

FEED TROUGH CLEANLINESS AND SURFACES

Optimising dry matter intake is fundamental to maximising milk production in profitable dairy operations. Dirty feed troughs containing spoiled feed, will reduce intakes, increase wastage and put animals at risk of disease. Effective feed management not only involves feeding a balanced ration, but ensuring its quality is maintained in the feed trough. Clean troughs can improve daily dry matter intakes by 0.5kg/cow equating to **£90 extra milk per cow per year**.

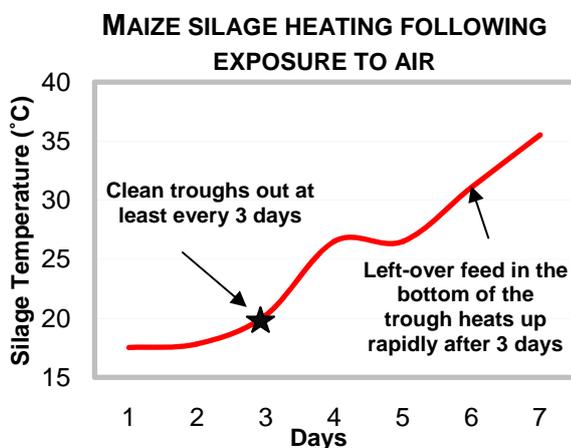
Key points:

- Clean troughs assist in maximising DMI for healthier and milkier cows
- Don't expect cows to eat ration older than a few days old, it's not good for them!
- Adopt a regular trough cleaning regime
- Assess your feed surfaces, and modify them to be smooth enough to lick clean

FEED TROUGH MANAGEMENT

Maximising Dry Matter Intake (DMI) - A fresh ration fed from a clean trough will optimise feed intake. Spoiled feed will be rejected by cows resulting in reduced DMI causing the following costly consequences:

- Reduced milk yield
- Reduced conception rates
- Increased incidence of displaced abomasums and metabolic disorders such as ketosis



Cows should not be expected to eat left-over silage which collects in the bottom of the trough!

Optimising feed quality – Silage will undergo secondary fermentation in the feed trough when it is exposed to air. This is especially a problem with high DM silages, where the wrong additive has been used or where clamp management is poor. This will:

- Reduce palatability, discouraging cows from eating down into the fresh ration on top of old feed.
- Disrupt a balanced diet, since aerobic fermentation uses energy in the feed, producing heat (see graph)
- Produce harmful mycotoxins, which have been proven to effect fertility and the immune system of cows as well as being hazardous to staff (see *Mycotoxins Farming Note*).

Keeping feed troughs clean - The easier feed troughs are to clean the more likely it is to happen!



- Waste food should be routinely removed from troughs before fresh feed is dispensed. Ideally this will be done at least every 3 days (see graph).
- Monitor levels of feed wastage and adjust the feed supply so 3-4% is left each day (assuming a high quality ration is offered). This allows unpalatable parts of the ration to be rejected, and indicates that cows are not being offered too much.
- Outside troughs will need to be cleaned out more often as feed is prone to spoil more rapidly due to heat and rain speeding up secondary fermentation.

FEED TROUGH DESIGN FOR CLEANLINESS

Height – Troughs should be raised by 10-15cm (4-6") above the standing area to prevent contamination with slurry and to allow cows to adopt the natural grazing stance, reducing pressure on front feet and lowering the rate of lameness. See *Barrier Design Farming Note*.



Shape – Feed troughs should be free from grooves, holes and other crevices which are difficult to clean and trap feed, harbour moulds and encourage rodents.

Position – Ideally, feed troughs should be sheltered from the elements to limit feed spoilage. Cows will avoid outside feeders in bad weather reducing DMI.

FEED SURFACES

To maximise intake, feed surfaces should be as **smooth** as possible.

- Run your knuckles over their feed surface – if it hurts, it will be discouraging the cows from licking the surface and finishing their ration.

Consider the feed surface options below:

Concrete is easily corroded by the acidity of silage and quickly becomes very rough. As a consequence, feed intake will be reduced, cleaning is more difficult and feed wastage is increased.

Tiles provide a smooth, acid resistant, easy-clean and cow friendly feed surface. Kingshay member Alistair Vanstone, created tiled feeders by pressing smooth floor tiles directly into ready-mix inside his 5' wide feeders. This surface reduces feed wastage since cows now lick the surface clean. The only problem he encounters is the tiles being chipped by stones passing through the diet feeder. A second farmer in Cheshire found tiles to increase DMI by 0.5kg/cow/day.

- Tiles crack if driven over by heavy machinery.



Plastic sheeting e.g. parlour board, may be used to line feed troughs. Such sheeting is widely available, is easily cut to size and will provide a smooth feed surface.

- Fix it down well otherwise it will tend to lift, especially in hot weather.

Fibre glass can be applied directly to concrete or moulded to line existing troughs. This provides a strong, smooth surface for



cows to eat off. To prevent fibre glass from lifting, edging may be required.

Quarry belt may be bolted down at the feed stance, providing a smooth, acid resistant and long lasting surface for cows to eat from. This may be the preferred option where concrete very rough.

Rubber Paint or Epoxy resins can be applied directly to clean concrete feed surfaces to provide a resilient, smooth surface for cows to eat off. Ian Rice, the building surveyor who oversees Cornwall County Council farms, recommends the use of epoxy resins for feed surfaces as they're easy to apply, acid resistant, durable and cost effective.

GUIDELINE COSTS

PRODUCT	GUIDE PRICE (£/M ²)	EXAMPLE SUPPLIER
Tiles & adhesive	£7	Local supplier
Plastic sheet	£6.80	Mole Valley Farmers
Fibreglass	£35 to £40	GRP Mouldings
Quarry belt	£7-8	Canning Conveyor
Rubber paint	£3	Mole Valley Farmers
Epoxy resins	£2 to £3.30	Quattro

An easy-to-clean, smooth feed surface will optimise DMI and maximise milk production

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