

# Potential environmental regulation classification and requirements for manure-derived Black Soldier Fly frass



## Black Soldier Fly farming FACT SHEET

### Key Points:

- Black Soldier Fly farming has the potential to turn manure and waste produced on Australian livestock farms into high quality fertiliser
- Research shows a range of benefits from Black Soldier Fly farming, including waste reduction, fertiliser performance, and reduced greenhouse gases
- The Black Soldier Fly frass will likely be classified differently in different jurisdictions, either as a product or a waste (manure)

### Introduction

Livestock industries in Australia produce significant amounts of manure that needs to be managed in a sustainable manner from an environmental and economic perspective. Manure management on Australian farms is a significant cost (estimated AUD\$100-200 million annually), impacting on the productivity, profitability and sustainability of businesses.

Offsetting the high cost of synthetic fertilisers with organic manure derived sources would also benefit the productivity and profitability of Australian agricultural production systems.

Major constraints and barriers to solid manure use is the cost of transport and management of the materials (labour, storage, handling and reuse). Poor management of manures can also cause significant impact on the amenity and environment of the surrounding community.

### Waste management solution

A potential waste management solution is the use of Black Soldier Fly farming to convert agricultural manures and waste into high quality fertiliser, which can – at the same time - significantly reduce the volumes of manure to be handled and transported.

Black Soldier Fly larvae can be fed on manures and spent bedding (including carcasses) and produce a product called frass, which is a mix of insect excrement, food residue and exoskeletons (Figure 1).



Figure 1. Black Soldier Fly frass

Research has been conducted to assess the effectiveness of using Black Soldier Fly farming to reduce poultry, dairy, piggery and abattoir wastes.

The research has produced the following results:

- Reduction in manure volumes of 70-80%<sup>1</sup>
- Frass can be used as an organic fertiliser or soil conditioner
- Demonstrated low risk in pathogens<sup>1</sup>
- Reduced stable fly emergence<sup>1</sup>
- Reduced greenhouse gases (GHG) and nutrient leaching<sup>1</sup>
- Produces a stable product with no odour
- Can be granulated to reduce transportation cost.



## Classifications and Regulations

It is necessary to understand how the regulatory framework in each State would classify or view the Black Soldier Fly products for reuse. This information is essential for regulators and industry to understand the potential adoption and reuse of Black Soldier Fly products.

State regulators provided initial thinking and interpretation of their policies and *Acts* based on generalised processing and product information<sup>2</sup>.

Based on the initial regulator responses, there appears to be no major regulatory barriers to the reuse and adoption of manure-derived frass as a fertiliser or soil conditioner. However, classification varies between states (see Table 1).

### WA, SA & Tasmania

There is potential under respective policies and *Acts* for manure-derived frass to be classified as a product rather than a waste. Products must meet certain

criteria and/or demonstrate that it is fit for purpose. It can then be applied to land in a manner that meets the general provisions of the *Acts* (i.e. does not cause environmental harm or nuisance).

### NSW & Victoria

Reuse of manure is allowed under the NSW resource recovery order (exemption) and VIC livestock manure and effluent determination respectively. In these instances, the application of the frass to land has conditions that specify that the frass must be used as a fertiliser/soil conditioner in a manner that does not cause environmental harm or nuisance.

### Queensland

The manure-derived frass will most likely be classified as non-regulated (or general waste), which means it can be applied to land with no restrictions however, as per all other jurisdictions, it must not cause environmental harm or nuisance.

**Table 1.** Summary of Regulatory requirements for raw manures and Black Soldier Fly manure-derived products.

Product / States	Western Australia <sup>3</sup>	South Australia	New South Wales	Queensland	Tasmania	Victoria
<b>Raw Manures</b>	If classed as a '61A Solid Waste Facility > 1000T per year' then a licence is needed (if not already a prescribed premise).	No restrictions. Must meet general provisions of the Act <sup>4</sup>	Resource recovery orders and exemptions (manures) conditions must be met. General provisions of Act <sup>4</sup>	Non-regulated /general waste. Apply to land, no restrictions. General provisions/GED <sup>7</sup> of Act <sup>4</sup>	No restrictions. Must meet general provisions of the Act <sup>5</sup>	Livestock Manure and effluent determination conditions must be met if over 20 cubic meters per month received/applied. General provisions/GED <sup>7</sup> of Act <sup>4</sup>
<b>BSF Manure derived products</b>	Frass likely viewed as a product not a waste if it meets the 'interim factsheet criteria' <sup>6</sup>	Frass likely to be viewed as a product under <i>Environment Protection Waste to Resources Policy (2010)</i> - must demonstrate fit for purpose	Frass likely considered a manure. Use as per resource recovery orders and exemptions (manures)	Non-regulated /general waste. Apply to land, no restrictions. General provisions/GED <sup>7</sup> of Act <sup>4</sup>	Frass may not meet the definition of a waste under the EMPC Act and likely considered a product	Frass may be considered as manure-use as per Livestock manure determination if over 20m <sup>3</sup> per month received/applied. General provisions / GED <sup>7</sup> of Act <sup>4</sup>

## Conclusion

Based on generalised processing and product information there appears to be no major regulatory barriers to the reuse and adoption of manure derived frass as a fertiliser or soil conditioner in Australia.

The Black Soldier Fly frass will likely be classified as either a 'product' or as a 'waste' (manure) in different jurisdictions. The reuse of the product will likely be subject to reuse exemptions, determinations or the general provisions/general duty of the respective Acts.

The requirements will be similar for operating under an exemption, a determination, or general provisions, in that the reuse of the products must be undertaken in a manner that does not cause environmental harm or nuisance. That is, the frass must not cause land contamination (ensure agronomic applications), nutrient run-off into groundwater and waterways, odour etc.

If frass is reused in this manner, then there is likely no permissions, works approvals or licencing required for its use. A possible exemption is in WA; if over 1000 tonnes of waste is applied on a site that is not a licenced premise, then a licence may be required unless the frass can be demonstrated to be a product using the 'interim factsheet'<sup>6</sup>.

Regulators were generally very supportive of new innovations and interested in learning more about the potential for Black Soldier Fly farming as a waste management option for Australia.



## Endnotes:

<sup>1</sup> Compared to raw manures

<sup>2</sup> It should be noted interpretation of policies or Acts are subject to change based on more detailed processing and product information being provided

<sup>3</sup> Regulatory reform in place

<sup>4</sup> Do not cause any environmental harm or nuisance as per the general provisions of the relevant Acts

<sup>5</sup> Need confirmation

<sup>6</sup> Interim WA factsheet "[Assessing whether a material is a waste](#)".

<sup>7</sup> GED = General Environmental Duty



Figure 2. Research field trails to test the performance of Black Soldier Fly frass as a soil improver for crop growth


## Further reading

For more information and access to reports and publications, visit the website or contact a research team member.

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