

SPREADING SYSTEMS FOR SLURRIES AND SOLID MANURES

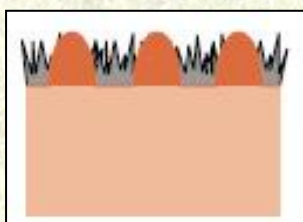
Slurries and solid manures are valuable fertilisers but may also be potential sources of pollution. With increasing economic and environmental pressures on farm businesses, it makes sense to exploit the fertiliser value of manures while taking action to prevent pollution. With opportunities to apply slurries to grassland on several occasions during the growing season, this could provide up to 20% of the N; 100% of the P; and 80% of the K fertiliser required by grassland used for hay or silage production.

Why is controlled application important?

- To ensure that the intended amount of nutrients from slurry and solid manure has been applied to the crop.
- Gaseous emissions from land application of slurries and solid manures account for a large proportion of the total ammonia emissions from agriculture.
- If loss is minimised there is potentially more nitrogen available for grass and crop uptake.

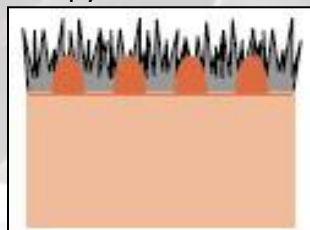
What are the different slurry distribution systems available?

- Broadcast spreader (splash plate or nozzles) – the slurry is forced under pressure through a nozzle, often onto an inclined plate to increase the sideways spread.
- Trailing hose – the boom of the spreader has a number of hoses connected to it, distributing the slurry close to the ground in strips or bands.

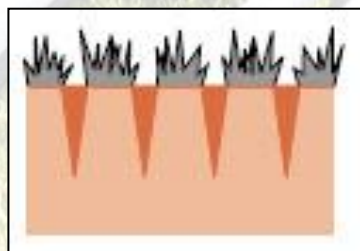


It relies on the pressure at the end of each hose to provide even distribution.

- Trailing shoe spreader – a similar configuration to a trailing hose spreader with a shoe attached to each hose allowing the slurry to be deposited under the crop canopy onto the soil.




- Injector – slurry is injected under the soil surface. There are various types of injector, but each fits into one of two categories, either open slot shallow injection, up to 50mm deep, or deep injection over 150mm.



What are the different spreading options for FYM?

- Rota spreader – a side discharge spreader that features a cylindrical body and a pto driven shaft fitted with



flails running along the centre of the cylinder. As the rotor spins the flails throw the solid manure out to the side.

- Rear discharge spreader - a trailer body fitted with a moving floor or other mechanism that delivers solid manure to the rear of the spreader. The spreading mechanism can have vertical or horizontal beaters, and in some cases spinning discs.
- Dual purpose spreader – a side discharge spreader with an open top V shaped body capable of handling both slurry and solid manure. An impellor or rotor usually at the front throws the material from the side of the machine.

How to minimise environmental losses

- Wherever possible use a band spreader, trailing shoe or injector to apply slurry.
- Where this is not possible, use a broadcast spreader that gives a low trajectory and large droplets.
- After application of slurry / solid manure to bare land, incorporate the material into the soil within 24hrs of spreading and where practical within 4 hours.

- Band spreaders, trailing shoe spreaders, injectors or rapid incorporation will reduce odours and ammonia losses.

To reduce the risk of runoff don't spread:

- within at least 10m of a ditch or watercourse, or within 50m of a spring, well or borehole that supplies water for human consumption or the farm dairy.
- More than 50m³/ha or 50t/ha at one time, to reduce the risk of runoff. Reduce these rates as necessary so that the amount of total N from OM applied does not exceed 250kg/ha per year.
- When soils are frozen, or fields snow covered
- When soils are cracked down to field drains
- When fields have been piped or mole-drained or sub-soiled over existing drains within the last 12 months.

For optimum use of available nutrients in manures, they should be spread as close as possible before maximum crop growth and nutrient uptake occur.

Visit www.swarmhub.co.uk for more information, or to find out more about these issues.

Adapted from "Making better use of livestock manures on grassland" booklet, developed by ADAS, IGER, and Silsoe Research Institute, and funded by DEFRA. Updated 2007.