

Lameness Control in Dairy Herds

Part 8 - Cow Tracks

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Better cow tracks will not only improve foot health but can:

- Improve udder hygiene (and potentially somatic cell count and mastitis)
- Improve cow flow (and reduce herding time)
- Extend grazing season (through better field access in wet weather)
- Reduce field poaching (and reduce environmental impact)

Whilst the best walking surface for cows is probably pasture, pasture will not withstand persistent use by groups of milking cows, especially in wet weather. Therefore, most large herds using pasture grazing will need cow tracks. A good cow track does not need to be expensive. This bulletin reviews some of the cost effective options for cow track construction, as well as ways to herd cows to minimise general lameness.



Fig 1: Most large herds using pasture grazing will need cow tracks.

Cow herding behaviour



Fig 2: Cattle prefer to move in groups, often in single file, at a brisk human walking pace.

Cattle are herd animals and prefer to move in groups, often in single file, at a brisk human walking pace. Over uneven terrain, cows will lower their heads to inspect the walking surface. They place their front feet carefully, avoiding stones or damaging surfaces, and normally place the hind feet in the position vacated by the front feet.

Lameness reduces a cow's ability to do this, as demonstrated by the number of stones that stick in hoof blocks. Mud and water will also prevent cows seeing and avoiding sharp stones. If a cow at the front stops, then the cows behind will stop. They then consider walking around the obstructing cow if perceived safe to do so.

Economics

The cost-benefit of a cow track is extremely difficult to calculate. The biggest cost is the material required to construct the track which may be available on farm or available free from a demolition firm. The benefit should be calculated in terms of the number of months of grazing that can be gained at the start and end of the summer, with saving of conserved forages and housing costs such as bedding. However, perhaps the biggest benefit is in terms of general herd health through having complete control over when cows can be turned out and housed, avoiding sudden dietary changes. Improved foot health, udder health and labour savings are clearly important too.

Principles of constructing a new cow track

If new cow tracks are being constructed then it is worth locating a 'free' source of rubble from a building firm. Alternatively the subsoil may be suitable, allowing the 'up-and-over' approach or a farm quarry can be used. (fig 3) The track should run the shortest route (A-to-B) to save materials



Fig 3: The 'up-and-over' involves digging up subsoil from next to the intended track, moving it over and onto the new track and back filling the topsoil

Creating drainage to shed water

This is best achieved by:

- (1) Raising a track at least 0.5m above the surround ground with stone or rubble (for a new track, stone can be laid directly on the topsoil). 8-12" stone/rubble should be used first, with layers of finer stone/rubble (3-4") on top. (Fig 4) Concrete sleepers may be a cost-effective option.

- (2) Creating ditches
- (3) Removing barriers to wind or sun drying.
- (4) Creating a camber



Fig 4: Investing effort in preparing a raised base will improve drainage. Some 'sinking' should be anticipated and an 'over-camber' is rarely the main concern.

Compaction of stone/rubble to shed water

Heavy roller compaction (70 tonne roller) will help the track bind and shed water, thereby resisting erosion. This will ensure the track lasts longer. It will also reduce the unevenness that results in pooling and protrusion of stones that damage claws.



Fig 5: Oolitic limestone is a durable soft stone, that compacts well and offers excellent cow grip. Unsuitable for heavy vehicle use or high rainfall areas.

Cow-friendly surface material

Perhaps the most costly part to constructing a cow track is the material used as the top finish. While this can be the same material used for the base, the top layer needs to be cow friendly. This means if it is stone then it must not puncture claws or cause damage to the interdigital skin. The following materials can be used:

- Oolitic limestone (Fig 5) - laid with a vibrating roller in 2 inch layers following wet weather i.e. not wet or dry.
- Sandstone - like oolitic limestone.
- Chalk - added sand will reduce slipperiness in wet weather. This can be stabilised with cement.
- Wood chip - good drainage essential.
- Pine peelings - like woodchip, good drainage essential. Excellent cow comfort.
- Crushed stone or rubble - commercial crushers can be contracted-in. The stone can be stabilised with cement. Rubble must have metal extracted.

- Shallet - a clay subsoil. It has a tendency to turn muddy in wet weather. It could be cement-stabilised.
- Stabilised soil - cement mixed with soil. Not widely used but a potential solution where stone is unavailable. Contractor costs may make this solution uneconomic.
- Stone dust - various products may be available from local quarries.

An annual cost in terms of repairs should be expected with all these materials, although in reality the stone materials often last 2-3 years without attention. The life is determined by the vehicles that use it and ideally no vehicles should use it. Attention should be paid to all sections of track as one 10m section can cause 90% of the problems.

Concrete and tarmac

These surfaces can be abrasive and can make cows vulnerable to stone penetrations if they are not swept regularly (e.g. weekly). However, if managed well they make extremely useful

tractor *and* cow tracks. Quarry belting on level stretches can reduce the problems associated with cows walking long distances on these surfaces.

Other track-related problems and solutions

(1) Gateways and water troughs - following the above principles appears to be important, with a focus on drainage. Moving, rotating or widening gateways is another common solution to field poaching.

(2) Rain-washed tracks - generally these require resurfacing prior to use, or rolling with a heavy roller to re-create surface 'fines'.

(3) Holding areas next to roads - concrete is usually the only suitable materials for these areas.

(4) Junctions between concrete and stone - raising the stone track above the concrete should help, with attention to drainage.

(5) Crossing a stretch of "chippings" track - old carpet or quarry belting can be used. (Fig6)



Fig 6: Quarry belting can be a portable solution

Claw condition

Even with perfect tracks, claw condition may make cows vulnerable to sole punctures. The reason for thin soles should be investigated. Lameness should be investigated. Lameness means hind feet cannot fall where the front feet left off. This makes cows more prone to treading on stones as cows focus on front foot placement. Routine trimming 4-8 weeks prior to turnout may help reduce this, although sole thickness should be preserved to minimise 'turn-out tenderness'.

Good stockmanship



Cows will move more quickly on a cow-friendly cow track, lowering the risk of sole punctures. None-the-less, it is still essential for good stockmanship principles to be followed, as cows can still tread on stones if rushed. There is no substitute for allowing cows to walk to buildings at their own pace, without a dog or use of a vehicle horn.

Constructing a cow track requires considerable forward planning. If local materials can be sourced then the costs need not be high compared with the potential savings. Where the costs of cow tracks cannot be justified, then increased reliance on housing, woodchip paddocks or breeding for a robust cow may be the only alternatives.

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