Food and Agriculture Organization of the United Nations

FCC-EMPRES Information Sheets 8

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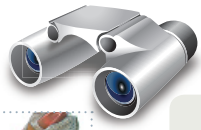
PREDICTING THE OCCURRENCE OF TRANSBOUNDARY THREATS TO THE FOOD CHAIN
A NEW INTEGRATED APPROACH



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TRANSBOUNDARY ANIMAL DISEASES (terrestrial and aquatic), **PLANT PESTS AND DISEASES** (agriculture and forest plants) and **FOOD SAFETY HAZARDS**, are raising public awareness for their potential impact on food and nutrition security, human health, livelihoods, and trade.

The changing agro-ecological conditions, intensifying food production systems, and the expanding global trade increase the likelihood of these transboundary threats emerging and spreading further and faster than ever before.

The growing number of outbreaks caused by existing and new emerging threats to the food chain have increased the need to predict the threats in a comprehensive and integrated manner, oriented at the whole food chain. These **Food Chain Crisis threats (FCC threats)** are transboundary animal and plant pests and diseases, including forest pests and aquatic diseases, and food safety threats.

The ability to predict FCC threats through a forecasting process is imperative for Governments to act quickly by taking necessary measures to prevent these threats, limit their geographic spread and minimize their impact.

To address this challenge, FAO Food Chain Crisis-Intelligence and Coordination Unit (FCC-ICU) developed an **Integrated Forecasting Approach** to predict FCC threats having a high impact on food and nutrition security and livelihoods.

FOOD CHAIN CRISIS FORECASTING APPROACH *features*

A NEW INTEGRATED APPROACH TO FORECAST FCC THREATS, DEVELOPED AND PILOTED BY FAO FOOD CHAIN CRISIS-INTELLIGENCE AND COORDINATION UNIT

A POWERFUL TOOL FOR GOVERNMENTS TO PREVENT AND RESPOND TO OUTBREAKS IN A TIMELY MANNER

FCC INTEGRATED FORECASTING APPROACH

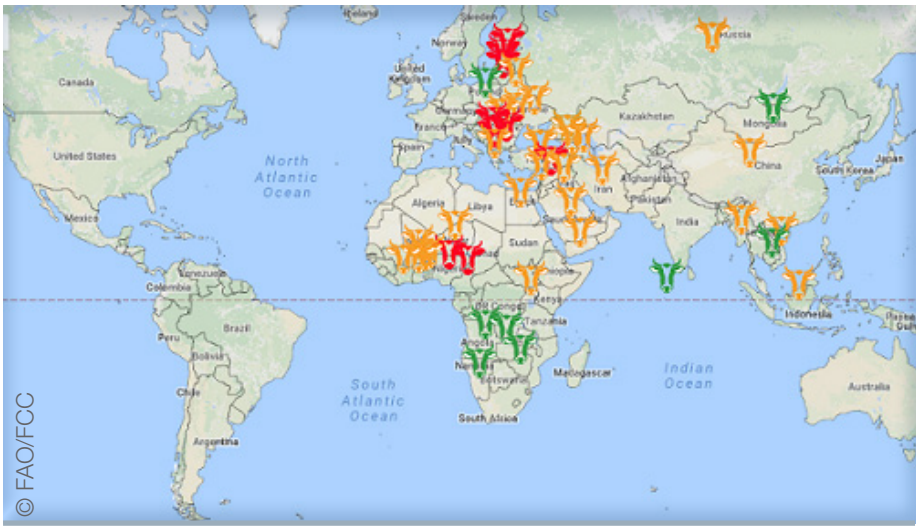
FCC-ICU has addressed the risks to the food chain by applying a multi-disciplinary integrated forecasting approach to predict FCC threats for the three months ahead.

This forecasting approach was developed through a consultative process with FAO experts from animal health, plant health, and food safety areas in order to assess the likelihood of occurrence of a threat to the food chain through a common approach.

The **likelihood of occurrence** of a threat is the probability of a FCC threat happening in a country in the upcoming three months. It is defined according to the result of the assessment of two main epidemiological parameters:

- *Parameter 1*: the **likelihood of introduction** of the threat from another country and its **further spread** within the country (the calculation is made according to a crossing table of likelihood of introduction and likelihood of spread), and
- *Parameter 2*: the **likelihood of its re-emergence** (amplification) within the country, in case a threat is already present in the country.

PREDICTING THE OCCURRENCE OF TRANSBOUNDARY THREATS TO THE FOOD CHAIN: **A NEW INTEGRATED APPROACH**



FOOD CHAIN CRISIS FORECASTING APPROACH *features*

FORECASTS MADE BY COLLECTING FAO DATA AND USING FAO EXPERTS' KNOWLEDGE ON DISEASE PATTERNS

FORECASTS DISSEMINATED IN THE FORM OF QUARTERLY EARLY WARNING BULLETINS FOR THE THREE MONTHS AHEAD

FORECASTS PRESENTED IN THE FORM OF A DYNAMIC MAP SHOWING THEIR GLOBAL DISTRIBUTION

FAO/ FOOD CHAIN CRISIS (FCC)

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www.fao.org/food-chain-crisis

Based on a conservative approach, the likelihood of occurrence of the threat will be considered equal to the higher level of the two parameters. The likelihood of occurrence, introduction, spread, and re-emergence of a FCC threat can be rated as Nil, Low, Moderate, or High.

Forecasts are made by collecting FAO official and unofficial qualitative data on FCC threats and using FAO experts' knowledge on spatial and temporal patterns of threats.

The existing FAO early warning systems informing on these areas, such as the Desert Locust Information Service (DLIS), the locust programmes in Caucasus and Central Asia CCA and in Madagascar, the Global Early Warning System (GLEWS), and the International Food Safety Authorities Network (INFOSAN) are primary sources of information.

Through this multi-disciplinary approach, data are collected, analyzed, and threats forecasted at country and regional levels by technical experts from various areas.

FCC EARLY WARNING BULLETIN AND WEB MAPPING TOOL

Forecast events are disseminated through the **FAO quarterly FCC Early Warning Bulletin** and displayed on the **FCC threats web mapping tool**.

FCC Early Warning Bulletin is a quarterly publication developed and coordinated by FCC-ICU. The purpose of the bulletin is to provide forecast of threats to animal and plant health and food safety for the three months ahead at country, regional and global levels.

FCC-ICU has also recently released a **FCC threats dynamic web map**, a complementary tool to the bulletin. The map shows the global distribution of FCC threats forecasted for the next coming three months.

Each forecast event is visually represented by an icon and five different shapes - one shape for each category (animal and zoonotic, aquatic diseases, forest pests and diseases, Locusts, plant pests and diseases) - as a visual clue to help users identify content.

The likelihood of occurrence of a threat is represented by different colors (red, yellow, green and grey) according to the FCC likelihood scale (High, Moderate, Low, and Nil).

Filters include searching by country, threat categories and level of likelihood.

WHAT NEXT

The development of an integrated approach to forecast threats to the food chain and the ability to access the forecasts through regular FCC Early Warning Bulletins and FCC web mapping tool are essential to provide, in a simple way, multi-disciplinary technical information to decision makers.

This will assist them in carrying out targeted actions for prevention and early response to FCC threats.

This tool will be further developed to become a web-based system to improve data collection, facilitate the use of the integrated forecasting approach and enable a better analysis of trends of the threats at national, regional and global levels.

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