Practical Tip: Slurry application techniques

Techniques

Band spreaders

These reduce emissions from slurries and liquid manures through decreasing the manure surface area exposed to the air and decreasing air flow over it by placement below the crop canopy. The efficiency of these machines can vary depending on the height of the crop. There are two main types of machine:

1. **Trailing hoses**: slurry is discharged at ground level to grass or arable land through a series of flexible hoses. Application between the rows of a growing crop is feasible.
2. **Trailing shoes (or feet)**: slurry is normally discharged through rigid pipes which terminate in metal "shoes" designed to ride along the soil surface, parting the crop so that slurry is applied directly to the soil surface. Some types are designed to cut a shallow slit in the soil to aid infiltration.
Injectors

These reduce emissions by placing the manure beneath the soil surface, thus decreasing the manure surface area exposed to the air and increasing infiltration into the soil. They are generally more effective than band spreaders however, they are most costly and are heavier on the ground.

1. **Shallow (or slot) injectors**: these cut narrow slots (typically 4-6 cm deep and 25-30 cm apart) in the soil that are filled with slurry or liquid manure. They are most commonly used on grassland. Typically ammonia emissions are reduced by 70%.

2. **Deep injectors**: these apply slurry or liquid manure to a depth of typically 25 -- 30 cm in the soil using injector tines spaced about 50 cm apart. The tines are often fitted with lateral wings to aid dispersion in the soil and to achieve high application rates. Note: In NVZs individual field application rates are limited to 250 kg/ha total N They are most suited for use on arable land because of the risk of mechanical damage to grass swards.

To reduce the risk of causing water pollution:

- inject across slopes (where it is safe to do so), rather than up and down
- do not inject into porous backfill over field drains
- do not inject into subsoil below the crop’s active roots

Source: ADAS
The aim should be to incorporate slurry into the soil as rapidly as possible after spreading on the surface. It is normally recommended that incorporation should be completed within 6 hours of spreading to achieve worthwhile abatement of ammonia emissions. Completely burying the slurry by ploughing is often considered to be the most effective method of incorporation. However, ploughing is a relatively slow operation and, in some circumstances, the use of a tine or disc cultivator may be as effective because the slurry will remain exposed on the surface for a shorter time.

Check all equipment is in good working order well before field activity starts. Carry out repairs as necessary. Set up spreaders according to manufacturers’ instructions, and adjust to an appropriate application rate and uniformity of spread for the type of manure – this information is available on pages 13-6 of the booklet ‘Spreading systems for slurries and solid manures’. Keep to an appropriate bout width. Avoid spilling slurry while you are filling and moving equipment around the farm; spillages on the road may be an offence, and run-off can enter watercourses via highway drainage. You should carry out some spot checks on load weights, application rates and uniformity of spread; and adjust as necessary.