Protecting the Welfare of Beef Cattle under Foot and Mouth Movement Restrictions
General

1. During this outbreak of Foot and Mouth Disease (FMD), farmers remain responsible for caring for their animals and must continue to comply with the relevant legislation and welfare codes. In particular, they must ensure that no animals are caused unnecessary pain or unnecessary distress.

2. The restriction on movements of susceptible farm animals is essential to bring FMD under control. Farmers under restrictions need carefully to review their procedures since the resulting changes in workloads, if not carefully managed, can lead to welfare problems.

3. Where possible, animals should be housed and kept away from the perimeter of the farm. This will need careful planning, in order to avoid potential problems of overcrowding, over-sizing and outbreaks of other diseases. Essential supplies of e.g. feed, fuel, medicines, hygiene supplies and supplies for repair of essential equipment should be maintained.

Initial management action to prevent poor welfare

- Review the resources you have available and management procedures.
- Consider what changes can be made to accommodation, production levels and growth rates.
- Ensure all staff understand new procedures. It may be necessary to have new arrangements for checking cattle, and to identify any signs of poor welfare or disease.
- Seek advice of a private veterinary surgeon on any proposed changes and consider additional preventative measures necessary in any new systems adopted.
- Seek advice from agricultural advisers on new accommodation/husbandry/nutrition and business planning.
- It is important to consider factors such as availability of markets for slaughter stock, the duration of restrictions, methods of destruction and disposal on farm and the need to reduce visitors and vehicles to the farm to maintain bio-security.

4. If the restrictions continue for some time, farmers need to consider additional measures to maintain high standards of welfare and review their business strategies. The following table describes how to protect against poor welfare in a range of circumstances.
<table>
<thead>
<tr>
<th>Category</th>
<th>Objective</th>
<th>Action</th>
</tr>
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</table>
| All stock                        | To provide adequate nutrition when conserved fodder is exhausted          | 1. Purchase alternative supplies  
2. Use straw as the base for the diet  
3. Zero graze                                                                 |
| All stock                        | To provide adequate accommodation for all classes of livestock            | 1. Construct temporary accommodation  
2. Turn older stock out to pasture                                          |
| Breeding cows wintered away from main holding which would have returned under normal circumstances | To provide adequate supervision at calving                               | 1. Ensure stockpersons at the main holding carry out checks at other sites  
2. Engage the services of (an) experienced stockperson/s                        |

### Management

5. The logistics of managing cattle away from home could be difficult, particularly if calving cows and heifers are involved. Priority must be given to the following factors:

- The availability of a good stock of feed on site where the cattle are kept.
- The use of feed blocks and liquid feeds should be considered if compound feed is required and delivery proves difficult.
- Inspection of the cattle at least once per day and at least 4 times per day if animals are expected to calve.
- Good hygiene at calving. If an animal is being assisted then disposable gloves should be worn. Disinfect before starting the investigation and use plenty of lubricant (e.g. liquid soap). Veterinary advice should be sought as required.
- If buildings cannot accommodate cows and calves, consider turning some animals outside onto well-drained land, but ensure shelter is provided. (See next section).

6. Experienced staff must be present around calving and cows due to calve must be watched regularly through the day and night. An area for calving the cows must be made which can be kept clean and hygienic. As soon as the cow has calved she needs to be offered warm water immediately (up to 30 litres, especially if calving prolonged). The feeding regime should then be made as close as possible to that at the home premises, utilising grazing when possible.

### Accommodation

7. The retention of more stock than usual on farm at this time of year will inevitably lead to an increase in the amount of building space required. Where possible animals should be housed and kept away from the farm perimeter. The space needed by housed cattle is mainly dependent on their liveweight.
8. Housed calves require a dry, well-bedded, non-crowded, adequately ventilated and draught free environment. Failure to provide these conditions is likely to predispose the animals to disease the most serious of which is respiratory disease. Utilising empty hay and straw storage areas could alleviate problems, but ensure that slurry etc does not enter water courses. For calves kept in groups, the unobstructed floor space available to each animal should be as follows:

<table>
<thead>
<tr>
<th>Weight Range</th>
<th>Required Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 150 kg</td>
<td>1.5 m²</td>
</tr>
<tr>
<td>150 kg to 200 kg</td>
<td>2 m²</td>
</tr>
<tr>
<td>200 kg or more</td>
<td>3 m²</td>
</tr>
</tbody>
</table>

9. Failure to supply sufficient space to cattle could dramatically reduce growth (by reducing the access to feed and water), risk increased disease (pneumonia or scour) and increase the risk of injury (lameness).

10. Typical space allowances for adult cattle in straw yards are as follows:

<table>
<thead>
<tr>
<th>Liveweight of Animal kg</th>
<th>Bedded area m²/head</th>
<th>Loafing/feeding area m²/head</th>
<th>Total area m²/head</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>5.0</td>
<td>2.0</td>
<td>7.0</td>
</tr>
<tr>
<td>550</td>
<td>5.5</td>
<td>2.0</td>
<td>7.5</td>
</tr>
<tr>
<td>600</td>
<td>6.0</td>
<td>2.0</td>
<td>8.0</td>
</tr>
<tr>
<td>650</td>
<td>6.5</td>
<td>2.25</td>
<td>8.75</td>
</tr>
<tr>
<td>700</td>
<td>7.0</td>
<td>2.5</td>
<td>9.5</td>
</tr>
</tbody>
</table>

11. If the calf is with the cow, the space allowance is 35% in excess of the figures above. For animals weighing over 300 kg a trough length of 600 mm/head is needed for simultaneous feeding and 150 mm/head is needed for ad libitum feeding.

12. Typical space allowances for growing cattle on solid floors are as follows:

<table>
<thead>
<tr>
<th>Liveweight of Animal kg</th>
<th>Bedded area* (excluding troughs) m²/head</th>
<th>Loafing/feeding area (excluding troughs) m²/head</th>
<th>Total area m²/head</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>2.0</td>
<td>1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>300</td>
<td>2.4</td>
<td>1.0</td>
<td>3.4</td>
</tr>
<tr>
<td>400</td>
<td>3.0</td>
<td>1.2</td>
<td>4.2</td>
</tr>
<tr>
<td>500</td>
<td>3.5</td>
<td>1.2</td>
<td>4.7</td>
</tr>
</tbody>
</table>

* For wholly bedded yards the total figure should be used

13. Fresh, clean water must be freely available to all stock.

14. Ensure that slurry etc does not enter water courses.
**Coping With Overcrowding**

15. When cattle buildings are fully occupied, two main options can be considered:

- adapting other buildings on the farm.
- turning animals outside.

**Adapting Other Existing Buildings**

16. At this time of year many straw and hay barns will be empty. Machinery could also be moved outside to accommodate more animals. Temporary walls could be made from big bales of straw and these would also provide shelter.

**Turning Cattle Outside**

17. If all suitable buildings are full then consideration should be given to turning the more hardy classes of cattle out onto a parcel of land. Relatively hardy stock would include store cattle of over 12 months of age, dry pregnant cows not due to calve within the next 4 weeks and cows with suckling calves of more than 3 weeks of age. Ideally animals should be gradually introduced to the outside environment - coming in at night for 6-7 days. However, in the current situation this may not be possible.

18. A well drained and sheltered area of land away from the perimeter of the farm should be chosen, remembering that animals can not cross public highways or another owner's land. Shelter may be available from hills, woods and hedges but if these natural features are not present then some form of artificial barrier to the wind and rain must be installed. Big straw bales positioned against the prevailing wind are a possible option, but take heed of human health and safety considerations.

**Feeding**

19. Where conserved forage is limited, the hay or silage should be used for the highest priority stock at critical times. High priority stock would include:

- Suckler cows at the end of the dry period, in early lactation and around service time.
- Cattle below 9 months of age.
- Heifers at service time.
- Finishing beef cattle.

Straw should be targeted towards stock in a relatively low productive state such as in-calf suckler cows, and store cattle.

**Cows with Suckling Calves**

20. Wherever possible the diets fed to these animals should be based on hay or silage. However, well balanced straw based diets can also be fed. Suitable rations would be as follows:

- 10 kg/head/day of medium quality hay.
- 30 kg/head/day of medium quality silage with a dry matter (DM) of 25%.
- 20 kg/head/day of medium quality silage (DM 25%) and cereal straw to appetite and ¾ kg/head/day of supplement containing at least 18% crude protein.
- Cereal straw to appetite and 5 kg/head/day of a dry high energy (ME 12.5 MJ/kg DM) supplement with a crude protein level of at least 18%.
Dry Pregnant Spring Calving Cows and Heifers
21. The nutrient demands of dry cows are considerably less than those of lactating animals. Suitable rations would be:
- 5 kg/head/day of medium quality hay and cereal straw to appetite.
- Cereal straw to appetite and 2½ – 3 kg/head/day of a dry high energy supplement with a crude protein level of at least 18%.
- 15 kg/head/day of medium quality silage (DM 25%) and cereal straw to appetite.

Calves Up To 3 Months of Age
22. There should be no real problem with suckling calves but weaned calves must be offered up to 2½ kg/head/day of a high quality very palatable compound feed. Good quality palatable forage should also be on offer.

Reared Calves (3-6 Months of Age)
23. Animals in this category will be permanently stunted if subjected to low levels of nutrition. It is essential that a reasonably high level of feeding is maintained. The main options are:
- Medium quality silage (DM 25%) or medium quality hay to appetite and 2–2½ kg/head/day of a supplement containing 14% crude protein.
- Cereal straw to appetite and 3-3½ kg/head/day of compound feed containing 16% crude protein.

Reared Calves (6-12 months of Age)
24. This group of animals must also be kept on a relatively high plane of nutrition. Typical diets would be:
- Medium quality silage (DM 25%) or medium quality hay to appetite and 2 kg/head/day of a supplement containing 14% crude protein
- Cereal straw to appetite and 3 kg/head/day of compound feed containing 16% crude protein.

Store Cattle Over 12 Months of Age
25. This class of cattle should be able to compensate at a later stage for a temporary period of restricted growth. The main feeding options would be:
- Medium quality silage or hay to appetite.
- Cereal straw to appetite and 2 kg/head/day of a high energy supplement containing 16% crude protein.

Finishing Cattle
26. The body condition of finishing cattle should be assessed and if possible the animals should then be grouped according to their readiness for slaughter.
- Those that are already in slaughter condition should be fed with the aim of maintaining body condition by achieving a growth rate of 0.4 - 0.5 kg/day. This level of performance could be supported by feeding either good quality silage to appetite or by offering ad libitum straw along with 3 kg/head/day of a high energy supplement containing 16% crude protein.
- If animals are likely to reach slaughter condition within the next 4 weeks or so, it may be necessary to reduce their growth by about 0.25 kg/day. In most cases this could probably be done by reducing the amount of compound feed being fed by about 1½ kg/head/day.
Cattle That Are Over 30 Months Of Age
27. If feed is limited then cattle that are now over 30 months of age and awaiting slaughter should be fed to gain at no more than 0.25-0.30 kg/day. This level of performance could be achieved from for example feeding either good quality silage to 60% of appetite along with cereal straw ad libitum or cereal straw to appetite and 2½ kg/day of a high energy supplement with a crude protein content of at least 18%.

Special considerations when feeding straw based rations
28. If home grown silage and hay is in limited supply it is likely that many producers will have to resort to the feeding of cereal straw. Straw has a low energy content (6.5 MJ/kg DM) and a crude protein content of only 4.5%. It is also low in minerals. This means straw will not meet maintenance requirements even when fed to appetite. On moving from diets based on hay or silage to those based on straw it is inevitable that the level of supplementary feed will have to be increased.

Feeding Straw
29. When straw is fed as the main forage it is essential that it is both clean and dry. Either barley or wheat straw can be fed. Some rejection (10%) should be expected and animals should not be forced to clear up.

Straw Supplementation
30. The range of supplements that can be used with straw based diets are the same as for hay and silage although there is always a need to be mindful of the low protein content of straw. Compound feed is the most convenient as it has already been fortified with minerals and vitamins. Protein or nitrogen sources must be added to enable straw to be utilized. Small additions of reasonable quality grass silage added to straw based diets can considerably reduce the need for additional protein.

Home mixes and by-products
31. A home-mix made up of barley and a high protein straight feed can be an ideal supplement for straw based rations. The mix should be fortified with minerals and vitamins and contain a protein level of 18-20%. Examples of these mixes are:
- 70% cereal, 30% rapeseed meal.
- 80% cereal, 20% soya bean meal.

32. Relative feed values can be used to compare the value of different feeds. At a reference price of £85/tonne for barley and £120/tonne for rapeseed meal the following prices per tonne have been calculated –

<table>
<thead>
<tr>
<th>Product</th>
<th>Price (£/tonne)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize gluten feed</td>
<td>98</td>
</tr>
<tr>
<td>Sugar beet pulp</td>
<td>80</td>
</tr>
<tr>
<td>Cane Molasses</td>
<td>63</td>
</tr>
<tr>
<td>Brewers grains</td>
<td>26</td>
</tr>
<tr>
<td>Potatoes</td>
<td>19</td>
</tr>
<tr>
<td>Fodder beet</td>
<td>15</td>
</tr>
<tr>
<td>Average hay</td>
<td>55</td>
</tr>
<tr>
<td>Silage (25% DM)</td>
<td>22</td>
</tr>
<tr>
<td>Straw</td>
<td>39</td>
</tr>
</tbody>
</table>

Further advice should be sought to ensure that any ration including these ingredients meets the nutritional needs of the cattle.
33. Some alternatives to conventional hay and silage may be moist by-products such as brewers' grains and wet citrus pulp. It is essential to be clear what is the product you are buying; load size must be compatible with the number of stock to be fed. Storage and handling facilities must minimize wastage.

**Supplementing Straw with Liquid Feeds**

34. It is sometimes implied that urea based liquid feeds are necessary to allow efficient digestion and utilization of straw. Liquid feeds can be convenient but the important point to remember is that straw based diets must always contain sufficient energy and protein; the source of these components is less important.

**Feed Blocks**

35. Feed blocks can be a convenient way to offer feed - particularly to outwintered stock. However, it is vital to ensure that the amount of forage and feed block being consumed matches the expected animal production level.

**Mineral/Vitamin Supplementation**

36. Most diets offered to housed cattle and sheep will require some added minerals and vitamins. This is particularly important for diets based on straw which is low in a wide range of minerals and vitamins. If urea forms the sole source of protein then sulphur should be present in the mineral/vitamin supplement. It is preferable to give minerals in-feed rather than free access, to achieve more consistent intakes.

**Special problems**

**Exposure to Inclement Weather Conditions**

37. Although some farms have a moderate spring growth of grass, the cold weather will determine how quickly this develops. This, combined with the very wet ground conditions may delay turnout. If conserved forage stocks allow, cattle should be turned out gradually - initially store cattle of over 12 months of age, dry pregnant cows not due to calve within the next 4 weeks and cows with suckling calves of more than 3 weeks of age. Adult cattle can tolerate cold weather well (even to -5°C), but if excessively wet, stock and pastures will suffer. Younger calves cannot tolerate wet and cold conditions. Rehousing, or providing protection from wind is the most critical and temporary construction for shelter is essential. Take heed of health and safety considerations.

38. Even if silage stocks are finished hay/straw can be purchased together with suitable supplements, so maintaining cattle condition and production.

39. It may be that some of the fields planned for grazing cannot be reached on your own land. Unless it is practical to rehouse cattle, they must have appropriate feeds taken to them, with provision made for some bedding according to conditions. Access to water remains essential.

40. Farms that calve cows outside in the early spring can be caught by bad weather be it rain, wind or snow. A shelter can be created often with a strategically placed trailer plus bales.
41. For sickly animals that cannot be moved then more effective sheltering is required and provision of artificial heating may also be required. A mobile generator is therefore essential. Provision of a livestock trailer at the site would be an ideal means of providing sheltered accommodation and an area in which to have a heat source. Be aware of the risk of creating a less than ideal hygienic conditions. Full cleansing and disinfection of the trailer would be essential when moving form one area to another. Of greatest importance will be the need for constant watching of stock and supervision.

**Holding Cattle on Waterlogged Ground**

42. Animals must at all times have access to a well-drained area. This applies to outwintered animals as well as those in buildings. If land on which cattle are being held is waterlogged then an area big enough for all of the stock to lie down must be strawed up. (See Above Table on Space Allowances for Beef Cattle)

**Deliveries of Feedingstuffs, Fertilisers etc**

(See MAFF Foot and Mouth Disease Fact Sheet 2 – ‘How to protect your farm’ – PB5516B)

43. The highest standards of hygiene should be maintained for all movements on and off the farm.

44. Have only one combined entrance and exit. Display the name of the farm and the telephone number on the gate. Keep the gate locked.

45. Provide a means of contact between the farm entrance and house for essential callers e.g. a bell or a gong. Supply a tub of fresh disinfectant, a brush for scrubbing foot wear and a spray pump. Keep the disinfectant solution clean – renew it daily.

46. All vehicles entering and leaving the premises should have their wheels sprayed with approved disinfectant.

47. Stop all non-essential vehicles and visitors from entering the farm and arrange whenever possible for collection and delivery of supplies to take place at the farm boundary.

48. Keep a record of all deliveries. In the event of the disease being confirmed this may help in epidemiological investigations.

**Humane slaughter**

49. Having exhausted all other options it may be necessary to consider the humane destruction and disposal of calves or cattle. Beef farmers may humanely destroy cattle provided that no avoidable excitement, pain or suffering is caused. If a free bullet is used (rifle, pistol or shotgun) then a slaughterman’s licence is not required. If a captive bolt gun is used (other than for emergency reasons relating to the welfare of an animal) then a slaughterman’s licence is required. Beef farmers who can demonstrate their competence in slaughter methods may apply to their local AHDO for details on becoming a licensed slaughterman. The removal of dead cattle from a holding in an infected area requires a licence from the Ministry. The disposal of cattle on the farm must be in accordance with legal requirements.

**Further information**

50. Your agriculture advisers or feed company can advise on options for dietary changes or contact the MLC (01908 844734).
Further copies of this leaflet can be obtained from Stephen Plant, Animal Welfare Division, Area 508, 1a Page Street, London SW1P 4PQ
Tel: 020 7904 6512 (email: s.j.plant@ahvg.maff.gsi.gov.uk)

MAFF have set up a helpline for callers wanting general advice on Foot and Mouth Disease. The number is 0845 0504141 (local rate) 8.00am to 11.00pm seven days a week.

Information is also available on the MAFF website www.maff.gov.uk