Food Security Early Warning System

Agromet Update

2020/2021 Agricultural Season

Issue 01 Month: November **Season: 2020-2021** **23-11-2020**

Highlights

- **The rainfall season has started well in south-eastern parts of the region, with average to above average rainfall received, although below average rainfall was estimated in northern areas.**
- **Seasonal forecasts indicate enhanced chances of normal to above normal rainfall, raising the potential for good agricultural production, despite associated risks with flooding and pests.**
- **An outbreak of the African Migratory Locust has affected five Member States, and has prompted a SADC regional appeal to support control of and response to the outbreak.**

Rainfall patterns to date

The rainfall season has started well in many parts of the region. Between September and early November, normal to above average rainfall was received in parts of Botswana, Lesotho, Mozambique, South Africa and Zimbabwe (Figure 1). Above average rainfall was also recived in northern Tanznia, as part of the *Vuli* short-season rains in areas that experience two rainfall seasons. In contrast, below average rainfall was received in parts of Angola, DRC, Eswatini, eastern and central Madagascar, and parts of Zambia. The rainfall performance to date is much improved compared to the last few seasons, including last season whene many areas had still received little to no rainfall by this time. The high rainfall to date has also been associated with flash flooding in north-eastern South Africa, central Mozambique and eastern Zimbabwe in early November.

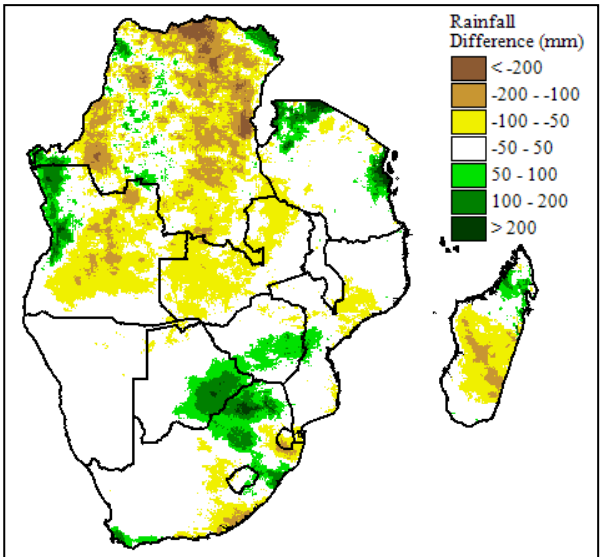

Figure 1. Rainfall for 1 Sep to 10 Nov 2020 expressed as difference from average rainfall for the same period.
Source: CHIRPS, CHIRPS Prelim – FEWS NET

Onset of rains and planting progress

In most areas, early season rains received in October and early November typically facilitate agricultural land preparation and planting. Planting rains are generally received in November in most southern and central parts of the region. The exception to this is parts of South Africa, Eswatini, Lesotho, and central Madagascar where seasonal rains typically start in October. Planting rains in DRC, Angola, north-western Tanzania, and northern Zambia are also typically received in September and October.

This season, early rains experienced in many areas encouraged land preparation and early planting, and a number of areas have already received sufficient rains to commence planting (Figure 2). This onset of rains has occurred earlier than usual, in many cases 10 to 20 days earlier than the average timing of onset of rains. However, in some areas such as parts of Eswatini where farmers planted with the early October rains, reports indicate that subsequent dry conditions resulted in early wilting of

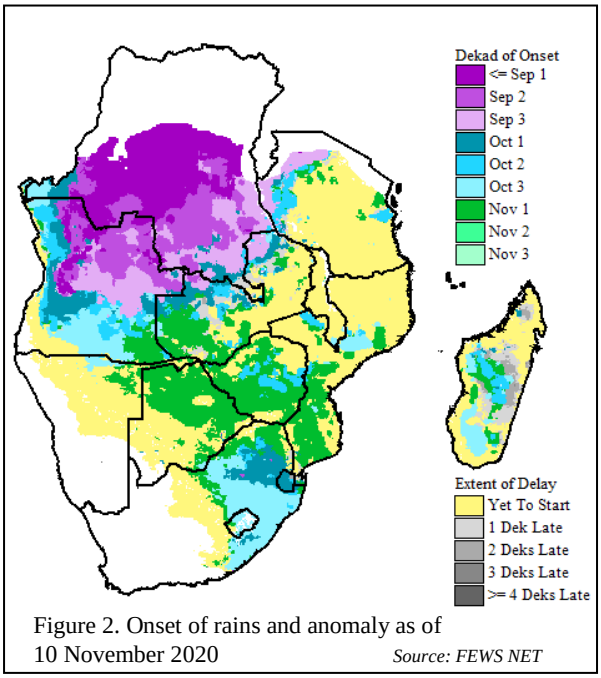

Figure 2. Onset of rains and anomaly as of 10 November 2020 *Source: FEWS NET*

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crops and poor germination. This is reflected in the cumulative below normal rainfall in Eswatini. In many areas that received good rains in early November, such as eastern Botswana, southern Moambique, western Zambia, and Zimbabwe, consistent follow up rains are still required before the end of November in order to promote crop establishment and avoid early season crop wilting that could necessitate replanting. The current dry conditions that followed the early November rains in some central areas are projected to continue throughout mid-November, with follow-up rains projected to occur by late November, according to short-term forecasts. In parts of central and eastern Madagascar, the onset of rains is now up to 20 days late. Short term forecasts however indicate the possibility of rains by mid to late November in Madagascar.

Livestock and pastures

After many areas in the region received poor rainfall last season, and in at least 3 out of the last 5 seasons, vegetation conditions in grazing areas were well below average by the end of last season. This, combined with the general shortage of water for livestock, resulted in many thousands of drought-related livestock deaths being recorded. The 2018/2019 drought was particularly severe in the western half of the region, affecting the livestock industry in countries like Namibia. Several years of good rainfall are required to help the livestock sector recover adequately. As of early November, vegetation conditions were still well below average in the northern half of Namibia, South Africa, Lesotho, southern Zambia, Mozambique and Madagascar (Figure 3). Figure 3 shows a satellite based vegetation index (NDVI) for early November, expressed as percent of normal. These are areas where the rainfall season has not yet started, and the effects of previous years' rainfall deficiencies are still evident in the vegetation. In eastern Botswana, Eswatini, southern Mozambique, northern South Africa and Zimbabwe, significant green-up has occurred, due to the good rains that have been received there in the last few weeks.

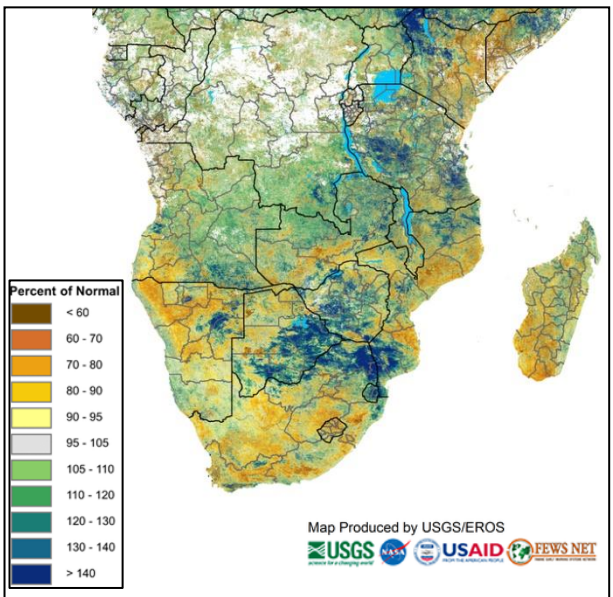

Figure 3. Vegetation Index (NDVI) compared to average conditions for 1-10 November 2020 *Source: USGS/FEWSNET*

Grazing areas that had been negatively impacted by drought last season will require close monitoring, especially those areas where livestock is an important source of food and livelihoods, and where NDVI is indicative of pasture conditions. The positive rainfall outlook enhances the chance of some recovery of grasslands. However, after repetitive and severe droughts, grazing conditions may take longer than usual to recover due to the processes involved in the regeneration of grass species ideal for grazing. Optimal livestock management is required in order to promote the regeneration of grazing areas for livestock.

Crop pests and diseases

African Migratory Locust

An outbreak of African Migratory Locusts (AML) was first reported in February 2020 in eight countries in the SADC region. While this initial outbreak was successfully controlled by SADC Member States, a resurgence of the locusts occurred in May, affecting Angola, Botswana, South Africa, Zambia and Zimbabwe. Rainfall in September and October facilitated optimal breeding conditions for the locusts. To date, the AML has affected over 1 million hectares in the five Member States, including some districts bordering South Africa and Mozambique, thus representing potential for further spreading, depending on weather conditions such as prevailing wind direction and rainfall patterns, efficacy of control efforts and other factors. Control efforts are being undertaken by Member States, although they are in part hampered by the ecological sensitivity of some of the affected areas such as the Okavango Delta, which limits options for controlling the pest. Additionally, COVID-19 – related logistical challenges have delayed the arrival of critically important chemicals required for controlling the AML from Morocco. SADC recently lanched a regional appeal for assistance to control the locust outbreak. The full appeal document can be read at: https://www.sadc.int/files/9216/0516/9079/SADC_African_Migratory_Locust_Appeal.pdf . With a forecast for normal to above normal rainfall during the 2020/2021 season in southern Africa, high rainfall may cause

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optimal conditions for breeding and multiplication of the locust swarms. The locust outbreak threatens the 2020/2021 summer cropping harvest as well as irrigated crops if not effectively controlled. The SADC regional appeal seeks to address funding gaps that would otherwise curtail the effective implementation of control measures.

Fall Armyworm

Fall armyworm (FAW) was first observed in Africa in 2016, and since that time, entomologists have noted that it should be considered an endemic pest, which cannot be eradicated, but needs to be controlled and managed. A comprehensive integrated pest management (IPM) guide on managing fall armyworm in Africa was developed and published by USAID and CIMMYT in 2019, and is available at: https://www.usaid.gov/sites/default/files/documents/1867/Fall-Armyworm-IPM-Guide-for-Africa-Jan_30-2018.pdf . Additional research undertaken since the publication has proven the efficacy of the IPM approach recommended therein. For example in addition to the use of chemical pesticides as an effective control measure, a research study undertaken by Baudron et al (2019) in Zimbabwe showed that frequent weeding and the use of zero- and minimum-tillage farming practices also help to reduce FAW damage to maize crops. This is important in light of high costs that may curtail the ability of small-holder farmers to purchase chemical pesticides. The normal to above normal rainfall forecast in the 2020/2021 rainfall season may additionally reduce the threat of FAW impact this season – a study by Sims (2008) under subtropical conditions in Florida indicated that significant rainfall amounts negatively affected the FAW life cycle. This finding has been supported by anecdotal reports made in Africa in the last few years in which high rainfall tended to reduce the damage to crops caused by FAW. Despite this positive outlook, farmers and relevant agricultural support departments need to take appropriate precautions, including regular scouting and appropriate control measures, in light of the endemic nature of the FAW in the region, and its potential for significantly reducing harvests.

Rainfall forecasts and implications

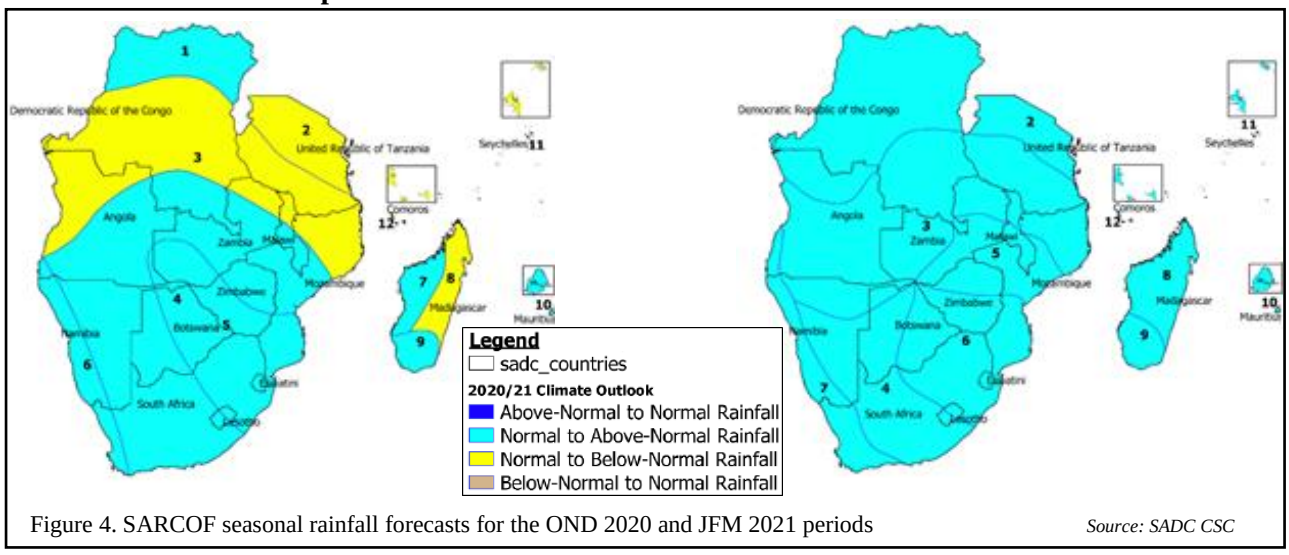

Figure 4. SARCOF seasonal rainfall forecasts for the OND 2020 and JFM 2021 periods *Source: SADC CSC*

The SADC seasonal rainfall forecast released at the Southern African Regional Climate Outlook Forum (SARCOF) in August 2020 by the SADC Climate Services Centre (CSC) predicted that most parts of the region are likely to receive normal to above normal rainfall between October 2020 and March 2021, with exceptions being northern areas during the October-to-December (OND) period (Figure 4). Additionally, SADC forecasts for the December-to-February (DJF) period indicate enhanced likelihood of above average rainfall in south-western parts of the region. The evolving state of factors that influence weather and climate in southern Africa will continue to have a bearing on the outcome of the season, and forecast updates from national meteorological agencies and the SADC CSC will therefore need to be followed closely. Such factors include the state of the El Niño Southern Oscillation (ENSO), climate drivers in the Indian Ocean, and other local and regional factors. With the ENSO currently in La Niña phase, and the Subtropical Indian Ocean Dipole (SIOD) in negative phase, these two conflicting climate drivers may enhance uncertainty in forecast outcomes in some areas. Users requiring higher accuracy forecasts available at national level are advised to contact the respective national meteorological agencies for downscaled national seasonal forecasts and updates to those forecasts.

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Good crop production is expected in light of the forecasts for normal to above normal rainfall in most areas. This will be contingent upon the timely acquisition by and provision to farmers of agricultural inputs. The repeat drought occurrences over the last few seasons eroded the resilience and coping capacity of some farming households, thereby compromising their ability to purchase the requisite agricultural inputs. Recovery assistance will be required by farmers in such cases to enable them to maximize cropping opportunities presented by the positive forecast. The realization of high crop production will also be partially determined by the extent to which high yielding crop varieties are planted. A mix of both lower-yielding, drought tolerant varieties and higher yielding varieties is typically recommended in order to maximize production potential while simultaneously providing a safety net in the event of poor rainfall outcomes. The actual proportions to be planted will depend in part on the climate of the area in question. In seasons when the outlook is for good rainfall, the mix would ideally lean towards a greater proportion of higher yielding varieties.

The rainfall forecast is also expected to positively impact on livestock condition, with an improvement expected both in condition of grasslands for grazing, as well as water availability for livestock. Regeneration of grasslands is however expected to be delayed in areas that had suffered repeat incidents of extreme drought, causing severe depletion of grasses, and reducing regeneration potential.

The good seasonal rainfall is expected to positively impact surface and groundwater levels, thereby enhancing irrigation potential. In the 2020 winter season for example, some dams in Zimbabwe reportedly experienced severely reduced water levels, in some cases drying up. Additionally, Kariba dam remained at low levels during the winter season, resulting in reduced hydroelectrical generation, and subsequent loadshedding in Zambia. This reportedly affected farming operations and ultimately reduced area planted to winter wheat in Zambia. The forecast normal to above-normal rainfall is expected to improve hydro-electrical generation, with positive implications for agriculture and industry.

A number of risks are also noted in light of the seasonal rainfall forecast. One of these is the risk of flooding due to excessive rainfall. This is more likely to occur in flood-prone areas, particularly low lying areas, as well as those that already have high water levels from last season. For example, parts of DRC experienced severe flooding last season, and flood risk may remain significant in those areas where water levels are still high. Already, reports of flash-flooding have been received for north-eastern South Africa as well as the area in central Mozambique and eastern Zimbabwe. Waterlogging may also occur should heavy rainfall occur in areas with poor drainage, including flat slopes and heavy soils. Wet humid conditions also increase the chance of occurrence of many crop pests and crop and livestock diseases. Appropriate scouting and monitoring activities are required by farmers to mitigate the impact of this. The forecast for normal to above-normal rainfall raises the risk of exacerbation of AML outbreaks, if the pest is not quickly brought under control.

Some risks remain endemic to specific areas regardless of the climate forecast. One of these is the possibility for cyclones to make landfall, particularly in Member States bordering or close to the Indian Ocean, with the potential for significant damage including loss of life, destruction of infrastructure, displacement, and damage to agricultural assets such as livestock and cropland. Countries typically at risk of cyclones include Comoros, Eswatini, Madagascar, Mauritius, Mozambique, Seychelles and South Africa. Countries further inland such as Malawi and Zimbabwe are also sometimes affected, but less frequently so. A second regular risk is the occurrence of extended dry spells, particularly in areas where dry spells are a feature of the local climate, and normally occur during the course of the rainfall season, with the main variation being the duration of the dry spell. These dry spells can cause wilting of crops under severe conditions, and short maturing, drought tolerant crops as well as staggered planting are an effective adaptation to mitigate their impact under less severe conditions. In general, a climate smart agriculture approach is recommended for sustainably improving agricultural productivity in the face of climate variability and climate change.

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