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Food Chain Crisis
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Alerts on threats to the food chain
affecting food security in countries and regions

NOTE TO THE READER

The purpose of the FCC (Food Chain Crisis) Early Warning Bulletin is to inform FAO and other international organizations, countries, scientific experts, and decision makers on the forecast of threats to animal and plant health and food safety having a potential high impact on food and nutrition security for the three months ahead. These threats are transboundary animal and plant pests and diseases including forest pests and aquatic diseases, and food safety threats.

The bulletin contains official and unofficial information from various sources collected and analyzed by FAO experts.

The FCC Early Warning Bulletin is a product of collaboration between the Intelligence and Coordination Unit of the Food Chain Crisis Management Framework (FCC-ICU), the FAO Emergency Prevention System (EMPRES) for transboundary animal and plant pests and diseases and food safety threats, the FAO Global Early Warning System for transboundary animal diseases, including zoonoses (GLEWS), and the Global Information and Early Warning System (GIEWS). FCC-ICU coordinates and produces the bulletin.

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FCC FORECASTING METHODOLOGY

Transboundary animal and plant pests and diseases, including forest pests and aquatic diseases, and food safety threats are raising public awareness due to their potential high impact on food security, human health, livelihoods, and trade. These threats have highlighted the need to predict such threats in a comprehensive and integrated manner, oriented at the whole food chain. Predicting threats will allow timelier implementation of preventive and control measures, and thus will reduce their impact and limit their geographic spread.

FAO Food Chain Crisis-Intelligence and Coordination Unit (FCC-ICU) has developed an integrated forecasting approach to assess the likelihood of occurrence of threats to the food chain (FCC threat) for the upcoming three months. Based on this approach and upon availability of FAO data, a number of forecast events are presented at country level. Data are collected, analyzed, and further presented in a table format in the quarterly FCC Early Warning Bulletin (see country table, page 16).

The **Likelihood of occurrence of a FCC threat** in a country is defined according to the result of the assessment of two main epidemiological parameters:

- Parameter 1: **likelihood of introduction** of the threat from another country and its further **spread** within the country (calculated as shown in Table 1), and
- Parameter 2: **likelihood of its re-emergence (amplification)** within the country, in case a threat is already present in the country.

Based on a conservative approach, the likelihood of occurrence of the threat will be considered equal to the higher level of the two parameters.

Table 1. Crossing table of likelihood of introduction and likelihood of spread (Parameter 1)

		Level of likelihood of spread			
		0	1	2	3
Level of likelihood of introduction	0	0	0	0	0
	1	1	1	1	2
	2	1	1	2	2
	3	2	2	2	3

The likelihood of occurrence, the likelihood of introduction, the likelihood of spread, and the likelihood of re-emergence of a FCC threat can be rated as Nil, Low, Moderate, or High, as shown in Table 2.

Table 2. FCC Likelihood scale

Likelihood	Definition
Nil (0)	Very unlikely
Low (1)	Unlikely
Moderate (2)	Likely
High (3)	Highly likely

OVERVIEW OF THE FORECAST PERIOD APRIL-JUNE 2017

During the period April-June 2017, Food Chain Crisis (FCC) threats are expected to occur in the regions of Africa, Americas, Asia, and Europe where they will be either persisting within a country, or possibly spreading to neighboring countries, or will be latent and re-emerge/amplify at a certain time.

The dynamic and the likelihood of occurrence of the FCC threats depend on a number of risk factors or drivers. These include agro-ecological factors (e.g. intensive farming systems, deforestation, overgrazing, etc.), climate change (e.g. droughts, flooding, heavy rains, heat waves, the El Niño-Southern Oscillation (ENSO), changes in vegetation cover, water temperature etc.), human behavior (e.g. cultural practices, conflicts and civil insecurity, trade, etc.) and natural disasters.

Thirty-six animal and plant pests and diseases, aquatic diseases, and forest pests and diseases were monitored during the first quarter of 2017. Thirty-one of these pests and diseases represent a threat to the food chain during the period April-June 2017 in one or more regions:

- **Animal diseases including zoonotic:** African swine fever, Highly pathogenic avian influenza, Rift Valley fever, Foot-and-mouth disease, Lumpy skin disease, Peste des petits ruminants, and Sheep and goat pox.
- **Aquatic diseases**: Epizootic ulcerative syndrome.
- **Locusts**: Desert Locust, Italian Locust, Migratory Locust, Moroccan Locust, Red Locust, Yellow Bamboo Locust, South American Locust.
- **Plant pests and diseases**: Bacterial leaf blight of rice, Banana bunchy top disease, Banana fusarium wilt disease, Fall armyworm, Tomato leaf miner, Wheat rust disease.
- **Forest pests and diseases:** Bark beetles, Blue gum chalcid, Boxwood blight, Boxwood moth, Bronze bug, Chestnut gall wasp, Dry cone syndrome, Pine processionary moth, Red gum lerp psyllid, Western conifer seed bug.

OTHER THREATS[1]:

- **Red Palm Weevil (RPW)** is a key pest of palms originating from south and southeast Asia that has significantly expanded its geographical and host range during the last three decades. In the Near East, North Africa, and the Mediterranean basin, RPW is currently causing widespread damage to date palm *Phoenix dactylifera* and the Canary Island palm *Phoenix canariensis*, affecting palm production and quality. This is having a negative impact on the livelihoods of farmers, and on the environment.

1 Threats that are not forecasted in the FCC Forecasting at country level section.

OVERVIEW OF THE FORECAST PERIOD APRIL-JUNE 2017

AFRICA

In Africa, a total number of 96 FCC events have been forecasted including animal and aquatic diseases, locusts, plant pests and diseases, and forest pests and diseases. The likelihood of occurrence vary from Nil[1] to High. From these, the following FCC events have significant regional implications:

Animal and aquatic diseases

In West and Central Africa, **H5 Highly pathogenic avian influenza (HPAI)** viruses can cause new outbreaks in country where the virus is still actively circulating, as well as new incursions might occur in at risk countries. Since its incursion in Nigeria in December 2014, H5N1 Highly pathogenic avian influenza (H5N1 HPAI) spread in West and Central Africa, striking Burkina Faso, Cameroon, Côte d'Ivoire, Ghana, Niger and Togo. In 2017, the virus is still circulating across poultry value chains with outbreaks reported in Niger and Nigeria. Also, H5N8 HPAI virus that has been spreading globally in recent months was detected in Nigeria in mid-November 2016 and in Cameroon in January 2017.
East Africa experienced in December 2016 its first HPAI incursion since 2008. The H5N8 HPAI virus that has been detected and spreading globally in recent months, was detected in Uganda in wild birds found dead along shores of Lake Victoria in Wakiso District. The event started in mid-December 2016 with an infection confirmed in wild and domestic birds in three districts. Further spread of the virus in Uganda and incursions in neighboring countries (i.e. Kenya, Rwanda and United Republic of Tanzania) are likely to occur.

A **Rift Valley fever (RVF)** model based on climatic and ecological indicators has identified some hot-spots at risk of RVF vector amplification in central-eastern Botswana and in the north-eastern side of South Africa for April-June. These areas have received persistent above normal rainfall over the last three months, which is favorable for vector amplification. Continued surveillance is advised in these areas.
In East Africa, a severe drought has caused water deficit and shortages in food and feed crops, affecting the livelihood and food security of livestock keepers, pastoralists and farmers, in Somalia, Kenya, Ethiopia, and Uganda. Climatic models predict drier than average conditions for the next three months (i.e. April-June) in some of these regions. The current drought could facilitate the spread of endemic diseases because of deteriorating physical condition of animals, increased contact rate of animals drinking in water points, and to atypical livestock migration in search of better pasture.

Countries in East and South Africa such as Angola, Botswana, Malawi, Namibia, United republic of Tanzania, Zambia, and Zimbabwe are at risk of the fish disease **Epizootic ulcerative syndrome (EUS)**. Water temperatures during the period April to June 2017 range from 18 to 25°C which are optimal temperatures for the development of the oomycete fungus causing the disease.

Tilapia lake virus (TiLV) which is already present in Colombia, Ecuador, Egypt and Israel, is likely to have a wider distribution and become a significant threat to the tilapia industry in Africa (Ghana, Kenya, Nigeria, Uganda, Zambia, and Zimbabwe).

1 Nil refers to the forecast of Locust which is continuously under FAO monitoring.

OVERVIEW OF THE FORECAST PERIOD APRIL-JUNE 2017

Locusts

In Western Africa, small-scale breeding in **Desert Locust** spring breeding areas will cause locust numbers to increase slightly in Morocco, Algeria, Mauritania and perhaps Libya.

In Eastern Africa, a few **Desert Locust** groups may form on the northwestern coast of Somalia and move to adjacent areas of eastern Ethiopia and breed.

In Southern Africa, adults of the **Red Locust** and of the **African Migratory Locust** will form groups and maybe some swarms.

In Madagascar, groups and a few small swarms of the **Malagasy Migratory Locust** may form; **Red Locust** adult groups could locally be present.

Plant pests and diseases

Fall Armyworm (FAW), *Spodoptera frugiperda*, is currently a severe threat to crop production in the African continent. FAW, a pest affecting many crops, was first reported in Western Africa in early 2016 (Benin, Nigeria, São Tomé & Principe and Togo) and later in Central Africa (Democratic Republic of Congo).

FAW was then reported in Southern Africa (December 2016 in Zambia, January 2017 in Malawi and Zimbabwe, and in February 2017 in Botswana, Namibia, Mozambique, South Africa, Swaziland and the United Republic of Tanzania). The other southern African countries are at risk due to their proximity to affected countries and the fact that the pest is known to fly long distances of up to 100 km per night. The pest may continue to spread internally in the already affected countries in April-June 2017. It is still not known how the FAW, a pest indigenous to the Americas came to Africa. The African region still has to understand the adaptation, population dynamics and dispersal factors of the pest in its new environment. The spread of the pest may decrease with the cooler months of May and June. Low temperatures may also reduce the multiplication of the FAW in the southern half of South Africa and Namibia.

In Eastern Africa, in Ethiopia, FAW was reported in the southwest where early maize planting took place from January to March. In Kenya, FAW was first reported in the West in March 2017, devastating maize at all physiological stages; it is suspected to be rapidly spreading towards Northern, Central and Southern Rift Valley counties. The FAW has been damaging maize and other cereal crops across most of Southern Africa, and some parts of West, East and Central Africa.

Tomato Leaf miner *(Tuta absoluta)* which is already damaging tomato crops in Botswana, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe has a moderate risk of spreading to Lesotho and Swaziland with the start of the tomato production season in April-May 2017.

OVERVIEW OF THE FORECAST PERIOD APRIL-JUNE 2017

In Central Africa, **Banana Bunchy Top Disease** is an important concern in the region as its further spread is possible especially in Gabon and Cameroon.

In Eastern Africa, **Rust diseases** are a recurrent problem in the region. As the inoculum is already present, yellow and stem rust can cause outbreaks during the Belg season. Stem rust races Digalu and Ug99 are of particular concern as they have significantly impacted wheat production recently.

Forest pests and diseases

In Southern Africa, the likelihood of outbreaks of the insect pest **Red gum lerp psyllid** in Eucalyptus forests is still high in Malawi, Mozambique, and Zimbabwe.

The insect pest **Blue gum chalcid** is still a threat for Eucalyptus forests in Zambia and Zimbabwe. Bronze bug is still damaging eucalyptus woodlots in Zimbabwe.

OVERVIEW OF THE FORECAST PERIOD APRIL-JUNE 2017

AMERICAS

In the Americas, a total number of 18 FCC events have been forecasted including aquatic diseases, locusts, forest pests and diseases. The likelihood of occurrence vary from Low to High. From these, the following FCC events have significant regional implications:

Locusts

- In Bolivia and Paraguay, **South American Locust** (*Schistocerca cancellata*) groups and swarms could further spread out.

Forest pests and diseases

- Severe infestations of **Bark beetles**, in particular the *Dendroctonus frontalis* species, are being experienced in the dry corridor of Central America, pine forests of Honduras, Guatemala and Nicaragua. Pine species *Pinus caribaea*, *Pinus oocarpa* and Pinus *patula* within natural forests and plantations stressed by prolonged drought triggered by El Niño and weakened due to poor forest management practices, have become most vulnerable to the beetle attacks.

OVERVIEW OF THE FORECAST PERIOD APRIL-JUNE 2017

ASIA

In Asia, a total number of 66 FCC events have been forecasted including animal and aquatic diseases, locusts, and forest pests and diseases. The likelihood of occurrence vary from Nil[1] to High. From these, the following FCC events have significant regional implications:

Animal and aquatic diseases

- Four **H5 Highly pathogenic avian influenza (HPAI)** serotypes and several H5 clades are circulating in Southern, Eastern and Southeastern Asia. New outbreaks in affected countries and new incursions in the area might be expected. The recent H5N6 HPAI expansion has particularly stricken the poultry sector of the Republic of Korea and is currently spreading in Taiwan Province of China. The H5N8 HPAI strains that have emerged in China in May 2016, have already spread to Republic of Korea, India and Nepal, and might affect additional countries. H5N1 HPAI is continuing to circulate endemically in the poultry sector affecting seven countries.

Noteworthy, the current **H7N9 Low pathogenic avian influenza (LPAI)** season has been the most intense since the emergence of the virus in early 2013. In addition, this is the first season that H7N9 avian influenza viruses presented genetic characteristic suggestive of a shift from a low pathogenic into a H7N9 highly pathogenic avian virus in poultry. Due to seasonal pattern, a decrease of virus circulation in poultry and of occurrence of human cases is expected for the next months. However, its incursion into neighboring countries such as Vietnam is still possible for the period April-June 2017.

In the Middle East, **H5N8 Highly pathogenic avian influenza (HPAI)** incursions were detected in poultry farms in the Islamic Republic of Iran and in Israel. Further spread of the disease in the already affected countries and incursions in neighboring countries might still occur.

- **Lumpy skin disease (LSD)** might re-emerge in Caucasus region due to the upcoming weather conditions favorable for vectors amplification, particularly in Georgia, Russian Federation and Kazakhstan, where outbreaks were already reported in 2016.

- In Eastern Asia, **African swine fever (ASF)** incursion might occur from the Russian Federation where the ASF virus was detected in late March 2017 in a backyard pig farm (40 pigs) in Irkutsk oblast. This over 3,000 km eastward jump marks the first ASF detection in the eastern part of the Russian Federation, increasing the risk of ASF incursion in bordering countries such as Mongolia and in China.

- Possible incursion of **Peste des petits ruminants (PPR)** from endemic countries to non-endemic countries in Central Asia might occur. This could impact the livestock sectors as well as the wild life species in these countries. In Mongolia, PPR was detected in domestic small ruminants in August 2016, the virus affected the already endangered Saiga tatarica mongolica. This epidemic, if not promptly controlled, might pave the way for virus incursion into neighboring countries like Kazakhstan and the Russian Federation.

1 Nil refers to the forecast of Locust which is continuously under FAO monitoring.

OVERVIEW OF THE FORECAST PERIOD APRIL-JUNE 2017

Tilapia lake virus (TiLV) disease which is already present in Colombia, Ecuador, Egypt and Israel, is likely to have a wider distribution and become a significant threat to the tilapia industry in Asia (Bangladesh, China, Indonesia, Lao PDR, Malaysia, Philippines, Sri Lanka, Thailand, Taiwan Province of China, and Viet Nam).

Potential spread of **Acute hepatopancreatic necrosis disease (AHPND)** in shrimp species *Penaeus monodon* and *Penaeus vannamei* to other parts of Asia from infected countries from live animals (e.g. live polychaetes, clams, oysters, etc.) used as feed for broodstock as well as infected live shrimps.

Possible further spread of the shrimp disease ***Enterocytozoon hepatopenaei (EHP)*** to other parts of Asia from infected countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feeds for broodstock.

Locusts

Groups and a few small swarms of the **Desert Locust** may form on the Red Sea coast in Saudi Arabia and move inland and breed; small-scale breeding is likely in Yemen.

Hatching of **Italian**, **Migratory** and **Moroccan Locusts** followed by hopper development will occur in all Caucasian and Central Asian countries; fledging and mating will take place before the end of the forecast period in some of them; groups and small swarms of adult locusts may form locally.

Hatching of the **Yellow Bamboo Locust** will start in April 2017 in Lao People's Democratic Republic and Vietnam at least, followed by hopper development.

Plant pests and diseases

Banana fusarium wilt disease is present in a number of countries mostly in Southeast Asia. Since the disease is soilborne and cannot be eradicated, measures need to be taken to prevent its spread into new plantations and areas.

In Central, western and southern Asia, **Yellow rust disease** can cause outbreaks in some countries.

Forest pests and diseases

Dieback of boxwood trees (*Buxus hyrcana*), IUCN threatened species, caused by **Boxwood blight** (*pathogen Calonectria pseudonaviculata*) continues to be reported in the Caspian forest of the Islamic Republic of Iran. The recent introduction of boxwood moth (*Cydalima pesrpectalis*) is likely to cause severe defoliation in spring of 2017.

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Dry cone syndrome and **Western conifer bug** are causing severe losses in pine nut harvest in Lebanon. During winter period the pest activities are likely to decline temporarily.

Chestnut gall wasp is causing heavy damages to chestnut trees and threatening livelihoods of local communities in Turkey. Biological control is in progress to control the pest.

OVERVIEW OF THE FORECAST PERIOD APRIL-JUNE 2017

EUROPE

In Europe, a total number of 23 FCC events have been forecasted including animal diseases, Locusts and forest pests. The likelihood of occurrence varies from Low to High. From these, the following FCC events have significant regional implications:

Animal diseases

- **H5N8 Highly pathogenic avian influenza (HPAI)** will further spread in the already affected countries in Europe. Detected for the first time in May 2016 in wild birds in China, H5N8 HPAI has been spreading globally following wild bird migration routes. Since mid-October 2016, the virus struck Eastern Europe with detection in wild birds found dead in Belgium, Croatia, Hungary and Poland. In the following weeks, HPAI incursions were reported in Austria, Bulgaria, Bosnia and Herzegovina, Czech Republic, France, Finland, Germany, Greece Denmark, Ireland, Italy, Lithuania, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Netherlands, the Former Yugoslav Republic of Macedonia, Ukraine, and the United Kingdom of Great Britain. While in some countries preventive measures limited virus spillover into the poultry sector, in some countries, and particularly in France and in Hungary, the virus is severely affecting the poultry value chain.
- **African swine fever (ASF)** outbreaks and transmission is likely to continue in the affected countries (Estonia, Latvia, Lithuania, Republic of Moldovia, Poland, Russian Federation, and Ukraine) where the virus is endemic in wild boar populations and is sporadically transmitted to domestic pigs through feeding and other infected material. This increases the possibility of incursion into neighbouring countries (e.g. Belarus and Romania) via live animals and animal product movement along pig value chains and transmission between seasons through infected carcasses of dead wild boars overwintering.
- The presence of weather conditions favorable for vector amplification might foster the re-emergence of **Lumpy skin disease (LSD)** in southeast Europe (i.e. Albania, Bulgaria, FYR of Macedonia, Greece, Montenegro, Russian Federation, and Serbia) in April 2017 and pave the way for virus incursion in new countries. The applied vaccination campaigns might mitigate this possibility and the subsequent risk of incursion in neighboring countries (e.g. Bosnia and Herzegovina, Croatia, Ukraine, and Romania).

Plant pests and diseases

- **Wheat rust diseases** occur regularly in seasons with good rainfalls. Yellow rust, Warrior race, is widely present and outbreaks might occur particularly in Northern, Central and Eastern Europe.
- Also the recently identified **Stem rust race TTTTF** can multiply and spread in and around the island of Sicily in the Mediterranean basin.

Locusts

- Hatching of **Italian**, **Migratory** and **Moroccan locusts** followed by hopper development will occur in the Russian Federation; fledging could start by the end of the forecast period.

More detailed information on FCC threats forecasts at country level is available under the FCC threats forecasting at country level section **(see page 16).**

SHORT TAKE ON AFLATOXINS - A PERSISTING FOOD SAFETY CHALLENGE

Aflatoxin contamination of crops is a long-standing challenge. Contaminated crops are a significant risk for human health and animal health, and can hamper trade. Despite these confirmed health risks and trade barriers, aflatoxin contamination remains a global problem and will continue to remain one until countries prioritise it and invest in effective solutions.

Aflatoxins are metabolites produced by fungi that naturally occur in the soil and that can colonize a variety of food commodities including maize, oilseeds, spices, groundnuts, and tree nuts in tropical and subtropical regions of the world.

According to the WHO estimates of the burden of foodborne diseases, aflatoxins are one of the major non-diarrheal causes of foodborne deaths; with the areas most affected being sub-Saharan Africa, Southeast Asia, and China. Aflatoxins are one of the most potent liver carcinogens known. Chronic exposure to aflatoxins in food is a significant risk factor for liver cancer.

The individuals most at risk for liver cancer are those who are additionally exposed to chronic hepatitis B virus infection. Aflatoxin and hepatitis B are prevalent in poor nations worldwide, and within these nations affect rural populations more strongly.

Solutions for mitigating the risk of aflatoxin contamination are well known. However, the problem persists and appears to be getting worse. A contributing factor are the current less stable weather patterns in many countries where maize and peanuts are staple crops. Drought and temperature stress make these crops more susceptible to fungal diseases, in addition to high humidity during post-harvest handling, including storage, support the growth of fungi.

Fungal toxins other than Aflatoxins also exist and are equally of significant public health concern; as a group they are referred to as mycotoxins. The control of these different fungal toxins along the food chain should emphasize preventive management and involve all relevant actors.

Countries should invest in sustainable, integrated solutions to tackle the serious problem of Aflatoxins. The practices adopted along the value chain must be economically feasible and comprise investment in infrastructure and the supportive role of local authorities.

FCC THREATS FORECASTING AT COUNTRY LEVEL

This section provides, for the upcoming three months, at country level, forecasting of FCC threats having potential high impact on food and nutrition security. It also provides, when available and appropriate, background information on others factors impacting food and nutrition security.

The list of country names refers only to countries for which information is available. The country table assigns countries and areas to geographic regions on the basis of the current composition of macro geographical (continental) regions of the United Nations Statistics Division (United Nations Statistics Division-Standard Country and Area Codes Classification (M49); http://unstats.un.org/unsd/methods/m49/m49regin.htm).

The assessment of the likelihood of occurrence was performed using FAO data and information available at the time of preparation of this bulletin and might be subject to changes later.

Legend

Threats category	Likelihood of occurrence			
	High	Moderate	Low	Nil
Animal and zoonotic diseases				
Aquatic diseases				
Plant pests and diseases				
Locusts				
Forest pests and diseases				

High: an event is highly likely to occur
Moderate: an event is likely to occur
Low: an event is unlikely to occur
Nil: an event is very unlikely to occur

FCC THREATS FORECASTING AT COUNTRY LEVEL

AFRICA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Algeria	Desert Locust	Moderate	Small-scale breeding in central Sahara.		
Angola	Epizootic ulcerative syndrome (EUS)	Moderate	Possible further spread of Epizootic ulcerative syndrome (EUS) to other parts of the country through for example heavy rainfall, flooding, poor biosecurity, movement of infected fish and possibly birds.	Water temperature during the period between May and August ranges from 18 to 25°C optimal for development of the oomycete fungus responsible of the disease.	
	Fall armyworm (FAW)	High	Fall armyworm (FAW) outbreaks are highly likely to occur.	FAW has not been reported in the country but has across boundaries with countries where FAW outbreaks are already present.	
	Tomato leaf miner	Moderate	Tomato leaf miner spread within the country is likely to continue.	Tomato leaf miner presence is already confirmed in the country.	
Benin	Avian influenza (AI)	Low	Potential incursion of H5N1 Highly pathogenic avian influenza (HPAI) or other H5 HPAI viruses and further spread.	H5N1 HPAI virus has been circulating in seven countries in West and Central Africa since December 2014. Recently a H5N8 HPAI virus is spreading globally following bird migratory routes.	
Botswana	Fall armyworm (FAW)	Moderate	Fall armyworm (FAW) is likely to continue spreading within the country on a limited scale (little cropping areas).	FAW presence is already confirmed in the country.	
	Tomato leaf miner	Moderate	Tomato leaf miner spread within the country is likely to continue.	Tomato leaf miner presence is already confirmed in the country.	

AFRICA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Rift Valley fever (RVF)	Moderate	Re-emergence of Rift Valley fever (RVF).	Outbreaks of RVF are closely associated with periods of heavy rains and prolonged flooding. The climatic and ecological indicators used in monitoring areas at risk to RVF activity, identified some hotspots at risk of RVF vector amplification in Botswana which has received above normal rainfall over the last three months. Continued surveillance of RVF is advised in these areas.	
	Epizootic ulcerative syndrome (EUS)	Moderate	Possibly further spread of Epizootic ulcerative syndrome (EUS) to other parts of the country through for example heavy rainfall, flooding, poor biosecurity, movement of infected fish and possibly birds.	Water temperature beginning June ranges from 18 to 25°C, which is optimal for development of the oomycete fungus responsible of the disease.	
Cameroon	Avian influenza (AI)	Moderate	Occurrence of H5N1 Highly pathogenic avian influenza (HPAI) and/or H5N8 HPAI outbreaks in poultry due to further spread of the virus within the country or due to new incursions.	H5N1 HPAI has been detected in Cameroon in late May 2016 and, up to August 2016 outbreaks in poultry were reported in Central, South and West regions. In January 2017, an incursion of the H5N8 HPAI virus currently spreading globally, was detected in an exotic peacock farm in the extreme north region of the country.	The number of refugees from the Central African Republic was estimated in December at 276,000. Insecurity along the borders with Nigeria also led to the internal displacement of 192 000 individuals. The number of food insecure people is currently estimated at 2.8 million.

AFRICA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Banana bunchy top disease (BBTD)	Moderate	Spread of Banana bunchy top disease (BBTD), which is already present in the southern part of the country.	The disease is already present and impacts banana production in the country.	
Central African Republic	Epizootic ulcerative syndrome (EUS)	Low	Suspected Epizootic ulcerative syndrome (EUS) outbreak in central and southern areas of the country.	EUS is suspected in the central and southern areas of the country. If the disease is confirmed, the outbreak will have a serious impact on the livelihoods and food security of thousands of persons who depend on fisheries in the Central African Republic.	About 2 million people (40 percent of the total population) are in need of urgent assistance (IPC Phase 3: "Crisis" and IPC Phase 4: "Emergency") as a result of three consecutive years of reduced harvests and food access constraints due to market disruptions and declining purchasing power. Widespread conflict, which caused large-scale displacements, the loss and depletion of households' productive assets and input shortages continues to weigh on the early 2017 production prospects.

AFRICA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Chad	Desert Locust	Nil	No significant developments.		About 456 000 people are estimated to be in need of food assistance according to the latest "Cadre Harmonisé" analysis (November 2016). Approximately 393 000 refugees, 108 000 IDPs, as well as an estimated 115 000 Chadian returnees, continue to add pressure on local food supplies, negatively affecting food security.
Côte d'Ivoire	Avian influenza (AI)	Low	Occurrence of H5N1 Highly pathogenic avian influenza (HPAI) and/or H5N8 HPAI outbreaks in poultry due to further spread of the virus within the country or due to new incursions.	After its incursion in Nigeria in December 2014, H5N1 HPAI was reported in Côte d'Ivoire in April 2015. Last outbreak occurred in August 2016. Recently a H5N8 HPAI virus threat is spreading globally following bird migratory routes.	
Democratic Republic of the Congo	Epizootic ulcerative syndrome (EUS)	Low	Further spread of Epizootic ulcerative syndrome (EUS) to other parts of the country and potentially to other parts of Africa through for example heavy rainfall, flooding, poor biosecurity, movement of infected fish and possibly birds.	The country experienced the first heavy mortalities in December 2014 and continued until March 2015. The laboratory diagnosis through PCR (polymerase chain reaction) and histology testing was positive, confirming that several fish species were affected from EUS. Fish belonging to the families of *Clariidae, Channidae* and *Protopridae* are of greatest concern regarding the spread	About 6 million people are estimated to be in acute food insecurity and livelihood crisis (IPC Phase 3: "Crisis" and IPC Phase 4: "Emergency"). The country hosts 102 500 refugees from the Central African Republic, 66 700 from South Sudan and 36 300 from Burundi.

AFRICA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				of EUS, as fish of these families represent important food commodities in DRC. They also represent air-breathing fish, and marketable fish are transported to and from markets live, thus making an effective pathway for pathogen transfer.	
	Fall armyworm (FAW)	Moderate	Fall armyworm (FAW) outbreaks are likely to occur.	The presence of FAW was first detected in late 2016 in the country.	
Djibouti	Desert Locust	Nil	No significant developments.		About 197 000 people are severely food insecure, down from the previous estimate, mainly concentrated in pastoral inland areas of Obock and Dikhil regions.
Egypt	Avian influenza (AI)	High	Occurrence of Highly pathogenic avian influenza (HPAI) outbreaks in poultry as per seasonal pattern. Possible occurrence of sporadic AI human infections.	H5N1 HPAI is endemic in Egypt. Outbreaks in poultry are reported every month with a marked seasonal peak in winter. Since late November 2016, H5N8 HPAI has spread to seven additional governorates. Other influenza viruses circulating in poultry in the country are H5 LPAI and H9N2 LPAI.	
	Desert Locust	Nil	No significant developments.		
	Tilapia lake virus	Low	Tilapia lake virus is likely to occur during the summer months, starting in May 2017.	TiLV was identified, through polymerase chain reaction (PCR), in samples from three out of seven tilapia	

AFRICA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				farms affected by 'summer mortality' syndrome in 2016.	
Eritrea	Desert Locust	Nil	No significant developments.		Economic constraints have increased the population's vulnerability to food insecurity.
Ethiopia	Desert Locust	Low	Small-scale breeding in eastern region.	Groups may appear in railway and Somali area.	Drought affected second season crops and pastures in south and southeastern areas; lingering effects of 2015 severe drought on local livelihood systems. Overall, an estimated 5.6 million people are food insecure.
	Wheat rust	Low	Occurrence of outbreaks of wheat stem rust and yellow rust.	Yellow rust and Digalu race of stem rust can cause Wheat rust outbreaks. Rust diseases are a recurrent problem in Ethiopia and past epidemics have impacted wheat production significantly.	
	Fall armyworm (FAW)	High	Fall armyworm (FAW) outbreaks are expected to occur.	FAW was already observed in the southwest part of the country. With on-going maize sowings and crop development, FAW outbreaks can severely impact the production.	
Gabon	Banana bunchy top disease (BBTD)	Moderate	Spread of banana bunchy top disease (BBTD) which is already present in the country.	The disease is already present and impacts banana production in the country.	
Ghana	Avian influenza (AI)	Moderate	Occurrence of H5N1 Highly pathogenic avian influenza (HPAI) and/or H5N8 HPAI outbreaks in poultry due to further spread of the virus within the country or due to new incursions.	After its incursion in West Africa in Nigeria in December 2014, H5N1 HPAI has spread to Ghana in March 2015 and to other five countries in West and Central Africa. In Ghana, the virus has caused over 60 outbreaks	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				in poultry in five different regions with the last reported outbreaks observed in October 2016. Recently a H5N8 HPAI virus threat is spreading globally following bird migratory routes.	
Kenya	Avian influenza (AI)	Moderate	 Potential incursion of H5N8 Highly pathogenic avian influenza (HPAI) and further spread.	In January 2017, H5N8 HPAI virus was detected for the first time in Uganda. Wild birds started dying massively along the shores of Lake Victoria in Wakiso District in mid-December and shared with Kenya. Since then, the virus was detected in wild and domestic birds in Kalangala, Masaka and Wakiso districts. This is the first AI incursion detected in Uganda, and the first incursion in the sub-region since 2008.	About 2.7 million people are severely food insecure, mainly located in eastern, southeastern and coastal areas, following the negative impact of poor 2016 "short rains".
	Fall armyworm (FAW)	High	 Fall armyworm (FAW) outbreaks are expected to occur.	The presence of the FAW was first confirmed in late March 2017.	
Lesotho	Fall armyworm (FAW)	High	 Fall armyworm (FAW) outbreaks are highly likely to occur.	FAW has not been reported in the country but FAW is already present in the Free State Province of South Africa.	Just under 710 000 people are estimated to be food insecure on account of the drought-reduced 2016 harvest and higher food prices.

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Tomato leaf miner	Moderate	Tomato leaf miner outbreaks are likely to occur due to the high level of tomato trade between Lesotho and South Africa.	Tomato leaf miner has not been reported in the country. Lesotho is geographically surrounded by South Africa where the pest is already present.	
Libya	Desert Locust	Low	Small-scale breeding in southwest.		
Madagascar	Fall armyworm (FAW)	Low	Fall armyworm (FAW) outbreaks are unlikely to occur.	FAW has not been reported in the country.	The sharp decrease in the 2016 cereal harvest compared to the average resulted in severe food insecurity conditions; approximately 850 000 people require humanitarian assistance in Androy, Anosy and Astimo Andrefana. Higher food prices have also exacerbated the situation.
	Tomato leaf miner	Low	Tomato leaf miner outbreaks are unlikely to occur.	Tomato leaf miner has not been reported in the country. The island is separated from the affected countries, with limited trade.	
	Migratory Locust	Moderate	The 3rd generation of the rainy season will occur, which could lead to the formation of adult groups and perhaps some small swarms in the outbreak area.		
	Red Locust	Low	Small adult groups could form locally.		
Malawi	Fall armyworm (FAW)	Moderate	Fall armyworm (FAW) spread within the country is highly likely to continue.	FAW presence is already confirmed in the country.	An estimated 6.7 million people are in need of humanitarian assistance, mainly a result of the reduced harvest in 2016 and higher food prices. Production prospects for the 2017 cereal crop are overall
	Tomato leaf miner	Moderate	Tomato leaf miner is likely to spread with the start of the tomato production season.	Tomato leaf miner presence is already confirmed in the country.	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Red Locust	Moderate	 Groups and small swarms of adults are likely to form from April 2017.	Likely movements of adult groups and swarms from/to the neighboring countries.	favourable, but Fall armyworm (FAW) infestation and localized floods may restrain outputs in some areas.
	Red gum lerp psyllid	High	 The spread of the insect pest Red gum lerp psyllid in Eucalyptus plantations will continue.	The combination of climate change with the general decline of forest conditions and the occurrence of Red gum lerp psyllid continue to damage plantations and small wood lots.	
	Blue gum chalcid	High	 Outbreaks of the insect Blue gum chalcid are very likely to occur in Eucalyptus plantations.	Blue gum chalcid continues to cause severe damages in nurseries and young Eucalyptus plantations.	
Mali	Desert Locust	Nil	 No significant developments.		An estimated 37 000 people have been internally displaced in the country mostly residing in Timbuktu, the most affected region. About 177 000 people, located mostly in Timbuktu, Mopti and Bamako regions, are estimated to be in Phase 3: "Crisis" and above, according to the last "Cadre Harmonisé" analysis.
Mauritania	Desert Locust	Moderate	 Small-scale breeding in north and northwest.	Groups may form as vegetation dries out.	As of December 2016, about 45 000 Malian refugees remain in southeastern Mauritania in the Mbeera camp. Over 119 000 people are estimated to be in Phase 3:

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
					"Crisis" and above, according to the last "Cadre Harmonisé" analysis.
Mauritius	Fall armyworm (FAW)	Low	Fall armyworm (FAW) outbreaks are unlikely to occur.	FAW has not been reported in the country.	
	Tomato leaf miner	Low	Tomato leaf miner outbreaks are unlikely to occur.	Tomato leaf miner has not been reported and trade is limited between the island and the African continent.	
Morocco	Desert Locust	Moderate	Small-scale breeding in Western Sahara and South of Atlas.		
	Wheat rust	Moderate	Yellow rust outbreaks are likely to occur.	Yellow rust is a common disease and has been responsible for outbreaks in previous years.	
Mozambique	Migratory Locust	Low	Adults may form groups and swarms by the end of the forecast period.		Drought conditions in 2016 resulted in lower cereal outputs in southern provinces and in parts of central provinces, while higher prices are adversely impacting food access. Nearly 2 million people are food insecure and require humanitarian assistance. Recent flooding in some central and southern parts is likely to restrain 2017 cereal production in the affected areas.
	Red Locust	Moderate	Groups and small swarms of adults are likely to form from April 2017.	Likely movements of adult groups and swarms from/to the neighbouring countries.	
	Acute hepatopancreatic necrosis disease (AHPND)	Low	Introduction of Acute hepatopancreatic necrosis (AHPND) disease from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Mozambique has the shrimp species susceptible to AHPND. Strong awareness on shrimp diseases is present in the country. There is improved awareness of EUS in the country.	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Red gum lerp psyllid	Moderate	The insect pest Red gum lerp psyllid is likely to spread in Eucalyptus plantations.	Monitoring of pest spread is in progress.	
	Banana fusarium wilt disease	Moderate	Spread of banana Fusarium wilt TR4 race.	The disease is reported in two farms in Nampula Province. Its containment is essential. The Banana fusarium wilt disease is a soil-borne disease and cannot be eradicated once established in a plantation. Thus, prevention of spread is crucial.	
	Banana bunchy top disease	Moderate	Spread of Banana bunchy top disease.	Bunchy top disease is present and has the potential to spread in the south.	
	Fall armyworm (FAW)	Moderate	Fall armyworm (FAW) spread within the country is highly likely to continue.	FAW presence is already confirmed in the country.	
Namibia	Fall armyworm (FAW)	Moderate	Fall armyworm (FAW) spread within the country is likely to continue	FAW presence is already confirmed in the country.	
	Tomato leaf miner	Moderate	Tomato leaf miner is likely to spread with the start of the tomato production season.	Tomato leaf miner presence is already confirmed in the country.	
Niger	Avian influenza (AI)	Moderate	Occurrence of H5N1 Highly pathogenic avian influenza (HPAI) due to further spread of the virus within the country or due to new incursions.	After its incursion in West Africa in Nigeria in December 2014, H5N1 HPAI was detected in Niger sporadically, lastly in several poultry farms in January 2017, in Niamey region. Recently, H5N8 HPAI virus is	More than 300 000 people are estimated to be in Phase 3: "Crisis" and above according to the last "Cadre Harmonisé" analysis. Approximately 61 000 Malian refugees are estimated to be living in

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				spreading globally following bird migratory routes.	the country. Almost 121 000 people, mostly in the southeast Diffa Region, have been displaced due to fear of attacks.
	Desert Locust	Nil	 No significant developments.		
Nigeria	Avian influenza (AI)	High	 Occurrence of H5N1 Highly pathogenic avian influenza (HPAI) and/or H5N8 HPAI outbreaks in poultry due to further spread of the virus within the country or due to new incursions.	H5N1 HPAI virus has been circulating in West Africa since December 2014, with Nigeria being the most affected country with over 780 outbreaks reported in poultry in 26 States. In mid-November 2016, the H5N8 HPAI virus currently spreading globally, was detected in Kano State.	About 8.1 million people are estimated to be facing acute food insecurity and require urgent lifesaving response and livelihood protection, including 55 000 people in CH Phase 5: "Famine" (i.e. IPC Catastrophy), according to the latest "Cadre Harmonisé" analysis. Despite the above-average cereal harvest gathered in 2016, the sharp depreciation of the Naira, coupled with persisting civil conflict in northern states has continued to disrupt market activities and keep prices at high levels. Approximately 1.8 million people have been internally displaced in the north-eastern region of the country.
Rwanda	Avian influenza (AI)	Moderate	 Incursion of H5N8 Highly pathogenic avian influenza (HPAI) and possible further spread.	In January 2017, H5N8 HPAI virus was detected for the first time in Uganda. Wild birds started dying massively along the shores of Lake Victoria in Wakiso District in mid-	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				December. Since then, the virus was detected in wild and domestic birds in Kalangala, Masaka and Wakiso districts. This is the first AI incursion detected in Uganda, and the first incursion in the sub-region since 2008.	
	Blue gum chalcid	Moderate	 Further spread of the insect pest Blue gum chalcid in Eucalyptus plantations.	The insect pest Blue gum chalcidis continuing to damage Eucalyptus plantations.	
Senegal	Desert Locust	Nil	 No significant developments.		
Seychelles	Tomato leaf miner	Moderate	 Tomato leaf miner is likely to spread within the country.	Tomato leaf miner has been reported on four large-scale farms.	
Somalia	Desert Locust	Low	 Groups may form on northwest coast and move inland.		About 2.9 million people are estimated to be in need of emergency assistance, mainly IDPs and drought-affected agro-pastoral communities across the country.
South Africa	Fall armyworm (FAW)	Moderate	 Fall armyworm (FAW) spread within the country is likely to continue.	FAW presence is already confirmed in the country.	
	Tomato leaf miner	Moderate	 Tomato leaf miner is likely to spread with the start of the tomato production season.	Tomato leaf miner is already present in the country.	
	Rift Valley fever (RVF)	Moderate	 Re-emergence of Rift Valley fever (RVF).	Outbreaks of RVF are closely associated with periods of heavy rains and prolonged flooding. The climatic and ecological indicators used in	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				monitoring areas at risk to RVF activity, identified some hotspots at risk of RVF vector amplification in some areas of South Africa which have received above normal rainfall over the last three months. Continued surveillance is advised in these areas.	
	Red gum lerp psyllid	Low	 Spread of the insect pest Red gum lerp psyllid are unlikely to occur in Eucalyptus plantations within the country.	The introduction of biological control agents to reduce the pest population is in progress.	
	Blue gum chalcid	Moderate	 Outbreaks of insect pest Blue gum chalcid are likely to occur in Eucalyptus nurseries and young plantations.	The introduction of biological control agents to reduce the pest population is in progress.	
Sudan	Desert Locust	Low	 Small-scale breeding in Nile Valley.		An estimated 3 million people are in need of humanitarian assistance, mainly IDPs and host communities in conflict affected areas.
	Wheat rust	Low	 Occurrence of wheat rust outbreaks, especially that of stem rust.	Wheat rust inoculum is already present in the country and stem rust outbreaks can occur in locations receiving sufficient precipitation. There are indications of stem rust development already.	
Swaziland	Fall armyworm (FAW)	Moderate	 Fall armyworm (FAW) spread within the country is likely to continue.	FAW presence is already confirmed in the country.	Nearly 640 000 people are in need of assistance, reflecting the impact of the drought-reduced 2016 harvest and livestock losses. Higher food prices have further affected food

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Tomato leaf miner	High	Tomato leaf miner is highly likely to occur due to proximity to infested countries (South Africa and Mozambique).	Tomato leaf miner has not been reported in the country yet.	security conditions. Production prospects for the 2017 crop are favourable and an improved agricultural output will help to recuperate food security conditions.
Seychelles	Fall armyworm (FAW)	Low	Fall armyworm (FAW) outbreaks are unlikely to occur.	FAW has not been reported in the country.	
Togo	Avian influenza (AI)	Low	Occurrence of H5N1 Highly pathogenic avian influenza (HPAI) and/or H5N8 HPAI outbreaks in poultry due to further spread of the virus within the country or due to new incursions.	Following the H5N1 HPAI virus incursion and widely spread in Nigeria in 2014 and subsequently in five additional countries in the area, the virus was detected in Togo in August 2016 in two commercial poultry farms at the border with Ghana. Recently a H5N8 HPAI virus is spreading globally following bird migratory routes.	
Tunisia	Desert Locust	Nil	No significant developments.		
Uganda	Avian influenza (AI)	Moderate	Further spread of H5N8 Highly pathogenic avian influenza (HPAI).	In January 2017, H5N8 HPAI virus was detected from wild birds found dead along the shores of Lake Victoria in Wakiso District. The event started in mid-December and the infection was confirmed in wild and domestic birds in Kalangala, Masaka and Wakiso districts. This is the first AI incursion detected in Uganda, and the	About 1.6 million people are estimated to be severely food insecure following two consecutive seasons of reduced agricultural outputs.

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				first incursion in the sub-region since 2008.	
	Blue gum chalcid	Moderate	Outbreaks of the insect pest Blue gum chalcid will continue to occur in Eucalyptus nurseries and plantations.	The insect Blue gum chalcid is currently causing severe damages in Eucalyptus nurseries, woodlots and plantations.	
United Republic of Tanzania	Avian influenza (AI)	Low	Incursion of H5N8 Highly pathogenic avian influenza (HPAI) and possible further spread.	In January 2017, H5N8 HPAI virus was detected for the first time in Uganda. Wild birds started dying massively along the shores of Lake Victoria in Wakiso District in mid-December shared with Tanzania. Since then, the virus was detected in wild and domestic birds in Kalangala, Masaka and Wakiso districts. This is the first AI incursion detected in Uganda, and the first incursion in the sub-region since 2008.	
	Red Locust	Moderate	Groups and small swarms of adults are likely to form from April 2017.	Likely movements of adult groups and swarms from/to the neighbouring countries.	
	Fall armyworm (FAW)	Moderate	Fall armyworm (FAW) spread within the country is likely to continue.	FAW presence is already confirmed in the country.	
	Tomato leaf miner	Moderate	Tomato leaf miner is likely to spread within the country.	Tomato leaf miner is already present in the country.	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Epizootic ulcerative syndrome (EUS)	Moderate	 EUS is likely to occur in Tanzania due to the confirmed presence of the disease in neighbouring countries such as Zambia and the Democratic Republic of Congo.	Water temperatures during the period between May and June range from 18 to 25°C which is optimal for development of the oomycete fungus responsible of the disease.	
	Blue gum chalcid	Moderate	 Outbreaks of insect pest Blue gum chalcid are likely to occur in Eucalyptus plantations and woodlots.	Damage continues in Eucalyptus nurseries, woodlots and plantations due to Blue gum chalcid.	
Zambia	Fall armyworm (FAW)	Moderate	 Fall armyworm (FAW) spread within the country is likely to continue.	FAW presence is already confirmed in the country.	
	Tomato leaf miner	Moderate	 Tomato leaf miner is likely to spread within the country.	Tomato leaf miner is already present in the country.	
	Migratory Locust	Low	 Adults may form groups and swarms by the end of the forecast period.		
	Red Locust	Moderate	 Groups and small swarms of adults are likely to form from April 2017.	Likely movements of adult groups and swarms from/to the neighbouring countries.	
	Epizootic ulcerative syndrome (EUS)	Low	 Possible further spread of Epizootic ulcerative syndrome (EUS) to other parts of the country through for example heavy rainfall, flooding, poor biosecurity, movement of infected fish and possibly birds.	Water temperatures during the period between April and June range from 18 to 25°C which is optimal for development of the oomycete fungus responsible of the disease.	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Blue gum chalcid	Moderate	Outbreaks of the insect pest Blue gum chalcid are likely to occur in Eucalyptus woodlots and plantations.	Zambia has initiated pest management activities based on silvicultural practices, breeding programmes and quarantine measures to reduce the insect populations. Introduction of biological control agents to reduce the Blue gum chalcid population is in progress.	
	Red gum lerp psyllid	Moderate	Outbreaks of the insect pest Red gum lerp psyllid are likely to occur in Eucalyptus plantations.	Pest management activities based silvicultural practises are in progress.	
Zimbabwe	Fall armyworm (FAW)	Moderate	Fall armyworm (FAW) spread within the country is likely to continue.	FAW presence is already confirmed in the country.	An estimated 44 percent (4.07 million people) of the rural population are currently food insecure, mostly due to the impact of the 2016 drought on agricultural production. Production prospects for the 2017 cereal crop are overall favourable, but Fall armyworm (FAW) infestation and localized floods may restrain outputs in some areas.
	Tomato leaf miner	Moderate	Tomato leaf miner is likely to spread within the country.	Tomato leaf miner is already present in the country.	
	Epizootic ulcerative syndrome (EUS)	High	Possibly further spread of Epizootic ulcerative syndrome (EUS) to other parts of the country through for example heavy rainfall, flooding, poor biosecurity, movement of infected fish and possibly birds.	Water temperatures during the period between May and June range from 18 to 25°C which is optimal for development of the oomycete fungus responsible of the disease.	
	Red gum lerp psyllid	High	Outbreaks of the insect pest Red gum lerp psyllid will continue to be reported in Eucalyptus plantations.	Pest management activities based on silvicultural practises are in progress.	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Blue gum chalcid	High	 Outbreaks of the insect pest Blue gum chalcid will continue to be reported in Eucalyptus nurseries, woodlots and plantations.	Pest management activities based on application of biological control agent are in progress to reduce Blue gum chalcid populations.	
	Bronze bug	Moderate	 Outbreaks of the insect pest Bronze bug are likely to occur in Eucalyptus plantations.	Pest management activities are in progress.	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Argentina	South American Locust	Low	 Low numbers of adults may appear in areas adjacent to Bolivia and Paraguay.	A monitoring and surveillance system is in place.	Appropriate expertise and experience exist within the country to deal with any increase in hopper numbers or swarms that may appear.
Bolivia (Plurinational State of)	South American Locust	Moderate	 Adult groups and swarms could further spread out.	A locust swarm first appeared in late January in the East, which did not occur for 25 years. The locust outbreak is confined to the Eastern part of the country i.e. near the Argentina and Paraguay borders. Given the existing active monitoring and control programme, the threat has been substantially reduced for other areas.	A national state of emergency was declared in Bolivia to deal with these unexpected locust swarms. There is an ongoing control insecticide based campaign

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Colombia	Acute hepatopancreatic necrosis disease (AHPND)	Low	Introduction of Acute hepatopancreatic necrosis disease (AHPND) from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Strong awareness on shrimp disease is present in the country.	
	Enterocytozoon hepatopenaei (EHP)	Low	Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feed for broodstock.	Strong awareness on EHP is present in the country.	
Guatemala	Acute hepatopancreatic necrosis disease (AHPND)	Low	Introduction of Acute hepatopancreatic necrosis disease (AHPND) from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Strong awareness on AHPND is in place in the country. National action plan on AHPND is in preparation.	
	Enterocytozoon hepatopenaei (EHP)	Low	Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feeds for broodstock.	Strong awareness on EHP is in place in the country.	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Bark beetles	Moderate	Occurrence of outbreaks of Bark beetles in pine plantations.	Silvicultural practises are in progress to reduce the pest populations.	
Honduras	Acute hepatopancreatic necrosis disease (AHPND)	Low	Introduction of Acute hepatopancreatic necrosis disease (AHPND) from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Strong awareness on AHPND is in place in the country. National action plan on AHPND is in preparation.	
	Enterocytozoon hepatopenaei (EHP)	Low	Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feed for broodstock.	Strong awareness on EHP is in place in the country.	
	Bark beetles	Moderate	Outbreaks of Bark beetles are continuing to be reported causing heavy losses in pine plantations.	A severe outbreak of bark beetles is currently affecting about 500 000 ha of conifer forests.	
Nicaragua	Acute hepatopancreatic necrosis disease (AHPND)	Low	Introduction of Acute hepatopancreatic necrosis disease (AHPND) from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Strong awareness on AHPND is in place in the country. National action plan on AHPND are in preparation.	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Enterocytozoon hepatopenaei (EHP)	Low	Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feed for broodstock.	Strong awareness on EHP is in place in the country.	
	Bark beetles	High	Occurrence of outbreaks of Bark beetle in pine plantations.	Pest management activities based on silvicultural practices are in progress.	
Panama	Acute hepatopancreatic necrosis disease (AHPND)	Low	Introduction of Acute hepatopancreatic necrosis disease (AHPND) from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Strong awareness on AHPND; national action plan on AHPND in preparation.	
	Enterocytozoon hepatopenaei (EHP)	Low	Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feed for broodstock.	Strong awareness on EHP is in place in the country.	
Paraguay	South American Locust	Moderate	Adult groups and swarms could further spread out.	Paraguay has declared a Phytosanitary Emergency in two departments of the Western Region of Chaco. While it is likely that control will be effective, it is also possible that swarms could further spread to other areas.	A state of emergency was declared in Paraguay to deal with these unexpected locust swarms. There is an ongoing control insecticide based campaign.

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Peru	Acute hepatopancreatic necrosis disease (AHPND)	Low	 Introduction of Acute hepatopancreatic necrosis disease (AHPND) from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Strong awareness on AHPND is in place in the country. National action plan on AHPND is in preparation.	
	Enterocytozoon hepatopenaei (EHP)	Low	 Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feed for broodstock.	Strong awareness on EHP is in place in the country.	

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Afghanistan	Italian Locust	Moderate	 Mass hatching and hopper development followed by fledging will occur.		
	Moroccan Locust	High	 Mass hatching and hopper development followed by fledging will occur; some adult groups and swarms could form.		Almost 1.6 million people are severely food insecure and 9.7 million people moderately food insecure. Over 630 000 people were displaced by the conflict in 2016,

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
					mostly in the hard-to-access areas. Since 1 January 2016, over 728 000 undocumented Afghans have returned mostly due to changes in refugee policies in Pakistan.
Armenia	Italian Locust	Low	 Hatching and hopper development should start by the second half of May 2017.		
Azerbaijan	Italian Locust	Low	 Hatching and hopper development will occur.		
	Moroccan Locust	Moderate	 Hatching will occur in April followed by hopper development and fledging; mating could start by the end of the forecast period.		
China	Avian influenza (AI)	Moderate	 Occurrence of Avian Influenza outbreaks in poultry due to several H5 and H7 Highly pathogenic avian influenza and low pathogenic avian influenza viruses circulating in the country. Further occurrence of sporadic avian influenza human cases due to H5 HPAI and to H7N9 LPAI virus. In both cases, a decrease in number of events is expected as for seasonal pattern.	Several HPAI and LPAI AI viruses are circulating and being detected in China. The occurrence of outbreaks in poultry and of human cases usually follows a seasonal pattern, with an increase in the outbreaks observed starting from November and a peak observed between January and February. This is the first season that H7N9 AI viruses is presented with genetic characteristic suggestive of	

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Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				shifting from a low pathogenic into a highly pathogenic avian virus.	
Gaza Strip	Foot-and-mouth disease (FMD)	Moderate	 Further spread of Foot-and-mouth disease (FMD), mitigated by the ongoing vaccination campaign.	In February 2017 an FMD serotype O incursion was reported in two farms at the border with Israel and Egypt, respectively. Vaccination has been implemented.	
Georgia	Lumpy skin disease (LSD)	Moderate	 Re-emergence, new incursion and spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather conditions for the vectors.	At the beginning of November 2016, Georgia reported its first LSD official incursion in the villages of Gioia and Ghebi placed 17 km apart, in Oni district, Racha-Lechkhum Kvemo Svaneti Region, at the border with Russian Federation.	
	Italian Locust	High	 Hatching and hopper development should start by mid-May 2017.		
	Moroccan Locust	Moderate	 Hatching will start in early May 2017followed by hopper development and fledging.		
	Boxwood moth	High	 New outbreaks of Boxwood moth are likely to cause dieback of native boxwood species.	As part of IPM, use of Bio pesticide BTK and pheramone trapping are in progress to protect the native boxwood species.	

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Boxwood blight disease	Low	Boxwood blight disease (caused by pathogen *Calonectria pseudonaviculata*) continues to occur, however the spread is low due to winter temperatures and lack of rain.	Monitoring of the spread of the disease is in progress.	
India	Desert Locust	Nil	No significant developments.		
	Acute hepatopancreatic necrosis disease (AHPND)	Low	Introduction of Acute hepatopancreatic necrosis disease (AHPND) from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Good surveillance and biosecurity measures in place. Strong awareness on shrimp diseases is present in the country.	
	Enterocytozoon hepatopenaei (EHP)	Low	Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feed for broodstock.	Good surveillance and biosecurity measures in place. Strong awareness on shrimp diseases is present in the country.	
Indonesia	Avian influenza (AI)	High	Occurrence of H5N1 Highly pathogenic avian influenza (HPAI) outbreaks in poultry.	H5N1 HPAI is endemic in Indonesia where it is regularly detected since 2003. Outbreaks in animals show a seasonal pattern with the seasonal peak usually observed in winter.	

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Acute hepatopancreatic necrosis disease (AHPND)	Low	 Introduction of Acute hepatopancreatic necrosis disease (AHPND) disease from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Surveillance for AHPND as well as strong awareness on shrimp diseases is in place in the country. Many small-scale producers are present.	
	Enterocytozoon hepatopenaei (EHP)	Low	 Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through live animals (e.g. live polychaetes, clams, oysters, etc.) used as feeds for broodstock.		
Iran (Islamic Republic of)	Avian influenza (AI)	Moderate	 Further H5N8 Highly pathogenic avian influenza (HPAI) spread in the country.	The H5N8 HPAI that is currently spreading globally following wild birds migratory routes have been detected in November in Tehran governorate affecting several large poultry farms. Since then the virus has been detected in wild and domestic birds in eight governorates.	
	Desert Locust	Low	 Small-scale breeding in southeast.		
	Acute hepatopancreatic	Low	 Introduction of Acute hepatopancreatic necrosis disease	Good surveillance and biosecurity measures are in place in the country.	

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	necrosis disease (AHPND)		(AHPND) from affected countries through trade and movement of: (i) infected broodstock and post-larvae and (ii) other live aquatic animals such as polychaetes, clams, oysters, etc. used as feed for broodstock.	Strong awareness on shrimp diseases is present in the country.	
	Charcoal disease	Low	 Oak charcoal disease (caused by the fungus *Biscogniauxia mediterranea*) continues to cause decline of oak forest in Zagros due to the abiotic stresses.	The decline of oak charcoal disease has a negative impact on the livelihood of nomad people and watershed management. Operations to minimize the impact of the charcoal disease and abiotic stresses are in progress.	
	Boxwood moth	High	 The Boxwood moth (*Cydalima pesrspectalis*) is likely to spread in spring and likely to cause massive defoliations.	The first introduction was reported in August 2016. The native boxwood forests are under new threat of Boxwood moth which is highly destructive. Early actions such as pheromone trapping for monitoring and treatments using bio pesticide BTK is required to reduce further spread. FAO has organized a study tour to Georgia by Iranian forest health practitioners to familiarize with the BTK application and pheromone trappings.	

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Boxwood blight	High	Occurrence of Boxwood blight disease (caused by pathogen *Calonectria pseudonaviculata*) continues to cause dieback of native box wood species. However the spread is low due to winter temperatures and lack of rain.	Pest management activities in selected areas are in progress.	
	Wheat rust	Moderate	Wheat yellow rust outbreaks are likely to occur, especially in southern parts of the country.	Yellow rust is a common disease and has been responsible of outbreaks in previous years.	
Israel	Avian influenza (AI)	Moderate	Further H5N8 Highly pathogenic avian influenza (HPAI) spread in the country.	Within the current H5N8 HPAI global spread, the virus was first detected in Israel in November in a commercial chicken farms in the Northern districts. Since then, the virus has affected several large commercial poultry farms and spread within the country.	
Jordan	Foot-and-mouth disease (FMD)	Moderate	Further occurrence of FMD in the eastern part of the country possibly mitigated by the vaccination campaign implemented.	In February 2017, the country experienced the first FMD incursion since December 2006. Four FMD serotype O outbreaks were detected in cattle, sheep and goat farms in Balqa, Amman and Irbid governorates.	

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Kazakhstan	Lumpy skin disease (LSD)	Moderate	Re-emergence, new incursion and spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather conditions for the vectors.	In July 2016, Kazakhstan reported its first and unique LSD incursion in a village in West Kazakhstan region.	
	Italian Locust	High	Hatching and hopper development should start in late April 2017.		
	Migratory Locust	Low	Hatching and hopper development should start in May 2017.		
	Moroccan Locust	Moderate	Hatching and hopper development should start in late April 2017.		
Kyrgyzstan	Italian Locust	Low	Hatching and hopper development should start in May 2017.		
	Moroccan Locust	Moderate	Hatching, hopper development, fledging and egg-laying should occur.	Likely adult movements from/to the neighboring countries.	
	Wheat rust	Moderate	Wheat yellow rust outbreaks are likely to occur.	Wheat yellow rust inoculum can multiply within the country or move to neighbouring countries.	
Lao People's Democratic Republic	Yellow Bamboo Locust	Moderate	Hatching will start in April 2017 followed by hopper development.		
Lebanon	Dry cone syndrome	Moderate	Dry cone syndrome is continuing to cause damages to pine plantations (*Pinus pinea*).	Heavy yield losses continue to impact rural livelihoods. The yield reduction of pine nuts is reported throughout	

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				the country. Silvi-cultural practises to strengthen the trees are in progress.	
	Western conifer seed bug	Moderate	 Outbreaks of Western conifer seed bug is continuing to cause damage to pine plantations (*Pinus pinea*). Pest activities likely to be lessened during the winter months.	Monitoring of pest population using traps is in progress.	
Malaysia	Avian influenza (AI)	Low	 Occurrence of H5N1 Highly pathogenic avian influenza (HPAI) outbreaks.	In February 2017, the country reported H5N1 HPAI incursion in a backyard farm in Kalantan region, the first since June 2007.	
Mongolia	Sheep and goat pox (SGP)	High	 Further occurrence of Sheep and goat pox (SGP) in the eastern part of the country possibly mitigated by the vaccination campaign implemented.	Since the last incursion in January 2015, Sheep and goat pox is widely spread in Mongolia, with outbreaks detected in 10 sums[1], some of which affected recently. Vaccination campaigns have been implemented in affected areas reducing dramatically the spread of the disease.	
	Peste des petits ruminants (PPR)	Moderate	 Re-emergence of Peste des petits ruminants (PPR) in livestock, and further spread in wild ruminants.	In August 2016, PPR was detected for the first time in sheep and goats in Western Mongolia. Despite an emergency vaccination in the affected region, the virus has spread to wildlife. Since December 2016, mass	

[1] Secondary administrative division in Mongolia

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				mortalities of endangered saiga antelopes is ongoing. PPR is ongoing in several sums[2] in Khovd and Govi Altai provinces in Western Mongolia. Up to February, over 3 400 dead saiga were recorded - about 1/4 of the country's saiga population. The possibility that PPR could spread to other threatened species, like Bactrian camels and Mongolian gazelles cannot be ruled out.	
Nepal	Avian influenza (AI)	Moderate	 Occurrence of H5 Highly pathogenic avian influenza (HPAI) outbreaks.	In February 2017, Nepal reported the incursions of two HPAI viruses. H5N1 was detected in two poultry farms in Western region, making the first reported incursion since February 2014; H5N8 was detected in captive birds in a zoo in Eastern region.	
Oman	Desert Locust	Low	 Small-scale breeding in north.		
Pakistan	Desert Locust	Low	 Small-scale breeding in southwest.		As of January 2017 an estimated 3.2 million people were in need of humanitarian aid. About 504 000 people (approximately 74 000 families) remain displaced in northern Pakistan due to recurrent insecurity. In Tharparkar District
	Banana fusarium wilt disease	Moderate	 Spread of Banana fusarium wilt disease TR4 race.	The Banana fusarium wilt disease has been reported recently for the first time in one farm. The Banana Fusarium Wilt disease is a soil-borne	

[2] Secondary administrative division in Mongolia

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				disease and cannot be eradicated once established in a plantation. Thus, prevention of spread is crucial.	and the surrounding areas of Sindh Province, the drought-affected cereal production and the loss of livestock for the third consecutive year have aggravated the food insecurity and caused acute malnutrition.
Philippines	*Enterocytozoon hepatopenaei* (EHP)	Low	 Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feeds for broodstock.		
	Banana fusarium wilt disease	Moderate	 Banana fusarium wilt disease is likely to spread in new areas.	The disease is already affecting bananas in Mindanao island. The Banana fusarium wilt disease is a soil-borne disease and cannot be eradicated once established in a plantation. Thus, prevention of spread is crucial.	
	Bacterial leaf blight of rice	Moderate	 Occurrence of outbreak of bacterial leaf blight in and around Samar province.	Bacterial leaf blight is a common disease in rice. Under the current conditions, the disease has already caused significant damages locally.	
Republic of Korea	Avian influenza (AI)	High	 Further spread of H5N6 and H5N8 Highly pathogenic avian influenza (HPAI) in the country.	The country is facing the worst HPAI epidemic event ever reported, with H5N6 and H5N8 HPAI serotypes co-circulating.	

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Foot-and-mouth disease (FMD)	Moderate	 Further spread of Foot-and-mouth disease (FMD), mitigated by the on-going vaccination campaign.	In February 2017, the country experienced a FMD incursion. Serotypes involved are A and O. FMD has affected cattle farms in three regions. Since 2014, FMD incursion occurred every year, with heavy consequences in particular for the swine sectors.	
Saudi Arabia	Desert Locust	Moderate	 Group and perhaps small swarm formation on Red Sea coast and move inland to breed.		
Sri Lanka	Acute hepatopancreatic necrosis disease (AHPND)	Low	 Introduction of Acute hepatopancreatic necrosis disease (AHPND) from affected countries through trade of aquatic animals (infected broodstock, post-larvae and other live aquatic animals such as polychaetes, clams, oysters, etc) used as feed for broodstock.	Strong awareness on AHPND is in place in the country. National action plan on AHPND is in preparation.	
	Enterocytozoon hepatopenaei (EHP)	Low	 Introduction of *Enterocytozoon hepatopenaei* (EHP) from other countries through trade of live animals (e.g. live polychaetes, clams, oysters, etc.) used as feeds for broodstock.		

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Tajikistan	Italian Locust	Moderate	Hatching will occur in April 2017 followed by hopper development and fledging.		
	Moroccan Locust	Moderate	Hatching will occur in April 2017 followed by hopper development and fledging; some swarms could form.	Likely adult movements from/to the neighboring countries.	
	Wheat rust	Moderate	Wheat yellow rust outbreaks are likely to occur.	Wheat yellow rust inoculum can multiply within the country or spread from neighbouring countries.	
Turkey	Chestnut gall wasp	Moderate	Chestnut gall wasp continues to spread across the country in Chestnut trees.	Pest management activities based on application of biological control agent are established to reduce the populations of the insect pest. More control of the pest is expected in the upcoming months.	
	Wheat rust	Moderate	Wheat yellow rust outbreaks are likely to occur.	Wheat yellow rust might develop in western and southern parts.	
Turkmenistan	Italian Locust	Low	Mass hatching and hopper development followed by fledging will occur.		
	Moroccan Locust	Moderate	Mass hatching and hopper development followed by fledging will occur.		
Uzbekistan	Italian Locust	Moderate	Hatching and hopper development should start by mid-May 2017.		

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Migratory Locust	Low	Hatching and hopper development should start by mid-May 2017.		
	Moroccan Locust	Moderate	Hatching, hopper development, fledging and egg-laying should occur.	Likely adult movements from/to the neighboring countries.	
	Wheat rust	Moderate	Wheat yellow rust outbreaks are likely to occur due to early infections.	Wheat rust inoculum is already present. In particular, yellow rust can develop with rains of the spring season. Early yellow rust development has been reported.	
Viet Nam	Yellow Bamboo Locust	Low	Hatching should start in April followed by hopper development.		
	Avian influenza (AI)	Moderate	Occurrence of H5 Highly pathogenic avian influenza (HPAI) outbreaks and incursion of H7N9 Low pathogenic avian influenza (LPAI) from China.	Both H5N1 and H5N6 HPAI outbreaks were reported in the country in 2016 and the first months of 2017. Historically outbreaks in poultry occur throughout the year and increase by end of the year.	
Yemen	Desert Locust	Moderate	Small-scale breeding on Red Sea and Gulf of Aden coasts.		According to the Emergency Food and Nutrition Assessment, over 17 million people are food insecure, with an increase of 3 million from the last IPC analysis of June 2016. Almost two-thirds of the population is facing hunger and urgently requires life and livelihood-saving

ASIA

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
					assistance. The risk of famine declaration is high. A below-average cereal harvest was gathered in 2016 but abundant rainfall had positive effects on livestock production.

EUROPE

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Albania	Lumpy skin disease (LSD)	Low	Re-emergence and further spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather condition for the vectors, but mitigated by the control measures in place (i.e. vaccination).	Detected for the first time in June 2016, LSD spread to 14 counties. An emergency vaccination campaign was implemented. Last outbreak occurred in September 2016.	
	Pine processionary moth	Moderate	A new generation of the Pine processionary moth is likely to cause severe defoliation of pine forests.	Mechanized removal of nests are in progress to manage the pest populations.	
Belarus	African swine fever (ASF)	Moderate	Incursion of African swine fever (ASF) outbreaks from neighbouring countries and spread in the country.	Since its incursion in Europe in early 2014, ASF has become endemic in some countries bordering Belarus, Lithuania, Poland and lastly Ukraine. Informal uncontrolled animal movement and poor biosecurity	

EUROPE

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				conditions in pig farms at borders is crucial to prevent disease incursion.	
Bosnia and Herzegovina	Lumpy skin disease (LSD)	Moderate	Incursion of Lumpy skin disease (LSD) from neighbouring countries, and possible further spread within the country.	Despite the massive vaccination campaign conducted in the affected neighbouring countries, such as Serbia and Montenegro, LSD virus infection might re-emerge and spread. The possibility is fostered by the upcoming favourable weather condition for the vectors.	
Bulgaria	Lumpy skin disease (LSD)	Moderate	Re-emergence and further spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather condition for the vectors, but mitigated by the control measures in place (i.e. vaccination).	First detected in Haskovo province in April 2016, LSD spread in the country causing more than 200 outbreaks. Last detection occurred in July 2016. A massive emergency vaccination campaign was implemented.	
France	Avian influenza (AI)	High	Further spread of H5N8 Highly pathogenic avian influenza (HPAI) and further occurrence of outbreaks in poultry.	France has been affected by the ongoing H5N8 HPAI epizootic. Since its incursion in November 2016, the virus has spread in the country causing over 390 events in small and large poultry farms. The southwest foie gras value chain has been particularly stricken.	

EUROPE

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Greece	Lumpy skin disease (LSD)	Moderate	Re-emergence and further spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather condition for the vectors however mitigated by the control measures in place (i.e. vaccination).	In mid-August 2015, LSD was detected for the first time in Greece in the Evros Delta Region along the border with Turkey. In the same year, the disease affected over 100 cattle farms in three regions. Despite the control measures (e.g. movement control and emergency vaccination campaign). The virus re-emerged in April 2016 spreading to new regions within Greece and to additional countries in the region. Last observed outbreak occurred in late November 2016.	
Hungary	Avian influenza (AI)	Moderate	Further spread of H5N8 Highly pathogenic avian influenza (HPAI) and further occurrence of outbreaks in poultry.	Hungary has been affected by H5N8 HPAI. Since its incursion in October 2016, in Csongrad county, the virus spread in 13 counties causing over 240 outbreaks in small and large poultry farms. Despite the decrease in number of new outbreaks in March, new episodes are still occurring.	
Italy	Wheat rust	Moderate	Wheat yellow and stem rust outbreaks are likely to occur.	Wheat rust inoculum is present. Particularly stem rust and yellow rust can develop in southern parts. Recently identified, stem rust race of TTTTF can multiply in Sicily and	

EUROPE

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
				spread around the Mediterranean basin.	
Montenegro	Lumpy skin disease (LSD)	Low	Re-emergence and further spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather condition for the vectors however mitigated by the control measures in place (i.e. vaccination).	Detected for the first time in July 2016, LSD caused almost 100 outbreaks affecting seven municipalities. Last outbreak occurred was observed in August 2016.	
Poland	Avian influenza (AI)	High	Further spread of H5N8 Highly pathogenic avian influenza (HPAI) and further occurrence of outbreaks in poultry.	Poland has been heavily affected by the on-going H5N8 HPAI wave. Since its incursion in October 2016, the virus is spreading in the country causing over 100 events in small and large poultry farms and in wild birds.	
Republic of Moldova	African swine fever (ASF)	Moderate	Further spread African swine fever (ASF).	Two ASF incursions occurred in Moldova at the border with Ukraine in March 2017 in Soroka district, at the northern border with Ukraine. Since its incursion in Europe in early 2014, the presence of the virus continues to be reported at the border with Ukraine in backyard farms close to the northern and eastern border of Moldova.	

EUROPE

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
Romania	African swine fever (ASF)	Moderate	 Incursion of African swine fever (ASF) outbreaks from neighbouring countries and spread in the country.	In Ukraine, outbreaks of ASF in small holdings are occurring at the border with Romania.	
Russian Federation	African swine fever (ASF)	Moderate	 Occurrence of African swine fever (ASF) outbreaks and spread into new area within the country.	Informal and uncontrolled animal movement and poor biosecurity condition in pig farms is the main risk factor for disease introduction in farms and for wider geographical spread. The presence of the virus continue to be reported both in wild boars and domestic pigs, with a new area being affected in early 2017.	
	Lumpy skin disease (LSD)	High	 Re-emergence and further spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather condition for the vectors.	After its re-emergence in May 2016 in Dagestan, LSD has spread north, east, and westwards, affecting 18 administrative subjects and causing almost 250 outbreaks. Its spread has decreased due to unfavourable weather conditions for the vector of the disease.	
	Italian Locust	Low	 Hatching and hopper development will occur from May 2017 and fledging could start by the end of the forecast period.		

EUROPE

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Migratory Locust	Low	 Hatching and hopper development will occur from May 2017 and fledging could start by the end of the forecast period.		
	Moroccan Locust	Moderate	 Hatching and hopper development will occur from May and fledging could start by mid-June 2017.		
Serbia	Lumpy skin disease (LSD)	Low	 Re-emergence and further spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather conditions for the vectors however mitigated by the control measures in place (i.e. vaccination).	On 4 June 2016, the first LSD incursion was observed in a backyard farm in Pcinja district. Since then, 223 outbreaks were officially reported in 12 districts. Last observed outbreak occurred in October 2016. An emergency vaccination campaign was implemented.	
The former Yugoslav Republic of Macedonia	Lumpy skin disease (LSD)	Moderate	 Re-emergence and further spread of Lumpy skin disease (LSD). The possibility is fostered by the upcoming favourable weather conditions for the vectors however the possibility is mitigated by the control measures in place (i.e. vaccination).	First detected in Negotino municipality in April 2016, LSD has spread in the country causing more than 180 outbreaks. Last observed outbreak occurred in September 2016. An emergency vaccination campaign was implemented.	
Ukraine	African swine fever (ASF)	Moderate	 Occurrence of African swine fever (AFS) outbreaks and further spread within the country.	Since the ASF incursion in the country in early 2014, the presence of the virus continues to be reported in domestic pigs, with new areas being affected in early months of 2017.	

EUROPE

Countries	Threat name	Likelihood of occurrence	Forecast for April-June 2017	Details	Food security context
	Lumpy skin disease (LSD)	Moderate	Incursion of Lumpy skin disease (LSD) from neighbouring countries, and possible further spread within the country.	LSD was first observed in July 2015 in the Russian Federation (RUS) in the Dagestan Republic. The disease re-emerged in May 2016 in Dagestan and spread northbound causing over 250 outbreaks in 19 administrative divisions. Despite the emergency vaccination campaign conducted, the re-emergence of the virus might occur in April, facilitated by the upcoming favourable condition for vector amplifications. This might pave the way for LSD virus incursion into neighbouring countries such as Ukraine, where the animals are still fully susceptible to the disease.	
United Kingdom	Wheat rust	Moderate	Wheat yellow rust outbreaks are likely to occur.	Wheat yellow rust is reported in a number of locations. Farmers are likely to spray to protect the crops. After Warrior race, a new race, named Kranich, is identified in the country following Denmark and Sweden and it needs to be watched.	

FCC TERMINOLGY

FCC threat	Food chain crisis (FCC) threats are transboundary animal and plant pests and diseases, including forest pests and aquatic diseases, and food safety threats, that can affect any step of the food chain with a potential high impact on food and nutrition security. FCC threats may reach epidemic proportions by spreading within a country and to a number of countries necessitating control/management cooperation between several countries
Forecasting	Ability to predict future condition or occurrence of an FCC threat for the upcoming three months.
Likelihood of introduction	Chances of introduction of a FCC threat into a country, across border or to a specific area for the upcoming three months.
Likelihood of occurrence	Chances of a FCC threat to happen for the upcoming three months.
Likelihood of spread	Chances of geographical spread of a FCC threat within a country beyond its original introduction for the upcoming three months.
Likelihood of re-emergence/ amplification	Chances of re-emergence/amplification (e.g. increase, breeding, etc.) of a threat already existing within a country for the upcoming three months.

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- FMD Situation Reports available at http://www.fao.org/ag/againfo/commissions/eufmd/commissions/eufmd-home/fmd-surveillance/situation-reports/en/
- Global Animal Disease Information System (EMPRES-i) (http://empres-i.fao.org/eipws3g/)
- Global Early Warning System (GLEWS) at FAO
- OIE World Animal Health Information Database (WAHID) Interface http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home

Desert Locust

- FAO Desert Locust Information Service (DLIS) www.fao.org/ag/locusts

Migratory Locust in Madagascar

- Bulletins of the Locust Watch Unit (available at http://www.fao.org/emergencies/crisis/madagascar-locust/en/)
- Locust Situation Updates available at http://www.fao.org/ag/locusts/en/info/info/index.html

Locusts (three species) in Caucasus and Central Asia

- Regional monthly bulletins on locust situations in CCA
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Wheat rust disease

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