Management

by Stuart Lumb

Manure management

As any pig farmer knows only too well, putting feed in at one end of a pig results in manure coming out at the other. Historically, in temperate parts of the world where pigs are kept as a part of a mixed farming system, the pigs are bedded on straw.

Straw plus dung has been termed farmyard manure, or FYM, for very many years.

Systems using FYM are difficult to mechanise – however the end product is relatively easy to store and, in the eyes of planners, more environmentally friendly than slurry systems.

In warmer climates bedding is often not needed and effluent is stored in ponds or lagoons. The liquids tend to evaporate but even so the lagoons have to be periodically dredged out.

In the late 1960s and early 1970s UK pig units started to become more intensive and the average unit size grew rapidly, with many units having part, and then fully, slatted floors. Roof water used to end up in the slurry pits as well, increasing the volumes to be pumped out. Slurry storage was just confined to a metre deep pit under the slats, the slurry being pumped out when the pits became full. This job always seemed to coincide with Friday afternoons, such that the sweet smell of slurry hung about for most of the weekend much to the annoyance of the local population wanting to spend time relaxing in their gardens.

Slurry was considered a nuisance, to the extent that farmers set aside 'sacrifice areas' on which literally hundreds of litres of slurry were spread with scant regard to aerial pollution or contamination of watercourses and aquifers.

A condition known as 'blue baby syndrome' started to occur. This was due to high levels of nitrates in drinking water. In many parts of the UK drinking water is extracted through bores drilled down into the water bearing rock/aquifer.

The rise in nitrates in the drinking water was consequently put down in part to the nitrates in slurry draining down into the aquifer. Thereafter, strict planning constraints were brought in relating to pig unit development, in terms of where and when slurry could be spread.

Manure is an asset and should be managed accordingly.

This also meant that often some form of long term slurry storage was needed, usually in the shape of an above ground store which generally speaking has now to be covered to prevent pollution of the atmosphere and smells.

Excess nitrogen and phosphorus also end up in rivers and lakes causing rapid growth of algae and plants which affect water quality and the balance of organic life including fish. Consequently, slurry application now has to be related to the type of crops grown on the farm – for example more slurry can be applied on grassland than on other crops.

The theory is to relate the nutrient content of the slurry to the nutrient requirements of the crop – this uses slurry sensibly plus it cuts down expenditure on bag fertiliser. If the farm has limited land then an agreement has to be made with a neighbour to take the slurry.

Alternatively, slurry may be disposed of through some type of digester or biogas plant, although the economics of these plants are somewhat suspect, often relying on green subsidies to be cost effective. When planning a new unit, it is essential that provision is made to pipe all roof water separately away from the dirty side of the unit, in order not to dilute the slurry.

On existing units make sure that drinkers, troughs and bowls are not leaking, for the same reason. Slurry in store needs agitating periodically to prevent settling out of solids. This can be a hazardous operation though – some years ago a farmer was using a tractor driven pump to circulate his slurry. After setting the equipment going the farmer went off to market for the morning.

He returned some hours later and as he was driving back to his farm he was met by a river of slurry – the tractor had run out of diesel, the pump had naturally stopped and there was then nothing to stop the slurry flowing out from the reception pit and down the road.

Apart from the embarrassment, the farmer incurred a substantial fine from the UK Environment Agency. Many buildings have deep pits which act as storage. Sometimes the slurry is pumped out directly into a tanker. Again settlement can occur and so to get a more even mix operators have been known to reverse the pump, sucking air in to agitate the slurry.

This can have lethal consequences as stirring the slurry releases noxious gases which can kill pigs but, more seriously, any staff who might inadvertently happen to be in the building at the same time.

Regarding slurry spreading, care should be taken to avoid windy days and smells carrying to nearby houses.

Avoid spreading on weekends – Brittany has the largest concentration of pigs in France and it is also a very popular tourist area – consequently slurry spreading is banned on Saturdays and Sundays. Low level applicators reduces drift and smell. Slurry injection into the soil is another option but requires specialised powerful equipment and hence is often carried out by contractors. Slurry should not be spread within 10 metres of a watercourse or 50 metres of a bore or well.

Slurry run off into watercourses results in the death of fish populations. Angling is a very popular leisure activity and polluting watercourses does nothing for the farmers' image. Also polluting water courses attracts hefty fines, hence the 'in' phrase – 'the polluter pays'.

A Danish biogas plant.

Units where FYM is the manurial product have more flexibility. Again there is still liquid effluent produced and again this has to be stored and disposed of in an appropriate manner. Manure is an asset, not a waste, and should be managed accordingly.

Environmental awareness is growing all the time, whether farmers like it or not, and many of the regulations that we are familiar with in Europe and north America will inevitably spread to the Far East and south America in the not too distant future. ■