



Nitrogen bio-fortified and pelletized commercial-grade organic fertilizer made from urban bio-waste to improve soil productivity

Preamble

Soil infertility in Sub-Saharan Africa, alongside soil organic matter depletion, soil nutrient depletion and loss of soil biodiversity, is considered one of the root causes of declining agricultural productivity. Infertility and nutrient imbalances on smallholder farms is due to more nutrients being removed from the soil than replenished from practices such as complete crop removal from farmlands, lack of fertilizer usage, and unbalanced or incorrect fertilizer application. Adoption and use of fertilizer is further complicated by prohibitive prices of the input, and low outputs in terms of yield from rampant counterfeit products. This project uses urban municipal bio-waste such as fruit and vegetable waste, which are produced in large quantities and currently disposed of indiscriminately. Using bio-waste for fertilizer production will also reduce environmental problems such as ground and surface water pollution, spread of disease vectors from open and uncovered dump sites, and emission of greenhouse gases including methane.

BENEFITS OF USING BIO-WASTE FOR FERTILIZER



Reduce ground and surface water pollution



Reduce spread of disease vectors from open and uncovered dump sites



Reduce emission of greenhouse gases including methane.



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The technology

A new organic nitrogen fortification process is developed to enrich the organic fertilizer product. The nitrogen enriched biofertilizer is produced using an improved aerobic composting procedure. This innovative process uses local low-cost steel bio-reactors, enclosed and equipped with sensors for optimal temperature and humidity control during composting. This method reduces the production cycle from eight to three weeks. The final product is moulded into cylindrical pellets of between 5-7.55 millimetres diameter.

Local and regional benefits

The expected benefits include:



An affordable, improved and high quality organic fertilizer used as an alternative to synthetic fertilisers.



Better use of municipal bio-waste as a resource for bio-fertilizer production.

Project leader

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