Food and Agriculture Organization of the United Nations

Presentation

12 step TiLV Surveillance checklist

Dr Nihad Fejzic

FAO/ASTF Project: GCP/RAF/510/MUL:

Enhancing capacity/risk reduction of emerging Tilapia Lake Virus (TiLV) to African tilapia aquaculture: Intensive Training Course on TiLV

4-13 December 2018. Kisumu, Kenya

in cooperation with Kenya Marine Fisheries Research Institute (KMFRI) and Kenya Fisheries Service (KeFS)

In development of surveillance system and assessing its quality, the following critical elements need to be addressed

1. Aims/Purpose of surveillance program
2. Definition of population
3. Clustering of disease
4. Case/outbreak definition
5. Sampling
6. Diagnostics/testing
7. Methodology
8. Data management
9. Validation
10. Quality assurance
11. Human and Financial Requirements
12. Surveillance in the bigger picture

1. Aims/Purpose of surveillance program

* Set with respect to disease
* Set with respect to disease presence
* Set with respect to level of certification
* Set with respect to timeframe

Aims/Purpose of surveillance program

TiLV surveillance scenario	Aim/purpose of EUS surveillance
Infected country (one or more TiLV cases reported in previous two years	To establish frequency of the TiLV at national level in wild and farmed populations during one year implementation To identify possible risk factors for TiLV spread for the purpose of developing more targeted disease control program To establish a transparent (according to OIE requirements) reporting system
Unknown status (no reported cases and no previous surveillance activities, however considered at risk)	To investigate presence/absence of TiLV in wild and farmed fish To secure early detection of TiLV
Considered free (no reported cases in previous surveillance activities)	To confirm present status of TiLV in country To secure early detection of TiLV

2. Definition of population

* Includes definition of the population of interest
* Includes definition of the targeted population
* Includes definition of the study population (population used for sampling)
* Inclusion criteria are set and described
* Exclusion criteria are set and described

Definition of population

• Includes definition of the population of interest • Includes definition of the targeted population • Includes definition of the study population (population used for sampling) • Inclusion of criteria are set and described • Exclusion of criteria are set and described	• All susceptible fish species (juvenile and young adults) in river and lakes • Wild fish • All farmed susceptible fish species (number of fish farms/establishments described, if exist)	• All susceptible fish species (juvenile and young adults) in river and lakes • All farmed susceptible fish species	• All susceptible fish species (juvenile and young adults) in river and lakes • All farmed susceptible fish species

3. Clustering of disease

* Clustering effect of disease is considered and described
* Clustering effect of disease is accounted in sampling/survey design and data analysis

Disease in a country, zone or compartment usually clusters rather than being uniformly or randomly distributed through a population. Clustering of disease may occur in space (e.g. tank, pond, farm, or compartment), time (e.g. season), or animal subgroups (e.g. age, physiological condition). Clustering should be taken into account in the design of surveillance activities and interpretation of surveillance data.

4. Case/outbreak definition

* Case/outbreak definition criteria are included:
  * Clinical
  * Laboratory test
  * Species, age
  * Other

Clear and unambiguous case definitions and outbreak definitions should be developed and documented for each disease under surveillance, using, where they exist, the standards in this guidelines and the OIE Aquatic Manual.

5. Sampling

* Used/described sampling frame
* Described sampling method
* Defined sampling units
* Explained consideration regarding sample size
* Described tissues/fluids used as sampling material
* Described sample selection process

6. Diagnostics/testing

* List and description of test used (procedures, interpretation of results, Se/Sp)
* List and description of laboratories included

Table 1 Classification of a sample of animals based on true infection status and results of a dichotomous test for each animal. Calculations of point estimates of sensitivity, specificity, predictive values and prevalence are also shown

		Infection status: Yes	Infection status: No
Test result	+	a	b
	–	c	d

true positives =	a
true negatives =	d
false positives =	b
false negatives =	c
sensitivity =	a/a+c
specificity =	d/b+d
positive predictive value =	a/a+b
negative predictive value =	d/c+d
prevalence =	a+c/a+b+c+d
apparent prevalence =	a+b/a+b+c+d

7. Methodology

* Survey design described
* Risk assessment used and described
* Methods of data analysis described

8. Data management

* Data forms
* Data base
* Compatibility and transparency
* Compatibility of data throughout the collection/analysis process and transparency
* Consistency, quality and precision of data

9. Validation

* Done by statistical estimation of the level of confidence (Se of surveillance program)
* Done by pilot trial
* Done by expert/external evaluation

10. Quality assurance

* Included in surveillance program
* Audit and corrective measures

10. Quality assurance

* National surveillance team (NST) established
* Training and education of NST on TiLV pathogen biology, pathology, diagnostics and surveillance
* Data collection and questionnaire described and explained clearly and common understanding achieved
* Laboratory diagnostic accredited in line with ISO 17025
* Trained field and laboratory personnel
* Clear standard operating procedures developed and used during implementation
* Aseptic technique procedures for minimizing contamination from potential areas of sample collection be developed and made clear to the sampling teams
* Sampling teams closely supervised
* A pilot survey will be conducted as a sampling exercise.

* All histology and molecular analysis submitted to NRL.

11. Human and Financial Requirements

* Included and described

* Establishing a plan with clear objectives
* Obtaining official permission
* Obtaining, preparing and servicing vehicles
* Planning schedule of village visits
* Notifying villages
* Reminding villages close to the visit date
* Obtaining sample collection equipment (boats, nets, scoops, bags, cool boxes)
* Obtaining maps of the study area
* Preparing the laboratory for the analysis of specimen

* Preparing data record sheets
* Planning the order of interviews
* Training field staff
* Testing interview technique, data recording sheets and equipment with trial visit
* Obtaining and setting up computers for data management or for use in the field
* Training staff for computer data entry or survey data

12. Surveillance in the bigger picture

* Included and described
* **Biosecurity, Aquatic animal health strategy, Aquaculture, One Health, International trade agreement**

Food and Agriculture Organization of the United Nations

Thank you for your attention

Nihad.Fejzic@vfs.unsa.ba

Project Inception Workshop of GCP/RAF/510/MUL:
Enhancing capacity/risk reduction of emerging Tilapia Lake Virus (TiLV) to African tilapia aquaculture

Southern Sun Myfair Hotel, 23-24 October 2018, Nairobi, Kenya