

**TECH NEED**

## Seeking for Farm Manure Management Solutions



### KEY INFORMATION

**TECHNOLOGY CATEGORY:**

Waste Management & Recycling - Food & Agriculture  
Waste Management  
Energy - Waste

**TECHNOLOGY READINESS LEVEL (TRL):** TRL5 TO TRL9

**COUNTRY:** SINGAPORE

**ID NUMBER:** TN174481

### BACKGROUND/DESCRIPTION

Agricultural activities in Asia Pacific region generate significant amounts of manure from various farming operations, including:

- Layer Hens: A layer hen produces approximately 0.08–0.12 kg of manure per day.
- Cattle Farming: Dairy and beef cattle generate an average of 30 kg of manure per day per animal.
- Pig Farms: Pigs produce about 2–4 kg of manure per day.

Manure accumulation presents several environmental and operational challenges such as odour pollution, water contamination,

greenhouse gas emissions and pathogen proliferation. Despite these challenges, manure has significant potential when processed effectively. It can be converted into valuable resources such as:

- Biogas & Bioenergy
- Biochar & Carbon Sequestration
- Organic Fertilizers and Soil Conditioners

Farms have found solutions that produce good quality fertilisers and soil conditioners with their manure. However the amount of manure generated is more than what they can use and would like to work with innovation technologies to manage and convert their farm's manure efficiently.

## TECHNOLOGY SPECIFICATION

Farmers are looking for innovative solutions that address the following requirements:

- Innovative technologies capable of converting large volumes of manure into usable byproducts effectively.
- Scalability: Solutions that can be applied to small, medium, and large-scale farms. Technology can also be for specific livestock sectors.
- Cost-Effective Operations: Low operational costs (OPEX) and moderate capital investment (CAPEX) to ensure economic viability.
- Minimal Environmental Impact: Solutions that reduce odour, emissions, and contamination risks while improving waste management practices.
- Energy Recovery Capabilities: Technologies that enable manure-to-energy conversion, such as anaerobic digestion or thermal processing.
- Regulatory Compliance: Solutions that adhere to environmental and agricultural waste regulations in Asia Pacific.

## WHAT WE ARE NOT INTERESTED IN

- Non-Economic Solutions: Technologies with excessively high CAPEX and OPEX that are not feasible for widespread adoption.

- Solutions Requiring Extensive Land Use: Especially in the Singapore context.
- Complex and Maintenance-Intensive Systems: Solutions that demand excessive labour, maintenance, and technical expertise without clear efficiency gains.
- Organic Fertilizers and Soil Conditioners solutions

## PREFERRED BUSINESS MODEL

- Licensing
- Others
- R&D Collaboration