







Q

Home ► All Journals ► Environment & Agriculture ► Journal of Applied Aquaculture ► List of Issues ► Volume 22, Issue 4 ► Production Parameters and Economics of S ....

## Journal of Applied Aquaculture >

Volume 22, 2010 - Issue 4

584 19 4
Views CrossRef citations to date Altmetric
Original Articles

# Production Parameters and Economics of Small-Scale Tilapia Cage Aquaculture in the Volta Lake, Ghana

J. K. Ofori, E. K. Abban, A. Y. Karikari & R. E. Brummett 
Pages 337-351 | Published online: 06 Dec 2010

66 Cite this article 

☐ https://doi.org/10.1080/10454438.2010.527591



Full Article

Figures & data

References

**66** Citations

Metrics

Reprints & Permissions

Read this article

Share

## Abstract

To calculate the potential for cage aquaculture to create economic opportunities for small-scale investors on the Volta Lake, Ghana, a local NGO with technical support from the Government of Ghana ran two trials (one of four and one of six units) of small-scale cage aquaculture in the town of Dzemeni. Cages were built locally from available materials at a cost of approximately US\$1000 per  $48~\text{m}^3$  cage. An indigenous line of Nile tilapia, Oreochromis niloticus, was stocked either as mixed sex (first trial) or all-males (second trial) at an average rate of  $103~\text{fish/m}^3$  and grown on locally available pelleted feeds for approximately six months. Total costs averaged US\$2038 per sixmonth production cycle. Gross yield ranged from 232 to 1176~kg/cage, averaging 460~kg/cage ( $9.6~\text{kg/m}^3$ ). Final average weight of mixed sex populations ( $253.05~\pm~47.43g$ ) was significantly less than of all-males ( $376.7~\pm~72.30g$ ). Likewise, percentage of fish

over 300 g at harvest was significantly lower in mixed-sex (38.3%) compared to allmale (75.7%) populations. Mortality resulting primarily from poor handling during transport and stocking averaged 70% and was a major determinate of production and profitability. To break even, harvested biomass of fish needed to exceed 15 kg/m $^3$ . At 25 kg/m $^3$ , small-scale cage aquaculture generated a net income of US\$717 per cage per six months (ROI = 30.2%) on revenues of US\$3,500. Water quality in the area surrounding the cages was not negatively affected by aquaculture at the scale tested (5 tons of feed per six months).

### Keywords:

freshwater

small and medium scale enterprise

locally sourced inputs

This research was co-funded by Rural Wealth and the CGIAR Water and Food Challenge Program Project 34: Increasing Fish Production from the Volta Lake. Special thanks to Tropo Farms, Ghana; Lake Harvest, Zimbabwe, and the FISH-Uganda project for sharing production data.



Related research •

People also read

Recommended articles

Cited by 19 Information for

**Authors** 

**R&D** professionals

**Editors** 

Librarians

**Societies** 

Opportunities

Reprints and e-prints

Advertising solutions

Accelerated publication

Corporate access solutions

Open access

Overview

Open journals

**Open Select** 

**Dove Medical Press** 

F1000Research

Help and information

Help and contact

Newsroom

All journals

**Books** 

#### Keep up to date

Register to receive personalised research and resources by email



Sign me up











Accessibility



Copyright © 2025 Informa UK Limited Privacy policy Cookies Terms & conditions



Registered in England & Wales No. 01072954 5 Howick Place | London | SW1P 1WG