment from a distance by eye is better than no assessment at all, it is much less accurate as leanness can be masked by a thick coat. Additionally, individual cows can deposit fat disproportionately in one part of the body compared to another, as can different breeds. Detecting that a cow has deep fat reserves in one body area but not another is much easier when palpated by hand. A visual guide to condition scoring suckler cows has been produced by the National Animal Disease Information Service: <https://www.nadis.org.uk/disease-a-z/cattle/condition-score-bcs-in-beef-herds/> A poster summarizing key dates and targets for spring calving herds has been produced by QMS https://www.qmscotland.co.uk/sites/default/files/qms_cow_nutrition_timeline_poster_nov_2018.pdf



Figure 3: One hand should be placed on the tail head and the other on the transverse processes emanating from the spine in front of the pelvis.

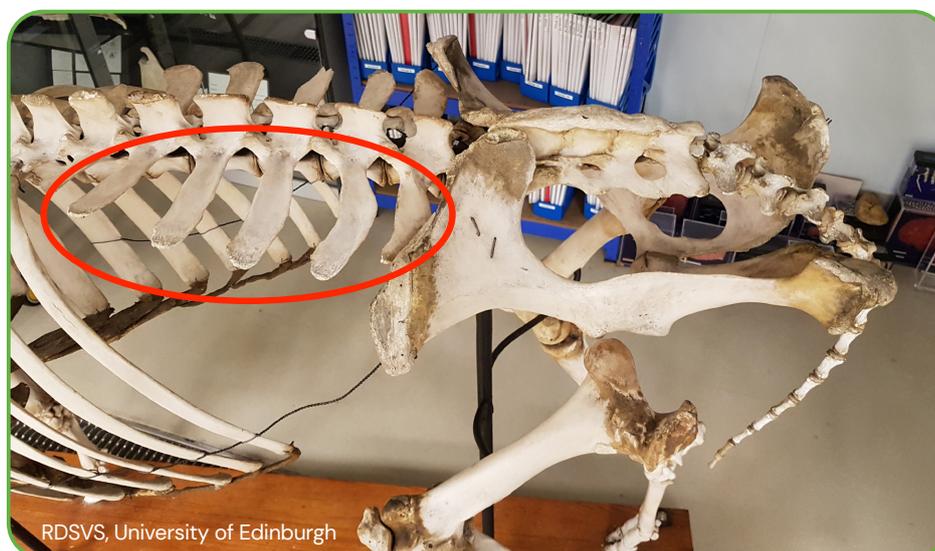


Figure 4: The transverse processes are shown in the red circle.

Approach the cow from the side and firstly place a hand on the transverse processes which are the horizontal bony projections from the vertebrae. If the animal is not standing normally wait until they are. After assessing the transverse processes, place a hand on the tail head.

As a general guide, it should be possible to feel the transverse processes without pressing too hard. The bones should not feel sharp or pointed but should have a substantial fat cover. If the ends of the processes do not feel rounded by fat, the animal is likely to be below condition score 2.5 and therefore too lean. If they cannot be felt at all the cow is probably carrying too much condition and must be score 4.0 or above. When the processes cannot be felt, the tail head may give an indication of the extent of obesity. Table 1 summarises how these key parts of the body should feel at different condition scores. In heavily pregnant cows, the uterus can cause the abdominal wall to balloon outwards making it harder to palpate the transverse processes and giving the visual impression of obesity. In such animals, the tail head may give a more accurate indication of fat cover. In most animals the score at the transverse processes will agree fairly closely with that at the tail head. If they do not agree, average the two scores.

Table 1: How the transverse processes and tail head will feel and appear at different condition scores.

Condition score	Transverse processes	Tail head
2.0 or below	Each process can be easily felt with very light pressure, and they have only a thin layer of fat at score 2.0. Below score 2.0 the processes will feel sharp. Deep cavity in abdomen below processes.	Deep cavity with no fat between skin and bone. Pin bones are sharp.
2.5	Each process can be easily felt with light pressure, but they feel rounded. Cavity in abdomen below processes.	Deep cavity but with a little fat between skin and bone. Pin bones are prominent but not sharp.
3.0	Each process can be felt with moderate pressure but feel well-rounded. Shallow cavity in abdomen below processes.	Shallow cavity with obvious fat between skin and bone. Pin bones can still be felt but are well rounded.
3.5	Some processes can be felt but only with firm pressure and feel well-rounded. No obvious cavity in abdomen below processes.	Cavity largely absent and pin bones covered in a layer of fat.

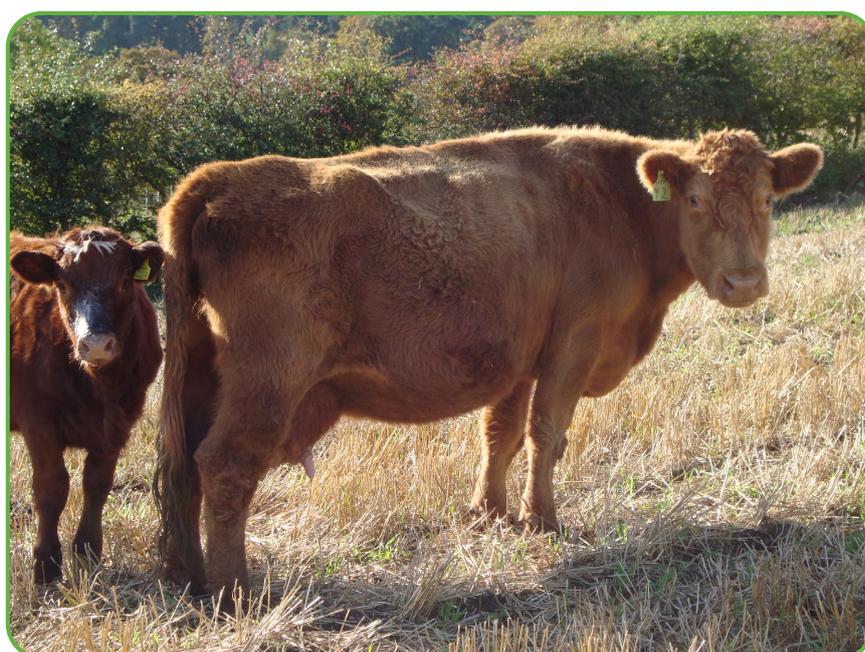


Figure 5: A cow at an approximate condition score of 2.0.

When to condition score

Once you are familiar with condition scoring, the process takes only a few seconds per cow when they are restrained for other purposes and you should take every opportunity to score cows during routine handling. It is particularly important to score spring calving cows as soon after bringing them into winter housing as possible so that any adjustments in feeding can be made gradually. Scoring only in late pregnancy gives too little time to adjust condition and, since important elements of fetal development occur around the middle of pregnancy, adjustments made at the end may not rectify effects of inappropriate condition experienced in the preceding months.

Use condition score information in management decisions

Condition scoring is only valuable if the information is used. Limiting quality or quantity of feed to cause severe or sudden weight loss should be avoided as it will likely constrain the energy available to the cow during delivery of the calf and will risk poor calf vigour. Where possible, thin cows should be managed separately from fatter cows. Managing them in one group may allow more competitive cows to gain weight at the expense of less competitive ones which will increase the variation in condition in the herd.

Make use of early pregnancy testing and take particular care to ensure twin bearing cows are protected from major changes in condition. If there is a large calving spread in the herd, it is also important to consider the anticipated calving date to ensure that there is time to gradually alter condition if this is needed. Condition scoring can also help to identify cows that would benefit from earlier weaning of their present calf to benefit the development of the following calf. Heifers will have different nutritional requirements to mature cows and it is best to manage heifers as a separate group. Expectant second calvers may also benefit from being managed with the heifers, especially if they delivered their first calf at a young age.

The ability to manage body condition will be greatly aided by knowledge of the nutritional quality of the feed provided. Feed analysis should therefore be carried out alongside condition scoring and used in decisions on the allocation of the highest quality silage to the animals that most need it and whether concentrate is required. For information on nutritional management of suckler cows, please see Technical Note TN746 'Management of Nutrition around Calving in the Suckler Herd' (<https://www.sruc.ac.uk/media/sObptbam/tn-746-management-of-nutrition-around-calving-457438.pdf>).

Conclusions

- **Body condition scoring should be regarded as a routine tool to aid management decisions.**
- **Condition scoring requires a little practice, but needs no additional equipment and takes only a few seconds per cow.**
- **The large variation in body condition between and within farms suggests that there is much opportunity to better use limited feed resources and to protect cow fertility and calf development.**
- **Calving at a low body condition (below score 2.5), particularly if the cow was overweight in mid-pregnancy, reduces calf vigour which makes it less likely that they will ingest enough colostrum.**
- **Condition score whenever cows are handled and ensure that it is done as soon after bringing spring calving cows into housing for the winter as possible to give time to gradually adjust condition as pregnancy progresses. Avoid large or sudden changes in condition.**

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