



#### Reducing your carbon footprint

This comprehensive series aims to offer producers clear and practical information to help them increase efficiency and save money. It highlights affordable and effective methods to reduce greenhouse gas emissions on UK dairy units.

Topic 1: **Cutting through the 'carbon jargon'**

Topic 2: **Fewer emissions from farm waste**

Topic 3: **Improving feed efficiency**

Topic 4: **Reducing emissions through breeding**

Topic 5: **Saving energy and fuel**

Topic 6: **Get water wise**

**R**educing emissions from livestock manure and slurry starts with storage and there's one thing that most, if not all producers can do, and that's to cover their tank or lagoon.

Allowing a crust to form on a lagoon or tank is a cost-free method. "This stops gases escaping and it used to be considered a no-no a few years ago," says DairyCo's technical extension officer Chris Coxon.

"It used to be all about 'agitating' to prevent a crust from forming. But now the advice is to allow a 'manageable' crust of between 20cm and 25cm thick

Timely tips on reducing emissions from farm waste

# Cap emissions – and fertiliser costs

Covering your slurry store and switching to a more precise spreading system will ensure that your soils and crops get more nutrients from your muck and slurry, with the added benefit of cutting gas emissions. What's the latest advice?

text **Rachael Porter**

to cap the tank. No thicker though, as it can be difficult to break up when it's time to empty the tank or lagoon."

Physically covering slurry stores and pits is another option. There are innovative floating covers (see box) and there are tents and sheets.

"Care should always be taken when retrofitting a slurry store," says Mr Coxon. "Make sure you get professional advice because the wrong cover or poor fitting can put a lot of weight and pressure on the top ring of a metal slurry store, for example, and I have seen some tanks break."

#### Slurry bags

Slurry bags, which effectively store the slurry in a sealed bag similar to the principle used with ag-bagged silage, are another way to 'cover' your livestock waste.

"These bags are made to fit the shape of the lagoon and simply lie in it and contain the slurry."

They're already widely used on the continent, but there are some concerns about slurry solidifying within the bag, which could make it difficult to empty. "And they're similar in cost to a metal tank at around £29/m<sup>3</sup>," he adds.

How you handle slurry is also important. Mr Coxon says that producers should leave the agitator well alone and only mix slurry when they're about to use it. "Again the advice has changed here. Thorough and regular mixing throughout the year used to be recommended whereas now agitation is the final step prior to spreading."

And application is the third and final area where producers can take steps to reduce emissions. "Today the trend is for dribble bar and trailing

## Slat system slashes gas production

Slats with rubber mats and a built-in valve to close the slats can help to reduce ammonia emissions from cow housing by separating slurry and urine on the cow-house floor.

Trials in the Netherlands with a flooring system called the Comfort Slat Mat showed that emissions could be reduced by around 40%.

The system consists of two parts: a mat that is clipped onto the concrete slats and a valve attached to that mat to close the slots between the slats.

The Comfort Slat Mat is designed to improve the drainage of urine to the

slurry pit and to minimize the air exchange from the slurry pit by closing the slats (valve).

At an experimental dairy unit in Lelystad a series of experiments showed that the system reduced ammonia emissions from slatted floors in dairy housing, compared to a concrete slatted floor, by between 20 and 40%.

The mats reduced the methane emission to 61% of the emissions of concrete slats without a mat.

Adding mats and valves reduced the methane emission to 76% of the emissions of concrete slats.



## Floating system cuts emissions

A Danish floating cover system could help you cut emissions from your slurry store or lagoon. The system, called Hexa-Cover, comprises individual loose tiles, which are hexagonal in design with symmetric ribs on both sides.

The ribs make the floating tiles distribute themselves uniformly on the slurry surface without overlapping. These tiles interlock and form a closed cover. A specific gravity of 0.5kg/litres ensures that the elements will be level with the surface. The manufacturer claims that the system will reduce emissions by more than 90% and that it's easy to install and handle.

"No supervision is needed, there are no operating costs or repairs and the system will automatically level itself," says Suffolk-based Tramspread's John Tydeman, the UK's sole distributors of the product.

The tiles are delivered in large bags, ready to be poured onto the slurry surface where they distribute themselves. And it's possible to access the slurry at anytime. The floating tiles can be simply pushed aside with equipment, such as a pump. When the equipment is removed, the tiles will 'reorganise' and close the openings.

The tiles are manufactured from recycled plastic and each one has a diameter of 228mm, a depth of 70mm and weighs 270g. The number of tiles required per m<sup>2</sup> is 28 and a large bag of tiles will cover an area of 35m<sup>2</sup>.

The system costs between £25/m<sup>2</sup> and £35/m<sup>2</sup> depending on the area to be covered. Tramspread is currently looking for customers who would be willing to allow other producers to view their installation for promotional purposes, which will attract a further discount.



shoe applicators and injectors. Most contractors have all three.

"But the best method for grassland is the trailing shoe. This scratches the soil surface and splits the sward and places the slurry close to the grass' roots, where it can be easily utilised," says Mr Coxon. He adds that the dribble bar system is better suited to arable crops. Soft, sandy, relatively stone-free soil is best where injectors are used, to minimise soil and sward damage.

### Timing is vital

Timing of application is vital too, both in terms of reducing emissions and getting more value from the slurry. "Any time

between February and April – when the grass is actively growing and taking up nutrients – is ideal.

"This will ensure that a higher percentage of the slurry nutrients are available to the crop – up to 25% more."

Summer spreading with a splash plate and tanker means that about 10% of the nitrogen in the slurry is available to the plant. So at 30m<sup>3</sup>/ha – that's about 9kgN/ha and worth about £6/ha, if we price nitrogen at 65p/kg, or £225/tonne.

"Using a trailing shoe or injector pushes availability up to 45% – that's 42kgN/ha, which is worth around £26/ha," says Mr Coxon. "That's a huge cost benefit."

The fertiliser value of slurry increases by

more than £20 per hectare after first-cut silage when using these methods, so it's certainly worth considering. It also reduces the risk of crop contamination. Also, key to making the most of any cost benefits is to know what you're applying: "Take small samples from each load that you spread, mix them together and get them analysed.

"To supply the maximum 250kgN/ha permitted will typically require 83m<sup>3</sup> of slurry per hectare. But analysing the slurry will allow you to decrease the amount of bought-in fertiliser you use with confidence and make sure that you're making the most of your livestock waste," he adds. |

