

## Dairy Cattle Welfare Outcome Assessment – Explanation of measures

### Mobility

#### Why is mobility an important measure?

Lameness is known to be a huge welfare issue across the dairy industry with over 30% of the national herd being lame at any one time. However the prevalence of lameness has been shown to range from 0% to 70% at farm level. Lame cows are not only in considerable discomfort and pain but are predisposed to further disease challenges (e.g. mastitis, swollen hocks), reduced fertility, lowered milk yield and decreased appetite. Primarily all these factors significantly affect the welfare of the cow but in addition they have hefty financial implications both in the short and long term. Early recognition, investigation and treatment of any lame animal is essential to limit pain, aid recovery and minimise any additional complications. Therefore regular on farm mobility assessment is an important step in resolving lameness issues. Lameness caused by foot lesions can be both infectious (digital dermatitis, foul) and non-infectious (sole haemorrhages, sole ulcers and white line disease) and it is important for farmers to identify the types of lesions present in order that likely causes can be addressed.

#### Measuring mobility using the AssureWel protocol

<b>Sample size:</b>	<b>20 cows</b>
<b>Method of assessment:</b>	Assess using the DairyCo scoring method. Observe cows, ideally on a hard (i.e. concrete) non-slip surface. Monitor each cow individually allowing them to make between 6-10 uninterrupted strides. Watch the cow from the side and the rear.
<b>Scoring</b>	<p><b>0/1 = Good/Imperfect mobility</b> Walks with even weight bearing and rhythm on all four feet, with a flat back; long fluid strides possible; or steps uneven (rhythm or weight bearing) or strides shortened; affected limb/s not immediately identifiable</p> <p><b>2 = Impaired mobility</b> Uneven weight bearing on a limb that is immediately identifiable and/or obviously shortened stride (usually with an arch to the centre of the back)</p> <p><b>3 = Severely impaired mobility</b> Unable to walk as fast as a brisk human pace (cannot keep up with the healthy herd) and signs of impaired mobility (score 2)</p>

**Additionally it should be verified if mobility scoring is being carried out on farm.** Check and comment on who is carrying this out, any formal training they have received and the frequency and scope (e.g. whole herd) of mobility scoring conducted.

**And from records, record the number of recorded cases of lameness per 100 cows for the previous 12 months.**

## Body condition

### Why is body condition an important measure?

Body condition scoring is a technique for assessing the condition of livestock at regular intervals. The purpose of condition scoring is to achieve a balance between economic feeding, good production and welfare. Body condition will vary during a healthy cow's lactation. She will most likely be at her thinnest around peak milk yield and at her fattest around drying off. However, despite this variation her condition should not fall below score 2\* or rise above score 3.5. A cow with a body condition score of less than 2 is excessively thin and is not meeting the nutritional demands of her body. This may be as a result of feed quality/quantity, access to feed or disease. Thin animals may suffer from chronic hunger, discomfort (especially in cubicles), are predisposed to health issues (metabolic, infectious and physical) and are more likely to have reduced fertility. Cows with a body condition score of 4 or 5 are overweight. Fat cows are at risk of dystocia (difficult calvings), more likely to develop metabolic diseases such as ketosis, fatty liver disease and milk fever and are prone to mastitis, lameness and infertility.

\*Based on Defra condition scoring method

### Measuring body condition using the AssureWel protocol

**Sample size:** 20 cows

**Method of assessment:** Visually assess cattle based on the Defra condition scoring method, viewing the animal from behind and from the side, the tail head and loin area:

**Scoring** **Thin = Defra score 1 to less than 2**

Score 1: Tail head – deep cavity with no fatty tissue under skin. Skin fairly supple but coat condition often rough. Loin – spine prominent and horizontal processes sharp.

**Moderate /Good = Defra score 2 or 3 to less than 4**

Score 2: Tail head – shallow cavity but pin bones prominent; some fat under skin, skin supple. Loin – horizontal processes can be identified individually with ends rounded.

Score 3: Tail head – fat cover over whole area and skin smooth but pelvis may be seen. Loin – end of individual horizontal process cannot be seen; only slight depression in loin.

**Fat = Defra score 4 to 5**

Score 4/5: Tail head – completely filled or buried and folds and patches of fat evident. Loin – cannot see horizontal processes and completely rounded appearance (a slight loin depression may still be seen).

## Cleanliness

### Why is cleanliness an important measure?

Areas of dirt (faeces/mud) within different regions of the cow's body are as a result of different causes and can affect welfare in different ways. In general, if given the choice, cows will choose to lie in clean dry areas. Dirtiness on the coat can irritate the skin, provide optimal conditions for ectoparasites, increase cold stress, indicate dirty lying areas or lack of grooming facilities (brushes, trees etc.), increase the risk of disease and cause issues at or prior to slaughter.

The lower legs: A high level of dirtiness in this region is associated with increased risk of lameness, digital dermatitis, interdigital dermatitis, slurry heel and mastitis. It can also obscure skin damage and foot lesions

preventing early detection, treatment and increasing recovery times. It can be caused by poor slurry systems, lack of bedding, overstocking, or poached paddocks.

The hind quarters: Dirtiness in this region may be as a result of incorrect feeding, change in feeding, lush grass, endoparasites, infectious disease or dirty environments (lack of bedding, poor cubicle maintenance, overstocking etc.)

The udder & teats: Dirtiness in this region can be caused by anything listed above. Dirt on the udder is strongly associated with the development of mastitis, increases the pre-milking cleaning (which adds time to the milking routine) and increases the risk of poor milk quality.

### Measuring cleanliness using the AssureWel protocol

<b>Sample size:</b>	<b>20 cows</b>
<b>Method of assessment:</b>	Visually assess the one randomly selected <b>side</b> of the animal <b>and behind</b> , only including the hind quarters to coronary band and udder:
<b>Scoring:</b>	<p><b>0 = Clean</b> No dirt or only minor splashing present</p> <p><b>2 = Dirty</b> An area of dirtiness (i.e. layer or plaques of dirt) amounting to at least forearm length (40cm) in any dimension.</p>

### Hair loss, lesions and swellings

#### Why are hair loss, lesions and swellings important measures?

Hair loss, lesions and swellings all demonstrate some form of damage to the skin and in some cases the underlying tissues. Occasional small areas of skin damage/swelling maybe inevitable amongst a herd of cattle but areas larger than 2cm may give reason for concern.

Hairless patches indicate repeated rubbing or irritation, ectoparasite presence or previous injuries (scars). Lesions indicate skin damage and can be as a result of poor management, poor building and/or cubicle design/maintenance, damaged gates/fences or cow interactions. Swellings can be as a result of similar poor cubicle design/maintenance, feed trough/barrier design, abscesses, cysts or injection sites. The location of lesions, hair loss & swellings is important in determining the likely causes of them.

Hocks with any lesion/hair loss or swelling are strongly indicative that the lying area is not comfortable with abrasive surfaces, insufficient bedding and/or hard lying surfaces. Hocks damaged in this way cause pain/discomfort, are strongly linked to lameness, can become secondarily infected and may lead to reduced lying times. Similarly knees with swellings/hair loss/lesions are also suggestive that lying areas are not comfortable and have similar causes and associated problems. The resultant effect of a strong presence of either is one of reduced welfare, productivity and profitability.

Neck swellings/hair loss/ lesions tend to indicate either a problem with the feed barrier, feed trough or cubicle neck rails. If feed space is not designed appropriately then cattle will repeatedly rub their necks causing damage, pain and a possible reduction in feed intake. Feed barriers and neck rails need to be placed at the correct height and create the right angle for the type of feed trough. Where feed is fed without a trough it must be regularly pushed up in order to prevent over reaching and continual pressure on the necks.

Presence of lesions/swellings over other parts of the body may indicate that there are injurious environments (lying area, feeding place, parlour, automatic scraper), the cows are repeatedly bumping

into sharp corners, low walls, barbed wire, machinery etc. or there are aggressive interactions between the cows. These lesions are painful and demonstrate on-going problems (lying/ feeding area, fencing, social structure), which can lead to reduced welfare and productivity and need further investigation. Bulling marks may result in hairless patches/skin lesions which will still be recorded but are not considered an ongoing problem.

### Measuring hair loss, lesions and swellings using the AssureWel protocol

**Sample size:** 20 cows

**Method of assessment:** Visually assess the following regions of one (randomly selected) side of the animal, from a distance not exceeding 2m:

- a. Head & Neck
- b. Body (including flank, back & hindquarter)
- c. Front leg (carpus)
- d. Rear legs (including outside of the near leg and inside of the far leg as well as the udder with teats)

**Scoring:** **Hair loss and lesions:**

**o = No hair loss or lesion**

No lesions or hairless patches  $\geq 2$ cm diameter. No hair is missing or any hairless/bald patch is smaller than a £1 coin (2cm diameter).

**H = Hairless patches**

One or more hairless patches (may include scars)  $\geq 2$ cm diameter

**L = Lesion**

One or more lesions (areas of skin damage i.e. wound or scab)  $\geq 2$ cm diameter. (Score as a lesion even if accompanied by a hairless patch. Do not include scars)

**Swellings:**

**o = No swellings**

No swelling or no swelling  $\geq 2$ cm diameter (smaller than grape-sized)

**1S = Mild swelling**

Mild swelling is such that the normal anatomy of the area is enlarged, poorly defined or obscured. Around the hock and the knee this will be apparent as a lack of definition of the tendons and other structures around the joint, and the hock will appear to have lost the 'waist' to the joint. On other parts of the body the swelling will be 2- 5cm in diameter e.g. a golf ball.

**2S = Substantial swelling**

Substantial swelling is an abnormal enlargement which is a prominent / pronounced extension away from the body. Around the hock and the knee (carpus) this will be apparent as an obviously rounded swelling  $> 5$ cm in diameter, e.g. the size of a clementine. On other parts of the body the swelling may be long, rather than round.

### Broken tails

**Why is broken tails an important measure?**

Tails can get broken, damaged or shortened through mechanical damage (from scrapers/doors/parlour), inappropriate handling or other individual reasons. Tail injury is painful to the cow particularly given the constant activity of the tail and therefore compromises the cow's welfare. Broken tails strongly suggest a problem within the system. However it must be remembered that evidence of a broken tail will remain for

the lifetime of the cow and therefore the presence of broken tails within a herd may demonstrate a historical problem and not necessarily a present one. It is therefore important to establish when and how the injury occurred, in order to reduce the risk in future.

### Measuring broken tails using the AssureWel protocol

<b>Sample size:</b>	<b>Whole herd</b>
<b>Method of assessment:</b>	Whilst assessing the herd, record the number of animals that show evidence of a broken tail, including tails that are bent, short or injured.
<b>Record:</b>	Number of broken tails and possible causes of any broken tails observed

### Response of cattle to stockperson

#### Why is response of cattle to stockperson an important measure?

Assessing the cattle's response to the stockman is important. The role of the stockperson is pivotal to the animal's welfare and there is a definite need to develop positive human-animal relationships in order that welfare is not compromised. Several studies have demonstrated there is a link between attitudes, behaviour and handling methods of those working with cattle and cattle welfare. Cattle that show caution (or fear) to the stockperson have been shown to have reduced productivity/milk yield. Cattle should be free from fear as outlined in the Five Freedoms in the Defra Welfare Codes. Farmed cattle with a fear of humans are more likely to be stressed and more likely to sustain injuries during handling. Furthermore in situations where the human contact is negative, the stockperson's attitude is likely to be negative with poor attention to the animal's husbandry and welfare. Conversely where cattle are handled by stockpeople with positive attitudes and behaviours, cattle show reduced levels of fear and increased productivity.

### Measuring response of cattle to stockperson using the AssureWel protocol

<b>Sample size:</b>	<b>Whole herd</b>
<b>Method of assessment:</b>	Check whether the person present for the assessment is the regular stockperson. Throughout the visit, observe the response of the cattle to the stockperson as they approach and interact with the cattle. As far as possible assess response to the stockperson alone, rather than the assessor.
<b>Scoring:</b>	<b>0 = Sociable (to the stockperson)</b> <b>1 = Relaxed</b> <b>2 = Nervous</b>

### Cows needing further care

#### Why is cows needing further care an important measure?

Any animal that is sick or injured must be provided with the necessary treatment and care regardless of whether it is a cull animal or not. This is a legislative requirement under the Welfare of Farmed Animals Regulations 2007. Cows that are sick/injured and not receiving adequate attention are suffering pain, discomfort and distress. This not only compromises their welfare but also reduces their likelihood/speed of

recovery, increases the risk of disease spreading and reduces the productivity. ‘Treatments’ may not always constituent drugs/homeopathic remedies but will depend upon the cause of the illness/injury. Management changes such as separation from the herd, provision of soft bedding, easy access to feed and water, application of a claw block etc. may be included.

### Measuring cows needing further care using the AssureWel protocol

<b>Sample size:</b>	<b>Whole herd</b> - including the milking herd, dry cows, in-calf heifers, calves, hospital pens and animals that are due to leave the farm.
<b>Method of assessment:</b>	Observe all animals on farm, identifying any sick or injured cows that would benefit from further intervention (including mobility score 3 cows).
<b>Record:</b>	Record and comment on the number of any sick or injured cows that would benefit from further intervention (including mobility score 3 cows). Further interventions could include further treatment, hospitalisation (i.e. removal from the main herd) or culling. <b>Do not include sick or injured cows already receiving suitable care.</b>

## Mastitis

### Why is mastitis records an important measure?

Mastitis is a common problem across the dairy industry. It is caused by pathogens that can be either found environmentally or passed from cow to cow. It is a painful condition that can vary in severity from being a fairly mild easily curable case to a severe life threatening toxic case. Mastitis has considerable financial implications through costs of treatments, veterinary advice, milk withdrawal periods, reduction in milk yields, increased labour and reduced fertility. Hygiene in the milking parlour, pre-milking routine, cow flow, bedding materials, slurry systems, housing design, cow groups, management of cows throughout stages of lactation amongst others can all affect mastitis levels.

### Measuring mastitis records using the AssureWel protocol

<b>Sample size:</b>	<b>Whole herd</b>
<b>Method of assessment:</b>	Refer to records and/or ask the herd manager
<b>Record:</b>	Number of recorded cases of mastitis per 100 cows for the previous 12 months.

## Calf / Heifer Survivability

### Why are calf and heifer survivability records an important measure?

In the UK, 8% of calves are stillborn, 15% of live heifers never reach their first lactation and of those that do, 20% will not survive until their second lactation. Common reasons for this include infectious diseases (particularly scour & pneumonia), congenital abnormalities, injuries, parasite burdens, difficult calvings and metabolic imbalances. All these have the potential to negatively affect welfare and result in significant financial costs through treatment, reduced growth rates, labour and losses. Lower mortality rates can be achieved by avoiding ill health, through good stockmanship, suitable housing/bedding, adequate nutrition, biosecurity and appropriate vaccination protocols. Sufficient colostrum intake, navel dipping and close

observation are all key in avoiding calf losses whilst parasite control, good stock handling, good nutrition and appropriate selection of service bulls is important in ensuring heifers go on to become part of the dairy herd.

### Measuring calf and heifer survivability records using the AssureWel protocol

<b>Sample size:</b>	Dairy calves and heifers (0 hours (including still born) to second calving)
<b>Method of assessment:</b>	Refer to records and/or ask the herd manager
<b>Record:</b>	<p>Number of losses per 100 cows calved (for the previous 12 months) for the following categories:</p> <ul style="list-style-type: none"> <li>a) 0 - 24hrs - all calves (including stillborn)</li> <li>b) 24 hrs - 42 days - all calves</li> <li>c) 42 days - 1st calving - dairy heifers</li> <li>d) 1st calving - 2nd calving - dairy heifers.</li> </ul>

## Cull and Casualty Cows

### Why are cull and casualty cow records an important measure?

Voluntary culls include cows that are removed from the herd through an informed planned decision, the majority of which are sold. Involuntary/casualty/on-farm culls include cows that have either died or been slaughtered on-farm and are as such unplanned and could include 'down' cows or those with injuries or lameness. Cows are commonly selected for culling as a result of infertility, mastitis, low yields and diseases such as Johne's disease. Whilst culling is essential to maintain a healthy herd of cows a high culling/replacement rate is expensive and may indicate underlying issues. Ideally cows should be chosen for culling at such a time that casualty culling is kept to a minimum and a herd with longevity and good welfare results. Good stockmanship, husbandry, housing, nutrition and disease control should not only reduce the occurrence of the conditions that often result in premature culling but also minimise the number of cattle that need to be killed on farm. Monitoring the numbers and reasons for both voluntary and involuntary culling provides a useful reflection of herd health, welfare and longevity and can indicate areas of weakness.

### Measuring cull and casualty cow records using the AssureWel protocol

<b>Sample size:</b>	Whole herd
<b>Method of assessment:</b>	Refer to records and/or ask the herd manager
<b>Record:</b>	<p>Number of animals in the last 12 months per 100 cows for the following categories:</p> <ul style="list-style-type: none"> <li>a) No. planned culls</li> <li>b) No unplanned culls or casualty cows (died or killed on farm) in the last 12 months. Please, where possible, also record reasons here</li> <li>c) No. of enforced culls, e.g. TB.</li> </ul>