



EMPRES-i: A POWERFUL GLOBAL TOOL FOR CONTROLLING MAJOR ANIMAL DISEASES



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EMPRES-i features

DISEASE EVENT DATABASE ENABLING USERS TO EASILY ACCESS AND RETRIEVE INFORMATION ON WILD OR DOMESTIC ANIMAL DISEASE OUTBREAKS/ CASES WORLDWIDE

DISEASE MAPPING/ GRAPHING TOOLS ENABLING USERS TO SELECT OUTBREAKS/ CASES FROM THE DATABASE AND REPRESENT THEM GRAPHICALLY AS CHARTS OR ON A MAP

LIBRARY PROVIDING ACCESS TO FAO TECHNICAL PUBLICATIONS

THE INCREASE IN EMERGENCE of new pathogens and spread of transboundary animal diseases (TADs) in countries around the world poses a serious and continuing menace to livestock production, food security and the entire food chain.

TADs can have significant negative impact on the economy, trade, food security and food safety of countries. They cause high rates of death and disease in animals, and have in many cases public health consequences, knowing that approximately 70 percent of diseases affecting humans have animal origins. Prevention and control of TADs require timely and reliable disease information.

Timely and reliable disease information enhances early warning and response to TADs and emergent zoonoses (animal diseases that can be transmitted to humans). It supports prevention, improved management and progressive approach to control.

To address the challenge, FAO's Emergency Prevention System (EMPRES) designed and developed a web-based secure information system to support country level veterinary services by facilitating regional and global disease information: EMPRES Global Animal Disease Information System (EMPRES-i).

This application contributes to the joint FAO/OIE/WHO Global Early Warning and Response System (GLEWS) for major transboundary animal diseases, including zoonoses.

EMPRES-i: A RESPONSE TO A GLOBAL CONCERN

EMPRES-i was first released in 2004 with the worldwide flare-up of H5N1 highly pathogenic avian influenza (HPAI) and made publicly available in 2009. It was created in response to the growing demand from users for global animal health information systems, using a system approach to disease information gathering and sharing.

The platform consolidates disease events worldwide using information that EMPRES receives from a wide range of sources. Partners and FAO networks share and feed EMPRES-i with disease information on a regular basis. For validation and verification, EMPRES uses not only official, but also unofficial

sources of information. The verification process of disease events and unconfirmed reports is done also in coordination with OIE and WHO, under the GLEWS.

EMPRES-i collects information on outbreaks, vaccination and surveillance efforts and supports two main global strategies for control and eradication of two major diseases: Foot-and-Mouth Disease and Peste des Petits Ruminants (PPR).

EMPRES-i hosts data originated from active surveillance implemented through several projects executed by FAO. This data complements countries' efforts to know exactly the situation of animal disease pathogens and its distribution in livestock production systems or along the food chain.

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EMPRES-i features

**MY EMPRES-i
ENABLING USERS TO
LOG IN AND ACCESS A
PERSONALIZED PAGE
DISPLAYING DISEASE
EVENTS OF INTEREST
AND SELECTING FROM
THE DIRECTORY OR
LABORATORY SECTIONS**

**DIRECTORY PROVIDING
CONTACT DETAILS OF
THE CHIEF VETERINARY
OFFICERS (CVOS) FOR
EACH COUNTRY**

**LABORATORIES
PROVIDING CONTACT
INFORMATION OF
FAO/OIE REFERENCE
LABORATORIES AND
REGIONAL LABORATORY
NETWORKS**

FAO EMPRES-i

E-mail: empres-i@fao.org
Web site: <http://empres-i.fao.org>
FAO Contact: Julio Pinto
(EMPRES-i Technical Manager)

WHAT DOES EMPRES-i DO?

EMPRES-i speeds up national, regional and global disease information sharing; supports the risk assessment process for existing and emergent animal diseases; facilitates epidemiological analysis on specific disease events at regional and global levels and planning surveillance. EMPRES-i generates and disseminates early warning messages on global animal disease distribution, disease risks and current threats at the national, regional and global level for priority animal diseases. Data sharing and interoperability is crucial to integrate data and information for analysis. EMPRES-i provides access to data integrated from other information systems in FAO and external databases:

- livestock population/density (GLiPHA/FAO)
- environmental (Geonetwork/FAO)
- genetic information (Openflu database)

Through specific official agreements with key partners, FAO is further linking and integrating other systems, including the FMD BioPortal, the World Reference Laboratory for Foot-and-Mouth Disease, the Swiss Institute of Bioinformatics (SIB) and FAO Reference Centres, into EMPRES-i. EMPRES-i also supplies analytical and automated tools to better inform risk analysis processes and early warning activities including descriptive analysis (graphics and advanced mapping component).

KEY FIGURES AND ADVANCES

EMPRES-i is today a global reference database for animal diseases including zoonosis. EMPRES-i stores over 60 000

outbreak records of which more than 20 000 records of animal influenza from 2004 to 2014. It hosts information on disease monitoring and tracking for early warning activities. To date, over 4 000 events have been tracked.

The system has a historical database on almost 950 records on rinderpest outbreak information (1827-2003). The global eradication of rinderpest was officially declared in June 2011; still EMPRES-i monitors and verifies suspected syndromic cases compatible with rinderpest cases. EMPRES-i hosts and maintains a database on Rift Valley fever outbreaks, including animal and human cases, developed in collaboration with Oxford University.

The system is under continuous development and new features may be added in the future.

In 2012, EMPRES-i developed a genetic module to link epidemiological and genetic influenza information and enable combined analysis. This tool links Avian Influenza events and outbreaks for the following subtypes: H5N1, H5N8, H5N6, H1N1, H9N2, H7N9, H7N2, H10N8. This module will be further developed to host genetic information on disease pathogens such as Foot and Mouth disease, Rift Valley fever and African Swine fever.

In 2013, a new Android mobile application - Event Mobile Application (EMA-i) - was developed and implemented in 10 Ugandan districts in collaboration with the National Veterinary Services and the Ministry of Agriculture. EMA-i allows veterinarians to enter key epidemiological data into a global database directly from the field using their smartphones.

EMPRES-i is undoubtedly proving useful in facing the big challenge of the emergence of new diseases and enhancing rapid disease reporting and early warning activities of countries and regions.