

SUMMARY REPORT:

From stable to soil

An assessment of resource recovery opportunities for horse stable and yard organics



This report summarises the outcome of an investigation into management options for stable and yard organics undertaken by Blue Environment on behalf of the BEAM (Broadford Environment Action Movement) Mitchell Environment Group (BEAM).

The purpose of study was to:

- Improve information about current manure generation and management in the Mitchell and Strathbogie Shires study area (see Figure 1)
- Identify other organic wastes in the region that might also be processed
- Consider alternatives for better management
- Identify possible locations for facilities
- Identify transport options
- Identify local business and employment opportunities
- Identify markets for outputs
- Develop 'business' case(s) for future management options

The following specific findings and recommendations have resulted from the study:

Finding #1: The study identified over 16,000 cubic metres per annum of stable and yard organics from 25 properties housing 2,960 horses. If the average number of horses and rate of stable and yard organics generation is similar at other properties, then in the order of 33,000 cubic metres per annum (or about 20,000 tonnes) of stable and yard organics are available from properties in the region. Most of this material is currently collected on an *ad hoc* basis by individuals using it for home gardening and land management.

Finding #2: An investigation of available other sources of organics that might be co-managed with stable and yard organics found the most available organics to be:

- 5,000-6,000 tonnes per annum (tpa) of drop-off garden and timber organics recovered and processed by Mitchell and Strathbogie Shires. This material is currently

shredded and used for landscaping and home gardening. Mitchell Shire proposes to trial biochar technologies with a view to converting all of their recovered organics into biochar in the future.

- Stockpiles of biosolids – about 5,000 tonnes of accumulated stockpiles and potentially 500 tpa or so of new materials.
- 240-360 tpa of stockyard waste.

Other forms of organics not readily available due to existing free management options include:

- Less than 180 tpa of dairy industry organics
- 700-1,850 tpa of winery and vineyard waste (largely managed on sites)
- 2,000-3,000 tpa of piggery waste (mostly sold as compost)
- 5,000-6,000 cubic m per year of poultry waste (mostly sold to farmers)
- 3,000-4,000 tpa of mushroom industry organics (mostly used in farms; some sold to nurseries suppliers)

Finding #3: Planning and environment requirements apply to organics processing facilities. In summary:

- Composting facilities processing more than 100 tonnes per month require EPA Works Approval and Licensing.
- Commercial composting requires a planning permit for all land zonings in which it is permitted. Composting is not permitted in Residential zoned areas, but is permitted in Industrial zoned areas. A possible literal interpretation of restrictions on Rural Activity/Farming zones may exclude commercial composting as a non-permitted 'industrial' use. However, on-farm composting is permitted as a primary industry activity, as is the storage and sale of compost as a primary industry. The Department of Planning and Community Development has indicated that this is an unintended ambiguity, and suggests that applications for the establishment of composting facilities in Rural Use/Farming zone areas should be considered on their merits.
- In all instances, composting facilities with capacity to process more than 100 tonnes per month will require a planning permit and EPA Works Approval. On sites where

there is no weighbridge, the throughput is typically based on the volumes of outputs, with the assumption that one tonne in will equate to one cubic metre of final product. Buildings will require building permits.

- Composting facilities processing animal manures will require buffer distances of at least 0.5-1km for highly controlled processing technologies; 1 - 1,5km for aerated piles; and 1.5-2km for open windrow and static pile systems. This has significant implications for the siting and viable scale of any future operations.

Finding #4: A key challenge to improving stable and yard organics management is the low direct financial cost of current management. Most properties dispose of materials 'for free', and there is low level of concern regarding the spread of weeds, insects and disease organisms. Systems that reduce the inconvenience and time costs of having materials moved frequently may be attractive to stable managers.

Finding #5: General concern regarding waterway pollution or the potential spread of weeds, insects and disease appears to be low, but education of landowners could change this. Systems that cost-effectively manage these risks could be attractive. Also, measures that reduce the risk of odour may be attractive.

Finding #6: The most appropriate management option for smaller and intensive horse properties that need to have materials regularly removed are:

- Larger capacity and covered trailers for the storage of materials, possibly with aeration piping in the base to keep materials more aerobic.
- Better coordination of collection 'runs' to allow rotation of trailers where an empty trailer is dropped off when a full one is collected. Once empty, the previously full trailer becomes the 'empty' for the next collection.

Other potentially viable options are:

- Pelletising units that convert materials into lower risk pellets/briquettes requiring less frequent collection. The viability of pelletising stable and yard organics needs to be trialled. The fuel quality and markets for pellets need to be determined.
- Small scale composting units that partially treat materials prior to collection. These are expensive compared to current management however.

Finding #7: BEAM and the shire councils have potential role in:

- Educating stable managers regarding the risks and indirect time costs of current management systems.
- Providing 'how to' information to stable managers regarding on-site management.
- Coordinating collection systems to ensure materials are more cost-effectively recovered.
- Coordinating the establishment of local processing options so that materials are appropriately managed off site.
- Working with industry groups to seek external funding for infrastructure that improves the cost-effectiveness and risk management of storage and collection systems.
- Arranging for trials and fuel quality testing of pelletised stable and yard organics.

Finding #8: There are a range of processing options available for processing stable and yard organics. However, the current no/low cost options for stables to manage organics limits the ability of organics processors to charge to receive organics, and therefore to invest in processing technologies.

Finding #9: A centralised facility is unlikely to be viable because of high capital, operating and transport costs. This could be tested by calling for a registration of interest from potential service suppliers.

Finding #10: No 'greenfield' central site for future processing has been located by the study. This is because central sites are unlikely to be financially viable.

Finding #11: It is recommended that the on-farm composting market be tested by holding a series of on-farm composting demonstration days that promote the use of stable and yard organics. It is recommended that potential delivery contractors are approached to quote on haulage costs from properties that have front-end loader equipment on site for loading trucks, and materials offered to interested farmers at slightly above this cost.

Finding #12: It is recommended that the market for services to assist farmers to carry out on-farm composting is also tested. It is recommended that, should a service provider be identified, the service is offered with the sale of the manure. In most instances, it is envisaged that farmers could be trained to manage composts themselves. However, there may be scope for compost turning services to be offered.

Finding #13: It is recommended that trials of pelletising stable and yard organics are conducted, with fuel quality testing. There are a number of companies that can pelletise and fuel-test biomass inputs.

Finding #14: It is recommended that trials of pelletising composts and the use of pellets be considered. Pelletised composts may have market advantage for cropping and domestic garden markets, but this needs to be tested.

Finding #15: It is recommended that pelletised stable and yard organics are produced and trialled in the biochar trial to be conducted by Mitchell Shire.

For further information about the report please see: www.beam.org.au or call Bill Grant 0407 882 070



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