

Sustainable Recycled Organics Usage



ON-FARM FACTSHEET SERIES

Fact Sheet: A4.1

Updated: 14/2/2007

LAND APPLICATION – Legal issues with spreading animal by-products

All users of animal by-products need to follow general and specific laws related to the reuse of these products. Functioning within these laws and guidelines will ensure sustainable use of these products with respect to the environment and other members of the community.

Intensive animal production (piggeries, beef feedlots, layer farms) are regulated industries with laws and guidelines being enforced by the DPI&F and the EPA. There are restrictions over the reuse of animal by-products on farm and these must be followed to maintain a licence of operation.

When reuse of animal by-products occurs on a different property to where it was produced (i.e. if manure is sold to a second party) the specific laws related to intensive livestock production do not apply. However, users are responsible for safe and environmentally sound reuse under the **Environment Protection Act 1994** (state law administered by the Environmental Protection Authority (EPA)) and the **Environmental Protection and Biodiversity Conservation Act 1999** (National law administered by the Department of Environment and Heritage).

These laws focus on maintaining the quality of the environment and preventing the risk of environmental harm. All people have a general environmental duty of care to carry out operations in a way that do not cause environmental harm.

These broad based laws aimed to cover many areas of the environment including water, air, land, noise and waste management which are explained by a series of environmental policies put forward by the Queensland EPA, including the;

- Environmental Protection (Air) Policy 1997
- Environmental Protection (Noise) Policy 1997
- Environmental Protection (Water) Policy 1997
- Environmental Protection (Waste Management) Policy 2000.

These policies provide a legal framework to ensure air, noise, and water quality is improved or protected. The laws are not aimed at being restrictive to general farming operations and in most cases good management practices will ensure that the requirements of the law are met.

Some areas of caution should be noted however. The main concerns with respect to animal by-product reuse come from;

- Risk of harm to water sources (surface and groundwater)
- Risk of harm to land (contamination)
- Risk of harm to animal health
- Risk of harm to community amenity

Risk to water sources

Animal by-product reuse can result in large amounts of nutrients being applied to land, and this can create a risk to water quality in streams and underground aquifers. The immediate risk to surface water comes from spreading by-products too close to a water course or from the product being eroded from and washed into a watercourse following heavy rain. The long term risk is from increasing the nutrients (particularly nitrogen – N and phosphorus – P) in the surface soil to very high levels which can also be carried to a watercourse in runoff.

High nutrient levels in surface water can lead to algae production, poor river health, contamination of downstream drinking water and damage to ocean ecosystems. This can be managed by;

- Applying by-products no less than 100m from a watercourse and / or maintaining an appropriate vegetative buffer
- Timing application when dry weather is forecast to minimise erosion losses
- Not applying by-products to steep slopes where erosion is likely
- Incorporating by-products where possible to limit losses
- Ensuring surface nutrient levels are not excessively high

Safe nutrient levels in the surface soil depend on soil characteristics including clay and pH levels.

For instance, Table 1 shows trigger levels for phosphorus in topsoil. It is recognised that some highly productive systems may exceed these levels and this information should only be used to trigger investigation or action.

Table 1. Suggested maximum available P concentrations in the topsoil (0-10cm)

Clay content	pH	Colwell phosphorus (mg/kg)
Less than 30%	Less than 7	31
Less than 30%	More than 7	59
More than 30%	Less than 7	75
More than 30%	More than 7	85

Skerman 2000.

The risk to ground water comes from nutrients seeping through the soil with water. This risk is mainly from high N levels, although P can leach if very high amounts of by-product are applied over time. Nitrogen in groundwater can cause risk to animal and human health from nitrate and nitrite poisoning. This risk can be managed by;

- Balancing nutrient applications with plant requirements so that nutrients are not available for loss
- Planting deep rooted crops or pastures to use nutrients that are at the bottom of the root zone.
- Timing nutrient application to avoid times of high drainage
- Spreading by-products no less than 100m from a groundwater bore

Risk to land

The main risk to land from animal by-product reuse is from the build-up of very high levels of nutrients or contaminants. Animal by-products contain high levels of P compared to N. If by-products are applied as a N fertiliser over time excessive soil P levels can occur. These levels may take many years to decline. By-products can contain metals, elements and compounds that could also cause contamination of the land if very high amounts are applied over time. This risk can be managed by;

- Keeping paddock records of by-products application and managing nutrient levels
- Monitoring paddocks that have received by-products to keep nutrient and metal levels in check
- Applying by-products to match plant demand for P

Risk of harm to animal health

The main risk to animal health comes from the consumption of animal by-products by farm animals. There are two main disease concerns; botulism in ruminants from consumption of chicken litter, and BSE (precautionary – not present in Australia) from consumption of animal by-products by cattle. Because of these disease risks it is illegal to allow cattle access to poultry litter or manure. While there are other pathogens found in manure (see the fact sheet in this series

'Managing human and animal health risks') these risks can be limited by good practice. The best management practices to prevent animal health risks are;

- Preventing livestock access to stockpiled manure or litter
- Ensuring that there is a 3 week break between applying animal by-products and livestock grazing

Risk of harm to community amenity

Harm to community amenity is likely to be related to odour or dust generation when applying animal by-products. Manure application will usually cause some odour, but this is only likely to occur for 1 to 2 days. Dust can be a problem if the by-product is very dry, and dust can carry a long distance on windy days. To avoid problems with neighbours or other sensitive receptors (schools, community halls etc), it is suggested that by-products application is;

- Timed for mid-week, not on weekends
- Spread no less than 200m from a rural residence
- Spread no less than 20m from a property boundary
- Spread no less than 50 m from a minor road (<50 cars/day) and 100m from a road with >50 cars/day
- Carried out after neighbours are informed (odour is not likely to remain for more than a day or two).

These suggestions are not comprehensive, but they attempt to cover the main areas of concern with by-product application. In most cases, following best management practices on your farm will ensure that environmental harm is minimised and the community is not affected, a win-win for all parties.

References and further reading:

Queensland DPI&F, Queensland Dairy Farming Environmental Code of Practice. Available at: <http://www2.dpi.qld.gov.au/environment/1235.html>
Skerman, A 2000, Reference manual for the establishment and operation of beef cattle feedlots in Queensland, Information Series QI99070, Queensland Cattle Feedlot Advisory Committee (FLAC), Department of Primary Industries, Queensland.

Produced by FSA Consulting as part of the "Implementation of Sustainable Management Practices for Recycled Organic Reuse for High-Risk Industries and End-use Farmers" project, Funded by the Condamine Alliance. Condamine Alliance is the regional body with lead responsibility for enabling the community to achieve sustainable natural resource management in the Condamine River catchment, at the head of Australia's largest river system, the Murray-Darling Basin.

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