



Credit: FAO

Rapid testing for avian influenza in the field

THE ISSUE

The livestock sector contributes 40 percent of the global value of agricultural output and supports the livelihoods and food security of almost a billion people. Increased concentration and intensification of animal production, climate change, and global trade of products and animals are expected to increase the risk of transboundary and zoonotic disease emergence and spread. It is estimated that on average one new animal disease emerges every year and over 70 percent of emerging or re-emerging diseases are zoonotic.

The emergence of new influenza viruses in animal species suggests that the number of viruses circulating

in animals has been on the increase for several decades. Assessment of influenza gene pools in humans, farm animals and wildlife for specific pathogens, could help scientists better understand viral genetic exchange and disease dynamics in animal and human host populations. Genetic properties and evolution of viruses, in combination with spatial and temporal epidemiological information, is aimed at supporting research on genetic and antigenic differences of emergent pathogens and development of improved methods for their prevention, detection and control).

THE FACTS

Disease Intelligence includes all the activities related to the identification of potential hazards that may represent a risk to animal health. It is pivotal in supporting veterinary services and other stakeholders, and performed through a multidisciplinary approach by: collecting and integrating expertise and knowledge to support disease analysis, prevention, early warning, and early response.

The FAO/OIE/WHO Global Early Warning and Response System for Major Animal Diseases (GLEWS) initiative assists the international community and stakeholders in risk assessment, prevention, and risk management of animal diseases, including zoonoses, through information sharing, epidemiologic analysis, and support of rapid response mechanisms. Official disease reporting systems and unstructured disease reports from other systems, such as the Programme for Monitoring Emerging Diseases and Global Public Health Information Network or directly from field personnel, are collated from local, national and regional information systems, to allow a rapid and harmonised flow of data and analysis and enhance understanding of the drivers of disease spread and persistence.

CHALLENGES AND GAPS

Animal diseases reduce production and productivity, disrupt local and national economies, threaten human health and exacerbate poverty. The national and international contexts in which animal health systems function are changing rapidly: a lack of strong governance in national veterinary services impacts upon disease prevention, detection, control, and risk mitigation, thus it becomes important to support disease mitigation efforts with improved disease intelligence and risk analysis activities to enhance early warning, determine critical points in transmission mechanisms, and aid in rapid response.

Given the iterative nature of disease intelligence, with many sources of information and environmental or human variables, it is imperative to answer some key questions:

- ▶ Are disease intelligence outputs actually and effectively used by stakeholders?
- ▶ What is the cost-effectiveness of disease intelligence activities and early warning?
- ▶ With many institutions providing disease foresight and intelligence, how do users determine the quality and certainty of the information provided by these institutions?

FAO'S POSITION

The Food and Agriculture Organization of the United Nations (FAO) combines the use of new technological tools to support disease intelligence – by leveraging its wealth of worldwide data sources, technical expertise, and official networks – with the perspective of combining epidemiological, genetic, geographical, livestock and wildlife information. The use of new technologies, including web services, digital pen technology and SMS messaging have been encouraged by FAO for collecting disease information from the field, in order to monitor



BNGRC "Bureau national de gestion des risques et des catastrophes" in Madagascar

and track disease events on a real-time basis and feed regional and global surveillance systems that result in improved reporting from local level to global. FAO is currently also advocating for the utilisation of other tools to improve disease intelligence and risk assessment of animal diseases, including the use of value chain analysis and understanding the dynamics of livestock production systems, patterns of animal movement, trade, and marketing chains, and supporting risk management involving actors in those value chains.

RECOMMENDATIONS

- ▶ Outputs from disease intelligence should be based on verified and reliable animal disease information provided by networks.
- ▶ Networking, inter-agency scientific consultations, and collaboration in disease intelligence and other areas should be encouraged.
- ▶ Case definitions for suspected cases and standard disease outbreak investigations for priority diseases should be developed in collaboration with animal health services, and disseminated widely.
- ▶ Successful case studies in which disease intelligence and early warning have helped animal health systems in the prevention or control of an animal disease should be documented and disseminated widely, in order to highlight its benefits.
- ▶ Integration of data from animal and human demographics, field disease surveillance systems and environmental or agro-system variables with regional and global surveillance systems, are essential to improve early detection, analysis, early warning and risk management.

References and Resources:

- **EMPRES-i:** <http://empres-i.fao.org>
- **GLEWS:** www.glews.net

ECTAD Emergency Centre for Transboundary Animal Diseases

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