Food and Agriculture Organization
of the United Nations

FAO (HQ, RNE, AFRO, SNE) activities, projects & tools and expected outcome/impact

Context & challenges of vector-borne diseases

challenges

Change climate, mobility increased, pressure agri-food, emergence of health risks.

risks

Zoonoses and diseases cross-border (e.g. RiftValley fever, West Nile).

Transmission

Mosquitoes, ticks, phlébotomes

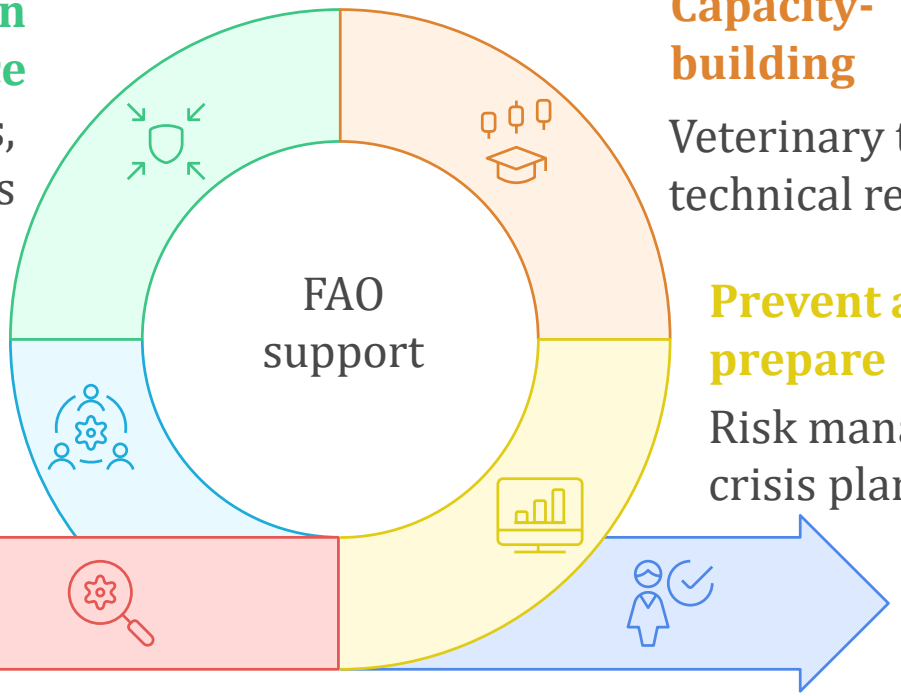
Impacts

Animal health & human, food security

Role of FAO

surveillance systems, national capacities, and One Health integrated approach.
.

FAO support



Strengthen surveillance

Digital platforms, early warnings

Capacity-building

Veterinary training, technical resources

Field action

Operational support direct to the country

Prevent and prepare

Risk management, crisis plans

Health risks not detected rapidely

Security sanitary reinforced

Rapid detection, effective response

Tunisia

Support Tunisia in the implementation of PPR to pandemics as part of a "One Health" approach »

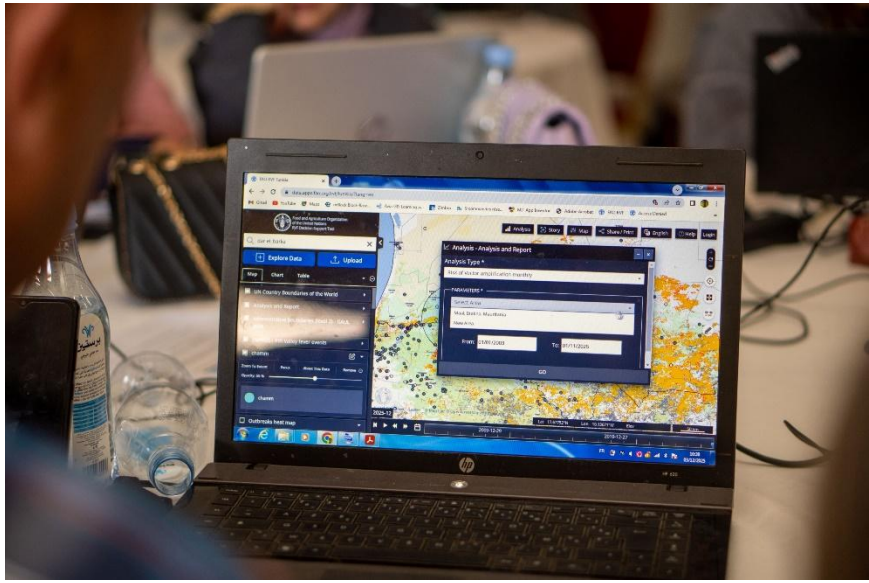
Mission Decision Support Tool (RVF DST)

30 participants: public and animal health officers, entomologists, animal mobility experts.
Next step: tool calibration.

Veterinary entomology:

National training on the collection and identification of arbovirus vector mosquitoes,

Course in veterinary medical entomology



Tunisia

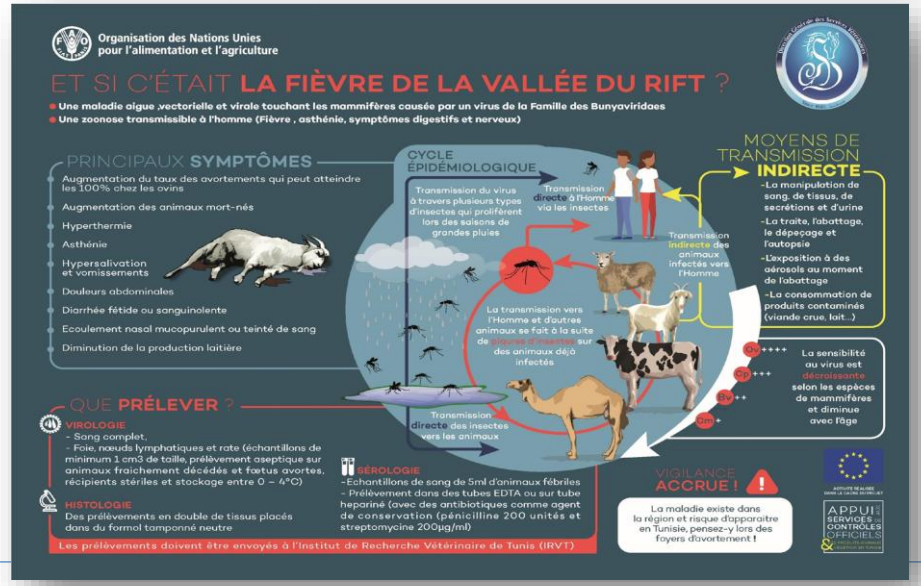
ASCO Project "support for official control services for animal and plant products"

Actions:

- Online training on Rift Valley Fever disease for public and private veterinarians
- An information pack on priority animal diseases for veterinarians is being produced on the RVF

Result:

- Strengthening surveillance at country level
- Improved technical capabilities

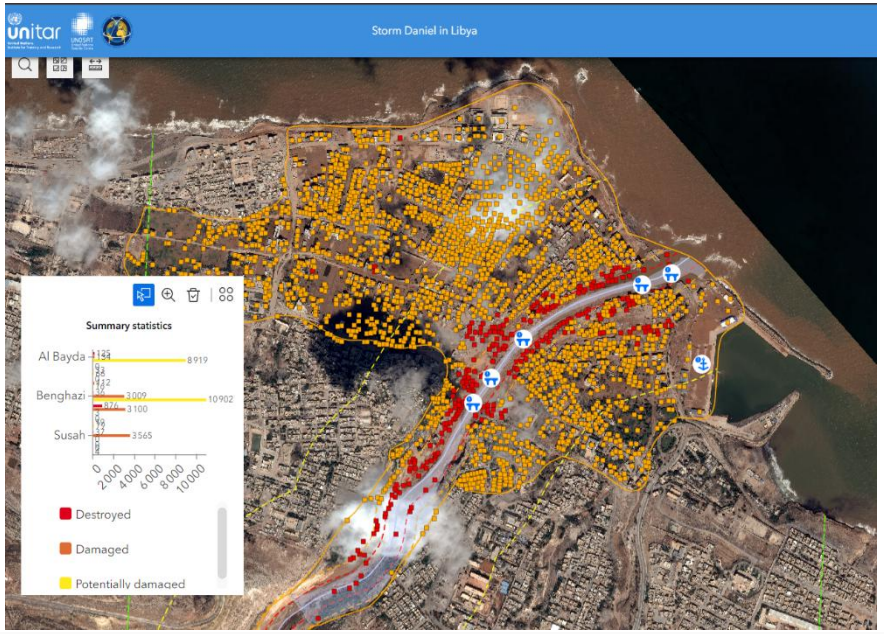


Libya

Emergency support to vulnerable pastoralists in areas affected by the Derna floods in Libya

Context - September 2023

Major floods (Medicane Daniel + dam failures): >5,300 deaths, ~33,000 displaced persons, severe impact on agriculture and livestock.
Conditions conducive to the proliferation of mosquitoes (Aedes, Culex) and increased risk of RVF.



NASA Earth Observatory images by Wanmei Liang, using MODIS data from NASA EOSDIS LANCE and GIBS/Worldview.

FAO interventions

- LSD vaccination, treatment and vector control for livestock
- Capacity building in health emergency management
- Support for revenue-generating activities

Improved food and health security

Enhanced climate and health resilience

Mauritania

Context - October 2025

RVF outbreak: mass abortions in cattle, high animal mortality, confirmed human cases with death.
86 suspected outbreaks, 53 confirmed in 11 regions.

FAO intervention

- Identification of risk factors related to RVF
- Analysis of national surveillance and response capacities
- Formulation of operational recommendations
- Development of guidance to strengthen preparedness

EMC-AH Mission

Improved early detection

Enhanced coordination of responses

Preparing for future outbreaks

FAO's support

Digital & Human Infrastructure for Early Warning System

Digital Surveillance Platforms

eLocust3 + Drones
Real-time pest **surveillance** and monitoring systems.

EMPRES-i
Global animal disease intelligence and integrated monitoring.

RVF Decision Support
Forecasting outbreaks up to **3 months** in advance.

Early Warning
↓
Early Action
↓
Lower Cost

Human Capacity & Systems

2,800+ Professionals (ISAVET programme)
Animal health specialists trained annually

120,000 Farmers
Trained via **Farmer Field Schools** on biosecurity and IPM

70 Veterinary Laboratories
Upgraded infrastructure for advanced diagnostics

Pandemic Fund: 19 single-country and 3 regional projects
Implementation and coordination support

RVF DST

Scan the code to access:

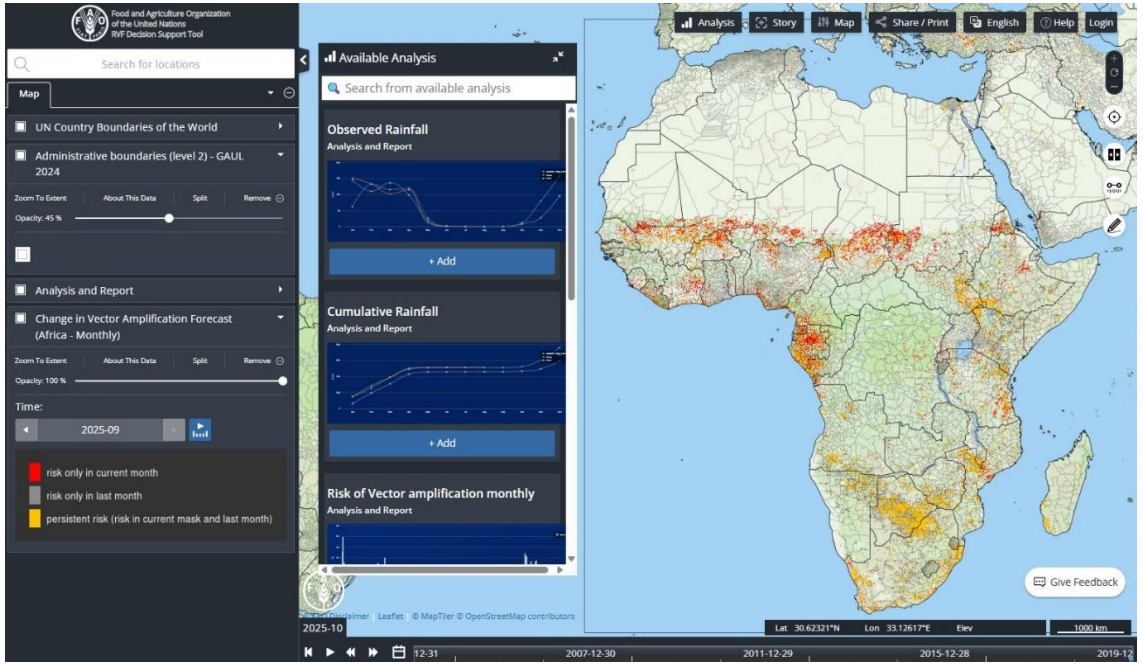
RVF DST platform

Animal-health website

Rift Valley fever Early Warning Decision Support Tool (RVF DST)

- **Web-based tool** designed to:
  - identify **areas at risk for RVF** through environmental and climate data analysis
  - support **decision-making** by data-driven analysis and integrated expert knowledge

- **Developed** for national authorities in response of a major outbreak in eastern Africa in 2018 (RVF Regional Workshop, August 2018)



Risk Monitoring

Alert

Capacity Building

RVF DST – From signal to anticipatory action

SIGNALS

ACTIONS

FAO EMPRES-i+ database

Media & rumour tracking

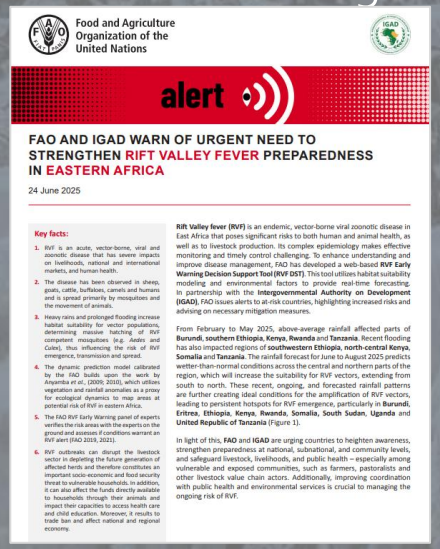
EIOS
EPIDEMIC INTELLIGENCE FROM OPEN SOURCES

RVF DST
Modelling & Forecasting

Joint FAO/WHO/WOAH Global Early Warning System

GLEWS+

Disease monitoring and forecasting


Food and Agriculture Organization of the United Nations

alert

FAO AND IGAD WARN OF URGENT NEED TO STRENGTHEN RIFT VALLEY FEVER PREPAREDNESS IN EASTERN AFRICA

24 June 2025

Key facts:

1. RVF is an acute, vector-borne, viral and zoonotic disease that has severe impacts on livelihoods, national and international markets, and human health.
2. The disease has been observed in sheep, goats, cattle, buffaloes, camels and humans and is spread primarily by mosquitoes and the movement of animals.
3. Heavy rains and prolonged flooding increase habitat suitability for vector populations, determining massive hatching of RVF competent mosquitoes (e.g. Aedes and Culex), thus influencing the risk of RVF emergence, transmission and spread.
4. The dynamic prediction model calibrated by the FAO builds upon the work by Anyamba et al., (2009; 2010), which utilizes vegetation and rainfall anomalies as a proxy for ecological dynamics to map areas at potential risk of RVF in eastern Africa.
5. The FAO RVF Early Warning panel of experts verifies the risk areas with the experts on the ground and assesses if conditions warrant an RVF alert (FAO 2019, 2021).
6. RVF outbreaks can disrupt the livestock sector in depleting the future generation of affected herds and therefore constitutes an important socio-economic and food security threat to vulnerable households. In addition, it can also affect the funds directly available to households through their animals and impact their capacities to access health care and child education. Moreover, it results to trade ban and affect national and regional economy.

Rift Valley fever (RVF) is an endemic, vector-borne viral zoonotic disease in East Africa that poses significant risks to both human and animal health, as well as to livestock production. Its complex epidemiology makes effective monitoring and timely control challenging. To enhance understanding and improve disease management, FAO has developed a web-based **RVF Early Warning Decision Support Tool (RVF DST)**. This tool utilizes habitat suitability modeling and environmental factors to provide real-time forecasting. In partnership with the **Intergovernmental Authority on Development (IGAD)**, FAO issues alerts to at-risk countries, highlighting increased risks and advising on necessary mitigation measures.

From February to May 2025, above-average rainfall affected parts of **Burundi, southern Ethiopia, Kenya, Rwanda** and **Tanzania**. Recent flooding has also impacted regions of **southwestern Ethiopia, north-central Kenya, Somalia** and **Tanzania**. The rainfall forecast for June to August 2025 predicts wetter-than-normal conditions across the central and northern parts of the region, which will increase the suitability for RVF vectors, extending from south to north. These recent, ongoing, and forecasted rainfall patterns are further creating ideal conditions for the amplification of RVF vectors, leading to persistent hotspots for RVF emergence, particularly in **Burundi, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Uganda** and **United Republic of Tanzania** (Figure 1).

In light of this, **FAO** and **IGAD** are urging countries to heighten awareness, strengthen preparedness at national, subnational, and community levels, and safeguard livestock, livelihoods, and public health – especially among vulnerable and exposed communities, such as farmers, pastoralists and other livestock value chain actors. Additionally, improving coordination with public health and environmental services is crucial to managing the ongoing risk of RVF.

Risk assessment Risk communication


Food and Agriculture Organization of the United Nations

empres360 animal health

FEATURES

5| PERSPECTIVE Spatiotemporal features of lumpy skin disease outbreaks in two provinces in Thailand

30| ADVANCES The new Global Animal Disease Information System (EMPRES-i+): Strengthening disease intelligence and early warning

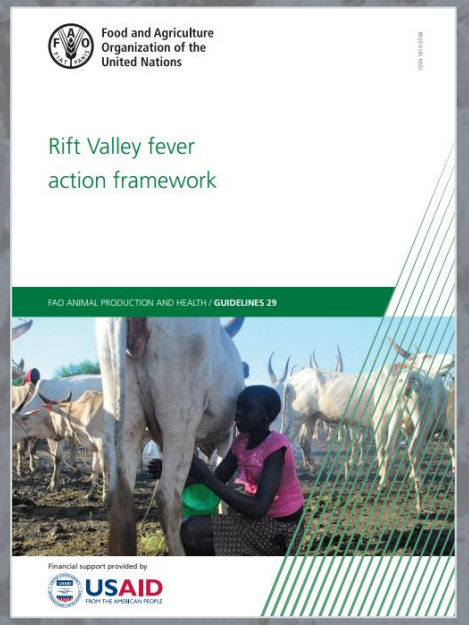
33| FAO IN ACTION FAO response to African swine fever in the Balkans

43| NEWS Global consultation on highly pathogenic avian influenza (HPAI)

8 One hundred years of Rift Valley fever: Zigzagging through the disease

LINK

Policy/Guidance

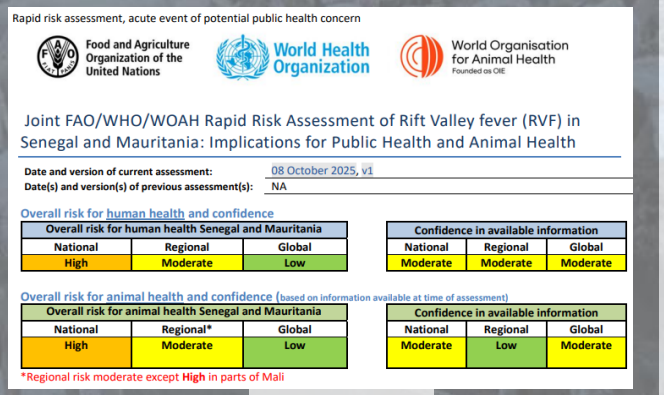

Food and Agriculture Organization of the United Nations

Rift Valley fever action framework

FAO ANIMAL PRODUCTION AND HEALTH / GUIDELINES 29

Financial support provided by USAID FROM THE AMERICAN PEOPLE

Multisectoral action


Rapid risk assessment, acute event of potential public health concern

Food and Agriculture Organization of the United Nations · World Health Organization · World Organisation for Animal Health Founded as OIE

Joint FAO/WHO/WOAH Rapid Risk Assessment of Rift Valley fever (RVF) in Senegal and Mauritania: Implications for Public Health and Animal Health

Date and version of current assessment: 08 October 2025, v1
Date(s) and version(s) of previous assessment(s): NA

Overall risk for human health and confidence

Overall risk for human health Senegal and Mauritania			Confidence in available information		
National	Regional	Global	National	Regional	Global
High	Moderate	Low	Moderate	Moderate	Moderate

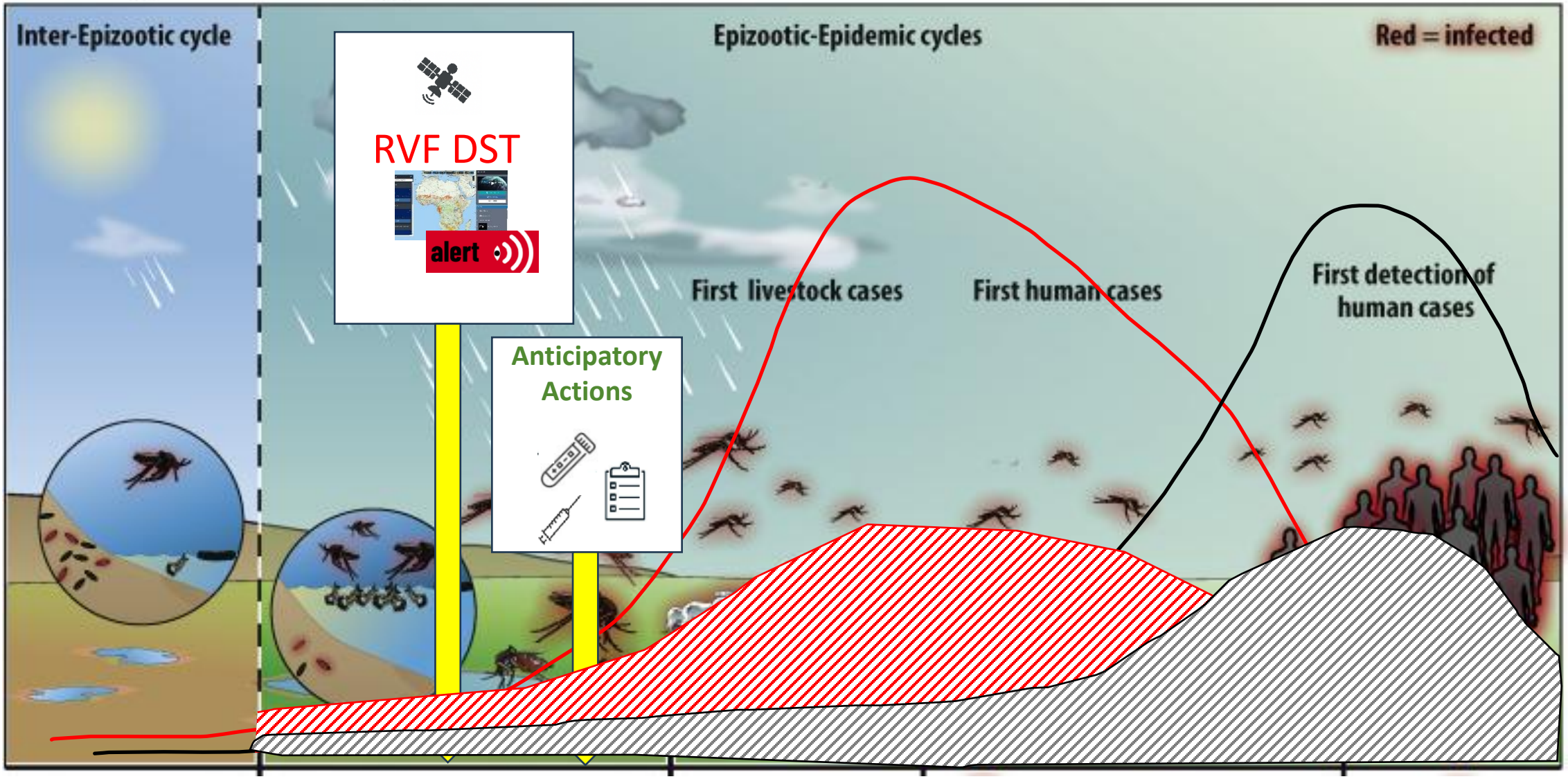
Overall risk for animal health and confidence (based on information available at time of assessment)

Overall risk for animal health Senegal and Mauritania			Confidence in available information		
National	Regional*	Global	National	Regional	Global
High	Moderate	Low	Moderate	Low	Moderate

*Regional risk moderate except **High** in parts of Mali

LINK

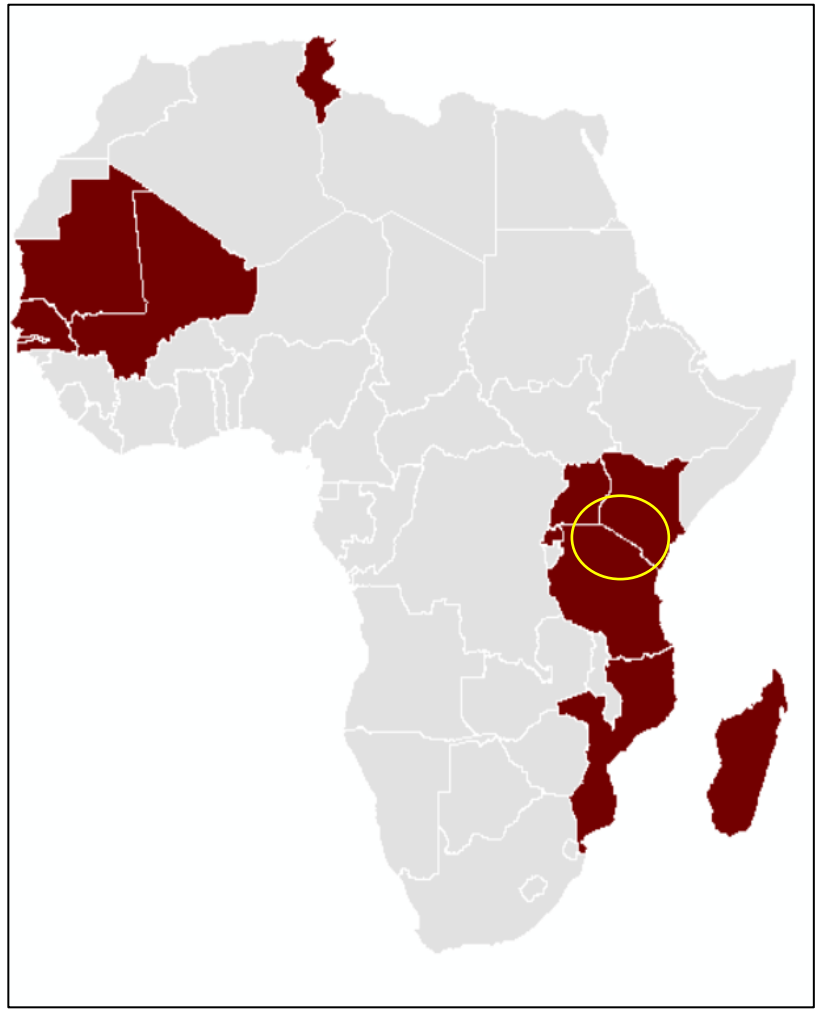
Rift Valley fever virus Ecology



Brian H. Bird, Anita K. McElroy. 2016. Rift Valley fever virus: Unanswered questions. Antiviral Research, 132: 274-280. https://doi.org/10.1016/j.antiviral.2016.07.005.

RVF DST: Key facts

2019 -2016 → 11 countries involved



- **Developed in 2019** to strengthen RVF preparedness and response.
- **Piloted** in Kenya, Uganda, and Tanzania; now **expanded** to 11 countries.
- **Built** with input from international, regional, and national experts.
- **Collaboration** with FAO IT, NASA, and ESA using advanced Earth Observation

- **Monthly and 8-day predictions** (250 m resolution)
- Driven by **environmental risk factors** and integrated **expert knowledge** (MCDA)
- **Linked to FAO EMPRES-i** RVF events
- **Near real-time**, high-resolution **RVF risk forecasting** across Africa
- **National RVF risk maps for emergence** *and spread (coming soon)*

EXPERT KNOWLEDGE

Suitability for RVF vector amplification
- Risk maps/forecast (based on NASA model)
- Precipitation
- Temperature
- Vegetation
- Soil type
- Humidity
- Land cover
- Elevation
- Irrigation areas
- Flooding/dambos
- Seasonality (ENSO)

RVF endemic areas
- RVF core areas
- RVF events

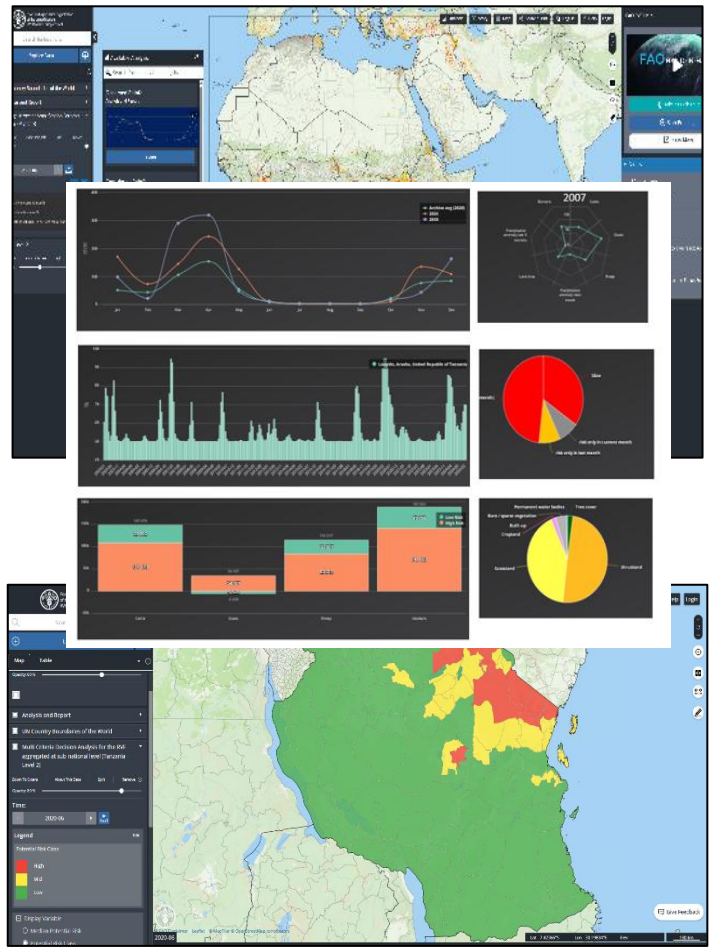
Risk of exposure
- Livestock species
- Human population

Risk of spread (infrastructure)
- Markets
- Villages
- Roads
- Livestock routes …

Supportive documents
- RVF FAO Manuals
- FAO/ILRI Decision Support Framework
- RVF dynamic model for VA
- FAO RVF Action Framework

Key features

RVF DST – Public version

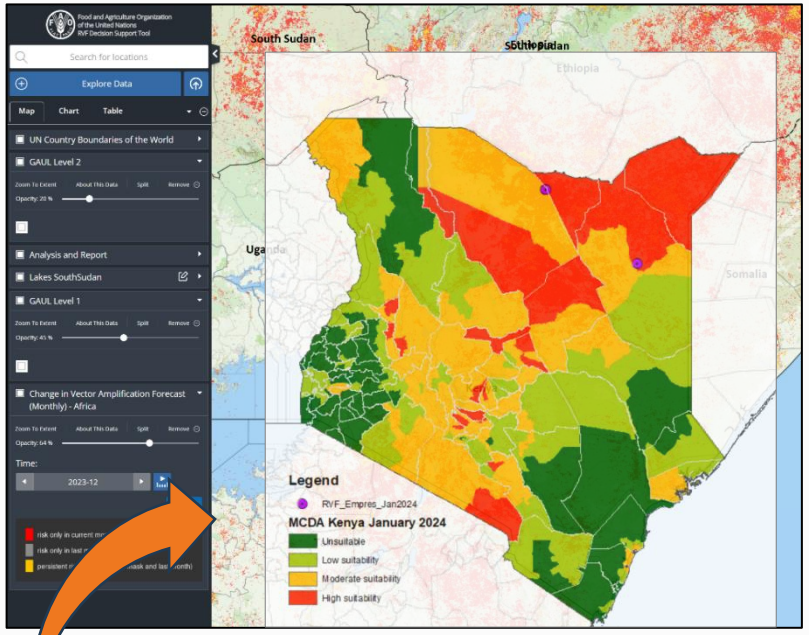


- **Tool skills**
  - **Public** and **country-specific** (protected) versions
  - **Risk factors, metadata** and **manual** (Catalogue), **downloadable maps** (GeoTiff)
  - **SpatialTemporal Analysis** (with charts and tables)
  - Real-time **data sharing** and **story maps**
  - Linked to the **main documents** for ease of reference
  - Available in **English** and **French**
  - Integrated national expert input with **MCDA methodology**

- **6 expert workshops** *(1 international, 2 regional, 3lnational).*
- **Ongoing capacity building** (across multiple countries/years)
- **17 RVF alerts** issued since 2019 *(11 jointly with IGAD)*
- Adapted for Avian Influenza **(AI DST)**

From signal to anticipatory action

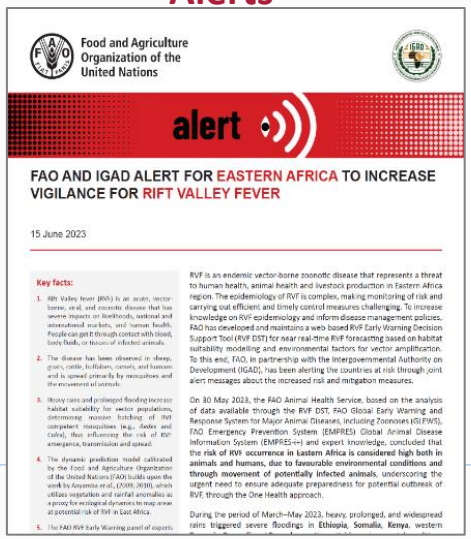
RVF DST monthly updates



Recommended Actions

Overall risk of occurrence (likelihood + impact)		
Low	**Moderate**	**High**
Passive surveillance system (e.g., Syndromic surveillance)	Active surveillance (particularly those bordering high risk areas)	Sentinel herds monitoring (during alert periods)
	Continue passive surveillance	Continue passive surveillance (enhance syndromic surveillance during the alert period)
Awareness creation + Target communication messages	Awareness creation ++ Target communication messages Alert of possible outbreaks	Awareness creation+++ Target communication messages Alert of possible outbreaks
Vector surveillance +	Vector surveillance ++	Vector surveillance +++
		Vaccination
Risk assessment/monitoring	Risk assessment/monitoring	Risk assessment/monitoring
	Vector control	Vector control
Training personnel on sampling, disease recognition, disease reporting , Personal protection / biosafety	Training personnel on sampling, disease recognition, disease reporting, Personal protection / biosafety	Training personnel on sampling, disease recognition, disease reporting, Personal protection / biosafety
Stockpiling (PPEs, test kits)	Stockpiling (PPEs, test kits)	Stockpiling (PPEs, test kits)
Simulation of outbreaks	Simulation of outbreaks	Simulation of outbreaks

Alerts


Food and Agriculture Organization of the United Nations

alert

FAO AND IGAD ALERT FOR EASTERN AFRICA TO INCREASE VIGILANCE FOR RIFT VALLEY FEVER

15 June 2023

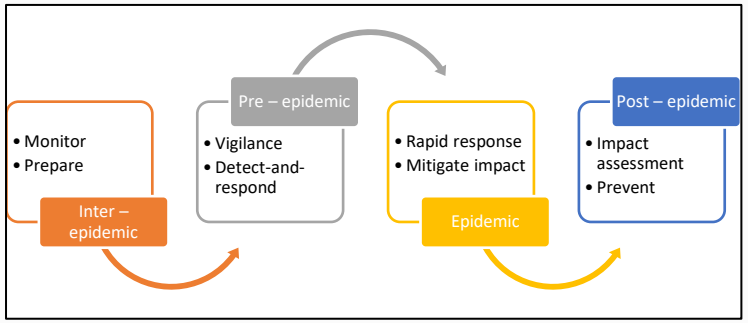
Key facts:

1. Rift Valley fever (RVF) is an acute, vector-borne, viral, and zoonotic disease that has severe impacts on livelihoods, national and international markets, and human health. People can get it through contact with blood, body fluids, or tissues of infected animals.
2. The disease has been observed in sheep, goats, cattle, buffaloes, camels, and humans and is spread primarily by mosquitoes and the movement of animals.
3. Heavy rains and prolonged flooding increase habitat suitability for vector populations, determining massive hatching of RVF competent mosquitoes (e.g., Aedes and Culex), thus influencing the risk of RVF emergence, transmission and spread.
4. The dynamic prediction model calibrated by the Food and Agriculture Organization of the United Nations (FAO) builds upon the work by Anyamba et al., (2009, 2010), which utilizes vegetation and rainfall anomalies as a proxy for ecological dynamics to map areas at potential risk of RVF in East Africa.
5. The FAO RVF Early Warning panel of experts

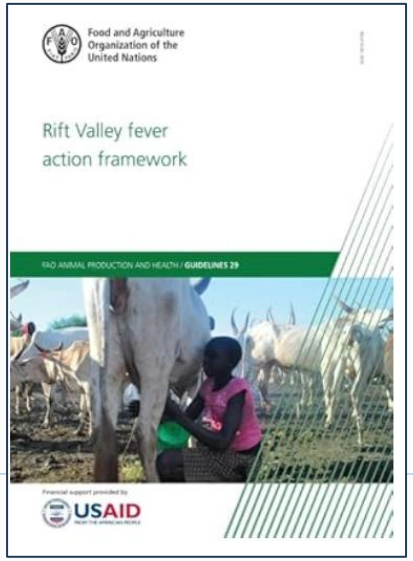
RVF is an endemic vector-borne zoonotic disease that represents a threat to human health, animal health and livestock production in Eastern Africa region. The epidemiology of RVF is complex, making monitoring of risk and carrying out efficient and timely control measures challenging. To increase knowledge on RVF epidemiology and inform disease management policies, FAO has developed and maintains a web-based RVF Early Warning Decision Support Tool (RVF DST) for near real-time RVF forecasting based on habitat suitability modelling and environmental factors for vector amplification. To this end, FAO, in partnership with the Intergovernmental Authority on Development (IGAD), has been alerting the countries at risk through joint alert messages about the increased risk and mitigation measures.

On 30 May 2023, the FAO Animal Health Service, based on the analysis of data available through the RVF DST, FAO Global Early Warning and Response System for Major Animal Diseases, including Zoonoses (GLEWS), FAO Emergency Prevention System (EMPRES) Global Animal Disease Information System (EMPRES-i+) and expert knowledge, concluded that **the risk of RVF occurrence in Eastern Africa is considered high both in animals and humans, due to favourable environmental conditions and through movement of potentially infected animals**, underscoring the urgent need to ensure adequate preparedness for potential outbreak of RVF, through the One Health approach.

During the period of March–May 2023, heavy, prolonged, and widespread rains triggered severe floodings in **Ethiopia, Somalia, Kenya**, western



Action Framework



Country Results & Impact

From reactive to proactive, through early warning and targeted action.

Kenya

Risk-based surveillance enabled **early warning & targeted vaccination**
52,000+ animals vaccinated (2022 outbreak)
➤ Shift to **proactive outbreak response**

Rwanda

Early alert (May 2024) triggered **proactive vaccination; ~74% coverage achieved (98,410 / 132,999)**
➤ **rapid, large-scale action**

Tanzania

Risk-based sero-surveillance identified **active & past transmission** (2023-2024)
Evidence of **ongoing/expanding RVF circulation**
➤ **Predict → prevent outbreaks**

South Sudan

Recurrent outbreaks managed using **risk maps + local knowledge**
Strengthened **continuous monitoring & community response**
➤ **Data + local context = better control**

Vidéo

https://we.tl/t-FvTygT9uPzFvUeCq

Thank you

Better Production, Better Nutrition, Better Environment and Better Life

Drawings: FAO/Chiara Caproni