



Food and Agriculture
Organization of the
United Nations

FOOD CHAIN CRISIS EARLY WARNING BULLETIN



*Forecasting threats to the food chain
affecting food security in countries and regions*

No. 36

July–September 2020

FOOD CHAIN CRISIS EARLY WARNING BULLETIN



*Forecasting threats to the food chain
affecting food security in countries and regions*

No. 36
July–September

Required citation

FAO. 2020. *Forecasting threats to the food chain affecting food security in countries and regions*. Food Chain Crisis Early Warning Bulletin. No. 36, July–September 2020. Rome.

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

© FAO, 2020



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode/legalcode>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons license. If a translation of this work is created, it must include the following disclaimer along with the required citation: “This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original [Language] edition shall be the authoritative edition.

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization <http://www.wipo.int/amc/en/mediation/rules> and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

Third-party materials. Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

Sales, rights and licensing. FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org. Requests for commercial use should be submitted via: www.fao.org/contact-us/licence-request. Queries regarding rights and licensing should be submitted to: publications-sales@fao.org.



CONTENTS

NOTE TO THE READER	<i>page</i>	iv
FOOD CHAIN CRISIS FORECASTING METHODOLOGY	<i>page</i>	1
HIGHLIGHTS	<i>page</i>	2
OVERVIEW: Forecast for the period July–September 2020	<i>page</i>	3
REGIONAL OVERVIEW: Forecast for the period July–September 2020	<i>page</i>	5
SHORT TAKE ON: the COVID-19 pandemic in the context of the Food Chain Crisis	<i>page</i>	22
FOOD CHAIN CRISIS THREATS FORECASTING AT COUNTRY LEVEL	<i>page</i>	24
GLOSSARY	<i>page</i>	63
INFORMATION SOURCES	<i>page</i>	64



NOTE TO THE READER

The purpose of the FCC (Food Chain Crisis) Early Warning Bulletin is to inform the Food and Agriculture Organization of the United Nations (FAO) and other international organizations, countries, scientific experts, and decision makers of forecasted threats to animal and plant health and food safety that may have a 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 that has been collected and analysed by FAO experts.

The FCC Early Warning Bulletin is a product of the 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.



FOOD CHAIN CRISIS 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 potentially high impact on food security, human health, livelihoods, and trade. These threats have highlighted the need to predict them in a comprehensive and integrated manner, oriented towards the whole food chain. Predicting threats will allow for timelier implementation of preventive and control measures, and will thus reduce their impact and limit their geographic spread.

The FAO Food Chain Crisis-Intelligence and Coordination Unit (FCC-ICU) has developed an integrated forecasting approach to assess the likelihood of the occurrence of threats to the food chain (FCC threat) for the upcoming three months. Based on this approach and on the availability of FAO data, a number of forecast events are presented at country level. Data are collected, analysed and further presented in this quarterly FCC Early Warning Bulletin (see country section, page 19). The food safety threats will be included in future bulletins.

The likelihood of occurrence of an 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, if a threat is already present there

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



HIGHLIGHTS

■ DESERT LOCUST (DL)

In **East Africa**, an increase in Desert Locusts is expected in the Horn of Africa, where more swarms are expected to form; some of these will remain and breed again, while others will move northwards. Swarms will shift to the summer breeding areas in Sudan, western Eritrea, and Ethiopia where a further increase in Desert Locust populations is expected.

In **Southwest Asia**, remaining spring-bred swarms in Iran and Pakistan and swarms in northern states of India will migrate to the Indo-Pakistan border where locust numbers will increase due to summer breeding. There is a high threat of invasion into this area by Desert Locust swarms from the Horn of Africa in July.

In **West Asia**, Desert Locust will increase due to continued breeding in the interior of Yemen and possibly new breeding on the Red Sea coast in Yemen and Saudi Arabia. In these countries, swarms may form.

■ AFRICAN SWINE FEVER (ASF)

ASF continues to be reported in Asia. In particular, China (since August 2018), Mongolia (January 2019), Viet Nam (February 2019), Cambodia (April 2019), the Democratic People's Republic of Korea (May 2019), the Lao People's Democratic Republic (June 2019), Myanmar (August 2019), the Philippines, the Republic of Korea and Timor-Leste (September 2019), Indonesia (December 2019), and Arunachal Pradesh and India (May 2020) have reported outbreaks in domestic pigs and sporadic cases in wild boar.

The risk of further spread of ASF within infected countries is considered high. This also poses a risk of ASF introduction into other countries in East and Southeast Asia as well as in the Pacific, through movement of live pigs and pork products. As the majority of global pig production takes place in Asia, especially China, the recent escalation of the ASF epidemic is likely to have devastating consequences for animal health and food security, as well as a noticeable impact on the pig industry and related businesses, not only in the region but worldwide.

■ RIFT VALLEY FEVER (RVF)

According to the FAO RVF Monitoring/Early Warning tool, the areas suitable for RVF vector amplification for May 2020 persist in the region, particularly in Burundi, Kenya, south and central Ethiopia, small hotspots in Rwanda, southern Somalia, eastern and southern regions of South Sudan, northern parts of the United Republic of Tanzania, northern Uganda, and to a lesser extent in the Democratic Republic of the Congo, Djibouti, Eritrea and Sudan. In addition, a few hotspots are also predicted in Cameroon, the Central African Republic, southern Chad along the border with Niger, Egypt (along the river Nile), Nigeria and Yemen. In October–November 2019, cases of RVF in humans and animals were confirmed in River Nile and Red Sea States (northeastern Sudan), and sporadic cases in humans were reported in White Nile, Gedaref, Kassala and Khartoum States. Since December 2019, cases were also reported in southern Libya, likely due to the movement of infected animals from neighbouring countries.

Considering the past and recent RVF outbreaks occurring in the region, animal movement and the informal marketing of infected animals, as well as current and forecasted suitability of conditions for vector amplification, the whole region remains at high risk of RVF occurrence.



OVERVIEW **FCC FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020**

During the period July to September 2020, Food Chain Crisis (FCC) threats are expected to occur in Africa, the Americas, Asia, Europe and Oceania, where they may persist within a country, spread to neighbouring countries, remain latent, or re-emerge or amplify.

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

In relation to food security, and according to the last “Crop prospects and food situation” report (July 2020), FAO estimates that globally, 44 countries (34 in Africa, 8 in Asia and 2 in the Americas) need external assistance for food. Persisting conflicts continue to be the dominant factor driving high levels of severe food insecurity. Weather shocks have also adversely affected food availability and access. FCC threats can compound food insecurity in fragile countries stricken by weather shocks and conflicts.

MAIN FOOD CHAIN THREATS

Twenty- Seven plant and forest pests and diseases, locusts and animal and aquatic diseases were monitored and forecasted by FAO experts for the period July to September 2020. A total of **245** forecasts were conducted in **123** countries.



OVERVIEW

FCC FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

TABLE 3: Potential (moderate-high likelihood) food chain threats forecasted for July to September 2020

Continent	FCCs Threats	Plant pests and diseases	Forest pests and diseases	Locusts	Animal diseases	Aquatic animal diseases
AFRICA	13	<ul style="list-style-type: none"> ■ Fall armyworm (FAW) ■ Cassava mosaic disease (CMD) ■ Banana Fusarium wilt disease (BFWD) ■ Banana bunchy top disease (BBTD) ■ Wheat rust 	<ul style="list-style-type: none"> ■ Blue gum chalcid ■ Red gum lerp psyllid ■ Bronze bug 	<ul style="list-style-type: none"> ■ Desert locust ■ Migratory locust ■ Red locust 	<ul style="list-style-type: none"> ■ Rift Valley fever (RVF) ■ Foot and mouth disease (FMD) ■ Peste de petitis Ruminants (PPR) 	-
AMERICAS	5	<ul style="list-style-type: none"> ■ Banana Fusarium wilt disease (BFWD) 	<ul style="list-style-type: none"> ■ Bark beetles 	-	<ul style="list-style-type: none"> ■ African swine fever (ASF) ■ Foot and mouth disease (FMD) 	<ul style="list-style-type: none"> ■ Tilapia lake virus disease (TiLV)
ASIA	17	<ul style="list-style-type: none"> ■ Fall armyworm (FAW) ■ Banana Fusarium wilt disease ■ Cassava mosaic disease (CMD) ■ Wheat rust ■ Rice neck blast disease 	<ul style="list-style-type: none"> ■ Boxwood blight ■ Boxwood moth ■ Charcoal disease ■ Dry cone syndrome ■ Western conifer seed bug 	<ul style="list-style-type: none"> ■ Desert locust 	<ul style="list-style-type: none"> ■ African swine fever (ASF) ■ Foot-and-mouth disease (FMD) ■ African horse sickness (AHS) ■ Lumpy skin disease (LSD) ■ Rift Valley fever (RVF) 	<ul style="list-style-type: none"> ■ Tilapia lake virus disease (TiLV)
EUROPE	6	<ul style="list-style-type: none"> ■ Wheat rust ■ Potato late blight disease 	<ul style="list-style-type: none"> ■ Bark beetles ■ Pine processionary moth 	-	<ul style="list-style-type: none"> ■ African swine fever (ASF) ■ Lumpy skin disease (LSD) 	-
OCEANIA	1	-	-	-	<ul style="list-style-type: none"> ■ African swine fever (ASF) 	-
TOTAL by FCC category		7	10	3	6	1



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AFRICA

In Africa, 111 FCC events in 45 countries are forecasted, comprising plant pests and diseases, locusts, animal and aquatic diseases, and forest pests. The likelihood of occurrence varies from Moderate to High. The following FCC events have significant regional implications.

PLANT PESTS AND DISEASES

■ **Fall armyworm** (*Spodoptera frugiperda*)

Fall armyworm (FAW) presence is now officially confirmed in all **Eastern African** countries except Djibouti. In some Eastern Africa countries, the forecast period coincides with the major maize-growing season. Therefore, FAW infestations will continue during the forecast period July to September 2020.

In **North Africa**, in the second quarter of 2020, Mauritania became the third North African country to report FAW officially, after Sudan (2018) and Egypt (2019). The pest will continue to spread northward, putting the oasis system in Morocco's Western Sahara at risk. In addition, the risk may extend to newly reclaimed irrigated vegetable fields in the coast of Oued Ed-Dahab Province. During July–September, FAW host plants are widely cultivated, and climatic conditions will favour the spread and damage of FAW in affected countries.

In **Southern Africa**, as maize will not be available in most countries, any significant amplification of FAW during the forecast period is less likely.

In **West Africa**, maize will be available and will be in the growing and harvesting stages in most countries of the subregion. Therefore, there will be a high risk of FAW amplification during the forecast period.

- In **Eastern Africa**, **Tomato leaf miner** (*Tuta absoluta*) infestations vary with the seasons. Insect pest populations and infestation levels are likely to be relatively low across countries in the subregion during this forecast period, because it generally coincides with the main rainy season, during which there is limited tomato production. Tomato is mainly produced under irrigation during the warm dry season, conditions that happen to be favourable for the pest to flourish.
- In **Central Africa**, **Banana bunchy top disease** persists and may escalate.
- In **Eastern Africa**, **Cassava mosaic virus** and **Cassava brown streak virus** continue to be present and may amplify where weather conditions are favourable.

LOCUSTS

■ **Desert Locust**

In **East Africa**, swarms will shift to the summer breeding areas in Sudan, western Eritrea, and Ethiopia where a further increase in Desert Locust populations is expected.

In **West Africa**, there is a low risk of Desert Locust swarm invasions from the east in July, swarms could appear in eastern Chad and move to the west.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AFRICA

- In **Southern Africa**, with vegetation burning, **Red Locust** will aggregate into swarms in the remaining suitable areas. If not controlled, they are likely to escape outbreak areas and invade and damage cultivated areas.
- In Madagascar, the **Migratory Locust** situation remains serious. Adult populations of the third generation that have escaped control operations will form swarms and can move towards certain areas of crop production, where they will mate and lay eggs. The hatchlings of this fourth generation may also damage crops and pastures.

ANIMAL DISEASES

■ Avian Influenza (AI)

H5N1 and H5N8 Highly Pathogenic Avian Influenza (HPAI) viruses may sporadically cause new outbreaks in countries where HPAI is known to be endemic (e.g. Egypt, Nigeria, South Africa). However, the risk is considered low for the forecast period in most African countries.

H9N2 Low Pathogenic Avian Influenza (LPAI) is considered to circulate endemically in certain African countries (e.g. Côte d'Ivoire, Ghana, Niger, Nigeria and Senegal), causing losses to poultry production.

- In **North Africa**, the circulation of **H5N1 HPAI**, **H5N2 HPAI**, **H5N8 HPAI** and **H9N2 LPAI** is expected to continue in Egypt* at a low intensity during July–September 2020, except for eight compartments, including 14 companies, declared as free of the disease by Egypt to the OIE in September 2019, and further approved by OIE in June 2020 [see [reference](#)].
- In **West Africa**, after sustained circulation in 2016 and 2017, **H5N8 HPAI** re-emerged in the region in February 2018, in Nigeria. Since then, the country reported sporadic outbreaks in 2019 (January–March), so that continuing circulation of the virus cannot be ruled out. In November 2019, **H5N6 HPAI** was reported for the first time in the country: it was detected in June 2019 in birds of a live bird market located in Sokoto State. The risk of re-emergence of H5 strains for the period July–September 2020 is considered low.
- In **Central and Eastern Africa**, reports of **H5N8 HPAI virus ceased in December 2017**, and the risk for the period July–September 2020 is considered very low.
- In **Southern Africa**, no **H5N8 HPAI** events have been observed in Namibia and South Africa since June 2019 and January 2020, respectively. In addition, in January 2020, reports from South Africa confirmed H5 seropositive results in an ostrich farm, which is not necessarily indicative of current virus circulation. South Africa is endemic for H6N2 LPAI, and only sporadic detections of this virus have been reported recently in the country. Although the colder season is approaching in this hemisphere, the risk for the period July–September 2020 is considered low in Namibia and South Africa.

It should be noted that this assessment is based on relatively scarce data, given that, for example, LPAI

* Media, 14/06/2020, <https://www.elwatannews.com/news/details/4843805> OIE, Self-declaration of freedom from Highly pathogenic avian influenza in poultry compartments in Egypt, 19/09/2019, https://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/Self-declarations/2020_06_Egypt_AI_ENG.pdf



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AFRICA

viruses are not notifiable to the World Organization for Animal Health (OIE) and countries with endemic circulation of HPAI viruses are not required to report every individual AI event.

■ Foot-and-mouth disease (FMD)

In the next three months (July–September 2020), FMD is likely to continue to occur in most countries in West, Central and Eastern Africa and several countries in North and Southern Africa.

- In **North Africa** (Pool 4), FMDV serotype A (serological diagnostic, genotyping data pending) circulated in the second quarter of 2020 in the State of Libya. The incursions are likely to have occurred through trans-Saharan animal movements. The clinical cases with serotype A previously confirmed in Libya occurred in 2009, and serotype A was detected serologically during a sero-survey conducted in 2013. No vaccination against FMD has been carried out in the State of Libya since 2016. Considering the presence of animal movements in the region, and given the vaccination campaigns in place, there is a risk of FMD spread in Tunisia and Algeria, where small ruminants are not regularly vaccinated against serotype A. Veterinary services in the Arab Republic of Egypt are planning to conduct clinical and serological surveillance in a high-risk area on the border between the two countries, where there is evidence of informal animal movements from the State of Libya to the Arab Republic of Egypt. An FMD vaccination campaign was planned in the Arab Republic of Egypt in April 2020 in this area with a quadrivalent vaccine for serotype A, O and SAT2, which contains strain A/IRN/05.
- In **Eastern Africa** (Pool 4), continued circulation is expected in almost all countries. The virological challenge is complex, with the circulation of multiple serotypes and topotypes, as confirmed by the recent typing of samples from Uganda and Eritrea.
- In **West and Central Africa** (Pool 5), multiple suspected FMD outbreaks were reported in Cameroon, the Democratic Republic of the Congo, Guinea, Ghana, Senegal and Sierra Leone, and FMD outbreaks were confirmed in Ghana, Guinea and Senegal during the second quarter of 2020. Continued circulation of the disease is likely to occur in the region, despite the reduction of transboundary movements resulting from COVID-19 and target vaccination campaigns undertaken in some countries (e.g. Mali, Senegal). In West and Central Africa, the circulation of serotypes O (topotype EA-3), SAT2 (topotype VII) and A (Africa/G-IV) was reported in 2019, with topotype A Africa/G-IV being the predominant one detected by reference centres in 2019.
- In **South Africa** (Pool 6), further outbreaks due to FMDV type SAT 2 were reported in Limpopo, Bushbuckridge and Mpumalanga Provinces in early 2020 (detailed genotyping data are missing). Outbreaks in the two latter provinces were still active as of May 2020. Malawi reported FMD outbreaks in February 2020. However, the lack of typing of samples is of concern, given the southerly spread of FMDV (serotype O, topotype EA-2) from Pool 4 into Pool 6 in 2018 and 2019. Zambia also reported FMD Serotype O in Central and Southern Provinces in 2019. There is a potential for involvement with risk populations in Southern Africa (e.g. Botswana, Namibia and Zimbabwe) that have never been affected by this particular serotype before. With most countries under COVID-19 lockdown, FMD may be underreported due to the curtailed abilities of veterinarians to move to investigate outbreaks and obtain samples for genotyping.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AFRICA

■ Rift Valley fever (RVF)

- **Central and Eastern Africa:** In the past four months (February–May 2020), above-average and heavy rainfall and flash floods occurred in Burundi, the Democratic Republic of the Congo, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Uganda and the United Republic of Tanzania. Torrential rains during April–May 2020 resulted in floods and fatalities in Kenya (e.g. in Busya, Kilifi, Siaya and Turkana) as well as in northern parts of the United Republic of Tanzania (Arusha and Kilimanjaro), the western and northern region of Uganda, and in Burundi, Ethiopia, Rwanda and Somalia. Many areas recorded twice the usual average levels of rainfall over the period. Parts of northern Somalia and Yemen have also experienced abnormal rainfall, registering more than four times the average. The precipitation forecasts for July–September 2020, a period that coincides mostly with the rainy season in Ethiopia, South Sudan and Sudan, as well as with the dry season in Kenya, Somalia and the United Republic of Tanzania. Above-average rains are predicted for the whole region, including the Central African Republic, Chad and the Democratic Republic of the Congo.

According to the FAO RVF Monitoring/Early Warning tool, the areas suitable for RVF vector amplification for May 2020 persist in the region, particularly in Burundi, south and central Ethiopia, Kenya, small hotspots in Rwanda, southern Somalia, eastern and southern regions of South Sudan, northern Uganda and the northern part of the United Republic of Tanzania, and to a lesser extent in the Democratic Republic of the Congo, Djibouti, Eritrea and Sudan. In addition, some hotspots are also predicted in Cameroon, the Central African Republic, southern Chad along the border with Niger, Egypt (along the river Nile), Nigeria and Yemen. In October–November 2019, cases of RVF in humans and animals were confirmed in River Nile and Red Sea States (northeastern Sudan), and sporadic cases in humans were reported in White Nile, Gedaref, Kassala and Khartoum States. Since December 2019, cases have also been reported in southern Libya, likely due to the movement of infected animals from neighbouring countries.

Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at high risk of RVF occurrence.

- **Southern Africa:** Since the beginning of the year, many areas of Southern Africa received below-average rainfall, leading to abnormal dryness. This occurred for example in southwestern Angola, southern Malawi, Madagascar, Mozambique, western Namibia and central Zimbabwe. Above-average rainfall and floods occurred in northeastern Angola, southern Botswana, northern Malawi, northeastern Namibia, South Africa and Zambia. In Southern Africa, the rainy season lasts from November to March. Historically, RVF outbreaks have occurred from January to March. For the coming period (July–September 2020), the precipitation forecasts mostly predict well below-average rains for the whole Southern African region. The FAO RVF Monitoring/Early Warning tool highlights hotspots at risk of RVF vector amplification for May 2020 in eastern Angola, Botswana, Namibia and South Africa. Small localized risk areas for vector amplification are also predicted in Madagascar and Malawi. These countries may be at low to moderate risk of RVF occurrence in the next three months.
- **West Africa:** During the past four months (from February to May 2020), average rainfall was observed over much of West Africa, and above-average rainfall in the southern part of the region (particularly,



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AFRICA

Burkina Faso and Nigeria). The precipitation forecasts for July–September 2020, a period that coincides with the wet season, predict above-average rains, particularly in Burkina Faso, The Gambia, Mali, southern Mauritania, Niger, northern Nigeria and Senegal. The FAO RVF Monitoring/Early Warning tool highlights some localized hotspots at risk of RVF vector amplification in May 2020 in areas between Chad, Cameroon and Nigeria, in central Mali, along the Senegal River between Mauritania and Senegal, in northeastern Niger and in South Africa. Considering the substantial animal movement that will take place during the upcoming rainy season, with dispersals of herds in pastoral areas, these countries may be at low to moderate risk of RVF occurrence in the coming three months.

■ Peste des petits ruminants (PPR)

PPR vaccine was provided by FAO to the Mamo River Region last year (Guinea, Sierra Leone and Liberia). The vaccine campaign was conducted successfully but unfortunately it did not cover everywhere in these 3 countries. FAO is preparing to provide more vaccine in July 2020. The new campaign will start on September or October. In the meantime, the disease is likely to spread. In Guinea at the beginning of June 2020, four PPR outbreaks were reported. Even though the country has vaccinated about 300 000 small ruminants in some part of the country, PPR is very likely to occur in the country. Sierra Leone is continuing to report the disease since beginning of 2020.

AQUATIC ANIMAL DISEASES

■ Tilapia lake virus (TiLV)

- In **Eastern Africa**, the major tilapia-producing countries include Kenya, Uganda and the United Republic of Tanzania. TiLV is likely to occur in countries where water temperatures range between 22°C and 32°C, and the water temperatures in the abovementioned three countries during July–September fall within this range. Thus, high awareness of and vigilance for TiLV and a surveillance plan may be necessary. In addition, appropriate diagnostic testing is encouraged when unexplained mortalities of tilapia occur. Testing is needed especially when clinical signs similar to those reported for TiLV and when permissive water temperatures (between 22°C and 32°C) are present. The following farmed tilapia species are susceptible: Hybrid tilapia (*Oreochromis niloticus* x *O. aureus* hybrids), Nile tilapia (*O. niloticus*) and Red tilapia (*Oreochromis* sp.).
- In **North Africa**, the major tilapia-producing countries include Egypt and Sudan. TiLV is likely to occur in countries where water temperatures range between 22°C and 32°C, and the water temperature in Egypt and Sudan during July–September falls within this range. Thus, high awareness of and vigilance for TiLV and a surveillance plan may be necessary in these two countries. In addition, appropriate diagnostic testing is encouraged when unexplained mortalities of tilapia occur. Testing is needed especially when clinical signs similar to those reported for TiLV and when permissive water temperatures (between 22°C and 32°C) are present. The following farmed tilapia species are susceptible: Hybrid tilapia (*Oreochromis niloticus* x *O. aureus* hybrids), Nile tilapia (*O. niloticus*) and Red tilapia (*Oreochromis* sp.).
- In **Southern Africa**, the major tilapia-producing countries are Malawi, Mozambique, Zambia and Zimbabwe. TiLV is likely to occur in countries where water temperatures range between 22°C and 32°C,



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AFRICA

and the water temperatures in most of the mentioned countries during July–September fall within this range. Thus, high awareness of and vigilance for TiLV and a surveillance plan may be necessary. In addition, appropriate diagnostic testing is encouraged when unexplained mortalities of tilapia occur. Testing is needed especially when clinical signs similar to those reported for TiLV and when permissive water temperatures (between 22°C and 32°C) are present. The following farmed tilapia species are susceptible: Hybrid tilapia (*Oreochromis niloticus* x *O. aureus* hybrids), Nile tilapia (*O. niloticus*) and Red tilapia (*Oreochromis* sp.).

■ Epizootic Ulcerative Syndrome (EUS)

In **Southern Africa**, Zambia is at risk of re-emergence of the fish disease (EUS). The United Republic of Tanzania is at risk of EUS introduction, as the disease is present in neighbouring countries (the Democratic Republic of the Congo and Zambia). Water temperatures during the period July–September in these countries range between 18°C and 25°C, which are optimal temperatures for the development of the oomycete fungus that causes the disease.

FOREST PESTS AND DISEASES

- In **Eastern Africa**, **Blue gum chalcid**, **Bronze bug** and **Red gum lerp psyllid** insect pests are likely to continue spreading, causing severe damage in eucalyptus plantations. Applications of biological control agents to reduce these insect pest populations are in progress in some countries.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AMERICAS

In the Americas, 8 FCC events in 8 countries are forecasted, comprising aquatic diseases and forest pests. The likelihood of occurrence varies from Low to High. The following FCC events have significant regional implications.

PLANT PESTS AND DISEASES

- In **Central America**, following the outbreak of **Banana Fusarium wilt TR4** in Colombia, the risk of its spread has increased.

ANIMAL DISEASES

■ African swine fever (ASF)

A risk of **African swine fever (ASF)** spreading in the Americas from infected countries in Asia or Europe cannot be excluded. The major risk factors for the Americas are: (1) illegal or uncontrolled imports of pig meat products, either accidentally by tourists, farm workers, exchange students or hunters returning from endemic countries; (2) intentional imports via smuggling of meat products for personal or commercial use; or (3) contaminated feed or feed ingredients. Producers should only purchase swine feed from trusted sources that have appropriate biosecurity controls in place.

The level of risk is from moderate to high. The ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic or basic), and it survives in the environment and pork products (being capable of remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, the relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted.

■ Avian Influenza (AI)

- **Mexico** has been reporting **H7N3 HPAI** outbreaks throughout the last forecast period (April–June 2020). Given the increasing temperatures during the current forecast period (July–September 2020), decreasing numbers of **Avian Influenza** outbreaks in poultry are expected. Nonetheless, a **low risk of occurrence** of H7N3 HPAI in Mexico remains. Since April 2019, 46 H7N3 HPAI outbreaks have been reported in domestic birds in the central-southern part of the country. Despite the onset of warmer temperatures, sporadic outbreaks of HPAI 7N3 HPAI may be reported in the country, given endemic circulation of the disease.
- On 9 April 2020, **the United States** reported an **H7N3 HPAI** outbreak in a turkey farm in South Carolina. According to phylogenetic analyses, this new virus is distinct from the highly pathogenic strain circulating in Mexico and emerged from the low pathogenic H7N3 strain that was circulating in the United States (North Carolina) in March 2020. No additional outbreaks occurred after containment measures were adopted. Given the biosecurity practices and containment measures in place in the country, the risk occurrence of H7N3 HPAI is considered very low for the period July–September 2020.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AMERICAS

■ Foot-and-mouth disease (FMD)

In **South America** (Pool 7), except for Venezuela (where the FMD status is unknown), there were no suspected cases of FMD in early 2020. There are concerns that FMD vaccination coverage in Venezuela is dropping and that illegal trade is occurring between Venezuela and neighbouring countries. Circulation of FMD in Venezuela would give rise to a potential source for virus incursions into neighbouring countries, and would constitute a potential risk for FMD-free zones in Central and South America.

AQUATIC ANIMAL DISEASES

■ Tilapia lake virus (TiLV)

- In **North America**, TiLV is already present in the United States of America and Mexico, and the permissive water temperatures (between 22°C and 32°C) for TiLV will be present in the two countries. As for the United States of America, TiLV is likely to occur with reduced probability, because a Federal Order issued by the U.S. Department of Agriculture to restrict import shipments of all live fish, eggs and gametes of TiLV-susceptible species entered into force on 12 December 2019 (https://www.aphis.usda.gov/animal_health/downloads/import/tilv-federal-order.pdf). In addition, the country has taken active measures, such as surveillance outside infected and/or protection zones, quarantines, selective killing and disposal, and disinfection. As for Mexico, the OIE report issued on 24 May 2019 states that epidemiological surveillance was carried out starting from July 2018, and no evidence of new cases had been found as at the time of publication of the report. Therefore, the likelihood could be low; however, because the outbreak occurred in July 2018, it is preferable that the likelihood be considered moderate.
- In **Central America**, the major tilapia-producing countries include Honduras and Guatemala. TiLV is likely to occur in countries where water temperatures range between 22°C and 32°C, while the water temperature in the two countries during July–September falls within this range. Thus, high awareness of and vigilance for TiLV and a surveillance plan may be necessary. In addition, appropriate diagnostic testing is encouraged when unexplained mortalities of tilapia occur. Testing is needed especially when clinical signs similar to those reported for TiLV and when permissive water temperatures (between 22°C and 32°C) are present. The following farmed tilapia species are susceptible: Hybrid tilapia (*Oreochromis niloticus* x *O. aureus* hybrids), Nile tilapia (*O. niloticus*) and Red tilapia (*Oreochromis* sp.).
- In **South America**, the major tilapia-producing countries include Brazil, Colombia, and Ecuador. TiLV is already present in Colombia and Peru, and the permissive water temperatures (between 22°C and 32°C) for TiLV will be present in the two countries from July to September. Thus, high awareness of and vigilance for TiLV and a surveillance plan may be necessary. In addition, proper disease investigation and appropriate diagnostic testing is encouraged when unexplained mortalities of tilapia occur. Testing is needed especially when clinical signs similar to those reported for TiLV and when permissive water temperatures (between 22°C and 32°C) are present. The following farmed tilapia species are susceptible: Hybrid tilapia (*Oreochromis niloticus* x *O. aureus* hybrids), Nile tilapia (*O. niloticus*) and Red tilapia (*Oreochromis* sp.).



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

AMERICAS

FOREST PESTS AND DISEASES

- Severe infestations of **Bark beetle**, in particular the *Dendroctonus frontalis* species, are occurring in the **dry corridor of Central America** and will continue in the pine forests of Guatemala, Honduras, and Nicaragua. Pine species *Pinus caribea*, *Pinus oocarpa* and *Pinus patula* in natural forests and plantations have become more vulnerable to the beetles' attacks, because they are already stressed by prolonged drought and weakened due to poor forest management practices.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

ASIA

In Asia, a total of 79 FCC events are forecasted in 38 countries, comprising plant pests and diseases, locusts, animal and aquatic diseases, and forest pests. The likelihood of occurrence varies from Low to High. The following FCC events have significant regional implications.

PLANT PESTS AND DISEASES

■ **Fall armyworm** (FAW, *Spodoptera frugiperda*)

Spread of **Fall armyworm** during July–September is predicted to be modest. FAW spread is influenced by rainfall and unsuitable host crops, and this forecast period coincides with rainy seasons and the harvesting stage of maize, the pest's preferred crop. Unlike the spring and summer seasons, pest abundance and movement are limited due to weather conditions unfavourable to the adults' flight activity. The infestation and damage caused by FAW also depends on the stage of the crop at which insect activity may be focused on the whorl of the maize. Compared to the damage caused at early crop stages and during the vegetative to growth stages, damage at later stages (mostly at ripening) remains insignificant.

- In **South Asian** countries such as Nepal, India, and Bangladesh, FAW will remain continuously active until early July. However, the pest is expected to reduce over time because of the absence of desirable host crops. In contrast, FAW will remain active in coastal areas of the Asia and Pacific region, because of the cropping pattern and climatic factors. In general, the pest will march continuously from one area to another once it becomes established, but at a modest level.
- In **West Asia**, Oman and the United Arab Emirates officially declared FAW to be present in 2020. This indicates the pest's ability to expand its geographical distribution over hundreds of kilometers in the arid conditions of the Arabic peninsula (it was first reported in Yemen in 2018). The new reports may support the possibility of FAW spread into the Jazan, Najran and Asir Regions in Saudi Arabia. In addition, the presence of the pest in the United Arab Emirates will pose a risk of introduction into Qatar and Bahrain in the coming months.

- In **Southeast Asia**, **Banana fusarium wilt disease**, Tropical Race 4, is present and has recently been reported in Lao People's Democratic Republic, Myanmar, Viet Nam and Thailand. In these countries, it may further spread and cause damage. In addition, Cassava Mosaic Virus can spread in the Greater Mekong region.

LOCUSTS

- In **Southwest Asia**, remaining spring-bred swarms in Iran and Pakistan and swarms in northern states of India will migrate to the Indo-Pakistan border where locust numbers will increase due to summer breeding. There is a high threat of invasion into this area by Desert Locust swarms from the Horn of Africa in July.
- In **West Asia**, Desert Locust will increase due to continued breeding in the interior of Yemen and possibly new breeding on the Red Sea coast in Yemen and Saudi Arabia. In these countries, swarms may form.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

ASIA

- In **West Asia**, in the Caucasus, adult populations of **Italian** and **Moroccan Locusts** will lay eggs and eventually disappear by the end of the forecast period.
- In **Central Asia**, the locust situation is generally calm. However, because of the COVID-19 pandemic, in certain countries control activities have been delayed or scaled down. Transboundary **Moroccan Locust** swarm flights have taken place in south-central Asian countries.
- The **Italian Locust** and **Migratory Locust** are currently present as hoppers forming groups and bands, the main targets of control operations. Fledging will start from late June, in southern to northern Central Asian countries. This will be followed by mating, egg-laying, and natural disappearance. As at June 2020, over 600 000 ha have been treated, 50 percent more than in 2019.

ANIMAL DISEASES

■ Avian Influenza (AI)

Based on seasonal patterns and increasing temperatures during the forecast period, a decrease in the numbers of **Avian Influenza** outbreaks in poultry is generally expected during the period July–September 2020. However, five main **Highly Pathogenic Avian Influenza (HPAI)** subtypes (H5N1, H5N2, H5N5, H5N6 and H5N8) with different H5 clades are still circulating in West, East, South and Southeast Asia, and the risk of new outbreaks occurring in affected countries can be considered **low** for the period July–September 2020.

H9N2 Low Pathogenic Avian Influenza (LPAI) is considered to circulate endemically in many Asian countries, causing losses to poultry production.

H5N1 HPAI continues to circulate endemically in Bangladesh, China, India, Indonesia and Viet Nam, and re-emerged in Bhutan and Nepal in April–May 2019. Since the beginning of 2020, a total of 13 H5N1 HPAI outbreaks have been officially reported in China (1), India (5), and Viet Nam (7), the latest having been observed on 27 April 2020 in Viet Nam.

H5N2 HPAI is circulating in Taiwan, Province of China and was last observed in March 2020.

In September 2019, **H5N5 HPAI** was reported in domestic birds in Taiwan, Province of China. This was the first time Asia reported an H5N5 HPAI virus. As at the end of May 2020, a total of 28 outbreaks have been reported only in Taiwan, Province of China.

An upsurge of **H5N6 HPAI** outbreaks was observed in northern Viet Nam, with the latest observations of **H5N6 HPAI** occurring in domestic birds in May 2020. Between January and March 2020, H5N6 HPAI events were also reported in China (6) in wild and domestic birds and in the Philippines (1) in a quail flock.

The **H5N8 HPAI** virus, which emerged in China in May 2016, has spread to India, the Islamic Republic of Iran, Israel, Japan, the Republic of Korea, Kuwait and Nepal (October–December 2016); Kazakhstan (January 2017), Saudi Arabia (December 2017); and Iraq and Pakistan (January 2018). The last reports of H5N8 HPAI in Asia were recorded in May 2020, in a chicken farm in Iraq.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

ASIA

It should be noted that this assessment is based on relatively scarce data. For example, LPAI viruses are not notifiable to the OIE, and countries with endemic circulation of HPAI viruses are not required to report every individual AI event.

■ African horse sickness (AHS)

AHS was reported in Southeast Asia for the first time in Thailand, on 27 March 2020. As of 25 May 2020, the disease had spread in 12 provinces of the country, affecting 589 horses and killing 548 of them. The risk of further spread of AHS within the country and in neighbouring AHS-free ones (such as Myanmar and Cambodia) is considered high.

The Government of Thailand has also been providing recommendations to farms at risk. The recommendations focus on implementation of disease prevention measures, including: spraying disinfectant on vehicles entering and leaving farms; installing nets to prevent bloodsucking insects and destroying insects' breeding places; avoiding use of public water; avoiding introduction of new horses from other places into farms; and separating equipment, tools or vehicles used between sick and healthy horses. In addition, Thailand started a vaccination campaign against AHS using a polyvalent live attenuated vaccine (serotypes 1, 3 and 4) on 19 April 2020. The usually susceptible animals (equids such as horses, mules, donkeys and zebra) within a radius of 50 km from disease areas are included in the vaccination campaign. Outbreaks are expected to be mitigated towards September 2020, although the moist mild conditions and warm temperatures prevailing would favour the presence of insect vectors (*Culicoides* spp.) during the incoming rainy season.

■ African swine fever (ASF)

ASF continues to be reported in Asia. In particular, China (since August 2018), Mongolia (January 2019), Viet Nam (February 2019), Cambodia (April 2019), the Democratic People's Republic of Korea (May 2019), the Lao People's Democratic Republic (June 2019), Myanmar (August 2019), the Philippines, the Republic of Korea and Timor-Leste (September 2019), Indonesia (December 2019), and Arunachal Pradesh and India (May 2020) have all reported outbreaks in domestic pigs and sporadic cases in wild boar. In April–May 2020, outbreaks continued to be reported in domestic pigs in China, India, the Philippines and Viet Nam. The disease is also suspected to have reoccurred in the Democratic People's Republic of Korea. In India and Arunachal Pradesh, a total of 11 outbreaks were reported to the OIE on 21 May 2020 (four from Arunachal Pradesh and seven from Assam State, in India). The disease was also reported in wild boar in Jilin and Heilongjiang Provinces in China in December 2018 and in Shaanxi Province in December 2019, and continue to be reported in Gyeonggi and Gangwon Provinces in the Republic of Korea.

In recent months, there have been numerous detections of the ASF virus in pork samples brought to countries in the region (e.g. Australia, Japan, Republic of Korea, the Philippines and Thailand). The risk of further spread of ASF within infected countries is considered high; this also poses a risk of ASF introduction into other countries in East and Southeast Asia as well as in the Pacific, through movement of live pigs and pork products. As the majority of global pig production takes place in Asia, especially China, the recent escalation of the ASF epidemic is likely to have devastating consequences for animal health and food security, as well as a noticeable impact on the pig industry and related businesses, not only in the region but worldwide.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

ASIA

■ Foot-and-mouth disease (FMD)

In the next three months (July–September 2020), **FMD** is likely to continue to occur in the majority of countries in West, East and Southeast Asia, and present a risk to the countries in East or Southeast Asia that are currently officially FMD-free.

- In **West Asia** (Pool 3), serotype O (topotype ME-SA/Ind-2001e) was reported in three provinces of Pakistan in December 2019, and emergency and preventive vaccinations were carried out. This represented an unusual movement of the virus from Pool 2 to Pool 3. In addition, it was the first time that an epidemic of this lineage was detected in a West Eurasian country, thus placing countries such as the Islamic Republic of Iran and Turkey at risk if the virus follows the normal westward trajectory. In addition, FMDV serotype O, topotype PanAsia-2 was also isolated in Pakistan, and poor vaccine matching results were obtained for this particular field strain. From January to March 2020, 52 outbreaks were reported in Turkey, Anatolia Region; currently, only serotype O (topotype O/PanAsia-2/Qom15) was found to be circulating.
- In **South Asia** (Pool 2), in April 2020, FMD was reported in India, Churachandpur District, Manipur State (genotyping data missing). Samples received from Sri Lanka and collected between May 2018 and December 2019 revealed circulation of a serotype O, topotype ME-SA, Ind-2001d sublineage. It was considered that this sublineage had newly arrived in the territory.
- In **East Asia** (Pool 1), recent FMD outbreaks of serotype O were reported in China and in the Russian Federation, along the border with China (SEA topotype, Mya-98 lineage).

■ Lumpy skin disease (LSD)

- In **West and Central Asia**, outbreaks of **LSD** are likely to re-emerge in Turkey (which is considered endemic for the disease), in Israel and the Syrian Arab Republic (where the last outbreaks were reported in July 2019) and in neighbouring Central Asian countries (i.e. Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan and Tajikistan), due to the increasing temperatures, which determine favourable weather conditions for vector amplification during the forecast period. In particular, in Central-East Asia, sporadic events can re-emerge, as observed in August 2019 in China, along the border with Kazakhstan.

Although sporadic occurrence of the disease can be observed, the impact of the disease is considered low, because it can be mitigated through prevention measures implemented in countries (i.e. vaccination).

- In **South Asia**, LSD was reported for the first time in September 2019 in Bangladesh and in November 2019 in India. How the disease entered in these countries remains unclear. The risk of disease spread is considered high within Bangladesh and India, and in neighbouring countries such as Pakistan and Nepal.



REGIONAL OVERVIEW

FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

ASIA

AQUATIC ANIMAL DISEASES

- In **Southeast Asia**, based on an expert knowledge elicitation risk assessment for **Tilapia Lake virus** (TiLV) (available at <http://www.fao.org/3/CA2864EN/ca2864en.pdf>), the risk of TiLV spreading (in the absence of controls) in a country where it is already present was found to be very high, whereas the risk of TiLV spreading from infected countries to other countries in the region (including East and South Asia, which host the world's major tilapia-producing countries such as Bangladesh, China, Indonesia, Myanmar, the Philippines, Thailand and Viet Nam, etc.) was found to be high.
TiLV is likely to occur in countries where water temperatures range between 22°C and 32°C (usually between May and November). The following farmed tilapia species are susceptible: Hybrid tilapia (*Oreochromis niloticus* x *O. aureus* hybrids), Nile tilapia (*O. niloticus*), and Red tilapia (*Oreochromis* sp.).

FOREST PESTS AND DISEASES

- The **Dry cone syndrome** and **Western conifer seed bug** are causing severe losses in pine nut harvests in Lebanon, and the pest damage will continue; additionally, the activities of Western conifer seed bug will be high due to the low precipitations and high temperatures prevailing in the summer months.
- The **Chestnut gall wasp** is causing damage to chestnut trees and threatening the livelihoods of local communities in Turkey. It is expected that pest pressure will decrease due to pest control activities. Biological control is in progress to reduce pest populations.
- In Iran, moderate incidence of **Charcoal disease** likely to continue in oak forests in the Zagros area.
- Outbreaks of **Siberian moth** are likely to occur in conifer forests in the Democratic Republic of Korea.



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

EUROPE

In Europe, 39 FCC events are forecasted in 24 countries, comprising locusts and animal diseases. The likelihood of occurrence varies from Low to High. The following FCC events have significant regional implications.

PLANT PESTS AND DISEASES:

- In **Western Europe**, diseases that thrive in wet conditions, such as **wheat rusts** and **potato late blight**, might escalate depending on prolongation of precipitations.

LOCUSTS

- In **Eastern Europe**, in the Russian Federation, hopper development of the **Italian, Migratory and Moroccan Locusts** is in progress and control operations will continue in June and July. Fledging should start in July, followed by mating and egg laying in August.

ANIMAL DISEASES

■ African swine fever (ASF)

ASF outbreaks and transmission are likely to continue to occur in the affected countries (Belgium, Bulgaria, Estonia, Hungary, Latvia, Lithuania, Republic of Moldova, Poland, Romania, Serbia, Slovakia, the Russian Federation, Ukraine and recently, Greece). Introduction of the disease is likely to occur in currently unaffected neighbouring countries (particularly in the Balkan peninsula, such as Bosnia and Herzegovina, Croatia, Kosovo*, Montenegro, the Republic of North Macedonia and, to a lesser extent, Albania), without ruling out longer jumps such as those observed in the Czech Republic or Belgium. The Czech Republic was the first country in the EU to be officially declared ASF-free in February 2019, after no new outbreak had been found in the country since April 2018.

In September 2018, the virus affected the wild boar population in Belgium, where infected carcasses were last found in August 2019. In November 2019, some ASF-infected wild boar were found in Lubuskie Province in Poland, approximately 40 km from the border with Germany.

No new cases were detected in Greece since the first one was reported in July 2020. In all affected countries, ASF is likely to persist and become endemic due to the presence of wild boar populations.

■ Avian Influenza (AI)

The **H5N8 Highly pathogenic avian influenza (HPAI)** subtype continues to circulate in Europe. In accordance with seasonal patterns (increasing temperatures and northward wild bird migration in the spring), the overall risk for the July–September 2020 period is considered low. Since the virus was first introduced into Eastern Europe in mid-October 2016, it has been detected in 30 out of 43 European countries, particularly in Western and Eastern Europe. In late December 2019, a new H5N8 HPAI epizootic started in Europe affecting mainly domestic poultry in eight European countries to date; Bulgaria, the Czech Republic, Germany, Hungary, Poland, Romania, Slovakia and Ukraine. Despite increasing temperatures, isolated outbreaks might be observed during the forecast period.



REGIONAL OVERVIEW

FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

EUROPE

■ Lumpy skin disease (LSD)

LSD is likely to re-emerge in previously affected countries in **Southern Europe** (namely, Albania, Greece, Kosovo*, Montenegro, the Republic of North Macedonia and Serbia) and to continue to occur in **the Russian Federation** (where the last outbreak was reported in November 2019). In fact, during the forecast period, temperatures will increase, determining favourable weather conditions for vector amplification. Control measures in place (i.e. vaccination) can mitigate the impact of the disease.

FOREST PESTS AND DISEASES

- **Bark beetle** infestations will continue to damage pine plantations in **Belarus** and **Ukraine**. The movement of beetles will increase and outbreaks are likely to occur in the summer. This means that it will be necessary to continue monitoring pest movement and to apply silvicultural measures to remove infested and weakened trees in forests.
- In **Albania**, **Pine processionary moth** is likely to continue causing damage in the summer.

* References to Kosovo shall be understood to be in the context of UN Security Council Resolution 1244 (1999).



REGIONAL OVERVIEW FORECAST FOR THE PERIOD JULY–SEPTEMBER 2020

OCEANIA

In Oceania, a total of 8 FCC events are forecasted in 8 countries, including plant pests and diseases and animal and aquatic diseases. The likelihood of occurrence is High. The following FCC events have significant regional implications.

PLANT PESTS AND DISEASES

■ **Fall armyworm** (*Spodoptera frugiperda*)

- In **Melanesia**, **Fall armyworm (FAW)** was recently recorded in both Timor-Leste and Papua New Guinea, in January 2020. In Timor-Leste, damage has been reported in maize, sugarcane and local pastures (grasses), which may have a broader impact on local livestock production. In Papua New Guinea, FAW has the potential to cause significant damage to village-level crops such as maize, sorghum, rice and other crops (such as vegetables), and to have a significant impact on large commercial production crops such as sugarcane and rice.
- In **Australia** and **New Zealand**, **FAW** was first found on the Torres Strait islands of Saibai and Erub in January 2020. Since then, it has been detected in Queensland at Bamaga, Bowen, Bundaberg, the Burdekin, Croydon, Emerald, Lakeland, South Johnstone and Tolga. FAW has also been detected in the Northern Territory and in northern Western Australia. Because of trade and the moth's strong flying abilities, it has the potential to spread further, including to Pacific Island countries. Farmers will require significant support through integrated pest management techniques to sustainably manage FAW in their cropping systems.

ANIMAL DISEASES

■ **African swine fever (ASF)**

A risk of **African swine fever (ASF)** spread in Oceania from infected countries in Asia or Europe persists. The new ASF outbreaks – which are reported through official OIE notifications, as well as informally through the media, and tracked through our EMPRES-i system – continue and infect ever-larger numbers of animals, confirming the unrelenting spread of the disease. The recent emergence of ASF in new countries, including Papua New Guinea, is further evidence of the high risk of ASF that persists, not only in Asia. Many countries have also reported ASF cases in wild pigs, which further complicates control measures. The level of risk ranges from moderate to high. The ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic or basic), and it survives in the environment and pork products (being capable of remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, the relatively weak border inspection, surveillance and control capacities in some countries in Oceania must also be noted.



SHORT TAKE ON THE COVID-19 PANDEMIC IN THE CONTEXT OF THE FOOD CHAIN CRISIS

The COVID-19 pandemic poses a significant threat to lives, public health systems, livelihoods and economies around the world. FAO's work focuses on ensuring access to food for all. The significant slowdown of all economies in the world, in particular the most vulnerable ones, means that countries – especially those dependent on food imports – will struggle to obtain the resources needed to buy food. Countries with existing humanitarian crises are particularly exposed to the effects of the pandemic, which is already directly affecting food systems through impacts on food supply and demand and the capacity to produce and distribute food, as well as indirectly, through decreases in purchasing power and the intensification of care tasks. All of these effects will have differentiated impacts, but will affect the most vulnerable populations more strongly. In the absence of timely and effective policies, more people will become food-insecure as a result of the COVID-19-triggered recession.

The COVID-19 pandemic and the measures to control it that also affect agricultural production and marketing are leading to shortages in production inputs, pest control materials and veterinary medicines. In addition, routine field interventions have been cancelled, samples cannot reach international labs for confirmation or advanced analysis, and laboratory personnel is working in shifts or “from home”. The repercussions of these issues are greater in countries that are already struggling with food and facing exceptional emergencies that directly affect the agricultural sectors – an example is the ongoing desert locust outbreak in Eastern Africa, the Near East and Southwest Asia that started in late 2019. These effects can disrupt disease surveillance and impose further constraints on the control of transboundary animal and plant pests and diseases, because they restrict the movement of personnel and equipment in the field.

In this context, FAO's priorities are to:

- support developing countries in anticipating and mitigating the pandemic's impact on food security and livelihoods;
- contribute to the mitigation of COVID-19's effects on global food trade and markets;
- support countries and research institutions in identifying potential animal hosts, exploring the dimensions of animal exposure to the virus and reducing the effects of spill-over to humans and from humans to animals; and
- ensure adoption of a unified, One Health approach to pandemic prevention and control.

FAO's response includes analysis of the pandemic's effects on agriculture and on the food control systems that ensure food safety. To this end, FAO has produced several technical and policy briefs and guidelines. In addition, it organizes continuous deliverables targeted at vulnerable smallholder farmers to meet both existing needs and new requirements emerging from the direct and indirect effects of the pandemic. FAO has played an important role in ensuring that messaging on food safety during the COVID-19 pandemic is evidence-based, to avoid misconceptions on food safety concerns and to make sure that all stakeholders – including consumers – are aware of their role in maintaining food safety. A policy brief, guidance materials and posters on the topic have been produced, as well as a series of webinars. In countries suffering from food crises, rapid mobilization is crucial to pre-empt the impact of COVID-19 on food security. Therefore, in this context, FAO is pursuing a two-pronged approach: (1) maintaining and securing existing critical humanitarian operations; and (2) adopting anticipatory actions to safeguard livelihoods and protect the critical food supply chain to mitigate the secondary effects of the pandemic.

FAO works continually to support countries in assessing, preventing, detecting, mitigating and controlling pests, diseases and related health threats wherever they emerge.

In close collaboration with the Joint FAO and International Atomic Energy Agency (IAEA) Division of Nuclear Techniques in Food and Agriculture and its veterinary laboratory network covering 69 countries, FAO's Animal Health Service supports diagnosis of the SARS-CoV-2 virus in animals and provides Member Countries with protocols for targeted investigations, using a One Health approach.

Also, FAO works with many resource partners – including the World Health Organization (WHO) and the World Organisation



SHORT TAKE ON THE COVID-19 PANDEMIC IN THE CONTEXT OF THE FOOD CHAIN CRISIS

for Animal Health (OIE) – to deploy a One Health approach locally and globally, with a special focus on building and exploiting capacities where needed to protect the most vulnerable communities. In particular, FAO supports One Health collaboration to increase the number of veterinary laboratories authorized to test human samples for the SARS-CoV-2 virus, in order to help public health laboratories meet the massive demand for COVID-19 testing.

FAO and OIE also recommend considering veterinary services as an essential business to continue disease control and prevention, highlighting that specific veterinary activities are key to ensure a continuum in food safety, disease prevention and emergency management.

FAO has produced a document entitled “*Guidelines to mitigate the impact of Covid-19 pandemic on livestock production and animal health*”. These Guidelines describe the impact of the pandemic and provide practical recommendations to all actors along the livestock value chain on reducing its effects on the supply of livestock products and animal health. FAO has also released the following related policy briefs:

- “*Global emergence of infectious diseases: links with wild meat consumption, ecosystem disruption, habitat degradation and biodiversity loss*”
- “*Food safety in the time of Covid-19*”
- “*Mitigating the impacts of COVID-19 on the livestock sector*”

With regard to food safety, FAO supports measures that ensure the continuity of supply chains, so that people have access to safe and nutritious food during the pandemic. COVID-19 is not considered a foodborne disease and there is no evidence that the new coronavirus can be transmitted by food or food packaging. Nevertheless, measures to protect the health of the workforce engaged in food businesses and efforts to continue effective implementation of food safety and food control systems are critical to help ensure food safety and security. FAO, in close cooperation with WHO, has provided targeted guidance for food business operators¹ and the authorities responsible for national food control systems,² in support of their efforts to maintain the safety of the food supply during this crisis. A further challenge arising during the pandemic relates to evidence-based messaging on food safety and COVID-19; to bolster this, FAO has published clear evidence-based messages (a series of three “10 Things” posters).³ FAO has also produced policy guidance on agricultural and food systems that highlights food safety as one of the important aspects to be considered.⁴

An expert group convened by FAO conducted a rapid risk assessment to understand whether SARS-CoV-2 can infect aquatic food animals and their products based on current available information and expert opinion. A Viewpoint paper⁵ published in April 2020 at the Asian Fisheries Science Journal has the following key messages:

- SARS-CoV-2 is not known to infect aquatic animals used as food nor to contaminate their products.
- As with any surface, they may potentially become contaminated with SARS-CoV-2 when handled by people who are infected and actively shedding the virus.
- Actual risk of contact with contaminated products is unknown, thus seafood is safe to consume, as long as it is prepared and served in accordance with recommended hygiene and food safety measures (Codex Alimentarius, 2020; WHO, 2020),
- As new information becomes available through peer-reviewed studies, improving the understanding of the virus and assessing any potential risks to the fishery and aquaculture food systems that may arise, should be continued.

¹ COVID-19 and Food Safety: Guidance for food businesses: interim guidance

² COVID-19 and Food Safety: Guidance for competent authorities responsible for national food safety control systems.

³ <http://www.fao.org/3/ca8947en/ca8947en.pdf>; <http://www.fao.org/3/ca8798en/ca8798en.pdf>; <http://www.fao.org/3/ca8883en/ca8883en.pdf>

⁴ Food Safety in the time of COVID-19

⁵ FAO. 2020. *How is COVID-19 affecting the fisheries and aquaculture food systems*. Rome.













FOOD CHAIN CRISIS THREATS FORECASTING AT COUNTRY LEVEL

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

The country section includes countries for which information are available. This section 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 change at a later stage.

Legend

Threat category	Likelihood of occurrence	
	High	Moderate
Animal and zoonotic diseases		
Aquatic diseases		
Forest pests and diseases		
Locusts		
Plant pests and diseases		

■ **High:** an event is highly likely to occur

■ **Moderate:** an event is likely to occur



FOOD CHAIN CRISIS THREATS FORECASTING AT COUNTRY LEVEL

AFRICA

ALGERIA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): There is a low probability of FAW being introduced during the forecast period. The Sahara desert is a natural barrier that may hinder introduction from the south (Niger and Mali) and west (Mauritania). If FAW were to be introduced, it would spread and cause damage.

Context: The pest has been reported in neighbouring countries (Mali, Niger and Mauritania); however, it has not yet been reported in Algeria, nor in any country on the Mediterranean coast except Egypt.

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely, given animal movement and informal marketing of infected animals from neighbouring countries.

Context: In December 2019, RVF was reported for the first time in southern Libya, mostly due to movement of infected animals from neighbouring countries. This event is of concern, because the disease can spread to other North African countries (such as Algeria, Egypt and Tunisia) through movements of infected animal. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)



Likelihood of occurrence: High

Forecast (July–September 2020): The incursion of Foot-and-mouth disease (FMD), serotype A, is very likely.

Context: Considering the new outbreaks due to serotype A in Libya, the presence of animal movements in the region, and the vaccination campaigns in place, there is a risk of FMD spread in Tunisia and Algeria, where small ruminants are not regularly vaccinated against that serotype. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.

ANGOLA

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlights some hotspots at risk of RVF vector amplification in Angola, Botswana, Namibia and South Africa. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

BENIN

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)



Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: Benin was among the first countries to be affected by FAW, in April 2016. Actions to monitor and manage the pest are ongoing through various projects.

BOTSWANA

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): Foot-and-mouth disease, serotype O, is likely to occur in the country through introduction from a neighbouring country.

Context: Malawi reported FMD outbreaks in February 2020. The lack of typing of samples is of concern, given the southerly spread of FMD (serotype O, topotype EA-2) from Pool 4 into Pool 6 during 2018 and 2019 and the potential for involvement with risk populations in southern Africa (e.g. in Botswana, Namibia and Zimbabwe), which have never been affected by this particular serotype before. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



BOTSWANA

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is considered likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlights some hotspots at risk of RVF vector amplification in Angola, Botswana, Namibia and South Africa. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



BURKINA FASO

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: The pest has been confirmed in the country. Over the past two years, a TCP addressing FAW in the country has been in progress and farmers are gaining familiarity with some management practices.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, FMD outbreaks have been confirmed in Ghana, Guinea and Senegal. Genotyping data is still pending. Further spread of the disease is likely to continue in the region. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



BURUNDI

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely, given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



CAMEROON

Threat category: Plant pests and diseases

Threat name: Banana bunchy top disease (BBTD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread from the initial outbreak areas is likely.

Context: The disease is already present in southern parts of the country. The spread of Banana bunchy top disease from the initial outbreak areas is possible. The disease spreads through infected planting materials and aphids. Use of disease-free planting materials is critical.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlighted a few localized hotspots at risk of RVF vector amplification in May 2020 in South Africa, along the Senegal River between Mauritania and Senegal, in central Mali, in northeastern Niger, and in areas between Chad, Cameroon and Nigeria. These areas may be at moderate risk of RVF occurrence in the coming three months. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.





CENTRAL AFRICAN REPUBLIC

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlighted a few localized hotspots at risk of RVF vector amplification in May 2020 in South Africa, along the Senegal River between Mauritania and Senegal, in central Mali, in northeastern Niger, and in areas between Chad, Cameroon and Nigeria. These areas may be at moderate risk of RVF occurrence in the coming three months. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

CHAD

Threat category: Locusts

Threat name: Desert Locust



Likelihood of occurrence: High

Forecast (July–September 2020): Small-scale breeding will occur with the summer rains, causing a slight increase in locust numbers. There is a moderate threat of swarms arriving from East Africa in July.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert Locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, FMD outbreaks have been confirmed in Ghana, Guinea and Senegal. Genotyping data is still pending. Further spread of the disease is likely to continue in the region. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): The potential risk of RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlighted a few localized hotspots at risk of RVF vector amplification in May 2020 in South Africa, along the Senegal River between Mauritania and Senegal, in central Mali, in northeastern Niger, and in areas between Chad, Cameroon and Nigeria. These areas may be at moderate risk of RVF occurrence in the coming three months. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

COMOROS

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)



Likelihood of occurrence: High

Forecast (July–September 2020): Foot-and-mouth disease, serotype O, is very likely to continue to occur.

Context: Efforts to control an outbreak of FMD serotype O, recorded in Moheli in March 2019, is under way. The COVID-19 outbreak in the country and measures to control it may exacerbate the already weak delivery of veterinary services, exposing the country to introduction and spread of the disease. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.

CÔTE D'IVOIRE

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)



Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: FAW prevalence in the country has been assessed, and some regions may have not been infested by the pest yet. However, FAW is highly likely to spread to the entire country.

**DEMOCRATIC REPUBLIC OF THE CONGO****Threat category:** Animal and zoonotic diseases**Threat name:** Rift Valley fever (RVF)**Likelihood of occurrence:** Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

**DJIBOUTI****Threat category:** Locusts**Threat name:** Desert Locust**Likelihood of occurrence:** Moderate

Forecast (July–September 2020): Swarms may appear from Yemen and adjacent areas, mainly in transit through the country.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.

**Threat category:** Animal and zoonotic diseases**Threat name:** Rift Valley fever (RVF)**Likelihood of occurrence:** High

Forecast (July–September 2020): RVF occurrence is very likely, given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

**EGYPT****Threat category:** Plant pests and diseases**Threat name:** Fall armyworm (FAW)**Likelihood of occurrence:** High

Forecast (July–September 2020): The season for growing FAW's main host crop – maize – started in April in southern Egypt, a fact that increases the possibility of pest spread. In addition, the warm weather conditions prevailing during July–September will encourage the FAW reproduction cycle.

Context: The pest was officially reported in Egypt in May 2019, in three governorates in southern Egypt (latitude 26° 12'N), with a low to medium infestation rate in maize fields. The pest has not been reported to attack other crops, but it has been reported as spreading northward, reaching latitude line 26° 17'N. The Government has imposed measures based on monitoring and delivers recommendations to farmers.

**Threat category:** Animal and zoonotic diseases**Threat name:** Rift Valley fever (RVF)**Likelihood of occurrence:** Moderate

Forecast (July–September 2020): RVF occurrence is likely, given animal movement and informal marketing of infected animals from neighbouring countries.

Context: In December 2019, RVF was reported for the first time in southern Libya, mostly due to movement of infected animals from neighbouring countries. This event is of concern, because the disease can spread to other North African countries (such as Algeria, Egypt and Tunisia) through movements of infected animal. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

**Threat category:** Animal and zoonotic diseases**Threat name:** Foot-and-mouth disease (FMD)**Likelihood of occurrence:** Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD), serotype O, is likely to occur within the country in non-vaccinated areas.

Context: The veterinary services in the Arab Republic of Egypt are planning to conduct clinical and serological surveillance in a high-risk area on the border with Libya, where there is evidence of illegal animal movement into the country. An FMD vaccination campaign is planned in the country during the month of April; in this area, a quadrivalent vaccine for serotype A, O and SAT2, which contains strain A/IRN/05, is administered. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.





ERITREA

Threat category: Locusts



Threat name: Desert Locust

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Small-scale breeding will occur in the western lowlands with the summer rains, causing a slight increase in locust numbers. There is a moderate threat of swarms arriving from East Africa in July.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.

Threat category: Animal and zoonotic diseases



Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

ETHIOPIA

Threat category: Plant pest and diseases



Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): During this period, maize will be in its seedling and active vegetative-reproductive phases. Thus, during the forecast period, there will be sufficient maize to sustain high FAW populations.

Context: In Ethiopia, FAW attacks maize planted in all seasons: during the short rainy season (belg) and the main rainy season (meher), as well as irrigated maize. In the country, over 458 maize-growing districts (woredas) have been affected by FAW.

Threat category: Locusts



Threat name: Desert Locust

Likelihood of occurrence: High

Forecast (July–September 2020): Continued egg-laying, hatching and formation of hopper bands and swarms, mainly in the east, northeast and east are expected to occur. This may be supplemented by a swarm invasion from Kenya in July.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.

Threat category: Plant pests and diseases



Threat name: Wheat rust

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Stem rust disease is likely to spread.

Context: Stem rust and yellow rust diseases are recurrent threats to wheat in the country and region. These infect especially the vegetative parts of the plants, reducing photosynthesis area and grain weight. Excess rains support disease development. Stem rust inoculum is present from the main season and can spread to second-season sowings. In addition to stem rust, yellow rust disease also can occur and cause damage. Regular surveys and timely actions are essential.

Threat category: Animal and zoonotic diseases



Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

**GABON**

Threat category: Plant pests and diseases

Threat name: Banana bunchy top disease (BBTD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread from the initial outbreak areas is likely.

Context: The disease is already present in northern parts of the country. The spread of Banana bunchy top disease from the initial outbreak areas is possible. The disease spreads through infected planting materials and aphids. Use of disease-free planting materials is critical.

**GAMBIA**

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: The country's capacities in terms of FAW management have been strengthened through a TCP facility.

**GHANA**

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: FAW was first spotted in the Yilo Krobo District, in the Eastern Region of Ghana, in 2016. Reports indicate that the country has lost USD 64 million due to FAW infestation, which covered 20 000 ha of farmland in 2018 alone.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, the country has reported active FMD cases within its territory and additional outbreaks can be expected. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.

**GUINEA**

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing stage. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: The country has benefitted from various projects to strengthen its capacities in FAW management. A recently signed project, funded by the African Development Bank and due to start soon, includes a significant component on FAW surveillance and management.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: High

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is very likely to occur within the country.

Context: In this quarter, the country has reported active FMD cases within its territory and additional outbreaks can be expected. *FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.*



Threat category: Animal and zoonotic diseases

Threat name: Peste des Petits Ruminants

Likelihood of occurrence: High

Forecast (July–September 2020): The further spread of peste des petits ruminants (PPR) is very likely to occur within the country.

Context: In the beginning of June 2020, four PPR outbreaks were reported. Even though the country has vaccinated about 300 000 small ruminants in some part of the country, PPR is very likely to occur.

**GUINEA-BISSAU**

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: The country's FAW management capacities have been developed through a TCP and a project funded by the African Development Bank. Its capacities for biological control are being developed thanks to cooperation with EMBRAPA.





GUINEA-BISSAU

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, FMD outbreaks have been confirmed in Ghana, Guinea and Senegal. Genotyping data is still pending. Further spread of the disease is likely to continue in the region. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



KENYA

Threat category: Plant pest and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The forecast period is relatively dry in the eastern, central and coast regions and the maize crop has already been harvested. In other regions, the crop is approaching the harvesting stage. The level of FAW infestation is usually devastating if it attacks maize crops early, at the seedling stage.

Context: FAW has been reported in all 47 counties (100 percent) of the country.



Threat category: Plant pests and diseases

Threat name: Cassava mosaic disease (CMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Cassava mosaic disease (CMD) is likely.

Context: The disease is already present in the country and might escalate. CMD is considered one of the most damaging diseases of cassava in Africa. It is caused by a virus, which causes chlorosis and distortions of the leaves; this results in reduced yields. It is transmitted by infected cuttings and whiteflies. A similar viral disease, Cassava brown streak disease (CBSD), is also likely to spread.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

LIBYA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The pest is less likely to be introduced from the borders with Chad, Niger or Sudan, due to the natural barrier of the Sahara desert. However, pest introduction is possible through the northern part of the country, along the border with Egypt.

Context: FAW has a high damage potential and may threaten 3 000 ha of highly vulnerable crops. Libya's neighbouring countries (Chad, Niger and Egypt) have reported the pest. To date, the pest has only been reported in southern Egypt, which is hundreds of kilometres away from the nearest point in Libya where host plants may be found.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: High

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD), serotype A, is very likely to occur within the country.

Context: In this quarter, the country has reported active FMD cases within its territory and additional outbreaks can be expected. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.





LIBYA (STATE OF)

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)



Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Since December 2019, RVF was also reported for the first time in the country in southern Libya, mostly due to movement of infected animals from neighbouring countries (e.g. Sudan). This event is of concern, because the disease can spread to other North African countries (such as Algeria, Egypt and Tunisia) through movements of infected animals. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

MADAGASCAR

Threat category: Locusts

Threat name: Migratory Locust



Likelihood of occurrence: Moderate

Forecast (July–September 2020): Adult populations of the third generation may form swarms and move towards certain areas of crop production for mating and egg-laying.

Context: Madagascar is prone to frequent Migratory Locust crises that affect the livelihoods as well as the food and nutrition security of the population. The last plague occurred from April 2012 to July 2016 and threatened 13 million persons.

MALAWI

Threat category: Forest pests and diseases

Threat name: Red gum lerp psyllid



Likelihood of occurrence: Moderate

Forecast (July–September 2020): Red gum lerp psyllid is likely to spread in eucalyptus plantations.

Context: The combination of climate change, with the related general decline of forest conditions, and the occurrence of Red gum lerp psyllid continue to damage plantations and small woodlots in Malawi. Red gum lerp psyllid (*Glycaspis brimblecombei*) nymphs and adults feed on sugar-rich phloem. Excessive feeding pressure causes premature leaf drop. Extensive and repeated defoliation events caused by psyllid weaken trees and cause premature deaths in the highly susceptible eucalyptus species.

Threat category: Forest pests and diseases

Threat name: Blue gum chalcid



Likelihood of occurrence: High

Forecast (July–September 2020): Outbreaks of the Blue gum chalcid insect pest are highly likely to continue occurring in eucalyptus nurseries and plantations.

Context: Blue gum chalcid continues to cause severe damage in nurseries and young eucalyptus plantations in Malawi. Blue gum chalcid (*Leptocybe invasa*) is a major insect pest of young eucalyptus trees and seedlings.

Threat category: Locusts

Threat name: Red Locust



Likelihood of occurrence: Moderate

Forecast (July–September 2020): With vegetation burning, locusts will aggregate into swarms in the remaining suitable areas. If not controlled, they are likely to invade and damage cultivated areas.

Context: Red Locust plagues pose a major threat to agriculture in southern Africa. Failure to control locust outbreaks during the early stages of development can result in highly mobile swarms, which invade agricultural areas and can cause major crop damage.

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)



Likelihood of occurrence: High

Forecast (July–September 2020): Foot-and-mouth disease, serotype O, is very likely to occur in the country through introduction from a neighbouring country.

Context: Malawi reported FMD outbreaks in February 2020. The lack of typing of samples is of concern, given the southerly spread of FMD (serotype O, topotype EA-2) from Pool 4 into Pool 6 during 2018 and 2019 and the potential for involvement with risk populations in southern Africa (e.g. in Botswana, Namibia and Zimbabwe), which have never been affected by this particular serotype before. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.

MALI

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)



Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: The presence of FAW in the country was officially declared in early 2018. A FAO emergency project is being implemented to enhance the country's FAW management capacities.



MALI

Threat category: Locusts

Threat name: Desert Locust

Likelihood of occurrence: High

Forecast (July–September 2020): Small-scale breeding will occur in the north with the summer rains, causing a slight increase in locust numbers. There is a moderate threat of swarms arriving from East Africa in late July.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, FMD outbreaks have been confirmed in Ghana, Guinea and Senegal. Genotyping data is still pending. Further spread of the disease is likely to continue in the region, though vaccination is ongoing and can mitigate the impact of the disease. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlighted a few localized hotspots at risk of RVF vector amplification in May 2020 in South Africa, along the Senegal River between Mauritania and Senegal, in central Mali, in northeastern Niger, and in areas between Chad, Cameroon and Nigeria. These areas may be at moderate risk of RVF occurrence in the coming three months. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



MAURITANIA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): The climatic conditions prevailing during July–September and the planting of host crops will favour pest spread and damage.

Context: The pest was officially reported in Mauritania in 2020. The pest was probably introduced into the country from Senegal, as it was first reported in southern Mauritania (warm semi-arid), particularly in the irrigated farms in the Senegal River basin that grow host plants.



Threat category: Locusts

Threat name: Desert Locust

Likelihood of occurrence: High

Forecast (July–September 2020): Small-scale breeding will occur in the south with the summer rains, causing a slight increase in locust numbers. There is a low threat of swarms arriving from East Africa in early August.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, FMD outbreaks have been confirmed in Ghana, Guinea and Senegal. Genotyping data is still pending. Further spread of the disease is likely to continue in the region, though vaccination is ongoing and can mitigate the impact of the disease. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.





MAURITANIA

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlighted a few localized hotspots at risk of RVF vector amplification in May 2020 in South Africa, along the Senegal River between Mauritania and Senegal, in central Mali, in northeastern Niger, and in areas between Chad, Cameroon and Nigeria. These areas may be at moderate risk of RVF occurrence in the coming three months. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



MOROCCO

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The pest is less likely to be introduced into Morocco from Mauritania: the majority of the border with the country runs along arid desert, and the pest was reported only in southern Mauritania.

Context: Mauritania, a neighbouring country, reported FAW presence in 2020. The pest has a high migratory ability, which may threaten the oasis system in Morocco's Western Sahara – which is adjacent to Mauritania – as well as the newly reclaimed irrigated vegetable fields on the coast of Oued Ed-Dahab Province.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD), serotype O, is likely to continue to occur within the country and serotype A can be introduced from a neighbouring country.

Context: Outbreaks of serotype A have been reported in neighbouring Libya since December 2019. Although a vaccination campaign is in place in Morocco, there is a moderate risk of FMD spread here, due to loose animal movement connectivity with Libya. Serotype O is continuing to be reported in the country. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



MOZAMBIQUE

Threat category: Locusts

Threat name: Red Locust

Likelihood of occurrence: Moderate

Forecast (July–September 2020): With vegetation burning, locusts will aggregate into swarms in the remaining suitable areas. If not controlled, they are likely to invade and damage cultivated areas.

Context: Red Locust plagues pose a major threat to agriculture in southern Africa. Failure to control locust outbreaks during the early stages of development can result in highly mobile swarms, which invade agricultural areas and can cause major crop damage.



Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Tropical race 4 (TR4) of the Fusarium wilt fungus has affected two farms in Nampula Province and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially causing yellowing of the leaves and then wilting and plant death. Infected planting materials and water, and the movement of infested soil particles with shoes, tools, and vehicles play a major role in spread. The fungus remains viable in soil for decades.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: High

Forecast (July–September 2020): Foot-and-mouth disease, serotype O, is very likely to re-occur in the country through introduction from a neighbouring country.

Context: FMD, serotype O outbreaks have occurred in Zambia since March 2018. The last FMD, serotype O outbreak was reported in Zambia in April 2019. These events are of concern because the disease may spread into the southern African region, which has never been affected by this particular serotype before. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.





NAMIBIA

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlights some hotspots at risk of RVF vector amplification in Angola, Botswana, Namibia and South Africa. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)



Likelihood of occurrence: High

Forecast (July–September 2020): Foot-and-mouth disease, serotype O, is very likely to re-occur in the country through introduction from a neighbouring country.

Context: Malawi reported FMD outbreaks in February 2020. The lack of typing of samples is of concern, given the southerly spread of FMD (serotype O, topotype EA-2) from Pool 4 into Pool 6 during 2018 and 2019 and the potential for involvement with risk populations in southern Africa (e.g. in Botswana, Namibia and Zimbabwe), which have never been affected by this particular serotype before. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.

NIGER

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)



Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: FAW is present and infestation has been observed on sorghum and millet, which are staple foods for the country. It should be noted that maize is not particularly important in Niger.

Threat category: Locusts

Threat name: Desert Locust



Likelihood of occurrence: High

Forecast (July–September 2020): Small-scale breeding will occur in the north with the summer rains, causing a slight increase in locust numbers. There is a moderate threat of swarms arriving from East Africa in July.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlighted a few localized hotspots at risk of RVF vector amplification in May 2020 in South Africa, along the Senegal River between Mauritania and Senegal, in central Mali, in northeastern Niger, and in areas between Chad, Cameroon and Nigeria. These areas may be at moderate risk of RVF occurrence in the coming three months. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, FMD outbreaks have been confirmed in Ghana, Guinea and Senegal. Genotyping data is still pending. Further spread of the disease is likely to continue in the region, though vaccination is ongoing and can mitigate the impact of the disease. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



NIGERIA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: The country's capacities for FAW management have been strengthened through the implementation of various projects. However, more efforts will be required as Nigeria is one of the most important maize producers in the region.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlighted a few localized hotspots at risk of RVF vector amplification in May 2020 in South Africa, along the Senegal River between Mauritania and Senegal, in central Mali, in northeastern Niger, and in areas between Chad, Cameroon and Nigeria. These areas may be at moderate risk of RVF occurrence in the coming three months. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, FMD outbreaks have been confirmed in Ghana, Guinea and Senegal. Genotyping data is still pending. Further spread of the disease is likely to continue in the region, though vaccination is ongoing and can mitigate the impact of the disease. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



RWANDA

Threat category: Forest pests and diseases

Threat name: Blue gum chalcid

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Blue gum chalcid is likely to further spread in eucalyptus nurseries and plantations.

Context: The pest is currently causing severe damage in eucalyptus nurseries, woodlots and plantations. Options to manage the pest, including good nursery hygienic practices to reduce the pest population, are being provided to farmers. Blue gum chalcid (*Leptocybe invasa*) is a major insect pest of young eucalyptus trees and seedlings.



Threat category: Forest pests and diseases

Threat name: Bronze bug

Likelihood of occurrence: High

Forecast (July–September 2020): The Bronze bug insect pest is highly likely to spread in eucalyptus plantations.

Context: The results of a survey conducted to identify damage caused by the Bronze bug indicate that the pest poses a serious threat to eucalyptus forestry in Rwanda. Bronze bug (*Thaumastocoris peregrinus*) is a sap-sucking insect pest native to Australia. It is infesting eucalyptus plantations in Europe, southern Africa and South America. Severe infestations of this pest result in leaf senescence, leaf loss, thinning tree canopies and branch dieback.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.





SENEGAL

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: Maize is not particularly important in Senegal. However, the country's capacity for surveillance of FAW must be developed, as the pest may infest other cereal crops that are of importance for the country.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlighted a few localized hotspots at risk of RVF vector amplification in May 2020 in South Africa, along the Senegal River between Mauritania and Senegal, in central Mali, in northeastern Niger, and in areas between Chad, Cameroon and Nigeria. These areas may be at moderate risk of RVF occurrence in the coming three months. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, the country has reported active FMD cases within its territory and additional outbreaks can be expected, although vaccination is ongoing and can mitigate the impact of the disease. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



SIERRA LEONE

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at growing stage. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: The country's capacity for FAW management and surveillance needs to be strengthened.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: In this quarter, the country has reported active FMD cases within its territory and additional outbreaks can be expected. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



Threat category: Animal and zoonotic diseases

Threat name: PPR

Likelihood of occurrence: High

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: This year the country has weekly reported PPR cases. PPR is a highly contagious disease among small ruminants and has a huge socio-economic impact on vulnerable farmers. FAO is currently supporting the prevention and control strategy of the disease specifically with the current Covid 19 pandemic.



SOMALIA

Threat category: Plant pest and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): In July, FAW will have access to maize and sorghum in almost all growing areas in the country and infestations are expected to be high. Starting in August, maize and sorghum harvesting will take place in Shabelle and Juba valleys, Bay, Bakool and Somaliland, but FAW populations are likely to survive on alternate hosts and continue their spread.

Context: FAW is now fully established across the country; however, farmers have neither adequate knowledge nor resources to manage the pest in their crops.





SOMALIA

Threat category: Locusts

Threat name: Desert Locust

Likelihood of occurrence: High

Forecast (July–September 2020): Swarms will continue to breed in north and central areas, supplemented by swarms coming from the south.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely in some localized areas, due to the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: The FAO RVF Monitoring/Early Warning tool highlights some hotspots at risk of RVF vector amplification in Angola, Botswana, Namibia and South Africa. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely, given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: High

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is very likely to occur within the country.

Context: An outbreak of FMD was recorded in Molemole Local municipality of Limpopo Province, South Africa, on 01 November 2019, close to the Vhembe outbreak of January 2019. The Department of Agriculture, Forestry and Fisheries is hopeful that the agreement reached with trading partners following the January 2019 outbreak to continue trade in safe commodities will not affect international trade. In this quarter, the country has reported active FMD cases within its territory and additional outbreaks can be expected. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



SOUTH AFRICA

Threat category: Plant pests and diseases

Threat name: Banana bunchy top disease (BBTD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of BBTD from the initial outbreak areas is likely.

Context: The disease has recently been reported in the country and spread from the initial outbreak areas is possible. The disease spreads through infected planting materials and aphids. Use of disease-free planting materials is critical.



SOUTH SUDAN

Threat category: Plant pest and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The forecast period coincides with the main maize planting season in Greater Equatoria region of South Sudan, and FAW infestations are expected to be high. On the other hand, rains in July to August are heavy in the country and reduce the pest's impact on crops.

Context: In South Sudan, the pest has been reported in all ten states of the country.





SOUTH SUDAN

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks in the region, animal movement and the informal marketing of infected animals, as well as the current and forecasted suitability of conditions for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: In October–November 2019, cases of RVF in humans and animals were confirmed in River Nile and Red Sea States (northeastern Sudan), and sporadic cases in humans were reported in White Nile, Gedaref, Kassala and Khartoum States. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



SUDAN

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Planting of sorghum has expanded during the spring. Also, the presence of host plants, in addition to the warm humid conditions prevailing in July–September will increase pest spread and damage.

Context: FAW has been reported in Sudan since 2018 and continues to cause damage over the country's 7 million ha of sorghum.



TOGO

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Maize will be available, at the growing and harvesting stages. Thus, there will be a high risk of FAW amplification during the forecast period.

Context: In 2016, FAW was detected in samples from Togo. It is currently present in all maize-growing regions of the country.



TUNISIA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The possibility of pest introduction is less likely. FAW has not been reported in Tunisia or any neighbouring country.

Context: The pest's damaging behaviour may pose a threat to maize, sorghum and other vegetable crops in Tunisia, especially for smallholder farmers.



Threat category: Locusts

Threat name: Desert Locust

Likelihood of occurrence: High

Forecast (July–September 2020): Small-scale breeding will occur in the interior with the summer rains, causing a slight increase in locust numbers. There is a high threat of swarms arriving from East Africa in July.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely, given animal movement and informal marketing of infected animals from neighbouring countries.

Context: In December 2019, RVF was reported for the first time in southern Libya, mostly due to movement of infected animals from neighbouring countries. This event is of concern, because the disease can spread to other North African countries (such as Algeria, Egypt and Tunisia) through movements of infected animals. RVF is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.





TUNISIA

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: High

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD), serotype A, is very likely to occur within the country.

Context: Considering the new outbreaks due to serotype A in Libya, the presence of animal movements in the region, and the vaccination campaigns in place, there is a risk of FMD spread in Tunisia and Algeria, where small ruminants are not regularly vaccinated against this serotype. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



UGANDA

Threat category: Plant pest and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): During the forecast period, there will be sufficient maize to sustain high FAW populations and infestations are expected to be high.

Context: In Uganda, the pest has been confirmed in all 121 districts (100 percent) of the territory.



Threat category: Plant pests and diseases

Threat name: Cassava mosaic disease (CMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Cassava mosaic disease (CMD) is likely.

Context: The disease is already present in the country and might escalate. CMD is considered one of the most damaging diseases of cassava in Africa. It is caused by a virus, which causes chlorosis and distortions of the leaves; this results in reduced yields. It is transmitted by infected cuttings and whiteflies. A similar viral disease, Cassava brown streak disease (CBSD), is also likely to spread.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks occurring in the region, animal movement and the informal marketing of infected animals as well as current and forecasted suitability for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



UNITED REPUBLIC OF TANZANIA

Threat category: Locusts

Threat name: Red Locust

Likelihood of occurrence: Moderate

Forecast (July–September 2020): With vegetation burning, locusts will aggregate into swarms in the remaining suitable areas. If not controlled, they are likely to invade and damage cultivated areas (mainly the Ikuu-Katavi plains)

Context: Red Locust plagues pose a major threat to agriculture in southern Africa. Failure to control locust outbreaks during the early stages of development can result in highly mobile swarms, which invade agricultural areas and can cause major crop damage.



Threat category: Plant pests and diseases

Threat name: Cassava mosaic disease (CMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Cassava mosaic disease (CMD) is likely.

Context: The Cassava mosaic virus is already present in the country. It was found to be widespread in six provinces in 2014 and is likely to escalate further. CMD is considered one of the most damaging diseases of cassava in Africa. It is caused by a virus, which causes chlorosis and distortions of the leaves; this results in reduced yields. It is transmitted by infected cuttings and whiteflies. A similar viral disease, Cassava brown streak disease (CBSD) is also likely to spread.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: High

Forecast (July–September 2020): RVF occurrence is very likely given the presence of suitable environmental conditions for vector amplification, animal movement and informal marketing of infected animals.

Context: Considering the past and recent RVF outbreaks occurring in the region, animal movement and the informal marketing of infected animals as well as current and forecasted suitability for vector amplification, the whole region remains at moderate to high risk of RVF occurrence. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



Threat category: Forest pests and diseases

Threat name: Blue gum chalcid

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Blue gum chalcid is likely to spread in eucalyptus nurseries and plantations.

Context: The pest continues to cause damage in eucalyptus nurseries, woodlots and plantations. Blue gum chalcid (*Leptocybe invasa*) is a major insect pest of young eucalyptus trees and seedlings.





ZAMBIA

Threat category: Plant pests and diseases

Threat name: Cassava mosaic disease (CMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Cassava mosaic disease (CMD) is likely.

Context: The disease is already present in the country and might escalate. CMD is considered one of the most damaging diseases of cassava in Africa. It is caused by a virus, which causes chlorosis and distortions of the leaves; this results in reduced yields. It is transmitted by infected cuttings and whiteflies. A similar viral disease, Cassava brown streak disease (CBSD), is also likely to spread.



Threat category: Forest pests and diseases

Threat name: Red gum lerp psyllid

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Red gum lerp psyllid is likely to continue in eucalyptus plantations.

Context: Pest management activities based on silvicultural practices are in progress. Red gum lerp psyllid (*Glycaspis brimblecombei*) nymphs and adults feed on sugar-rich phloem. Excessive feeding pressure causes premature leaf drop. Extensive and repeated defoliation events caused by psyllid weaken trees and cause premature deaths in the highly susceptible eucalyptus species.



Threat category: Forest pests and diseases

Threat name: Blue gum chalcid

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of the Blue gum chalcid insect pest is likely to continue in eucalyptus nurseries and plantations.

Context: Pest management activities based on silvicultural practices, breeding programmes and quarantine measures to reduce insect populations are in progress. Introduction of biological control agents to reduce Blue gum chalcid populations is in progress. Blue gum chalcid (*Leptocybe invasa*) is a major insect pest of young eucalyptus trees and seedlings.



Threat category: Locusts

Threat name: Red Locust

Likelihood of occurrence: Moderate

Forecast (July–September 2020): With vegetation burning, locusts will aggregate into swarms in the remaining suitable areas. If not controlled, they are likely to invade and damage cultivated areas.

Context: Red Locust plagues pose a major threat to agriculture in southern Africa. Failure to control locust outbreaks during the early stages of development can result in highly mobile swarms, which invade agricultural areas and can cause major crop damage.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: High

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD), serotype O, is very likely to occur within the country.

Context: FMD, serotype O outbreaks have occurred in Zambia since March 2018. The last FMD, serotype O outbreak was reported in Zambia in April 2019. These events are of concern because the disease may spread into the southern African region, which has never been affected by this particular serotype before. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



ZIMBABWE

Threat category: Forest pests and diseases

Threat name: Red gum lerp psyllid

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Red gum lerp psyllid is likely to continue in eucalyptus plantations.

Context: Pest management activities based on the application of biological control agents are in progress to reduce pest populations. Blue gum chalcid (*Leptocybe invasa*) is a major insect pest of young eucalyptus trees and seedlings.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: High

Forecast (July–September 2020): Foot-and-mouth disease, serotype O and A, is very likely to occur in the country through introduction from a neighbouring country.

Context: FMD, serotype O outbreaks have occurred in Zambia since March 2018. The last FMD, serotype O outbreak was reported in Zambia in April 2019. Malawi reported FMD outbreaks in February 2020. The lack of typing of samples is of concern given the southerly spread of FMD (serotype O, topotype EA-2) from Pool 4 into Pool 6 during 2018 and 2019, and the potential for involvement with risk populations in southern Africa. These events are of concern because the disease may spread into the southern African region (e.g. Botswana, Namibia and Zimbabwe), which has never been affected by this particular serotype before. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.





AMERICAS

CANADA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF has not been reported in the country to date, but a risk of ASF spread in Americas from Asian or European infected countries cannot be excluded. The level of risk is from moderate to high, as the ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic and basic) and it survives in the environment and pork products (potentially remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, the relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



COLOMBIA

Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infected planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.



GUATEMALA

Threat category: Forest pests and diseases

Threat name: Bark beetles

Likelihood of occurrence: High

Forecast (July–September 2020): Bark beetle (mainly *Dendroctonus frontalis*) damage to pine plantations is likely to continue. The high summer temperatures and low precipitation levels during summer are likely to weaken pine trees and make susceptible to bark beetle attacks.

Context: Silvicultural practices to reduce pest populations are in progress. Training of foresters on prevention and management practices is under way. The adults and larvae of *Dendroctonus* spp. are bark-feeding. The flight activities of *D. frontalis* are almost continuous throughout the year in Mesoamerica. In general, the pest attacks stressed trees.



HONDURAS

Threat category: Forest pests and diseases

Threat name: Bark beetles

Likelihood of occurrence: High

Forecast (July–September 2020): Bark beetle (mainly *Dendroctonus frontalis*) outbreaks, which cause heavy losses in pine plantations, are likely to occur and will continue to be reported. The high summer temperatures and low precipitation levels prevailing during July–September are likely to weaken the pine trees and make them susceptible to bark beetle attacks.

Context: Bark beetles affect about 500 000 ha of conifer forests in Honduras. Training of foresters on prevention and management practices is in progress. The adults and larvae of *Dendroctonus* spp. are bark-feeding. flight activities of *D. frontalis* are almost continuous throughout the year in Mesoamerica. In general, the pest attacks stressed trees.



MEXICO

Threat category: Aquatic diseases

Threat name: Tilapia lake virus (TiLV)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): TiLV outbreaks were first observed in July 2018. The disease may spread through live movements of infected hosts

Context: TiLV occurs when the water temperature is between 22°C and 32°C; it has also been observed in farms with large-sized fish and a high stocking density. TiLV is already present in Mexico. It was first observed in July 2018.



NICARAGUA

Threat category: Forest pests and diseases

Threat name: Bark beetles

Likelihood of occurrence: High

Forecast (July–September 2020): Bark beetles (mainly *Dendroctonus frontalis*) are highly likely to continue causing damage in pine plantations.

Context: Pest management activities based on silvicultural practices are in progress. The adults and larvae of *Dendroctonus* spp. are bark-feeding. The flight activities of *D. frontalis* are almost continuous throughout the year in Mesoamerica. In general, the pest attacks stressed trees.





USA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF has not been reported in the country to date, but a risk of ASF spread in Americas from Asian or European infected countries cannot be excluded. The level of risk is from moderate to high, as the ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic and basic) and it survives in the environment and pork products (potentially remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, the relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.

VENEZUELA

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): Further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: There are concerns that FMD vaccination coverage in Venezuela is dropping and that illegal trade is occurring between Venezuela and neighbouring countries. Circulation of FMD in Venezuela would be a potential source for incursions into neighbouring countries, and thus pose a risk for disease-free zones in central and southern America. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



ASIA

ARUNACHAL PRADESH TERRITORY

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to occur.

Context: On 19 May 2020, four ASF outbreaks were notified to OIE. As of 20 May 2020, approximately 3 300 pigs have died or have been destroyed. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



BAHRAIN

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The possibility of FAW introduction is less likely: the migratory path that the pest may follow has only sporadic vegetation to serve as stopping points and feeding.

Context: The pest has not been reported in Bahrain yet. However, recently, FAW presence has been reported in the United Arab Emirates. The pest has the ability to fly up to 100 km per night, and the distance between farms in Algharbia (Abu Dhabi) and Bahrain is 400 km. Pest behaviour may pose a threat to maize and other vegetable crops cultivated in Bahrain.



BANGLADESH

Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)

Likelihood of occurrence: High

Forecast (July–September 2020): Lumpy skin disease (LSD) outbreaks are likely to occur.

Context: In September 2019, LSD was reported for the first time in Bangladesh, in Chittagong District. This is also the first time the disease has been reported in a South Asian country. As of November 2019, the disease has also spread in Dhaka District. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.



CAMBODIA

Threat category: Plant pests and diseases

Threat name: Cassava mosaic disease (CMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of the disease is likely.

Context: The disease is present in the northern part of the country, on a limited scale. Cassava mosaic disease (CMD) is considered an emerging threat to cassava in the region. It is caused by a virus that causes chlorosis and distortion of the leaves; this results in reduced yields. The disease is transmitted by infected cuttings and whiteflies. Thus, avoiding sharing of infected materials and use of clean cuttings is key for prevention.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was reported for the first time in Cambodia on 3 April 2019. As of 20 May 2020, 11 outbreaks have been reported, in 5 of the 25 country's provinces (the last occurrence was in August 2019). ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. To date, no effective treatment or vaccine is available.



Threat category: Animal and zoonotic diseases

Threat name: African horse sickness (AHS)

Likelihood of occurrence: High

Forecast (July–September 2020): African horse sickness (AHS) outbreaks are very likely to occur through possible introduction from affected countries in the region.

Context: AHS has not been reported in the country to date, but continues to occur in a neighbouring country from where it can spread. AHS is a severe disease, transmitted by vectors, that affects mainly equids (horses, mules, donkeys and zebras) causing important animal loss.



CHINA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): During the forecast period, there will be a high risk of FAW amplification and spread northwards to cover most parts of China.

Context: On 20 February 2020, the Ministry of Agriculture and Rural Affairs issued a contingency plan for FAW control in the country. To date, 113 counties have reported cases of FAW occurrence. Compared to 2019, in 2020, China will witness a larger base of FAW population sources, both in the southern part of the country and introduced from neighbouring countries.





CHINA

Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infected planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.



Threat category: Plant pests and diseases

Threat name: Wheat rust

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of yellow rust to highland production areas is likely

Context: Yellow rust disease is a recurrent threat to wheat in the country and region. The fungus infects especially the leaves, reducing photosynthesis area and grain weight. Excess rains support development of the disease. The disease has affected crops in spring and can further spread to the highlands. Regular surveys and timely actions are essential.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was reported for the first time in Asia in China, in domestic pigs, in August 2018. As of 20 May 2020, 180 ASF outbreaks have been reported in 32 provinces/administrative divisions out of 34. In addition, the disease was also detected in wild boar in Jilin Province (close to the borders with the Democratic People's Republic of Korea), in Heilongjiang, in Shaanxi and, in February 2020, in Hubei Provinces. This fact enhances the likelihood of ASF spread to neighbouring countries due to wild boar movement, in addition to the risks posed by illegal imports of possibly contaminated pork products from China. An African Swine Fever Contingency Plan and Emergency Response Level II is under implementation in the country. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW introduction, especially with the first report of FAW in the Republic of Korea.

Context: FAW has not been reported in the country yet.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was reported for the first time in the Democratic People's Republic of Korea (DPRK) on 23 May 2019, in Chagang Province. Since then, no other ASF events have been reported in the country. ASF is a highly contagious viral disease of swine, both domestic and wild, which cause high mortality. No effective treatment nor vaccine is available.



Threat category: Forest pests and diseases

Threat name:

Likelihood of occurrence: High

Forecast (July–September 2020): The caterpillars appear in June–July and feed until late autumn. During feeding time, they cause the greatest damage. The lack of pest management activities could cause severe outbreaks.

Context: Due to unprecedented climate change in the Democratic People's Republic of Korea, the biosphere forest reserve in the northern part of country has been infested by the Siberian caterpillar (*Dendrolimus sibiricus*). The pest outbreak has now been occurring at intervals of four to six years in northern alpine forests and middle mountain forests covering most areas of Ryanggang Province, Yonsa and Musan Counties of North Hamgyong Province and parts of Jagang Province. The development period of *D. superans sibiricus*/*D. sibiricus* usually lasts two years. Adults fly from the end of May to the beginning of June. After mating, females lay small groups of eggs on needles, branches and sometimes on the trunk of trees. In total, the females lay usually about 200–250 eggs. Embryo development in an egg takes about 10–15 days; caterpillars appear in June–July. They feed until late autumn and spend the first winter in forest litter. In spring, when the soil temperature averages between 3.5°C and 5.0°C, the overwintering larvae break diapause, and the feeding caterpillars climb up to the crown and feed for the entire summer. In autumn, they return to the forest litter, where they spend their second winter. In spring, they begin to feed intensively (they consume 95 percent of their entire feed during this period) and pupate in May–June in cocoons made from crude web, which are created in crowns, on branches or stems. In warmer years, some of the *D. superans sibiricus* population can develop in just one year.





GAZA STRIP

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): The pest may be able to spread from the location in Egypt where it has been reported (Suhag governorate) through the Nile Valley to farms in the Gaza Strip (approximately 800 km away), and continue to the Mediterranean coast and Sinai. While this is less likely to happen during July–September, it is still possible if favourable conditions encourage pest migration northwards in Egypt.

Context: FAW behaviour poses a threat to maize and other crops, especially for smallholder farmers.



GEORGIA

Threat category: Forest pests and diseases

Threat name: Boxwood moth

Likelihood of occurrence: High

Forecast (July–September 2020): The moth has three to four generations per year in Georgia. The larvae will display high levels of activity from April to June, and the moth flight season is likely to start between late April and mid-May. The second generation's flight season is likely to be in late September–early October.

Context: As part of the Integrated Pest Management (IPM) programme, the biopesticide Btk (*Bacillus thuringiensis kurstaki*) and pheromone traps are being used to protect the native boxwood species. Boxwood moth (*Cydalis perspectalis*), native to eastern Asia, is highly destructive and defoliates boxwood trees. When the day-length drops below approximately 13.5 hrs, the larvae will “diapause” (enter the dormant stage of a developing insect), so that it can overwinter in a web spun on Buxus leaves. In this state, it can survive temperatures as low as -30°C.



Threat category: Forest pests and diseases

Threat name: Boxwood blight

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Boxwood blight will continue to be present and is likely to increase activity, due to the higher humidity and temperature conditions prevailing from April to June.

Context: Monitoring of the disease spread is in progress. Boxwood blight (also known as box blight) is a widespread fungal disease caused by the pathogen *Calonectria pseudonaviculata*, which affects boxwood trees.



INDIA

Threat category: Locusts

Threat name: Desert Locust

Likelihood of occurrence: High

Forecast (July–September 2020): A swarm invasion from the Islamic Republic of Iran, Pakistan and the Horn of Africa of Gujarat and Rajasthan will continue in July, supplemented by summer breeding.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.



Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period,

Context: The pest appeared relatively early, on 30 June 2018. A national-level task force and a response team have been established. Despite training, monitoring through pheromones and provision of recommendations on safe chemical compounds, the chances of pest spread to the northern part of the country are very high. Dry environmental conditions and cropping patterns favour further spread. Several research institutes (ICAR, University, NBAIR and the Indian Institute of Maize and Millet Research) are also working on containing the pest. FAO India is implementing TCP/IND/3709(E): Time-critical measures to support early warning and monitoring for sustainable management of Fall Armyworm in India.



Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infected planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.





INDIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to occur.

Context: On 19 May 2020, seven ASF outbreaks were notified to OIE, occurring in Assam State. As of 20 May 2020, approximately 11 000 pigs have died or have been destroyed. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)

Likelihood of occurrence: High

Forecast (July–September 2020): Lumpy skin disease (LSD) outbreaks are likely to occur.

Context: In November 2019, LSD was reported for the first time in India, in Orisha State. The onset date of the outbreaks was August 2019. LSD was reported for the first time in South Asia in Bangladesh, in September 2019. The disease is suspected to have spread to other states. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.



INDONESIA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period,

Context: FAW was first detected in Indonesia in West Sumatra, in March 2019. Within four months, the pest had spread to 12 provinces in Sumatra, Java and some parts of Kalimantan.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: On December 2019, ASF was confirmed in the country. In October–November 2019, several pig mortalities were reported in North Sumatra Province. On 25 February 2020, the disease was also confirmed in East Nusa Tenggara Province, Timor island. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



IRAN (ISLAMIC REPUBLIC OF)

Threat category: Forest pests and diseases

Threat name: Boxwood blight

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Boxwood blight will continue to be present, but its spread will increase from July to September due to the increasing temperatures and humidity prevailing.

Context: Boxwood blight was reported for the first time in the country in 2012. Currently, approximately 50 000 ha of boxwood forest are affected by the disease. Pest management activities in selected areas are in progress. Boxwood blight (also known as box blight) is a widespread fungal disease caused by the pathogen *Calonectria pseudonaviculata*, which affects boxwood trees.



Threat category: Forest pests and diseases

Threat name: Boxwood moth

Likelihood of occurrence: High

Forecast (July–September 2020): The moth has three to four generations per year in Iran. The larvae will display high levels of activity from July to September and the spread of the moth is likely to increase.

Context: The first introduction of Boxwood moth was reported in August 2016; since then, the native boxwood forests have been under threat. Early action, such as pheromone trapping for monitoring and treatment using biopesticide Btk (*Bacillus thuringiensis kurstaki*) is required to reduce further spread. FAO organized a visit from Georgia to the Islamic Republic of Iran to share experiences on Btk application and on the use of pheromone traps. When the day-length drops below approximately 13.5 hrs, the larvae will “diapause” (enter the dormant stage of a developing insect), so that it can overwinter in a web spun on Buxus leaves. In this state, it can survive temperatures as low as -30°C. Boxwood moth (*Cydalima perspectalis*), native to eastern Asia, is highly destructive and defoliates boxwood trees.



Threat category: Forest pests and diseases

Threat name: Charcoal disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Oak charcoal disease (caused by the pathogen *Biscogniauxia mediterranea*) will continue to affect oak trees during the forecast period, due to the high temperatures and low precipitation rates prevailing.

Context: In the Zagros region, the decline of Oak charcoal disease began in 2012 and has continued to date. Operations to minimize the impact of the charcoal disease and abiotic stresses are in progress. The disease has a negative impact on the livelihoods of nomadic people and watershed management.





IRAQ

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): FAW is less likely to be introduced. However, if this were to happen, the pest would be able to spread widely in Iraq and cause significant damage.

Context: FAW has not been reported in Iraq or any neighbouring countries. Pest behaviour poses a threat to maize and other crops in Iraq, especially for smallholder farmers.



JORDAN

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): FAW has not been reported in Jordan or any neighbouring countries. However, if this were to happen, the pest would be able to spread widely in Jordan and cause significant damage.

Context: FAW behaviour poses a threat to maize and other crops in Jordan, especially for smallholder farmers.



ISRAEL

Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Foot-and-mouth disease (FMD), serotype O, outbreaks are likely to continue to occur.

Context: FMD, serotype O, outbreaks occur sporadically in the country; the last report was in August 2019. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Foot-and-mouth disease (FMD), serotype O, outbreaks are likely to continue to occur.

Context: FMD, serotype O, was last reported in the region in August 2019, in Israel. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



JAPAN

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period.

Context: FAW has not been reported in the country yet.



KUWAIT

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): FAW is less likely to be introduced. However, if this were to happen, the pest would be able to spread widely in Kuwait and cause significant damage.

Context: FAW has not been reported in Kuwait or any neighbouring countries. The pest poses a threat to maize and other crops in Kuwait, especially for smallholder farmers.



LAO PEOPLE'S DEMOCRATIC REPUBLIC

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period,

Context: A survey first found FAW in early 2019 in Sendin Village, Naxaithong District, Vientiane, and an outbreak in Paklai District, Sayaboury Province. The survey also found FAW damage in other areas, such as Vientiane Province, Oudomxay, Xiengkhouang, Borikhamxay and Savannakhet. The total area of damaged maize production was estimated at over 3 300 ha.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to occur, through possible introduction from affected countries in the region.

Context: ASF has not been reported in the country to date, but continues to occur in other Asian countries, from where it can be imported into Japan. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.





LAO PEOPLE'S DEMOCRATIC REPUBLIC

Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infected planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was reported for the first time in Lao People's Democratic Republic (Lao PDR) on 20 June 2019, in Salavan Province. As of 20 May 2020, Lao PDR has reported at least 170 outbreaks in all 18 provinces of the country (the last occurrence being in October 2019). ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. To date, no effective treatment nor vaccine is available.



LEBANON

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): FAW is less likely to be introduced. However, if this were to happen, the pest would be able to spread widely in Lebanon and cause significant damage.

Context: FAW has not been reported in Lebanon or any neighbouring countries. The pest poses a threat to maize and other crops in Lebanon, especially for smallholder farmers.



Threat category: Forest pests and diseases

Threat name: Dry cone syndrome

Likelihood of occurrence: High

Forecast (July–September 2020): Dry cone syndrome will continue to cause damage to pine plantations (*Pinus pinea*), due to the low precipitation rates and high temperatures prevailing.

Context: Heavy yield losses continue to impact rural livelihoods. Yield reduction of pine nuts has been reported throughout the country. Silvicultural practices to strengthen the trees are in progress.



Threat category: Forest pests and diseases

Threat name: Western conifer seed bug

Likelihood of occurrence: High

Forecast (July–September 2020): Western conifer seed bug is likely to engage in high levels of activity, due to increased temperatures prevailing from April to June. Oviposition on stone pines will start in late spring, and the first generation will experience the larval stage up to late June and early July.

Context: Monitoring of the pest population using traps is in progress. Western conifer seed bug (*Leptoglossus occidentalis*) is an invasive insect pest that feeds mainly on conifer seeds. The nymphs and adults spend the summer on pine trees, where they use their piercing-sucking mouthparts to feed on twig and green pinecone sap. The adults will also eat fruits, seed pulp and flowers.



MALAYSIA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW re-emergence/ amplification/spread.

Context: Malaysia's Department of Agriculture (DOA) received a report confirming that FAW (*Spodoptera frugiperda*) was positively identified (morphology identification) from samples collected from maize plantations in a farm in Chuping Valley, Perlis, which is located along the border with Thailand. The FAW samples were collected in February 2019, and were morphologically identified and subjected to molecular analysis by entomologists from the DOA Malaysia. Following that, a detection survey was conducted throughout the country to find and identify the area invaded by FAW. As at September 2019, FAW has been detected throughout peninsular Malaysia (11 states), most recently in Kuching, Sarawak, where it was detected and confirmed in September 2019. The total area affected by FAW is estimated at 246.35 ha, with a percentage of severity between 50 percent and 100 percent for planted maize less than 40 days in age. Sabah is free from FAW and the DOA Sabah is currently conducting detection surveys to observe any invasions.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to occur through possible introduction from affected countries in the region.

Context: ASF has not been reported in the country to date, but continues to occur in neighbouring countries. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.





MONGOLIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: In January 2019, the first outbreaks of ASF in Mongolia were reported. Since then, 11 ASF outbreaks have been confirmed in 7 out of 21 regions of the country. There is no information concerning surveillance in wild boar, while the extensive presence of wild boars in infected areas is well known. The virus may be present in the wild boar population in the country. On 27 March 2019, country authorities declared that the ASF epidemic in the country had ended. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was reported for the first time in Myanmar on 14 August 2019. Since then, and as of 20 May 2020, six ASF outbreaks have been reported in Shan State and Kachin State (the last occurrence being in February 2020). ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



MYANMAR

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period.

Context: FAW was confirmed in August 2018 in Myanmar. There are two main maize-growing seasons in the country, monsoon and post-monsoon. In most of the areas, crops are grown during the post-monsoon season, except Shan State, where growing starts from end May-early June.



Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infected planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.



Threat category: Animal and zoonotic diseases

Threat name: Foot-and-mouth disease (FMD)

Likelihood of occurrence: High

Forecast (July–September 2020): The further spread of Foot-and-mouth disease (FMD) is likely to occur within the country.

Context: Due to recent outbreaks in India and Sri Lanka, and because of the epidemiological pattern of FMD transmission from Pool 2 to Pool 1 through Myanmar, the situation in Myanmar should be followed closely. FMD is a highly contagious disease among cattle, buffalo, sheep and pigs that can cause a sharp drop in milk and meat production, in addition to mortality in young animals. It is the most disruptive animal disease for livestock trade.



Threat category: Animal and zoonotic diseases

Threat name: African horse sickness (AHS)

Likelihood of occurrence: High

Forecast (July–September 2020): African horse sickness (AHS) outbreaks are very likely to occur through possible introduction from affected countries in the region.

Context: AHS has not been reported in the country to date, but continues to occur in a neighbouring country, from where it can spread. AHS is a severe disease, transmitted by vectors, that affects mainly equids (horses, mules, donkeys and zebras) causing important animal loss.



NEPAL

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period.

Context: The pest was found to occur in a low-hill district on 12 August 2019, in maize. Since then, it has spread to other crops, such as sorghum, rice and other cereals. A national-level task force team, including staff from the Government, FAO, the U.S. Agency for International Development (USAID), non-governmental organizations and the private sector, is working on response to the pest. Protocol development and work on early warning, monitoring and management activities are being undertaken.





NEPAL

Threat category: Plant pests and diseases

Threat name: Rice neck blast disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Rice neck blast disease is likely to spread.

Context: The causal fungus, found throughout the world, is an important pathogen of rice crops, infecting all parts above ground. It reduces the photosynthesis area, and when the neck and panicles are infected, few or no grains are produced. The disease spreads from infected seeds or straws. Long rains favours development and spread the disease. Use of resistant varieties and clean seeds is critical.



OMAN

Threat category: Locusts

Threat name: Desert Locust

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Residual populations may persist in the north; small-scale breeding may continue in the south.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.



Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): Favourable conditions in July–September and the cultivation of summer crops will further encourage pest spread in Oman.

Context: FAW was reported in Oman and the United Arab Emirates in 2020, which suggests that the pest has spread from Yemen northwards and westwards, across hundreds of kilometres, since it was reported in Yemen in 2018. The pest poses a threat to maize and vegetable crops in Oman, especially for smallholder farmers.



PAKISTAN

Threat category: Locusts

Threat name: Desert Locust

Likelihood of occurrence: High

Forecast (July–September 2020): Swarm invasions of Sindh from the Islamic Republic of Iran and the Horn of Africa could occur in July, supplemented by summer breeding along the border with India.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.



Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infected planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.



PHILIPPINES

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period due to the availability of some of FAW's favourite crops, combined with suitable climatic conditions.

Context: The Government's Crop Pest Management Division received reports from Regional Crop Protection Center 2 (RCPC 2) on a suspected incidence of FAW in Piat, Cagayan. FAW damages several stages of the corn, feeding on the corn from seedling stage up to maturity. The forms of damage reported are the following: cuttings (chewed stems) of seedlings at ground level; defoliating of corn leaves at whorl stage through feeding; feeding and damage on the corn tassel; and feeding and burrowing in the corn ear cobs, causing damage to the grains that can lead to rot.





PHILIPPINES

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was reported for the first time in the Philippines on 09 September 2019. As of 20 May 2020, at least 335 ASF outbreaks have been reported in 27 out of 81 administrative divisions in the country. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.

Threat category: Aquatic diseases

Threat name: Tilapia lake virus (TiLV)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): During the forecasting period the production cycle of tilapia will be active. In addition, TiLV was reported to occur in August and September 2019 in the country according to a joint Quarterly Aquatic Animal Disease Report (Jan, 2020) by FAO, OIE and NACA.

Context: TiLV occurs when the water temperature is between 22°C and 32°C (as experienced for example in Israel); it has also been observed in farms with large-sized fish and a high stocking density. TiLV is already present in the country. It was first observed in May 2017 and the other three outbreaks were reported in May 13, 14 2018 and Sep 26 respectively. Monitoring and active surveillance systems have been established.

QATAR

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)



Likelihood of occurrence: High

Forecast (July–September 2020): During favourable conditions in July–September, it is highly possible that FAW will continue spreading northwards, to reach and be introduced into Qatar.

Context: The pest was reported in Oman and the United Arab Emirates in 2020. The pest poses a threat to maize and vegetable crops in Qatar.

REPUBLIC OF KOREA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)



Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period due to the availability of FAW's favourite crops (maize, millet, sorghum and rice), combined with suitable climatic conditions.

Context: Suspected FAW larvae were first detected in four corn fields on Jeju Island on 14 June 2019. They were identified as *Spodoptera frugiperda* larvae by DNA barcoding on 16 June 2019. This was the first detection of FAW in the Republic of Korea.

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: On 17 September 2019, ASF was reported for the first time in the Republic of Korea, near the border with the Democratic People's Republic of Korea. Up to 9 October 2019, 14 ASF events had been confirmed in domestic pigs, in two administrative divisions in the country. As of 20 May 2020, 623 dead wild boar have been found to be infected with ASF in two provinces of the country. ASF is a contagious viral disease of swine, both domestic and wild, that causes high mortality. No effective treatment nor vaccine is currently available.

SAUDI ARABIA

Threat category: Locusts

Threat name: Desert Locust



Likelihood of occurrence: Moderate

Forecast (July–September 2020): Residual populations in the south near the border with Yemen may be supplemented by infestations from Yemen.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)



Likelihood of occurrence: High

Forecast (July–September 2020): The climatic region and the presence of host plants favour FAW spread to farms in the Jazan, Najran and Asir regions, as Saudi Arabia shares a long border with Yemen, where the pest has been reported.

Context: Hot humid and semi-arid climatic regions form a continuous range between Yemen and Saudi Arabia. There is an abundance of host plants on both sides, which increases the likelihood of FAW introduction. The pest will threaten plantations of maize, sorghum and other vegetable crops in southern Saudi Arabia.



SAUDI ARABIA

Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely, given animal movement and the informal marketing of infected animals from neighbouring countries.

Context: According to the FAO RVF Monitoring/Early Warning tool, the conditions suitable for RVF vector amplification in May 2020 persist in the region. A few hotspots are also predicted in southern Egypt (along the Nile river) and Yemen. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.



SINGAPORE

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW introduction from Thailand and Viet Nam.

Context: FAW has not been reported in the country yet.



SRI LANKA

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period.

Context: FAW has infested maize mainly in Anuradhapura, Monaragala and Ampara Districts. The pest has been detected almost all districts in the country, in farm patches. The total maize-cultivated land infected by FAW over the three abovementioned districts measure 61 010 ha and 34 856 ha. Furthermore, FAW has been reported to spread to crops such as rice, tomato, millet, green gram and some grass varieties. Out of 82 000 ha of cultivated areas in Sri Lanka, 43 037 ha have been reported to be infected by FAW. The total estimated crop loss in the country ranges from 10 percent to 25 percent.



SYRIAN ARAB REPUBLIC

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): FAW is less likely to be introduced. However, if this were to happen, the pest would be able to spread widely in the Syrian Arab Republic and cause significant damage.

Context: The pest has not been reported in the Syrian Arab Republic or in any neighbouring countries. The pest poses a threat to maize and other crops in the country, especially for smallholder farmers.



THAILAND

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period.

Context: Thailand's Department of Agriculture received a report that confirms FAW presence in samples collected in December 2018 from maize plantations in subdistricts of Kanchanaburi and Tak Provinces, along the border with Myanmar. FAW has been detected in more than 50 of Thailand's 76 provinces, and is concentrated in 6 western provinces with large maize areas.



Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infested planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to occur through possible introduction from affected countries in the region.

Context: ASF has not been reported in the country to date, but continues to occur in neighbouring countries. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.





THAILAND

Threat category: Animal and zoonotic diseases

Threat name: African horse sickness (AHS)

Likelihood of occurrence: High

Forecast (July–September 2020): African horse sickness (AHS) outbreaks are likely to continue to occur.

Context: AHS was reported in Southeast Asia for the first time in Thailand, on 27 March 2020. As of 25 May 2020, the disease has spread in 12 provinces of the country, affecting 589 horses and killing 548 of them. The risk of further spread of AHS within the country and in unaffected neighbouring countries (such as Myanmar and Cambodia) is considered high. Thanks to a vaccination campaign launched on 19 April in Thailand, outbreaks are expected to be mitigated towards September 2020, although the moist mild weather conditions and warm temperatures would favour the presence of insect vectors (*Culicoides* spp.) during the incoming rainy season. AHS is a severe disease, transmitted by vectors, that affects mainly equids (horses, mules, donkeys and zebras) causing important animal loss.



Threat category: Aquatic diseases

Threat name: Tilapia lake virus (TiLV)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): During the forecasting period the production cycle of tilapia will be active. And TiLV was reported to occur in July, August and September 2019 in the country according to a joint Quarterly Aquatic Animal Disease Report (Jan, 2020) by FAO, OIE and NACA. Additionally, the permissive temperature range for TiLV outbreaks will be present.

Context: TiLV occurs when the water temperature is between 22°C and 32°C (as experienced for example in Israel); it has also been observed in farms with large-sized fish and a high stocking density. TiLV is already present in the country. Monitoring and active surveillance systems have been established.



TIMOR-LESTE

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was reported for the first time in Timor-Leste on 27 September 2019. In total, 126 outbreaks have been reported in all 13 administrative divisions of the country. More than 1 600 pigs have died due to ASF (the last occurrence being in December 2019). ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



TURKEY

Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infected planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.



UNITED ARAB EMIRATES

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): The favourable conditions prevailing in July–September and the cultivation of summer crops will further encourage pest spread in the United Arab Emirates.

Context: FAW was reported in Oman and in the United Arab Emirates in 2020, which suggests that the pest has spread from Yemen northwards and westwards, across hundreds of kilometres, since it was reported in Yemen in 2018. The pest poses a threat to maize and vegetable crops in the country, especially for smallholder farmers.



WEST BANK

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): FAW is less likely to be introduced into the West Bank. However, if this were to happen, the pest would be able to spread widely in Iraq and cause significant damage.

Context: FAW has not been reported in the West Bank or any neighbouring countries. The pest poses a threat to maize and other crops in the West Bank, especially for smallholder farmers.



VIET NAM

Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): There will be a high risk of FAW amplification during the forecast period.

Context: In early March 2019, Viet Nam submitted specimens collected in border areas to the Centre for Agriculture and Bioscience International for molecular identification of the species. They were later confirmed as FAW.





VIET NAM

Threat category: Plant pests and diseases

Threat name: Banana fusarium wilt disease

Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of Fusarium wilt disease, Tropical Race 4 (TR4), in banana crops is likely.

Context: Fusarium wilt disease, Tropical Race 4 (TR4), has been reported recently and further spread is possible. The disease is soilborne and cannot be eradicated once it becomes established in the soil. It attacks banana plants of all ages, initially appearing with a yellowing of the leaves and then causing wilting and plant death. Infected planting materials and water, and movement of infested soil particles with shoes, tools and vehicles play a major role in spread. The fungus remains viable in soil for decades; therefore, speedy containment is critical.



Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was reported for the first time in domestic pigs in Viet Nam in February 2019. As of 20 March 2020, the disease continues to occur in the country. ASF is a highly contagious viral disease of swine, both domestic and wild, which cause high mortality. No effective treatment nor vaccine is available.



YEMEN

Threat category: Locusts

Threat name: Desert Locust

Likelihood of occurrence: High

Forecast (July–September 2020): Breeding will occur in the coastal and interior areas that receive rain. This will cause locusts to increase and form groups, bands and small swarms.

Context: Numerous Desert Locust (*Schistocerca gregaria*) populations are a threat to agricultural production in Africa, the Middle East and Asia, and have a negative impact on food security. The livelihoods of at least one tenth of the world's population can be affected by this voracious insect. Desert locusts are potentially the most dangerous locust pests due to swarms' ability to fly quickly over long distances.



Threat category: Plant pests and diseases

Threat name: Fall armyworm (FAW)

Likelihood of occurrence: High

Forecast (July–September 2020): The favourable conditions prevailing and the cultivation of summer crops will encourage further spread of and damage caused by the pest.

Context: The pest has been reported in Yemen since 2018 and has spread to all locations with suitable host and favourable climatic conditions. In fact, according to reports, the pest has also spread to Oman and the United Arab Emirates, north and east of Yemen. The pest poses a threat to 400 000 ha of sorghum in Yemen, as well as to maize and to other crops. Most of the maize and sorghum farms in Yemen are managed by small-scale farmers.



Threat category: Animal and zoonotic diseases

Threat name: Rift Valley fever (RVF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): RVF occurrence is likely, given animal movement and informal marketing of infected animals from neighbouring countries.

Context: According to the FAO RVF Monitoring/Early Warning tool, the conditions suitable for the RVF vector amplification in May 2020 persist in the region. A few hotspots are also predicted in southern Egypt (along the Nile river) and Yemen. Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans, causing significant economic losses due to death and abortion of RVF-infected livestock.





EUROPE

ALBANIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): African swine fever (ASF) outbreaks are likely to occur as the disease is present in the region.

Context: ASF has not been reported in the country. However, it was confirmed in August 2019 in Serbia and in February 2020 in Greece, thus increasing the risk for the region. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.



Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): LSD outbreaks are likely to occur because of the favourable weather conditions for the vectors during the forecast period.

Context: Observed for the first time in June 2016, LSD has caused almost 850 outbreaks, affecting 32 counties. Throughout 2017, outbreaks continued to be detected but were not officially reported. An emergency vaccination campaign has been implemented, and regular vaccination campaigns are carried out. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.



BELARUS

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are likely to occur.

Context: ASF was officially last reported in the country in 2013. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.



Threat category: Forest pests and diseases

Threat name: Bark beetles

Likelihood of occurrence: High

Forecast (July–September 2020): Bark beetles (mainly *Ips* spp.) may have up to three generations per year at warmer sites in Europe. The flight of the second generation is likely to start in July and August; and that of the third generation in early September.

Context: The pests are causing severe damage to pine plantations in Belarus. Sanitary felling and other silvicultural practices to reduce the insect populations are in progress. The adults and larvae of *Ips* spp. are bark-feeding, mainly attacking declining trees and freshly cut wood. Outbreaks can cause heavy tree losses and have a significant economic impact on plantations.



BELGIUM

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): African swine fever (ASF) outbreaks are likely to continue to occur.

Context: In September 2018, dead wild boar were found to be positive to ASF in Luxembourg Province. As of February 2020, 833 wild boar were found to be infected in Luxembourg Province only. The last findings of fresh carcasses occurred in August 2019. Wild boar population density is the most important factor in the spread of the disease. The disease may become endemic only in wild boar, even in the absence of pigs. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.



BOSNIA AND HERZEGOVINA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to occur through possible virus introduction from neighbouring countries.

Context: ASF has not been reported in the country. However, ASF was confirmed in August 2019 in Serbia and in February 2020 in Greece, thus increasing the risk for the region. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.



**BULGARIA**

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was first reported in the country in August 2018. Since then, additional events have been reported in wild boar (the last events occurring in March 2020). ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.



Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): LSD outbreaks are likely to occur because of the favourable weather conditions for the vectors during the forecast period.

Context: The last reported outbreak of LSD in Bulgaria occurred in 2016. No new outbreaks were observed after these events, but the disease may spread from neighbouring affected countries. Regular vaccination campaigns are carried out. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.

**CROATIA**

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to occur through possible virus introduction from neighbouring countries.

Context: ASF has not been reported in the country. However, it was confirmed in August 2019 in Serbia and in February 2020 in Greece, thus increasing the risk for the region. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

**CZECH REPUBLIC**

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to occur through possible virus introduction from neighbouring countries.

Context: ASF was first reported in the country in July 2017. In February 2019, the Czech Republic was the first country in the EU to be officially declared free from ASF after it had been infected in recent years. As no outbreak had been found in the Czech Republic since April 2018, the country received the support of the EU member states in lifting all restrictions in the country. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

**ESTONIA**

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: Since the first introduction of ASF into the country in September 2014, the disease continued to be regularly reported in wild and domestic pigs. The disease is considered endemic in the country and disease reports are provided only on a six-monthly basis. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

**GERMANY**

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to occur through possible virus introduction from neighbouring countries.

Context: In September 2018, two dead wild boar were found to be positive to ASF in Étalle (Luxembourg Province), where the disease continued to be reported until August 2019. This represented the first introduction into Western Europe of ASF, genotype 2 during the current epidemic. Wild boar population density is the most important factor in the spread of the disease in the country. Thus, ASF is most likely to persist and become endemic due to the presence of wild boar populations. In particular, the French territory close to infected areas in Belgium presents a high density of wild boar. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

**GREECE**

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: Moderate

Forecast (July–September 2020): African swine fever (ASF) outbreaks are likely to continue to occur.

Context: ASF was officially reported for the first time in the country in February 2020, in domestic pigs. Since then, no additional ASF events have occurred in the country. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.





GREECE

Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): LSD outbreaks are likely to occur because of the favourable weather conditions for the vectors during the forecast period.

Context: The last observed outbreaks of LSD in Greece were in February 2017, in Kerkyra, an Ionian island, and in August 2017, in Thessalia Region. No new outbreaks were observed after these events. An emergency vaccination campaign has been implemented, and regular vaccination campaigns are carried out. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.

HUNGARY

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was officially reported for the first time in the country in April 2018, in wild boar. The disease continues to be reported. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

KOSOVO

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are likely to occur through possible virus introduction from neighbouring countries.

Context: ASF has not been reported in the country. However, ASF was confirmed in August 2019 in Serbia and in February 2020 in Greece, thus increasing the risk for the region. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): LSD outbreaks are likely to occur because of the favourable weather conditions for the vectors during the forecast period.

Context: In June 2016, LSD was first observed in a backyard farm in Pcinja District, in neighbouring Serbia. Since then, 223 outbreaks have been officially reported, the last of which was observed in October 2016. An emergency vaccination campaign has been implemented. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.

LATVIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF continues to be regularly reported in the country in wild and domestic pigs. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

LITHUANIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: Since ASF was first introduced into the country in January 2014, the disease has continued to be regularly reported in wild and domestic pigs. The disease is considered endemic in the country and disease reports are provided only on a six-monthly basis. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

LUXEMBOURG

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): African swine fever (ASF) outbreaks are likely to occur through possible virus introduction from neighbouring countries.

Context: In September 2018, two dead wild boar were found to be positive to ASF in Étalle (Luxembourg Province), where the disease continued to be reported until August 2019. This represented the first introduction into Western Europe of ASF genotype 2 during the current epidemic. Wild boar population density is the most important factor in the spread of the disease in the country. Thus, ASF is most likely to persist and become endemic due to the presence of wild boar populations. In particular, the French territory close to infected areas in Belgium presents a high density of wild boar. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

**MONTENEGRO**

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are likely to occur through possible virus introduction from neighbouring countries.

Context: ASF has not been reported in the country. However, ASF was confirmed in August 2019 in Serbia and in February 2020 in Greece, thus increasing the risk for the region. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): LSD outbreaks are likely to occur because of the favourable weather conditions for the vectors during the forecast period.

Context: The disease was first observed in the country in April 2016. Since then, LSD has spread throughout the country, causing at least 60 outbreaks in 7 municipalities. The last observed outbreak occurred in October 2017. An emergency vaccination campaign has been implemented, and regular vaccination campaigns are carried out. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.

POLAND

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF continues to be regularly reported in the country in wild and domestic pigs. The disease continues to be reported. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

REPUBLIC OF MOLDOVA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: Since ASF was first introduced into the country in November 2016, the disease continues to be reported. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

REPUBLIC OF NORTH MACEDONIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to occur through possible virus introduction from neighbouring countries.

Context: ASF has not been reported in the country. However, ASF was confirmed in August 2019 in Serbia and in February 2020 in Greece, thus increasing the risk for the region. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): LSD outbreaks are likely to occur because of the favourable weather conditions for the vectors during the forecast period.

Context: Observed for the first time in July 2016, LSD has caused almost 170 outbreaks, affecting 21 municipalities. After the outbreak of September 2016, two outbreaks were observed in northern municipalities of the country in February and April 2017. No new outbreaks have been observed after those events. An emergency vaccination campaign has been implemented, and regular vaccination campaigns are carried out. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.

ROMANIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are likely to continue to occur.

Context: Since ASF was first introduced into the country in July 2017, ASF continues to be regularly reported in wild and domestic pigs. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

RUSSIAN FEDERATION

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF continues to be regularly reported in the country in wild and domestic pigs. The last events occurred in April 2020. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.



RUSSIAN FEDERATION

Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): LSD outbreaks are likely to occur because of the favourable weather conditions for the vectors during the forecast period.

Context: After its re-emergence in the country in May 2016, LSD has spread north-, east- and westwards, affecting 20 administrative subjects and causing almost 500 outbreaks. Several outbreaks were reported in July and August 2018; the most recent outbreak was reported in October 2019. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.

SERBIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was first confirmed in domestic pigs, close to the capital, in August 2019. The last event occurred in February 2020. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

Threat category: Animal and zoonotic diseases

Threat name: Lumpy skin disease (LSD)



Likelihood of occurrence: Moderate

Forecast (July–September 2020): LSD outbreaks are likely to occur because of the favourable weather conditions for the vectors during the forecast period.

Context: In June 2016, LSD was first observed in a backyard farm in Pcinja District. Since then, 223 outbreaks have been officially reported in 12 districts. The last observed outbreak occurred in October 2016; since then, no new outbreaks have been reported. An emergency vaccination campaign has been implemented, and regular vaccination campaigns are carried out. LSD is a severe disease, transmitted by vectors, that affects mainly cattle, causing important meat and milk production losses.

SLOVAKIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF was first confirmed in the country on 23 July 2019. Since then, ASF has been reported both in wild and domestic pigs in Kosice region (the last event occurring in March 2020). ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

UKRAINE

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) outbreaks are very likely to continue to occur.

Context: ASF continues to be regularly reported in the country in wild and domestic pigs. The last events occurred in April 2020. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No vaccines are available.

Threat category: Forest pests and diseases

Threat name: Bark beetles



Likelihood of occurrence: High

Forecast (July–September 2020): Bark beetles (mainly Ips spp.) may have up to three generations per year at warmer sites in Europe. The flight of the second generation is likely to start in July and August; and that of the third generation in early September. From mid-April, bark beetles start flying and infesting weakened trees.

Context: The pests are causing severe damage in pine plantations. Sanitary felling and other silvicultural practices to reduce the insect populations are in progress. The adults and larvae of Ips spp. are bark-feeding, mainly attacking declining trees and freshly cut wood. Outbreaks can cause heavy tree losses and have a significant economic impact on plantations.

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN

Threat category: Plant pests and diseases

Threat name: Wheat rust



Likelihood of occurrence: Moderate

Forecast (July–September 2020): Spread of yellow rust is likely.

Context: Yellow rust disease is a recurrent threat to wheat in the country and region. The fungus infects especially the leaves, reducing the photosynthesis area and grain weight. Excess rains support development of the disease. The disease has affected crops in spring and can further spread to highlands. Regular surveys and timely actions are essential.

Threat category: Plant pests and diseases

Threat name: Potato late blight disease



Likelihood of occurrence: Moderate

Forecast (July–September 2020): Potato late blight disease is likely to occur.

Context: Late blight disease has long affected potato in Europe and elsewhere. The causal fungus spreads from infected planting materials or debris spread through wind and water splashes. Long rains promote the disease. Use of clean planting materials and resistant varieties, crop sanitation and timely sprays are important for disease control.



OCEANIA

AMERICAN SAMOA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF was reported for the first time in end September 2019 in Timor-Leste and in December 2019 in Indonesia. In February 2020, ASF was reported in East Nusa Tenggara Province, Timor island. Because of the value-chain links of swine and their products among the countries in the region (for example through associated routes (TARs), illegal imports of food, movement of people), there is a high risk of spread of the disease towards the Pacific Islands and Australia. Further spread of ASF within the region would have devastating consequences for animal health, food safety and food security, especially in countries where biosecurity in pig farming is low, and compensation to farmers for depopulation of pigs is questionable. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



AUSTRALIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF has not been reported in the country to date. However, a risk of ASF spread in Oceania from infected countries in the region, as well as in Asia and Europe, cannot be excluded. The level of risk is from moderate to high, as the ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic and basic), and it survives in the environment and pork products (potentially remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



FIJI

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF has not been reported in the country to date. However, a risk of ASF spread in Oceania from infected countries in the region, as well as in Asia and Europe, cannot be excluded. The level of risk is from moderate to high, as the ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic and basic), and it survives in the environment and pork products (potentially remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



NEW CALEDONIA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF has not been reported in the country to date. However, a risk of ASF spread in Oceania from infected countries in the region, as well as in Asia and Europe, cannot be excluded. The level of risk is from moderate to high, as the ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic and basic), and it survives in the environment and pork products (potentially remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



PAPUA NEW GUINEA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)

Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to continue to spread.

Context: ASF was reported for the first time in Oceania in Papua New Guinea on 27 March 2020, causing the death of approximately 400 domestic pigs. Additional outbreaks can be expected in the country. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.





SAMOA

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF has not been reported in the country to date. However, a risk of ASF spread in Oceania from infected countries in the region, as well as in Asia and Europe, cannot be excluded. The level of risk is from moderate to high, as the ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic and basic), and it survives in the environment and pork products (potentially remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.

VANUATU

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF has not been reported in the country to date. However, a risk of ASF spread in Oceania from infected countries in the region, as well as in Asia and Europe, cannot be excluded. The level of risk is from moderate to high, as the ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic and basic), and it survives in the environment and pork products (potentially remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.

SOLOMON ISLANDS

Threat category: Animal and zoonotic diseases

Threat name: African swine fever (ASF)



Likelihood of occurrence: High

Forecast (July–September 2020): African swine fever (ASF) is very likely to spread from affected countries.

Context: ASF has not been reported in the country to date. However, a risk of ASF spread in Oceania from infected countries in the region, as well as in Asia and Europe, cannot be excluded. The level of risk is from moderate to high, as the ASF virus is extremely resistant to broad ranges of temperatures and pH (acidic and basic), and it survives in the environment and pork products (potentially remaining viable in raw pork or cured meats for several months). In addition to the progressive spread of the virus in Asia, relatively weak border inspection, surveillance and control capacities in some countries in the Americas must be noted. ASF is a highly contagious viral disease of swine, both domestic and wild, which causes high mortality. No effective treatment nor vaccine is available.



GLOSSARY

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 an FCC threat into a country, across border or to a specific area for the upcoming three months.
Likelihood of occurrence	Chances of an FCC threat to happen for the upcoming three months.
Likelihood of spread	Chances of geographical spread of an FCC threat within a country beyond its original introduction for the upcoming three months.
Likelihood of re-emergence/amplification	Chances of re-emergence/amplification (increase, breeding, etc.) of a threat already existing within a country for the upcoming three months.
Biosecurity	All the cumulative measures that can or should be taken to keep disease (viruses, bacteria, fungi, protozoa, parasites) from a farm and to prevent the transmission of disease (by humans, insects, rodents and wild birds and animals) within an infected farm to a neighbouring farm (FAOTERM).
Incursion	An isolated population of a pest recently detected in an area, not known to be established, but expected to survive for the immediate future (FAOTERM).
Outbreak	A recently detected pest population, including an incursion, or a sudden significant increase of an established pest population in an area (FAOTERM).
Zoonosis	Any disease or infection which is naturally transmissible from animals to humans (FAOTERM).



INFORMATION SOURCES

TRANSBOUNDARY ANIMAL AND AQUATIC DISEASES

- African swine fever risk assessment available at: <http://www.fao.org/3/i8805en/I8805EN.pdf>
- Avian influenza
 - Risk assessment: <http://www.fao.org/3/i8705en/I8705EN.PDF>
 - EMPRES - I: <http://empres-i.fao.org/eipws3g/>
 - OIE/FAO Network of Expertise on animal influenzas (OFFLU): www.offlu.net
- ECDC - Communicable disease threats report (CDTR) available at: <https://ecdc.europa.eu/en/threats-and-outbreaks>
- 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) available at: <http://empres-i.fao.org/eipws3g/>
- Global Early Warning System (GLEWS) at FAO
- OIE World Animal Health Information Database (WAHID) Interface available at: http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home
- Tilapia Lake Virus (TiLV) disease card available at: http://www.oie.int/fileadmin/Home/eng/International_Standard_Setting/docs/pdf/A_TiLV_disease_card.pdf

DESERT LOCUST

FAO Desert Locust Information Service (DLIS) available at: www.fao.org/ag/locusts

Locusts (three species) in Caucasus and Central Asia

- Regional monthly bulletins on locust situations in CCA available at: <http://www.fao.org/ag/locusts-CCA/en/1014/index.html>
- Reports of the annual Technical Workshop on Locusts in CCA available at: <http://www.fao.org/ag/locusts-CCA/en/index.html>

FALL ARMYWORM

<http://www.fao.org/fall-armyworm/en/>

WHEAT RUST DISEASE

Global wheat rust monitoring system

WEATHER FORECAST

<https://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts/>

<http://www.noaa.gov/weather>

THREATS TO FOOD SECURITY

FAO Crop Prospects and Food Situation – Quarterly Global Report – No.2, July 2020

GLOSSARY

- FAO Term portal: <http://www.fao.org/faoterm/en/>
- IPPC Glossary: <https://www.ippc.int/en/publications/glossary-phytosanitary-terms/>
- FAO Food Safety and Quality website - A-Z index: <http://www.fao.org/food/food-safety-quality/a-z-index/biosecurity/en/>
- ACAPS: <https://www.acaps.org/>

