

TECH NEED

Seeking Biological Solutions for Urban Farming in Singapore



KEY INFORMATION

TECHNOLOGY CATEGORY:

Sustainability - Food Security

Life Sciences - Agriculture & Aquaculture

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

COUNTRY: **SINGAPORE**

ID NUMBER: **TN174482**

BACKGROUND/DESCRIPTION

With the focus on food security and sustainability, urban farming is gaining traction in Singapore. Most farmers who are new to the industry still rely heavily on pesticides for pest control and crop protection. Although effective, the use of pesticides pose several concerns such as:

- **Health and Environmental Risks:** Pesticide residues in food pose potential health hazards, while excessive use can lead to soil degradation, water contamination, and harm to beneficial insects and biodiversity.
- **Regulatory and Market Pressure:** Stricter regulations on pesticide use and growing demand for organic and naturally grown produce create the need for sustainable solutions.

In addition, the educated consumers increasingly prefer pesticide-free vegetables, thereby driving the need for natural alternatives. Biological solutions such as biofertilizers, bionutrients, and biostimulants offer a promising alternative to agriculture. These solutions can:

- Enhance Plant Growth: Improve nutrient uptake and plant resilience through naturally derived growth stimulants.
- Improve Soil Health: Support microbial activity and enhance soil fertility without chemical degradation.
- Reduce Dependence on Chemical Fertilizers and Pesticides: Provide natural pest resistance and nutrient supply.
- Promote Sustainable Production of Asian Leafy Greens: Crops such as bak choy, butterhead lettuce, and spinach

Farmers are seeking to collaborate with companies with biological solutions to run validation trials in their farms.

TECHNOLOGY SPECIFICATION

Farmers are looking for innovative biological solutions with the following characteristics:

- Naturally derived biopesticides, microbial solutions, or plant-based compounds that minimize pest pressure.
- Nutrient-Rich Biofertilizers that enhance soil and plant health.
- Suitable for urban farming environments, including hydroponic, vertical, and soil-based systems.
- Low-cost, efficient alternatives to synthetic pesticides and fertilizers that ensure long-term affordability.
- Sustainable, biodegradable, and non-toxic solutions that support eco-friendly farming practices.
- Solutions with demonstrated efficacy in enhancing the growth, yield, and quality of Asian leafy greens in tropical urban farming conditions.

WHAT WE ARE NOT INTERESTED IN

- Solutions requiring high CAPEX and OPEX that are not viable for widespread adoption.
- Synthetic / chemical-based alternatives that do not align with sustainable and organic farming principles.
- Unproven or low-efficacy solutions without data or real-world validation in urban farming applications.

PREFERRED BUSINESS MODEL

- Licensing
- R&D Collaboration