Aquaculture Research in the U.S. Virgin Islands

JAMES E. RAKOCY
College of the Virgin Islands
Agriculture Experimental Station
RR-2, Box 10051, Kingshill
St. Croix, U.S. Virgin Islands 00850

The aquaculture program at the College of the Virgin Islands Agricultural Experiment Station is investigating the commercial feasibility of culturing tilapia in cages and water reuse systems. Experimental results have shown that cage culture in farm ponds is profitable in the Virgin Islands where undressed tilapia sell for $4.40/kg. Yields of 164 kg/m^3 cage stocked with 350 fish have been obtained in 20 weeks with the use of demand feeders and high quality feed. Estimated annual profit for a 1-m^3 cage is U.S. $650.00. Cage culture is limited by pond size, the minimum size being roughly 0.13 ha, and number. If all ponds suitable for cage culture in the U.S. Virgin Islands were utilized, annual production could amount to 50 metric tons.

Sufficient data is not yet available to undertake an economic analysis of a recently developed recirculating system for the intensive culture of tilapia and the hydroponic production of vegetables, but the system holds promise. It consists of a 12.8-m^3 rearing tank, a 1.9-m^3 clarifier, a 1.4-m^3 reservoir and two 2.1-m^3 reciprocating gravel biofilters that also serve as hydroponic beds. Water for the system is obtained by harvesting rainwater with a vinyl catchment. The system can produce 50,000 sex-reversed fry monthly, 8000 fingerlings in 3 months or 400 kg of marketable tilapia in 6 months. Water consumption is 87 liters per kilogram of marketable production. The hydroponic culture of lettuce and tomatoes, which utilizes dissolved nutrients in the waste water, has demonstrated potential for high yields.

Additional areas of aquaculture research include the development of tilapia hatchery techniques, growth performance evaluation of several tilapia species, including four varieties of red tilapia, and preliminary studies on the feasibility of culturing saltwater tolerant species of tilapia in marine net pens.