

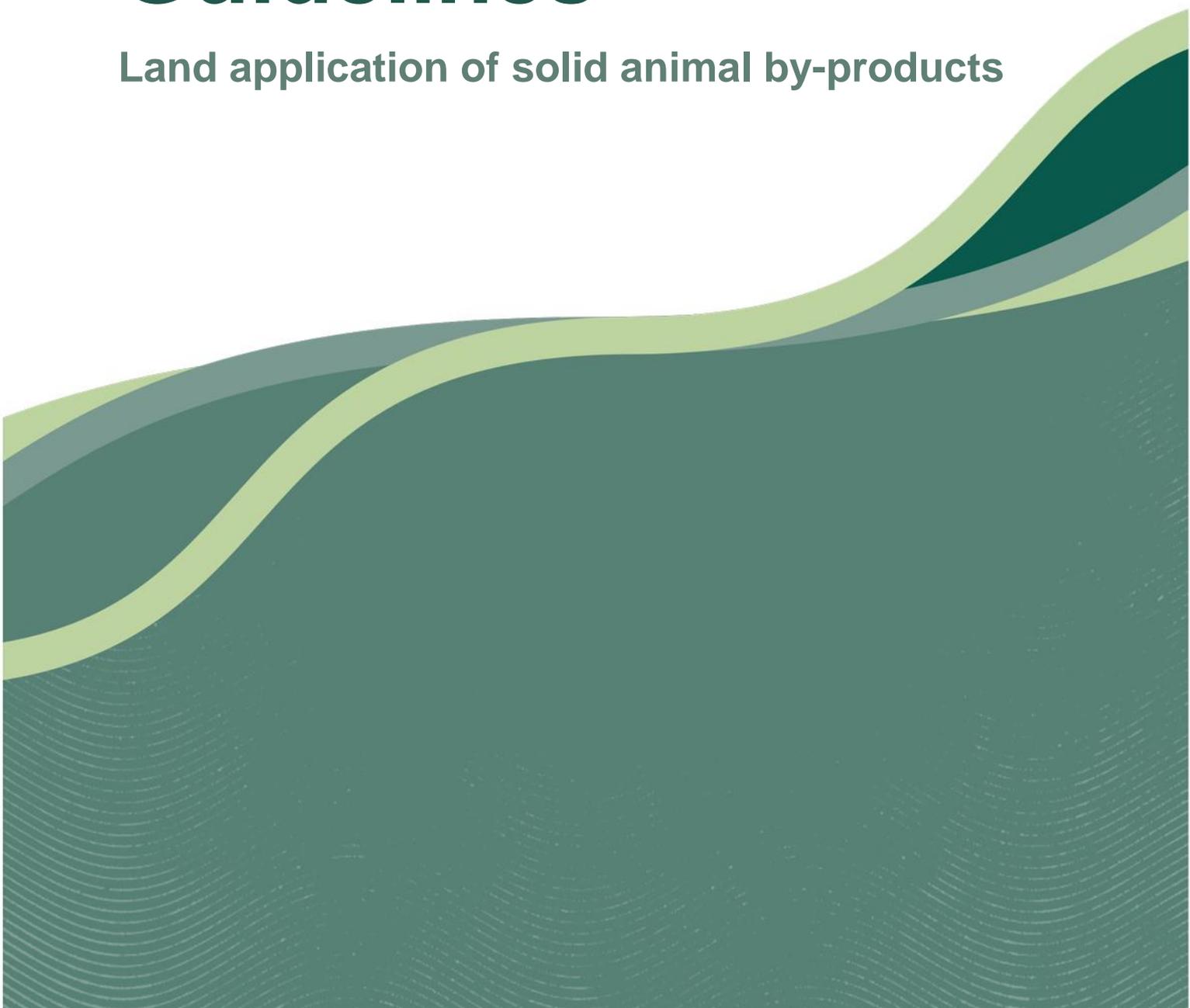


Department of
Primary Industries and
Regional Development

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Agribusiness Development Guidelines

Land application of solid animal by-products



Land application of solid animal by-products

By-products from intensive animal industries contain high levels of nutrients and organic material, which if not managed carefully can contaminate soil and water resources. These by-products can provide a valuable source of nutrients and organic matter to improve soil health and supplement crop growth on agricultural land.

These Guidelines are designed to support how to plan and apply solid animal by products on agricultural land.

For the purposes of this Guideline, solid animal by-products describe the by-products from animal husbandry and production including manure, paunch, spent bedding and composted residual materials (such as animal carcasses and components) that are not intended to be disposed of on the property of origin.

Scope

Spreading solid animal by-products to agricultural land is a common method of reuse. This guideline details minimum environmental protection and community amenity standards for applying solid animal by-products to land.

Failing to comply with the guidelines could put you at risk of breaching relevant local and State government regulations.

Where solid animal by-products are applied to a property from where it originates (or associated enterprises), it is also recommended that a solid waste management plan is developed. The *'How to prepare a solid waste management plan'* guideline documents how to develop a nutrient balance, determine the spreading rate and the minimum area required for sustainable disposal of solid animal waste.

Management practices

Careful planning is necessary before spreading solid animal by-products to protect the environment and amenity of neighbours. As such, the following management practices for spreading, transporting, and stockpiling solid animal by-products should be considered:

1. Spreading solid animal by-products

1.1. When to spread

There are several factors to consider when deciding when to spread solid animal by-products to agricultural land.

Neighbours should be contacted prior to spreading, given wind can change direction and create a noticeable odour.

Timing considerations should include:

- Avoid spreading immediately before weekends and public holidays when people are likely to be engaging in recreational activities.
- The ideal time to spread is on a fine summer/autumn day when the heating of the land surface by the sun causes hot air to rise from the surface. Under these

conditions, odours are rapidly dispersed and carried into the atmosphere and odour intensity away from the source reduces quickly.

- Aim to spread in the morning to allow for greater odour dispersion and drying throughout the day. On cool, still, clear evenings, the air at the surface cools and does not rise due to the inversion layer which has developed, causing undesirable conditions for generating odour.
- Ideally spread just prior to incorporation or seeding.

Weather considerations include:

- Do not spread if the wind is expected to blow towards a neighbour as dust particles can carry significant odour.
- Do not spread if the soil is very wet or heavy rainfall is imminent. This may promote increased drainage or runoff, which can pose a pollution risk to groundwater and surface water.

1.2 How to spread

- Spread as uniformly as possible to ensure the entire area can utilise the nutrient input and avoid large odour generation.
- If possible, incorporate by-products into soil at a shallow depth to encourage nutrient uptake by crop roots.
- Do not spread solids that are very dry (aim for a moisture content of 25-30%; but not less than 15%).
- Record nutrient application rates and nutrient removal rates to increase your understanding of the suitability of utilisation areas and the likelihood of nutrient losses.

1.3. What to spread

- Apply at a sustainable rate - a system is sustainable if the amount of nutrient applied to soil matches what is taken up by crops.
- It is good agronomic practice to have soil and crop samples analysed periodically (annually is recommended).
- Refer to '*How to prepare a solid waste management plan*' for more detail.

1.4. Where not to spread

Appropriate separation distances to sensitive receptors, such as water courses and dwellings, need to be considered. For specific industry considerations, refer to the relevant Guideline documents:

- Cattle Feedlots – [National Guidelines for Beef Cattle Feedlots in Australia](#)
- Indoor Piggeries – [National Environmental Guidelines for Indoor Piggeries \(NEGIP\)](#)
- Rotational Outdoor Piggeries – [National Environmental Guidelines for Rotational Outdoor Piggeries \(NEGROP\)](#)
- Eggs – [Egg Industry Environmental Guidelines \(Australian Eggs\)](#)

- Sheep Feedlots – National Procedures and Guidelines for Intensive Sheep and Lamb Feeding Systems

Solid animal by-products cannot be spread in declared stable fly designated areas without appropriate composting. These areas can be found here. It is also expected that all re-use sites have a minimum separation distance of two metres to groundwater.

2. Transporting solid animal by-products

The following should be considered when transporting solid animal by-products:

- Select routes that avoid public areas such as schools, town centres, hospitals, and other built-up areas.
- Trucks need to be completely covered and contained to stop emissions of litter, dust, and odour.

3. Stockpiling solid animal by-products

No matter the length of time that solid animal by-products are stockpiled, it can create an odour nuisance. Correct management of solid animal by-product stockpiles should reduce the incidence and severity of odours. It is recommended that:

- Stockpiles are 1.5-2 metres high. Large piles may heat up excessively and generate odour, as well as a fire risk in some instances.
- A stockpile should have a triangular cross-section to promote water-shedding and prevent by-products from becoming too wet.
- Wet solid animal by-products should not be stockpiled as anaerobic breakdown can release strong odours. Drier solid animal by-products decompose aerobically, which is a low odour process.
- A plan should be drawn showing the location of geographical features in the vicinity so that all elements can be appropriately considered.

The following should also be considered when selecting a stockpile site:

- Soil type.
- Topography (including slope).
- Proximity to surface waters.
- Depth to ground water (should exceed two metres at all times).

Livestock Access

Livestock should be excluded from areas where solid animal by-products are present, with considerations being:

- Take all reasonable measures (fencing or removal from the paddock) to ensure livestock (including ruminant stock) cannot gain access to and consume stockpiled by-products.
- Ensure stock are kept away during spreading.

- Withhold stock from the treated pasture until by-products have been sufficiently incorporated (e.g., by ploughing or by rain and pasture growth) to ensure it will not be eaten. As a general guide, excluding ruminants from treated pasture for three weeks will allow enough rain and pasture growth to minimise the risk of animals ingesting restricted material. Longer exclusion periods will be needed if rain is scarce, or pasture growth is slow.

Occupational Health and Safety

Care should be taken when working with solid animal by-products as it can contain pathogens harmful to humans. Machine operators should wear a dust mask if not in a fully enclosed cab.

Related factsheets

- Agribusiness Development Guideline – *Preparing a solid waste management plan*

References

National Environmental Guidelines for Rotational Outdoor Piggeries – Australian Pork Limited

National Environmental Guidelines for Indoor Piggeries (NEGIP) – Australian Pork Limited

Environmental Code of Practice for Poultry Farms in Western Australia – Western Australian Broiler Growers Association & Poultry Farmers Association of Western Australia

Contact

If you require additional information, contact the Agribusiness Development team at DPIRD at agribusiness@dpiird.wa.gov.au

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