

TILAPIA EPIDEMIOLOGY AND HEALTH ECONOMICS ONLINE

SURVEY TOOL

Jerome Delamare-Deboutteville^{1*} Partho Pratim Debnath^{2,3}, Shimaa E Ali⁴, Mona Dverdal Jansen⁵, Chadag Vishnumurthy Mohan¹

¹ Department for sustainable Aquaculture, WorldFish Headquarters, Jalan Batu Maung, Batu Maung, Bayan Lepas, Penang, Malaysia, 11960

² Department for sustainable Aquaculture, WorldFish Bangladesh & South Asia Office, House # 2B, Rd # 4, Block # B, Banani, Dhaka, Bangladesh, 1213

³ Department of Veterinary Microbiology, Fish Infectious Diseases Research Unit (FID RU), Faculty of Veterinary Science, Chulalongkorn University, 254 Phayathai Road, Pathumwan, Bangkok, Thailand, 10330

⁴ Department for sustainable Aquaculture, WorldFish Cairo Office, 24 (B) Anawar EL-Mofti St, 5th floor, Apt # 52, Nasr city Cairo, Egypt, 117759

⁵ Department of analyses and diagnostics, Norwegian Veterinary Institute, Pb. 750 Sentrum, Oslo, Norway, 0106

Corresponding author email: j.delamare@cgiar.org phone: (604) 6286914

Key words: Aquaculture, epidemiology, health-economics, online-tool, tilapia

Introduction: According to figures from the FAO, Egypt and Bangladesh are the third and fourth largest tilapia producers, respectively, after China and Indonesia. Absence of accurate baseline data relating to fish health, disease occurrence, diagnostic services and health economic hamper surveillance and disease control efforts. To overcome some of these shortcomings, and generate background data upon which trends and emerging issues may be assessed, WorldFish and partners developed a Tilapia epidemiology and health economics online survey tool.

Objectives: Development of the tool and implementation in Egypt and Bangladesh.

Methods: The survey tool is designed to collect data on disease prevalence, baseline/abnormal mortality, background information from a production site, its workforce, production parameters, key economic indicators and operational procedures (e.g. pond preparation, biosecurity measures), health management practices (e.g. use of chemical/antibiotics), and existing diagnostic services. The survey tool is utilizing the Open Data Kit (ODK) collect application of the Kobo toolbox platform. ODK is compatible with Android devices. Enumerators are trained in 2-3 days before visiting farm/hatchery in pairs. Data collection is conducted offline into mobile phone/tablet allowing completion of multiple surveys without the need of an internet connection. Data can be uploaded at internet connection points allowing for revisions of entered data by enumerators at convenient time before submitting surveys to online databases.

Results: Following feedback from pilot testing the survey tool received multiple revisions to address identified shortcomings and question ambiguities. Survey tool was used to survey 550 farms in Bangladesh and 150 farms in Egypt.

Conclusions: Regular monitoring of data entry/quality can be done remotely by data specialist. This is critical to conduct good epidemiological statistical analyses and modelling to identify risk factors. For release to a wider audience in new countries, the existing tool needs slight modification to suit local context (e.g., names of the local fish species, sub regions). As part of the CGIAR Research Program on fish-agri food systems, WorldFish intends to roll out this tool for assessing tilapia epidemiology and health economics in all its focal and scaling countries in Asia and Africa, where tilapia farming contributes significantly to livelihoods, local economy and nutrition.