



PROJECT SUMMARY

Ref No.: MRIC/IBG3-BG/P07	Title: Optimizing Aquafeed Formulation Using Microalgae Cultivated on Agro-Waste and Fishpond Wastewater in Combination with Black Soldier Fly Larvae
Local Institution: AgriCare Consultants Ltd	
Project Leader	
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TECHNICAL ABSTRACT	
<p>Mauritius faces challenges in managing organic wastes from markets. The country also has to manage waste from aquaculture operations for its growing aquaculture industry; the latter depends heavily on fish feed produced by local companies which also depend heavily on imported ingredients such as maize, wheat, soybean meal and fishmeal. These twin problems-waste accumulation and feed import dependency-present an opportunity for innovation.</p> <p>Microalgae such as <i>Rhexinema paucicellulare</i>, which naturally occur in local freshwater systems, can be cultivated using nutrient-rich waste streams like fermented fruit and vegetable waste liquid or fishpond effluent. These algae are rich in protein, essential fatty acids, micronutrients and antioxidants and are suitable for aquafeed. Simultaneously, Black Soldier Fly Larvae (BSFL) are known for converting organic waste into high-protein biomass, and BSFL meal is a promising alternative to fishmeal in aquafeed.</p> <p>This project proposes to combine these two biological systems: cultivating microalgae on two types of waste, producing BSFL from food waste, and formulating feed with combinations of both.</p> <p>BSFL meal: high in protein and fat.</p> <p>Microalgae: essential fatty acids (e.g., EPA, DHA), antioxidants, vitamins, pigments</p> <p>Together, they form a balanced, functional aquafeed formula.</p>	



Fish feeding trials will evaluate growth performance and economic viability. The approach offers a low-cost, environmentally sound alternative to conventional feed systems, aligns with circular economy goals, and supports the national agenda of sustainable aquaculture and agro-waste valorisation. It also offers potential replication across sectors, including poultry and piggery feed production.

Key Words: Microalgae, BSFL, Aquafeed, Circular Economy, Waste Valorisation