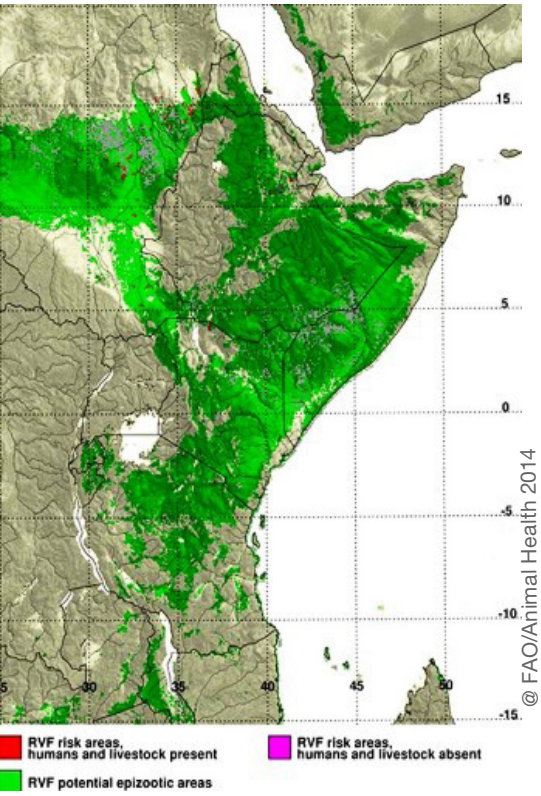
FAO HELPS COUNTRIES **PREVENT** AND **CONTROL RIFT VALLEY FEVER**



@ FAO/Animal Health 2014

RIFT VALLEY FEVER (RVF) is a zoonotic, viral, vector-borne disease representing a threat to human health, animal health and livestock production in Sub-Saharan Africa, the Near East and potentially Europe and the rest of the world.

The virus can be transmitted from infectious ruminants to humans through several mosquito species and by contact with infectious animal material. Most human cases develop a mild influenza-like illness while some patients develop much more severe symptoms. In ruminants, it may be associated with high mortality in neonates and young animals as well as high levels of abortion. The impact of the disease on people's livelihoods (socio-economic) and on trade (restrictions) can be high.

Climatic factors are important drivers of RVF viral activity as they drive vector abundance and population dynamics, thus influencing the risk of disease emergence, transmission and spread. A climate-affecting phenomenon such as El Niño can have high impact on RVF.

FAO KEY ACTIVITIES *against RVF*

MONITORING CLIMATE AND VEGETATION PATTERNS AND ANOMALIES IN AFRICA, PARTICULARLY IN EAST AFRICA, AND THE MIDDLE EAST

CALIBRATING AND MODELLING RVF RISK MODEL IN WEST AFRICA (SENEGAL AND MAURITANIA)

CLIMATE-BASED **FORECASTING MODELS** AND **EARLY WARNING SYSTEMS**

Risk modelling tools, based on near-real-time satellite climate data, monitor the first signals of a possible increase in vector abundance and RVF risk and provide information for prevention and risk mitigation.

The National Aeronautics and Space Administration (NASA), FAO and the World Health Organization (WHO) have been monitoring climatic conditions to predict the risk of RVF vector amplification in East Africa for the past several years using a modelling approach developed by the NASA Goddard Space Flight Center team. In 2006-2007, this climate-based model predicted the risk of RVF occurrence in the Horn of Africa several weeks before the first signs of the disease were recorded in livestock and humans.

In this approach, climate data are used to identify and map areas with persistent, heavy, above-average

@ FAO/Animal Health

rains and vegetation anomalies over the last three consecutive months. Results are then interpreted and assessed in relation to El Niño and Sea Surface Temperature indicators as well as precipitation forecasts and compared with historical data.

Every month, the risk of RVF epizootic is assessed by FAO through the monitoring of the three climatic parameters: precipitation, El Niño Southern Oscillation (ENSO), and cumulative Normalized Difference Vegetation Index (NDVI) anomalies. For East African region, FAO produced 190 RVF risk maps covering the period 1998-2014.

FAO HELPS COUNTRIES **PREVENT** AND **CONTROL RIFT VALLEY FEVER**

@ FAO/Animal Health

FAO KEY ACTIVITIES *against RVF*

GENERATING RVF RISK MAPS AND CONDUCTING RISK ASSESSMENT OF RVF

PROVIDING TRAINING AND CAPACITY BUILDING TO FILL ANY GAPS ON PREVENTION AND CONTROL OF RVF

INCREASING THE USE AND UNDERSTANDING OF MOLECULAR EPIDEMIOLOGY BY DEVELOPING THE RVF GENETIC MODULE

DISSEMINATING RVF DATA, RISK ASSESSMENTS, UPDATES, AND EARLY WARNING MESSAGES

FAO EMPRES Animal Health

E-mail: RVF@fao.org
Food-Chain-Crisis@fao.org

Website: http://www.fao.org/ag/againfo/programmes/en/Vmerge.html
www.fao.org/food-chain-crisis

Following on the work conducted in East Africa, FAO is leading activities on disease modelling and risk mapping to improve early warning and surveillance strategies for northern Africa and Senegal. In particular, FAO is working to calibrate risk modelling tools in West Africa, specifically in Senegal and Mauritania.

Innovative methods are being explored to optimize the RVF prediction in northern and western Africa based on environmental and climatic variables in order to produce risk maps regularly.

These activities are carried out in the framework of the Vmerge project on "Emerging, Viral Vector-Borne Diseases", a research consortium funded by the European Commission.

CAPACITY BUILDING AND DATA DISSEMINATION

Building countries' capacities and providing training to fill any technical gaps is a crucial part of FAO's work in Africa. For this, a training programme on RVF preparedness (surveillance for early detection and contingency plans) took place in Tunisia in October 2015. It brought together 16 focal points of the Mediterranean Animal Health Network, one representative from the veterinary services of Senegal, and three representatives from the World Organisation for Animal Health (OIE).

A FAO manual on RVF surveillance is under development, which will complement this training in addressing the need for awareness and capacity building on RVF preparedness in the region.

Another important component of FAO's activities is assisting countries in formulating RVF preparedness and response plans in East Africa. Two RVF task forces, one in Tanzania and another in Kenya, have been established to provide countries with the best possible advice on the implementation of strategic RVF

@ FAO/Animal Health

work plan for containing expected RVF outbreaks at source. FAO also supported awareness creation in Kenya by using local FM radios in high risk areas, especially in the northeast.

FAO continues also its effort to increase the use and understanding of molecular epidemiology by developing the RVF genetic module. The module being developed together with the Swiss Institute of Bioinformatics aims to enhance the linking of genomic sequence information - in centralized sequence database - with outbreak information available at FAO's Global Animal Disease Information System epidemiological database (EMPRES-*i*). This tool will enable understanding the distribution of viral strains, whether a virus has been recently introduced or was already present, the possible origins of an outbreak, the spread routes, etc.

In addition, FAO produced manuals on RVF prevention, control and elimination and guidelines to prepare national RVF contingency plan.

On a wider scale, FAO disseminates regular RVF updates, and produces RVF early warning messages (EMPRES Watch) in collaboration with OIE and WHO.

I5149E/1/11.15