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POND DYNAMICS/AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM



## RESEARCH REPORTS

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SUSTAINABLE AQUACULTURE FOR A SECURE FUTURE

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**Title:** Managing the accumulation of organic matter deposited on the bottom of shrimp ponds . . .  
Do chemical and biological probiotics really work?

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**Abstract:** Accumulation of organic matter increases oxygen demand and the development of reducing and acidic conditions in bottoms soils. Deterioration of soil and water quality in aquaculture systems is often associated with decomposition of organic matter over time. Several commercial products currently used in shrimp ponds in Ecuador to accelerate decomposition of organic matter during the fallow period were evaluated. Two ponds were used, one with a salinity of 10–20 ppt and the other with 30 ppt. Soil respiration rates were evaluated in situ and in the laboratory. Each treatment was replicated four times. All experiments resulted in a similar drop in soil pH, although differences in soil moisture content occurred for the different evaluations. No statistical differences were found among treatments. No benefits were found by applying bacterial inocula or enzymatic suspension to enhance the decomposition of organic matter during fallow periods. Failure of probiotics to enhance organic matter decomposition probably resulted because soils were not extremely high in organic matter content or deficient in microorganisms or extracellular enzymes.

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