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POND DYNAMICS / AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM

RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Evaluation of Nile tilapia production systems in Egypt

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Date: 31 October 1995 Publication Number: AquaFish Research Report **95-91**

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Abstract: Experiments were conducted at the Central Laboratory for Aquacultural Research to 1.) evaluate and compare the performance of established PD/A CRSP pond management systems to Egyptians pond management systems and 2.) to assess the economic potential of different tilapia pond culture systems. Five management practices--*Traditional Egyptian, Enhanced Egyptian, Feed Only, Fertilization then Feed*, and *Chemical Fertilization*-- were tested in twenty 0.1-ha earthen ponds. Young-of-year Nile tilapia *(Oreochromis niloticus*) were stocked 20,000 fish/ha and fingerling African catfish were subsequently stocked 60 fish/ha to prey on tilapia offspring. Water quality variables were analyzed weekly for 17 weeks. The Free-Water Diel curve method was used to determine primary productivity on six occasions. Dissolved oxygen was measure with a polarographic dissolved oxygen meter at depths of 5 cm, 25 cm, 50 cm, and 75 cm. Economic potential and profitability were also evaluated using Enterprise Budget Analysis. *Fertilization* then Feed, Traditional Egyptian, and Enhanced Egyptian treatments, in decreasing order, were more economically viable and produced the greatest gross fish yields, net returns, and average rates of return on capital. These treatments had the highest values of production per man-hour per kilogram of feed and per Egyptian pound. In addition, these treatments achieved the highs margins between average prices and break even prices to cover total variable costs of total costs. Production trial results and economic analyses demonstrated sufficient incentive for the expansion of intensified pond culture in Egypt.

CRSP RESEARCH REPORTS are published as occasional papers by the Program Management Office, Pond Dynamics/Aquaculture Collaborative Research Support Program, Office of International Research and Development, Oregon State University, Snell Hall 400, Corvallis, Oregon 97331 USA. The Pond Dynamics/Aquaculture CRSP is supported by the US Agency for International Development under CRSP Grant No. DAN-4023-G-00-0031-00.

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This abstract was excerpted from the original paper, which was published as *CRSP Research Report 95-91* by the Program Management Office of the Pond Dynamics/Aquaculture Collaborative Research Support Program (PD/A CRSP).

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