

生化工程专栏

Composting of Disposal Organic Wastes: Resource Recovery for Agricultural Sustainability

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摘要 One of the major problems of agricultural soils in the tropical regions of the Pacific is the low organic matter content. Because of the hot and humid environment, the soil organic matter (SOM) is minimal due to rapid decomposition. Composted organic material is being applied on agricultural fields as an amendment to provide nutrients and enhance the organic matter content for improving the physical and chemical properties of the cultivated soils. In addition land application of composted material as a fertilizer source effectively disposes of wastes that otherwise are buried in landfills. In our soil program at the University of Guam, we are evaluating the use of organic material as an alternative to synthetic fertilizers. Its goal is to develop management strategies and use available resources for improving crop production while conserving resources and preserving environmental quality. Our case study project is designed to improve soil fertility status by using composted organic wastes and assessing how the nitrogen and other essential nutrients contribute to long-term soil fertility and crop productivity without application of synthetic fertilizers. In our pilot project, compost is produced from wood chips, grinded typhoon debris mixed with animal manure, fish feed, shredded paper and other organic wastes. Mature compost is then applied on the field at the rates of 0, 5, 10 and 20 t/ha as a soil amendment on the eroded cobbly soils of southern Guam. Corn is planted and monitored for growth performance and yield. The effect of land application of composted material on the SOM content and overall soil quality indices are being evaluated in this pilot study.

关键词 [composting,resource recovery management,soil improvement,waste disposal,agricultural sustainability](#)

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