



Hock Damage

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Watch those hocks!

Over the last decade, cow comfort has become a buzzword in the industry. The old saying, “If you look after the cow, then she will look after you” is more applicable now than ever, with animal welfare being a significant consideration, especially for milk buyers. With this in mind, we should be aiming to keep hock damage to a minimum. Vet Rob George, of the Nantwich Veterinary Group and Brynhyfryd fame, gives us his thoughts on the subject.

The average lifespan of dairy cattle in the UK is three lactations (*source: MDC*). The current increasing price of replacements emphasises the need to extend this life expectancy and lower culling rates. This will be achieved by improved management and breeding. 57% of culls in the UK are forced, with 5.9% due to lameness (including hock damage). During the winter months, if one were to cull cubicle housed cows for hock injury and enlargement, these rates would be at least as high as for lameness and mastitis.

Cubicle design and bedding

Poor cubicle design and lack of bedding will contribute massively towards hock injuries.

Experimental work in the USA (*Neil Anderson, Dairy 2001*) has shown that hock sores are more common with mattresses and shavings or chopped straw than with mattresses and sand. However, tie stalls with abundant straw (and similar dimensions to cubicles) had very little hock sore occurrence. This is consistent with what I have found within our practice, where a number of my clients have dug their cubicles out and filled them with sand and found, within a short space of time, hock injuries became a thing of the past. However, both mattresses and concrete beds have little hock injury occurrence providing abundant quantities of straw or sawdust were used.

The type of bedding used will depend on viability and accessibility, which is dictated by the geographical location of the farm, the cereal acreage available and the slurry handling facilities. The hygiene versus comfort issue needs to be considered, with straw, sand and sawdust all providing comfort, but be aware that

both straw and sawdust have the potential to harbour bacteria. In comparison, bare concrete beds and rubber mats have improved hygiene but higher propensity for hock damage.

Quantity of bedding

An important aspect that is often sacrificed, because of restrictions with slurry systems or lack of labour, is the quantity of bedding used. Sufficient bedding is needed to spare the underlying hock from both pressure and shear forces upon leg movement. This movement of the leg will be dictated by the cubicle design and dimension and is less frequent with a greater unobstructed lying area. Leg movement while the cow is lying has the potential to cause hock damage through the shear forces created, especially if insufficient bedding is used. Bedding is also important to cushion the significant pressure from the weight of the cow that is put on the hocks as she lies down or attempts to rise but fails to do so. This can cause hock injury and resultant hock enlargement.

Cubicle size

For the average 600 kg cow, stall width should be approximately 1.2 m (4 ft) and stall length 2.25 m (7.5 ft), with a 0.45 m forward lunge (applicable to the Newton Rigg cubicle). However, these measurements will vary with the type of cubicle used, the layout of the shed they are in and the size of the cow. The size of cubicles needs to be considered very carefully before they are installed. If too large, then there is too much room for the cow to move within the cubicle. This can result in smaller cows becoming stuck attempting to turn or getting into awkward positions while lying (which we all know cows are capable of doing). This can have the same effect as cubicles that are too small. If cubicles are too small for the cow, they will obviously cause discomfort and increase cubicle trauma, causing a decrease in lying time.

Lying time

Cows that lie down for extended periods due to a variety of circumstances will obviously have prolonged contact, creating a hock injury similar to that of bedsores in humans. Rations that are too high in energy and protein, hence a little too 'hot' for the cow, poorly mixed diets or high levels of concentrates parlour-fed twice daily resulting in large rumen pH fluctuations can all potentially cause rumenitis and/or laminitis and thus increase lying time through discomfort. On the other hand, cubicles that are too small or uncomfortable for the cow will result in decreased lying time, with resultant tired legs and even the unsightly 'yard lyers', who will more often than not have swollen hocks and eventually go off their legs.

Floor surface

Very wide grooving with narrow tread, rough, cracked or damaged flooring can be very uncomfortable for cows to walk on. This will cause cows to lie down a lot more, increasing the potential for resultant hock-sores/enlargement. I have found that the smaller diamond shaped grooving pattern gives cows more confidence and comfort when walking. Slippery floors, on the other hand, certainly can't be tolerated, as cows can fall and damage themselves (including the hock) or strain tendons around the hock area, resulting in a fluid swelling. These tendon strains can also occur from poorly designed cubicles where the cow has difficulty in getting up and down, putting awkward pressures and strains on the tendons around the hock region, where many muscles insert and arise. These enlargements increase the potential for cubicle or any other hock trauma, resulting in the dreaded hock sores.

Leg and feet conformation

Both of these are very important for correct locomotion and any abnormalities will eventually result in various limb problems, affecting mobility and potentially causing problems, such as hock injury. Remember, "Lose the legs and you'll lose the cow".

Shallow heels and low foot angle

Cows with these faults are usually down on their pasterns, which will affect sound mobility, especially as the cow gets older. Lack of heel depth increases the likelihood of foot lameness and, with low pasterns, there will be increased susceptibility for hock injury through poor mobility, either by lengthening the cow's lying time due to discomfort or basic external trauma.

Set of leg

This is an extremely important trait, where sickled-legged cows generally have shorter longevity because they are prone to lameness and hock ailments through poor locomotion and mobility. Hock spavins are usually associated with poor hock conformation and straight hind legs increase the susceptibility to hock trauma. These cows are more prone to slip and fall, which can obviously cause damage and they often find difficulty getting up in cubicles, especially when aged. This will result in increased lying time and occurrence in hock sores. In my work and on my travels, I have seen far too many young bulls with straight hind legs and resultant hock spavins – should we be using these bulls?

Bone quality

Bone quality has been drummed into me all my life. My father used to tell me, "Boy, picking a girl is like picking a heifer, both must have fine bone (ankles/hocks) and parade well if they're to last". Coarse/strong boned hocks are far more susceptible to hock injury through the increase in mass and surface area of contact, and cows with this problem often don't handle their legs as well as finer-boned cattle.

Thurl position

Cows that are back on their thurls generally have poor mobility, especially manoeuvring up and down in cubicles, and locomotion with straight hind legs and possible hock spavins, making them susceptible to hock injury as previously mentioned.

Loin strength

This is another extremely important trait, where weakness will eventually cause cows to go off their legs in some respect and, well, the rest is history.

Growth rates

Heifers that have rapid growth rates or that are pushed in order to calve at two years old can grow more bone in the hock than heifers that aren't pushed as much. This is often seen when heifers with a bone strength tendency are reared on very powerful land. Again, the result is increased hock mass and the added potential for hock injury due to external trauma.

Hock enlargement/sores from all causes can eventually become infected, increasing the severity of hock injury with possible septic arthritis sequelae.

Hock injury is a multifactorial problem, where the management and breeding issues discussed need to be addressed to lower the incidence. Management and breeding is the key for a productive, economic and successful herd.