

Supporting the
land-based industries
for over a century



S A C

Welfare of the Weaned Calf

A Scottish Government Funded Campaign

- Reducing stress at weaning
- Animal health strategies to improve welfare
- Nutrition of the weaned calf
- Buildings and ventilation

Welfare of the Weaned Calf • Welfare of the Weaned Calf • Welfare of the Weaned Calf • Welfare of the Weaned Calf • Welfare of the Weaned Calf



Reducing stress around weaning

By Iain Riddell, Senior Beef and Sheep Consultant, SAC Perth.

Weaning is a stressful time for calves, particularly spring born calves that are weaned younger than autumn born calves at a time when feed supplies and weather conditions are deteriorating. Some farmers accept that calves will inevitably go through a prolonged growth check after weaning, however this does not need to happen. Steps taken to improve calf welfare at weaning will also improve the lifetime performance of the animal and boost enterprise profitability.

What are the stresses that affect calves around weaning? It is important to see things from the calf's perspective.

Stressors

- Transport or travel from field.
- Treatment in handling pens.
- Change of environment – field to pen.
- Mixing with calves from other groups.
- Loss of contact with dam.
- Big change of diet – used to 6 litres of milk per day, accounting for 25% of its energy intake.
- Unfamiliar feeds – unused to forage and sometimes cereals.
- Respiratory problems from poor ventilation.
- Exposure to transfer of disease from older animals.

What can we do to minimise stress?

Some of these stresses are unavoidable but others can be reduced or spread over a longer period to reduce the overall impact. The following are techniques that can be used to reduce stress.

Heavier calves cope with stress better than lighter calves

How do you get heavier calves, without changing calving date or age at weaning? Improve suckler herd fertility and ensure that two thirds of your calves are born in the first 3 weeks of calving. A calf born in week 2 of calving is 28 days older than one born in week 6 and is likely to be 30kg heavier at weaning. Information on tightening the calving spread can be found in the QMS publication "Improving Suckler Herd Fertility", available through all SAC Offices.

Delaying weaning is not really a solution, since this will often pull down the condition score of the cow, affecting its welfare and future fertility.

Creep feed reduces stress and risk of pneumonia

Young calves, reared on a diet of milk and grass have a limited rumen capacity at weaning. This limits their forage intake and places a higher reliance on growth off concentrates. This transition is best handled by offering creep feed, either for a minimum of 6 weeks before weaning, or ideally 10 weeks before weaning. The 10 week option is likely to increase weaning weights by 25kg, and post weaning gains by at least 10kg, at a time when feed conversion is at its most efficient at around 5kg feed per kg liveweight gain. Creep fed calves will suffer less stress at weaning because they have already adjusted to a concentrate diet, and will be less susceptible to pneumonia. Gradually mix the housing concentrate in with the creep so that calves are on their post weaning concentrates two weeks before weaning.

Offering roughage before housing/weaning

Offering either silage or straw as a supplement to cows and calves pre-weaning helps calves get used to eating conserved forage before housing.

Gradual weaning techniques

I have seen a number of these systems used on farm with good success.

The easiest of these methods is to wean most of the calves at housing but to leave a few of the fitter cows that can afford to lose a bit of condition in with the calves for a week or so after weaning. This helps calm the calves.

Those with a reasonable amount of shed space can set up creep areas in the shed and gradually shut the calves in the creep pen for longer periods over a two week period. The calves will gradually wean themselves.

Another technique involves removing a third of the cows from the cow and calf group every week. Removing 12 cows from a group of 35 cows and calves, means that 23 calves will still be with their mothers and behaving normally which tends to calm the weaned calves. By the time the next 12 cows are removed from the group, the first weaned calves should be calm, and so on. This works well when weaning co-incides with housing.

Pecking order

Weaning usually involves the stress of mixing calves from different groups to form batches of steers and heifers. The key thing is to form even batches because it is always the smallest calves in the group that will either be bullied or feel intimidated about going to feed, and be most susceptible to stress. These problems are greatest in big groups so limiting group size initially can also help. Again, if you have a compact calving your calves will be a more evenly sized and pecking order problems will be limited.

Housing

Always house your newly weaned calves in a separate shed to avoid contact and spread of respiratory disease from older to younger animals. Weaned calves should be housed in your best ventilated shed. Calves should always be housed when coats are dry, preferably at a low stocking rate.

Treatments

Try to spread out treatments to avoid too many treatments at weaning – worming and respiratory treatments can be phased in before housing. Veterinary treatments are covered in a separate section. Calves should be castrated using rubber rings shortly after birth – the belief that leaving male calves entire improves their growth rates up to weaning is completely wrong. Delayed castration causes a severe growth check.

The Health of the Weaned Suckler Calf

By Dr Sandy Clark, SACVS, Thurso

Many beef suckler calves are either weaned prior to or at the time of winter housing each year and a number of other late calvers during the housing period. This is a stressful time for these animals often born outside or having spent the majority of their life at grass. There are a number of common, often annual, problems associated with the event to consider and a number of positive actions to reduce the impact of weaning and housing from a health perspective.

Diet

It is often an advantage to feed conserved roughage to beef cows in the late summer and autumn in an attempt to reduce the chances of staggers (magnesium deficiency) which can result from eating excess cold wet grass as summer weather deteriorates. This gives the calves an opportunity to share the food with their mothers, something which later weaned animals benefit from being inside together. This greatly reduces the stress associated with different foods in a strange environment.

Respiratory Disease

The change of environment from outdoors to winter housing can allow certain viruses and bacteria the opportunity to multiply and cause disease commonly when stress levels are high and the air conditions in the environment are compromised. Days of high humidity and temperature can cause animals to experience respiratory difficulty and this may allow the agents to create disease. Most of the bugs are already present in the calves themselves or other older cattle nearby – try to avoid housing young and old animals in the same airspace. The past history of disease outbreaks on the farm is a useful starting point if there are to be some preventive measures taken such as vaccination since selecting the correct product will be dependant on previous veterinary investigation and identification of the cause. It is vital that veterinary advice is sought since there are many products available and often multiple methods of administration which must be adhered to. It is essential to address problems with building design and ventilation to avoid stale air and wet conditions and to ensure that the diet is correct. Always try to house animals when dry and when there is low humidity.

The presence of Bovine Viral Diarrhoea (BVD) in a herd can cause many of the respiratory problems to be exacerbated and also reduce the efficiency of vaccines through suppression of immunity. Testing should be undertaken to identify the presence of the disease and if found to eradicate it since the benefits well outweigh doing nothing or vaccinating blind without knowing the health status of the herd. One persistently infected (PI) animal can cause severe damage to production as well as loss of stock from disease during the housing period.

Parasites

Beef suckler calves are exposed to various parasites when at grass including coccidia, gut roundworms, lungworm and liver fluke. All of these have the potential to interfere with growth and production and should be eliminated before the housing period when hopefully there will be no further infection. Lungworm and gut worms can be eliminated prior to housing by using pour-on or injectable avermectins which will give protection against infection for three to five weeks depending on the product used. The elimination of lungworm allows the lungs to recover and be fully efficient prior to the stresses of housing and this can also allow vaccines to work more efficiently preventing upper respiratory disease and pneumonia.

Liver fluke infection is an increasing problem on many farms and the use of the appropriate oral dose at housing or treatment later with an injectable or oral product 6 weeks after housing will solve the problem – it is often worth testing bulk faeces samples 6 weeks after housing to ensure there are no viable fluke present.

External parasites such as lice, and mites can be a problem and may be eliminated by using the correct format of avermectin or pour-on permethrin treatment.

Trace elements

In some areas grassland is deficient in some trace elements or vitamins and it is vital that there is identification and treatment of this prior to housing to ensure maximum growth and performance after weaning. Some elements such as copper and selenium are also important for the immune system to work efficiently and thus help with disease prevention and control. Other substances such as vitamin B12 control appetite and vitamin E muscle function. Once more the history of the farm is important in deciding with your vet which trace elements are lacking and what to administer, how and at what rate.

The positive message

By taking care to ensure that the weaning period is stress free and that diseases are under control, it should be possible to house young animals and avoid some of the pitfalls seen each year on numerous farms. Seeking advice on buildings, disease presence, deficiencies and diet can often help improve production and therefore profit which overall is essential for survival of farm livestock enterprises. For further information on this subject contact your own veterinary surgeon or SAC.

Nutrition of the weaned calf

Feeding the newly-weaned suckled calf

By Colin Morgan, Ruminant Nutritionist, SAC Edinburgh

The newly weaned calf is undergoing the transition from a diet based on grass and milk to one based on silage and concentrates. To ease the transition it is advisable to offer a creep before weaning so that the rumen microbes become accustomed to the starchy feeds that will be used after weaning. In addition the transition to silage presents a challenge to the rumen microbes and trials have shown that calves respond to a source of digestible undegradable protein in the diet, such as soya bean meal.

At this stage the overall diet should contain around 140g crude protein/kg dry matter. The level and type of concentrates to be fed along with the silage will depend on the quality of the silage. This can be seen in the following table which gives rations for a 300kg newly-weaned suckled calf to gain 0.75kg/d and based on three silage qualities:

Silage analysis	Good	Average	Poor
Dry matter g/kg DM	300	240	220
Energy MJME/kg DM	11.2	10.6	9.9
Protein g/kg DM	140	130	110

Diets	Good silage	Average silage	Poor silage
Silage kg	15	16	14
Barley kg	1.25	2.0	2.5
Soya bean meal kg	0.1	0.25	0.45

In each case the crude protein content of the concentrate part of the diet is 150, 165 and 180g/kgDM, respectively. These examples demonstrate the importance of knowing the composition of the silage when planning winter rations.

Once the weaning stage has passed, with an average silage 2.0kg barley will be sufficient but the poor silage will still need to be supplemented with a small quantity of soya bean meal (2.5kg barley and 0.25kg soya bean meal).

Weaned calves moving on to ad lib concentrate diets

By Iain Riddell and Colin Morgan

Acidosis can be a major welfare problem in the transition to ad lib concentrates. This ranges from a temporary acidosis that puts animals off their feed to loss of calves in severe cases. Tips for reducing the risk of acidosis are as follows.

- Creep feed calves intended for ad lib cereal systems for at least 10 weeks before weaning to get them accustomed to eating large quantities of cereal.
- Phase the calves on to ad lib feeding over a 2 week period. Start by offering two feeds per day, building up to 2kg concentrates per feed, then introduce a third midday feed building up to 2kg. Once there is feed left move on to ad lib feeding.
- Start by feeding a 16-17% crude protein concentrate (fresh weight basis) – the extra protein helps reduce acidosis risk.
- Move on to 13% crude protein concentrate (fresh weight basis) once cattle are safely on to ad lib.
- Avoid overprocessing cereals – too fine a meal can cause acidosis, cracking of grains is sufficient.
- Always have clean fresh straw and water available.
- Supplement with the appropriate rate of an intensive beef mineral
- Never allow ad lib hoppers or troughs to be empty after the transition to ad lib – animals will gorge themselves once the next feed is added risking acidosis. Cattle eat little and often under ad lib conditions. If troughs do become empty, you will need to start the build up to ad lib process again.

Ventilation

A Key to Quality Cattle Housing



The aim of this leaflet is to develop:

- 1) An awareness of the importance of good ventilation in cattle production
- 2) A logical approach to checking a building for ventilation as a step towards meeting the requirements of the current welfare codes and the relevant Quality Assurance Scheme.

Healthy and productive cattle require good environmental conditions. To achieve this the ventilation system must be carefully designed and work efficiently. In general, provided there are no draughts at animal level, there cannot be too much ventilation in cattle buildings. Poor ventilation means a poor working environment for the stockperson. If the ventilation is inadequate the consequences may cause serious damage to the fabric of the building.

The design of ventilation systems for cattle buildings is no longer a game of chance. Tried and tested methods, developed from research on the requirements of animals and using engineering principles, produce systems that may be tailor made for each application. Unfortunately, in practice, not all designs are fully implemented. This can result in unsatisfactory environmental conditions inside the building which in turn can reduce the productivity and health of the animal.

Many old, but structurally sound buildings, have been adapted to meet changing production systems, often with an increase in the stocking density. In some cases, the ventilation has been left alone, either as an oversight or due to ignorance. The consequences can be costly.

A logical approach to checking a building for good ventilation

The approach involves a set of questions and accompanying notes which assist a logical assessment of the ventilation. It allows improvements to be made and the effects of the improvements noted in the future. Records of this type could form the basis for a system to comply with quality assurance.

1. Are there any building drawings showing the size and position of the ventilation openings?

Check the original design against the actual building. Are the openings installed as designed? If not, this could indicate a potential problem

2. Has there been any building or landscaping near the building?

The most common cause of reduced ventilation is the erection of lean-tos against a building. The planting of shelter belts too close to the building can also cause reduced ventilation.

3. Is the building naturally ventilated?

Most cattle buildings are naturally ventilated by "stack effect". Heat energy from the animals warms the surrounding air, causing it to rise by convection. If there are high level openings the warmed air will pass out provided it can be replaced by cooler air entering the building at a lower level. The amount of ventilation that occurs depends on:

- *The provision of both inlets and outlets of adequate size, number and design*
- *The relative position of the inlets and outlets - the greater the height difference between inlets and outlets (stack effect) the greater the ventilation for a given set of openings. In windy conditions the ventilation will be greater - a positive benefit. Clear any blocked openings, remembering that space-boarding is part of the ventilation system.*

4. If the building is mechanically ventilated, is there a set of instructions and test procedures for the mechanical equipment? Is an alarm system installed?

It is important that operating instructions are followed correctly and that proper maintenance records are kept. The Welfare Regulations require that where mechanical ventilation is fitted it must be inspected daily. In addition an alarm system to alert a responsible person of faults in the ventilation must be installed. The alarm must be tested every seven days, and any faults detected repaired forthwith.

5. Are there any temporary obstructions preventing fresh air entering the building or foul air leaving?

Check that the openings of both natural and fan ventilated buildings are free of obstructions. Remember that stacked straw bales can obstruct the ventilation.

6. Is the stocking density in the building correct in terms of number and liveweight of the animals?

Animals with lower bodyweight such as young stock, have a proportionally higher ventilation requirement than heavier animals. For this reason it is wise to have the ventilation checked if there has been a change of use. Refer to the original drawings.

7. Is there a history of respiratory disease in the building?

Check veterinary records. Check records from earlier years.

8. In the morning, when you first enter the building, what is your impression of the atmosphere?

Look for: mist from the breath of the animals: condensation: the smell of ammonia and sulphur dioxide. Always be alert to the signs of respiratory troubles in the animals.

9. Does the condition of the fabric of the building suggest that the building is prone to condensation?

The presence of condensation combined with dust and the respired particles will cause rapid deterioration of the fabric of the building. Check for mould growth, corrosion and algae.

10. Are the animals comfortable?



Animal comfort is difficult to define. The Welfare Codes make particular reference to draughts. It is important to remember that it is at animal level that draughts need to be eliminated, not at high level. Do not close openings to eliminate draughts without making certain that the ventilation will not be impaired. Take time to observe the behaviour of the animals.

For further information contact

SAC Farm Business Services
Building Design Services
Ferguson Building
Craibstone, Bucksburn
Aberdeen, AB21 9YA
Tel: 01224 711221
Fax: 01224 711268
Email: michael.strachan@sac.co.uk

SAC Farm Business Services
Building Design Services
Auchincruive
Ayr
KA6 5HW
Tel: 01292 525168
Fax: 01292 525169
Email: jack.bishop@sac.co.uk

SAC receives financial support from the Scottish Government.