Item No. 1 of 1

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PROJ NO: 1265-21660-003-01R **AGENCY:** ARS 1265
PROJ TYPE: USDA INHOUSE **PROJ STATUS:** TERMINATED
START: 01 OCT 2006 **TERM:** 30 SEP 2010 **FY:** 2010

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FOOD RESIDUAL COMPOSTING IN DENSELY POPULATED AREAS FOR ENERGY PRODUCTION

OBJECTIVES: The proposed project seeks to demonstrate the feasibility of a local composting project where food cafeteria residuals are composted using an in-vessel composting unit and a static aerated pile system. This will allow for comparison of composting efficiency between the two methods, allow for comparison of by-products generated and ease of capture of by-products from both methods, and compare the most likely scenarios for urban composters, such as organic grocery stores, and close-in farmers and nurseries. The former possibly using composting vessels and the latter possibly using one and/or the other.

APPROACH: A concurrent in-vessel/static pile composting study in the Washington, D.C. Metropolitan Area on federal cafeteria- and commercial facility-generated food residuals will be conducted for 6-months to generate the following data and outcomes: data on the logistics of composting in densely populated areas and associated costs; assessment and comparison of the heat and gas by-product generation from the in-vessel compost unit and static aerated pile and potential for use in heating other agriculturally related operations; high-quality compost for use in local landscape and organic grower applications such as USDA-ARS?s National Arboretum in downtown Washington, D.C.; and demonstration of composting in densely populated areas and development of educational materials based on the demonstration. It is anticipated this would aid potential composters in alleviating NIMBY concerns and could help to streamline the permitting process.

PROGRESS: 2006/10 TO 2010/09
Progress Report Objectives (from AD-416) The proposed project seeks to demonstrate the feasibility of a local composting project where food cafeteria residuals are composted using an in-vessel composting unit and a static aerated pile system. This will allow for comparison of composting efficiency between the two methods, allow for comparison of by-products generated and ease of capture of by- products from both methods, and compare the most likely scenarios for urban composters, such as organic grocery stores, and close-in farmers and nurseries. The former possibly using composting vessels and the latter possibly using one and/or the other. Approach (from AD-416) A concurrent in-vessel/static pile composting study in the Washington, D. C.

Metropolitan Area on federal cafeteria- and commercial facility- generated food residuals will be conducted for 6-months to generate the following data and outcomes: data on the logistics of composting in densely populated areas and associated costs; assessment and comparison of the heat and gas by-product generation from the in-vessel compost unit and static aerated pile and potential for use in heating other agriculturally related operations; high-quality compost for use in local landscape and organic grower applications such as USDA-ARS?s National Arboretum in downtown Washington, D.C.; and demonstration of composting in densely populated areas and development of educational materials based on the demonstration. It is anticipated this would aid potential composters in alleviating NIMBY concerns and could help to streamline the permitting process. This project on food composting and excess heat capture from an in-vessel process was completed in Dec. 2010. The project identified hurdles involved with food waste collection, transport, tip fee competition, and the need for sorting of metal, glass, plastic contaminants. One of the results of this research showed that a small, mechanically aerated in- vessel system constructed of metal (accommodating 600 lbs total compostable mix per day) and that used ambient air to supply the aeration system, was not sufficiently insulated to retain heat produced by the compost in both zones of the compost chamber during the coldest winter days. This contrasted with static piles and forced-aeration compost piles prepared with the same feedstocks. Waste heat capture from exhaust air of in-vessel compost systems also needs to be used on-site to optimize its value for alternative purposes.

PUBLICATIONS (not previously reported): 2006/10 TO 2010/09
No publications reported this period.
