A clear solution for farmers

CATCHMENT SENSITIVE FARMING

Improved sward utilisation from slurry injection

River Nidd Catchment Partnership (C)
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Slurry injection has a number of benefits, both agricultural and environmental, compared to surface spreading.

Increased nutrient availability is one such benefit that is often quoted. In practice, however, the actual increase in availability can be quite small as the example below shows.

This example is for 6% dry matter cattle slurry applied to grassland in the summer at 20m^3/ha.

	Total N (kg/ha)	Available N (kg/ha)
Surface Spread	52	13
Injected	52	18

Whilst an additional 5kg/ha of nitrogen is useful to have it isn't going to represent a major opportunity for reducing fertiliser use, particularly in more intensive systems.

A potentially much larger benefit of injection comes from improved sward utilisation.

Figure 2 Sward after surface spreading

Figure 1 Disc injector

Surface spreading has a major drawback in that it smothers the sward which can lead to dead areas, uneven growth and contamination of herbage all of which contribute to poorer utilisation of the grass. It also represents a potential source of water and air pollution as slurry lying on the surface is vulnerable to run off following rainfall, spreading from a vacuum tanker leads to problems with odour and there is also a greater risk of gaseous losses to the atmosphere. This last point not only represents a loss of nutrients but is also a source of greenhouse gases.

With this in mind a comparison of techniques was arranged as part of a slurry handling demonstration arranged by the Nidd Catchment Partnership[1].

Dairy slurry was applied at the rate of 44m^3/ha. One half of the field had the slurry surface spread, the other half had it injected with a disc injector like the one shown below. 4 weeks later the difference between the swards was marked as the pictures below show.

1 The Nidd Catchment Partnership is one of the regional strategic partnerships set up through Catchment Sensitive Farming (CSF). The partners are CSF, Nidderdale AONB, Yorkshire Dales Rivers Trust and Yorkshire Water.

Figure 3 Sward after injection

Figure 4 Freshly injected on the right, 6 hours after injection on the left

Although no measurements were taken of the amount of grass growth it was clear that the area that had been injected had more bulk, was more even and had no dead areas. The host farmer had always used surface spreading but having seen the effect he was convinced that injection was the way forward for him.

A further benefit of injection is the short period of time before the sward becomes useable again. Part of the demonstration site was injected on the morning of the demonstration and 6 hours later, as shown below, the slurry had disappeared from the surface.

This demonstration clearly showed how injecting slurry can have major agricultural benefits through improved sward utilisation compared to surface spreading.

Just as importantly injection brings a number of environmental benefits.

- It reduces nutrient loss through greater availability of the nutrients and increased grass growth.
- It reduces the risk of run-off.
- It reduces odour.
- It reduces gaseous emissions.

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