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"Management of land use systems for enhanced food security: conflicts, controversies and resolutions"

Improved Management and Technological Innovation in African Tilapia Farms and Hatcheries: Integrated Fish-Horticulture Farming System

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Abstract

Improved management and technological innovation in African tilapia farms and hatcheries (ITACA) is a project implemented by the National Institute of Oceanography and Fisheries (NIOF, Egypt, coordinator), the Institut de Recerca i Tecnologia Agroalimentaries (IRTA, Spain, partner), and the Institut Sénégalaise de Recherche Agricole – Centre de Recherches Oceanographiques de Dakar-Thiaroye (ISRA-CRODT, Senegal, partner). The action was grant under the African Union Research Grants programme 2012, which is financed by the Financing Agreement between the European Commission and the ACP Group of States (Agreement No REG/FED/2009/021/-575) under the ACP Research for Sustainable Development Program RPR/011/09, of the 10th EDF Intra-ACP Envelop. The ITACA project, which has an overall duration of 36 months, aims to enhance the sustainability of African tilapia farms and hatcheries through improved management and technological innovation. The present study aims to evaluate the integration of vegetable farming in the fishpond during winter and after fish harvest season as sustainable Integration system applicable in rural area (Kafr El-Shiekh, Governorate, Egypt). The total Fish production per acre in polyculture system is 4.0 tons (Nile Tilapia 3545 kg and mullets 505 kg). The daily feeding rate is 5 % (fish biomass/5 days a week), reduced to 3 % when fish reached 50g to the end of fattening period. During winter and after fish harvest season some fishponds dikes cultivation by wheat and vegetables including (lettuce - tomatoes - zucchini - okra - beans - pepper) for human consumption. As well as in some pond cultivation either by alfalfa or fresh herbs, not only in order to increase the cohesion of the dikes but also protect it from erosion and corrosion, and to feed some farm animals such as sheep, cattle, and buffalo. The main idea of this system is convert the fish excretion rich in nitrogen (nitrate and nitrite), phosphorus, and potassium, which are necessary nutrients, needed for plant growth into valuable products such as edible organic vegetables. Often rural families are sold excess crops in the same area markets.

Keywords: African tilapia farms, integration system, rural area, sustainability, vegetable

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