Mobility (Individual scoring, lameness management & verifying self -assessment)
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.

Body Condition
Body condition score 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.

Hair loss, Lesions and Swellings
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 get 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.

Dirtiness

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 cows, given the choice, will choose to lie in clean dry areas. Dirtiness on the coat can irritate the skin, provide optimal conditions for ectoparatsites, 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 heal and mastitis. It also can obscure skin damage and foot lesions preventing early detection 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.

Lying comfort

A good cubicle should offer maximum comfort to the cow and allow cleanliness to be easily maintained. It is well documented that dairy cows need to lie down for at least 14 hours per day in order to ruminate, rest and stay healthy. Reduction in lying times leads to decreased milk production, increased lameness and a predisposition to other diseases. Animals that are not lying correctly within the cubicle will be uncomfortable, more likely to gain injuries (particularly from automatic scrapers), more likely to be dirty and less likely to spend time resting.

Broken tails

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.

Response of cattle to stockperson

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 with positive attitudes and behaviours, cattle show reduced levels of fear and increased productivity.

Cows needing further care

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.

Mastitis

Mastitis is a common problem within the dairy industry. It is caused by pathogens that can be found either environmentally or contagious and passed from cow to cow. It is a painful condition that can vary in seriousness 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, stockmen time 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 etc. can all affect mastitis levels.