NOTICE OF PUBLICATION

AQUAFISH COLLABORATIVE RESEARCH SUPPORT PROGRAM

RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: **Farm-level efficiency and resource-use: application of stochastic frontier analysis to aquaculture farms in Southwest Nigeria**

Author(s): Kolawole Ogundari
Department für Agrarökonomie und Rurale Entwicklung, Georg- August -Universität,
Platz der Göttinger Sieben 5, D-37073 Göttingen, Germany

Date: **May 13, 2010** Publication Number: CRSP Research Report **08-A04**

The CRSP will not be distributing this publication. Copies may be obtained by writing to the authors.

Abstract: This paper comparatively examined resource-use and technical (TE) efficiencies of aquaculture farms in the Southwest Nigeria. A total of 160 farms were randomly selected from four states across the region. Econometric applications of the stochastic frontier models provide measure of the farm's technical efficiency. The results of regressions specified for the farms in each states, show that, elasticites for inputs, such as: size of the pond, feeds, labour, numbers of fingerling stocked, and costs of materials were positive and significant. This suggests that, the production functions monotonically increased with input from the study. The returns to scale estimates show that, an average farm in the states like, Ogun and Ondo exhibit increasing returns to scale, while similar numbers of farms in Osun and Ekiti states exhibit decreasing returns to scale. The results of marginal value product (MVP) show that, none of the farms across the states optimally used their variable inputs ($MVP_x = MFC_x$). Most farms were found to have underused ($MVP_x > MFC_x$) feeds and numbers of fingerlings stocked, as against overused ($MVP_x < MFC_x$) of labour across the states. The estimated TE shows that, about 11%, 18%, 22% and 44% of outputs of the farms in Ogun, Ondo, Ekiti and Osun states are forgone due to inefficiency respectively. The implications of these findings, therefore, suggest that improvement in the technical efficiency of the farms, as well as, optimal input utilization, will contribute significantly to aquaculture expansion program in the county.

This abstract was excerpted from the original paper, which was published in the Proceedings of the 14th Biennial Conference of the International Institute of Fisheries Economics & Trade, 22-25 July 2008: Achieving a Sustainable Future: Managing Aquaculture, Fishing, Trade and Development, October 2008, http://oregonstate.edu/dept/IIFET/html/publications.html.

CRSP RESEARCH REPORTS are published as occasional papers by the Management Entity, AquaFish Collaborative Research Support Program, Oregon State University, 418 Snell Hall, Corvallis, Oregon 97331-1643 USA. The AquaFish CRSP is supported by the US Agency for International Development under CRSP Grant No. EPP-A-00-06-00012-00. See the website at <aquafishcrsp.oregonstate.edu>.