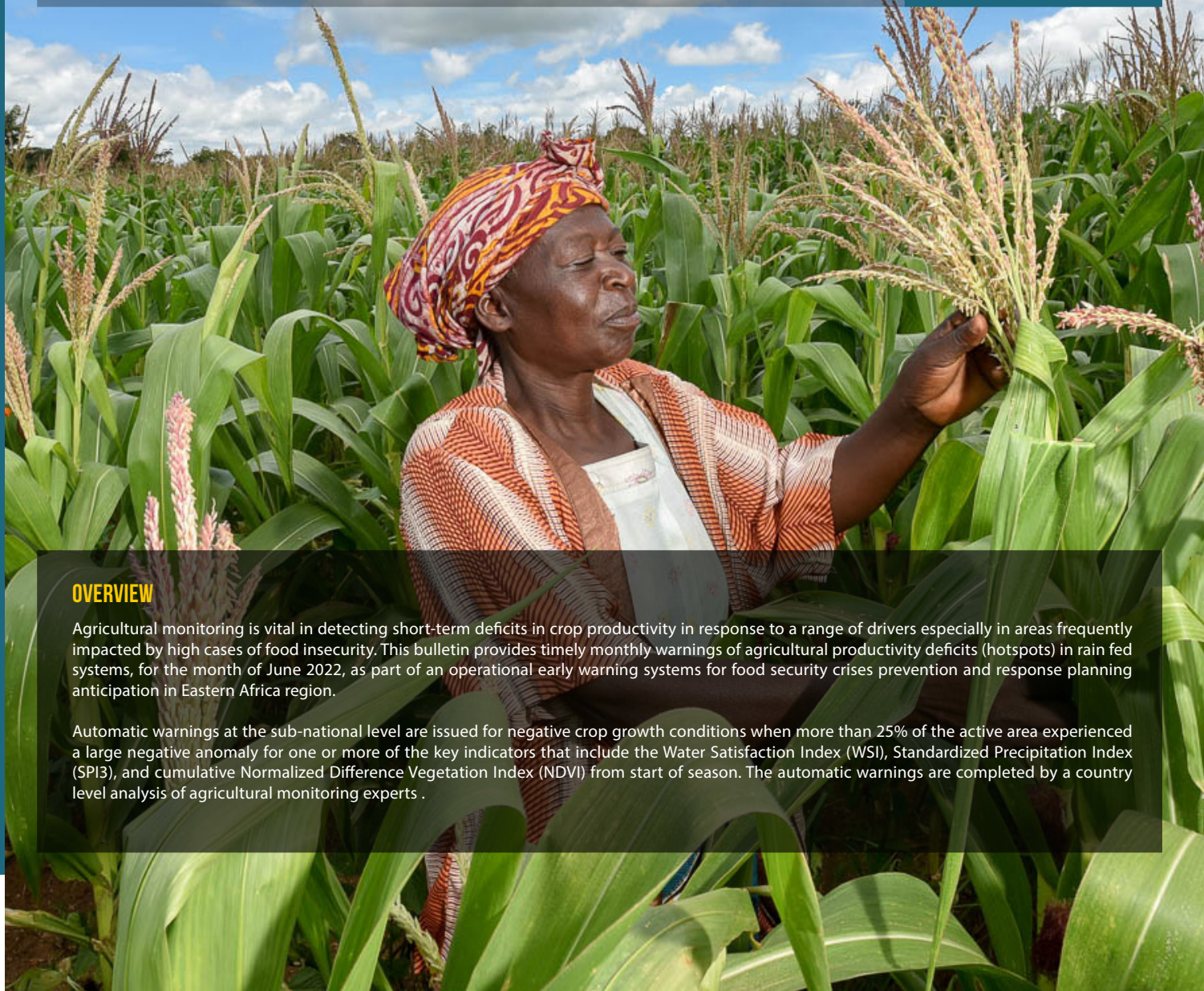# AGRICULTURE HOTSPOTS 2022

BULLETIN NO. 1
JUNE 2022

ICPAC

OVERVIEW

Agricultural monitoring is vital in detecting short-term deficits in crop productivity in response to a range of drivers especially in areas frequently impacted by high cases of food insecurity. This bulletin provides timely monthly warnings of agricultural productivity deficits (hotspots) in rain fed systems, for the month of June 2022, as part of an operational early warning systems for food security crises prevention and response planning anticipation in Eastern Africa region.

Automatic warnings at the sub-national level are issued for negative crop growth conditions when more than 25% of the active area experienced a large negative anomaly for one or more of the key indicators that include the Water Satisfaction Index (WSI), Standardized Precipitation Index (SPI3), and cumulative Normalized Difference Vegetation Index (NDVI) from start of season. The automatic warnings are completed by a country level analysis of agricultural monitoring experts .

CONTENTS

KEY HIGHLIGHTS

• 5 countries in Eastern Africa region namely Ethiopia, Kenya, Somalia, South Sudan, and Uganda were classified as agricultural productivity hotspots during the month of June 2022 (Fig. 1)

• MAM, which is a major season in equatorial parts of EA, received below average rains in most areas characterized by poor distribution and marked the fourth consecutive failed season. This has led to poor season growth in most bimodal areas as shown by the "end of season biomass warnings" experienced in most of these parts, particularly in Southern and central Ethiopia, eastern and southern Kenya, Somalia, and parts of Uganda (Figure 2, Table 1 and 2). The situation, together with other drivers (conflict and socio-economic factors in some parts), is likely to further exacerbate the already dire state of food security in the region.

• For the northern parts of the region, rainfall forecasts from ICPAC (Fig. 8) for July shows high chances of wetter than average rains in most parts which presents good prospects for crop production.

• As of June 2022, FSNWG estimates that 31 million people in the region are in IPC phase 3+ with a likelihood of deterioration in the coming months putting more pressure on humanitarian efforts.
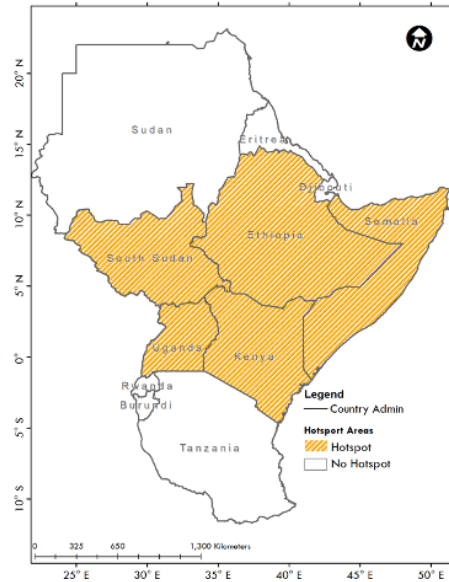

Figure 1: Countries classified as agricultural hotspots in June 2022

Table 1: June 2022 Cropland warnings by admin levels in Eastern Africa

Croplands

Ethiopia Dek 1	Ethiopia Dek 2	Ethiopia Dek 3	Kenya Dek 1	Kenya Dek 2	Kenya Dek 3	Somalia Dek 1	Somalia Dek 2	Somalia Dek3	South Sudan Dek 1	South Sudan Dek 2	South Sudan Dek 3	Uganda Dek 1,2,3
N. Gonder	N. Gonder	Eastern	W. Pokot	Baringo	Baringo	Juba hoose	Juba hoose	Wooqooyi Galbeed	Warab	El Buheyrat	El Buheyrat	Mid Northern
E. Gojam	Afar 3	Western	Baringo	E. Marakwet	Lamu	Juba Dhexe	Juba Dhexe	Juba hoose	El Buheyrat	Unity	Unity	
W. Shewa	E. Gojam	N. Western	E. Marakwet	Lamu	Nyandarua	Bay	Shabelle Hoose	Juba Dhexe	Unity	Jonglei	Jonglei	
N. Shewa R4	W. Shewa	Central	Uasin Gishu	Nyandarua	Kwale	Shabelle Dhexe	Shabelle Dhexe	Shabelle Hoose	Upper Nile	Upper Nile	N. Bahr Ghaza	
Hadiya	N. Shewa R4	Southern	Nakuru	Laikipia	Kwale	Shabelle Dhexe	Bay	Shabelle Dhexe		Blue Nile	Blue Nile	
Wolayita	Hadiya	S.Gonder	Kiambu	Kiambu	Kilifi	Hiraan	Hiraan	Hiraan		Warab	Warab	
KT	Gurage	E. Gojam	Nyeri	Kilifi	Malindi		Wooqooyi Galbeed					
Sidama	KT	S.Wollo	Lamu	Malindi	Nairobi							
W. Arsi	Sidama	W. Shewa	Nyandarua	Nairobi	Kajiado							
Western	W. Arsi	N. Shewa R4	Laikipia	Kajiado	Taita Taveta							
Borena	Western	N. Shewa R3	Nairobi	Taita Taveta	Meru							
Guji	Arsi	Gurage	Kwale	Meru								
Bale	Alaba	Hadiya	Kilifi									
Segen peoples	Selti	Wolayita	Malindi									
Arsi	E. Shewa	KT	Kajiado									
Alaba	SW. Shewa	Sidama	Taita Taveta									
Selti	Region 14	W. Arsi	Meru									
E. Shewa	W. Harerge	N.Gonder										
SW. Shewa	E. Harerge	Wag Himra										
Region 14	N. Shewa	N.Wollo										
N. Shewa R3	Dire Dawa	Afar 3										
W. Harerge	Borena	Arsi										
E. Harerge	Guji	Alaba										
Gamo Gofa	Bale	Selti										
Dawro	Segen peoples	E. Shewa										
Afar 3	Gamo Gofa	SW. Shewa										
Dire dawa	Dawro	Region 14										
Fafan	Fafan	Dire dawa										
Woqooyi Galbeed	Woqooyi Galbeed	W. Harerge										
	Wolayita	E. Harerge										
		Borena										
		Guji										
		Bale										
		Segen peoples										
		Gamo Gofa										
		Dawro										
		Fafan										

Legend:
- Water balance deficit
- Biomass deficit
- Water balance + biomass deficit
- End of season biomass deficit

Table 2: June 2022 Rangeland warnings by admin levels in in Eastern Africa

Rangelands

Ethiopia Dek 1	Ethiopia Dek 2	Ethiopia Dek 3	Kenya Dek 1	Kenya Dek 2	Kenya Dek 3	Somalia Dek 1	Somalia Dek 2	Somalia Dek 3	South Sudan Dek 1	South Sudan Dek 2	South Sudan Dek 3	Uganda Dek 1	Uganda Dek 2	Uganda Dek3
N. Gonder	Western	Eastern	Baringo	Lamu	Lamu	Bari	Juba hoose	Juba hoose	Warab	El Buheyrat	El Buheyrat	L. Albert	Mid Northern	Mid Northern
E. Gojam	N. Western	Western	E. Marakwet	Nyandarua	Nyandarua	Sanaag	Juba Dhexe	Juba Dhexe	El Buheyrat	Unity	Unity	Eastern	Eastern	L. Victoria
Awi Agew	Awi Agew	N. Western	Uasin Gishu	Kwale	W. Pokot	Shabelle Dhexe	Shabelle Hoose	Shabelle Hoose	Unity	Upper Nile	Upper Nile	Mid Northern	L. Victoria	
W. Shewa	E. Gojam	Central	Nakuru	Kilifi	Kwale	Shabelle Hoose	Shabelle Dhexe	Shabelle Dhexe	Upper Nile	Warab	Warab	L. Victoria		
N. Shewa R4	W. Shewa	Southern	Kiambu	Malindi	Kilifi	Gedo	Gedo	Gedo						
Hadiya	N. Shewa R4	Awi Agew	Nyeri	Nairobi	Malindi	Juba Dhexe	Bakool	Bakool						
Wolayita	Hadiya	S.Gonder	Lamu	Kajiado	Nairobi	Gedo	Nugaal	Nugaal						
Sidama	Wolayita	E. Gojam	W. Pokot	Taita Taveta	Taita Tavet	Bakool		Mudug						
Gamo Gofa	Sidama	S.Wollo	Nyandarua	Machakos	Mudug	Nugaal								
Western	Central	W. Shewa	Laikipia	Kiambu	machakos	Mudug								
N. Shewa R3	N. Gonder	N. Shewa R4	Nairobi	garissa	Kiambu	Nugaal								
S.Wollo	N. Wollo	N. Shewa R3	Kwale	isiolo	garissa	Mandera								
Borena	S. Wollo	Hadiya	Kilifi	Samburu	isiolo									
Segen peoples	N. Shewa R3	Wolayita	Malindi	W. Pokot	Samburu									
Guji	Afder	Sidama	Kajiado		Wajir									
Liben	W. Arsi	W. Arsi	Taita Taveta		Laikipia									
Afder	Arsi	N.Gonder	Machakos		Meru									
Bale	N.Gonder	Wag Himra	Kitui											
W. Arsi	W. Harerge	N.Wollo	Garissa											
Arsi	E. Harerge	Arsi	Isiolo											
W. Harerge	Dire Dawa	Liben	Samburu											
E. Harerge	Borena	Nogob												
Dire dawa	Guji	Jarar												
Nogob	Bale	Dire dawa												
Jarar	Segen peoples	W. Harerge												
Fafan	Gamo Gofa	E. Harerge												
	Nogob	Borena												
	Jarar	Guji												
		Bale												
		Segen peoples												
		Gamo Gofa												
		Fafan												

Legend:
- Water balance deficit
- Biomass deficit
- Water balance + biomass deficit
- End of season biomass deficit

3.0 Regional overview of hotspots and key indicators

Regional overview of warnings

01-10/06/2022	11-20/06/2022	21-30/06/2022

Legend

- ☐ Not analyzed
- ☐ No Warning
- ☐ Not active
- ☐ Water balance deficit
- ☐ Biomass deficit
- ☐ Water balance + biomass deficit
- ☐ End of season biomass deficit
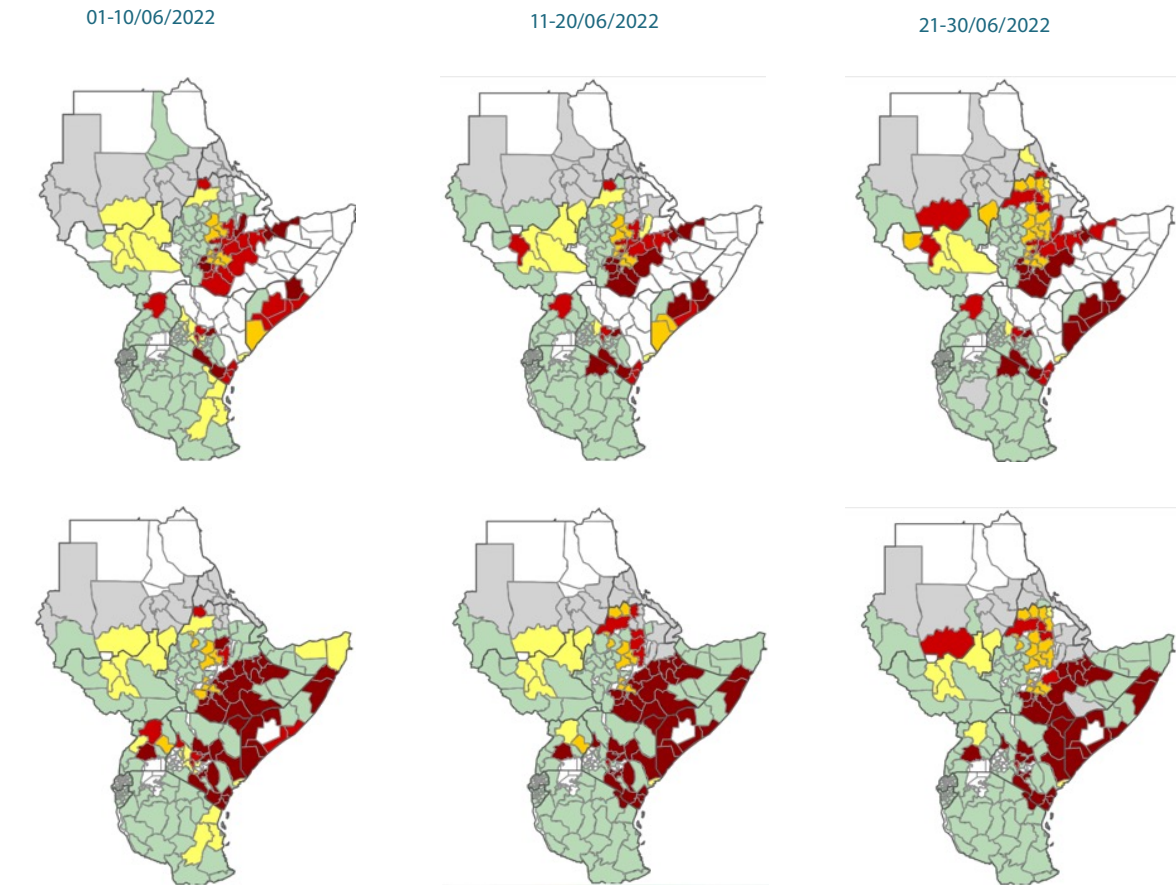
Figure 2: 10-day regional warnings for the cropland (top row) and rangelands (bottom row) for the month of June 2022

- Areas of concern were mainly over the southern and central Somalia, parts of Kenya, Uganda, Ethiopia, South Sudan, and Sudan characterized by water balance, biomass and end of season warnings (Figure 2).
- Detailed analysis on specific areas affected by different drivers and warning levels is provided in Table 1 and 2.
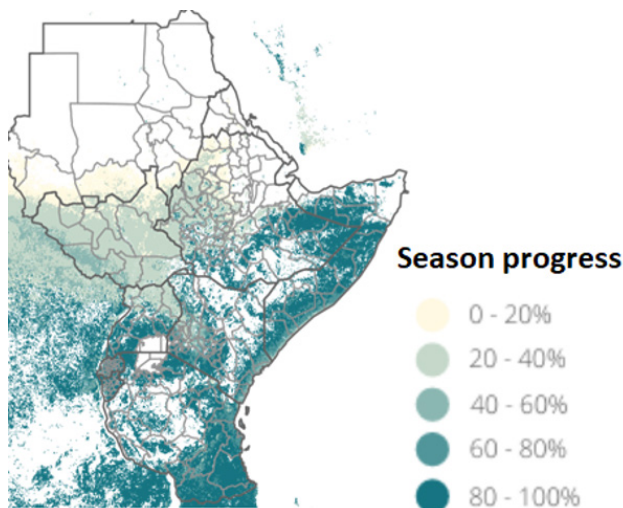

Season progress

- ☐ 0 - 20%
- ☐ 20 - 40%
- ☐ 40 - 60%
- ☐ 60 - 80%
- ☐ 80 - 100%

Figure 3: Mean progress of the latest season that started for each pixel for all vegetation as at end of June 2022

- Agricultural season is close to the end in the southern parts of the region (most parts of Tanzania is at 80-100%) and in the bimodal areas of the equatorial sector (most parts of Kenya, Somalia, Uganda, and southern Ethiopia at 60-100%). Unimodal parts of the equatorial sector is at 20-60% progress while the northern sector (much of Sudan, Ethiopia, and South Sudan) is at 0-40% progress (Figure 3).

Rainfall based indicators for June 2022
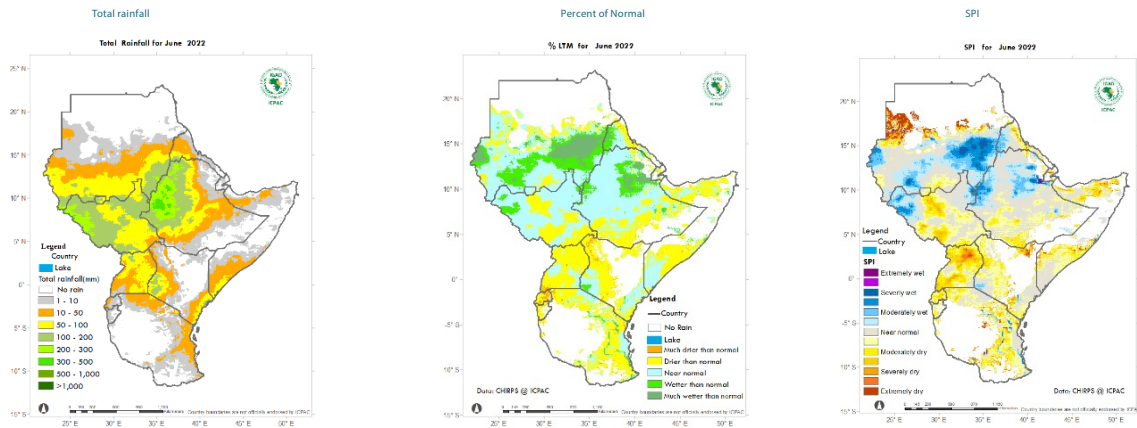
| Total rainfall | Percent of Normal | SPI |

Figure 4: Rainfall conditions (total, percent of normal, and Standardized Precipitation Index) in the month of June 2022 (ICPAC)

• Most areas of western Kenya, much of Uganda, much of Somalia, southern Ethiopia, parts of South Sudan, Rwanda, Burundi and eastern Tanzania received drier than normal rainfall in June.
• Much of the northern parts received normal rains with few areas receiving wetter than normal rains.

Water Satisfaction Index (WSI)

| 01-10/06/2022 | 01-10/06/2022 | 01-10/06/2022 |
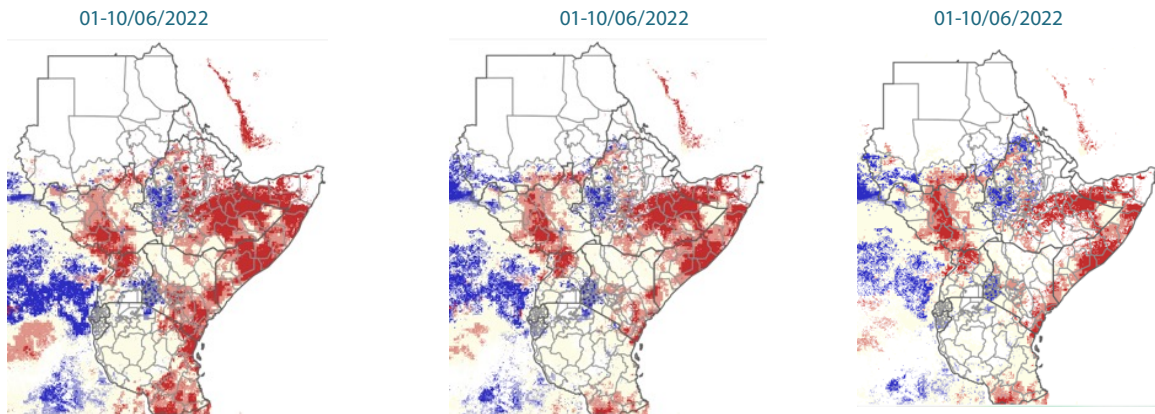
Legend

Figure 5: Dekadal crop Water Satisfaction Index (WSIc) for the month of June 2022

• Water stress is observed over many parts with active crop growth including the coastal strip, much of Somalia, SE Ethiopia, northern Uganda, parts of South Sudan and some few patches in in northern Ethiopia and southern Sudan. Only few patches in Sudan, Ethiopia, and Kenya being favourable. The rest of the areas had normal conditions.
• The wide spread water stress conditions will impact negatively on the crop growth.

Vegetation Conditions (Anomaly] NDVI difference with historical average at the selected date (NDVId))

| 01-10/06/2022 | 01-10/06/2022 | 01-10/06/2022 |
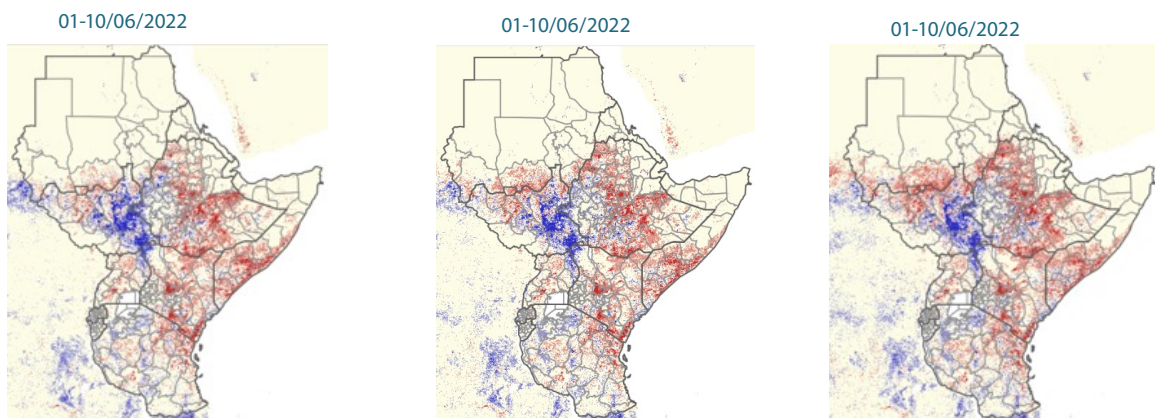
Legend

Figure 6: Vegetation Conditions (Anomaly] NDVI difference with historical average at the selected date (NDVId)

• A general deterioration of Vegetation conditions was observed in much of Kenya, Somalia, Ethiopia, few parts of Uganda and Tanzania Southern Ethiopia, NE Kenya, parts of Uganda, and southern Somalia.
• Good biomass conditions observed over parts of eastern South Sudan and western Ethiopia. The rest of areas had normal conditions.

4.0 Country assessments with a focus on selected crop and rangeland areas classified as agricultural hotspots

4.1 Ethiopia

Hotspot

•   The southern and eastern parts of the country have experienced depressed rains for the fourth consecutive seasons, leading to prolonged drought conditions that negatively impacted on crop growth and pasture, particularly for the MAM season.
•   ICPAC rainfall forecast for July shows high likelihood of enhanced rains. However, limited access to farm inputs (seeds, fertilizer etc.) that could be attributed to instances of conflict and high prices coupled with late start of season has affected agricultural production in the country.

4.2 Kenya

Hotspot

•   Drought has intensified in many parts of the country with MAM season that was characterized by late onset of rains being the fourth consecutive failed season, an exceptional occurrence in history. Widespread end of season biomass warning is seen in many counties, particularly for the bimodal areas.
•   According to FEWSNET recent reports, most pastoralists in ASAL areas have lost part of their livestock and the situation is deteriorating.

4.3 Somalia

Hotspot

•   Southern and central parts are the most affected areas after four consecutive failed agricultural seasons with depressed rainfall including for the Gu (AMJ) 2022 season. The water satisfaction index is largely below average in most areas (Figure 5). Most of crop and rangeland areas have "end of season biomass warnings" signifying poor season growth in most bimodal areas.
•   According to FAO and WFP reports, the prolonged drought led to price increase of essential food commodities.

4.4 Uganda

Hotspot

•   Central and northern parts of the country have seen deteriorating rainfall and vegetation conditions for both range and crop areas since the beginning of the season and particularly for the month of June (Figure 4 and 6). The forecast for July shows likelihood of improvement due to expected above average rains (Figure 7).

4.5 South Sudan

Hotspot

•   JJAS 2022 has been a fairly good season in northern parts with normal rains (Figure 4) observed in June.
•   Despite the above conditions, Global Report on Food crises 2022 states that the country is facing a high likelihood of an increase in acute food insecurity driven by conflict, climate shocksand socio-economic impacts.

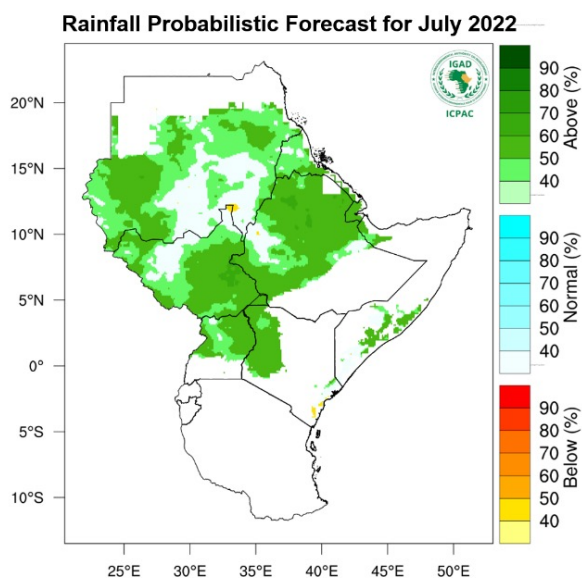### Rainfall forecast for July 2022 and likely impacts to production areas.

Figure 7: Rainfall forecast for July 2022

•   Wetter than normal rains expected in most parts of the northern states of GHA, western Kenya and northern Uganda. This presents good prospects for crop and rangeland production particular for the JJAS crops.
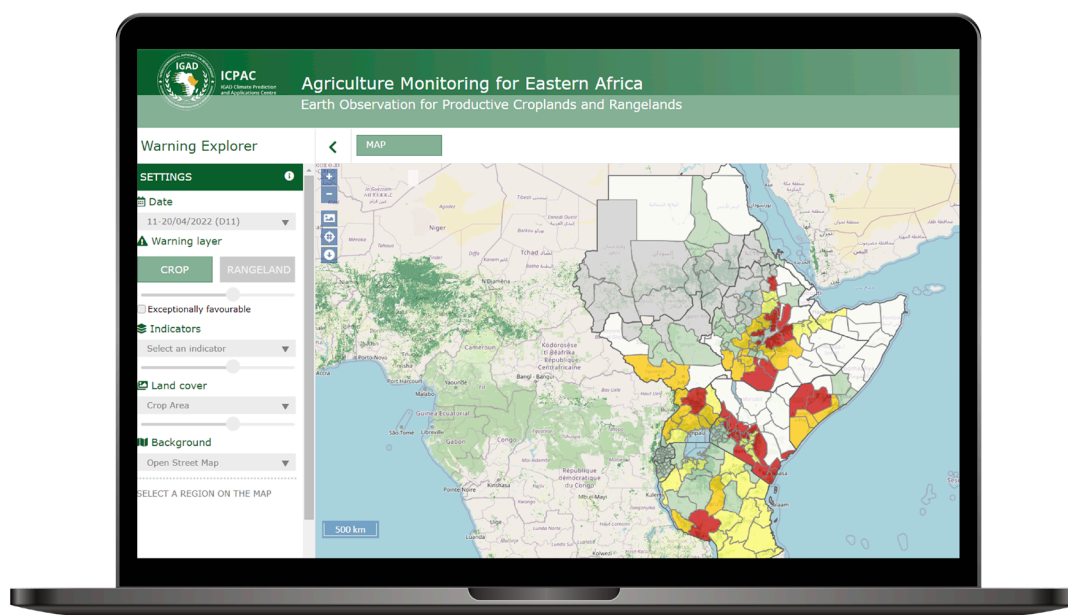
Annex

Technical and Organizational Notes

• This bulletin has been produced with the support of Intra-ACP Climate services and related Applications (ClimSA) and technical assistance from EU-JRC. ClimSA's overall objective is to support the climate information services value chain with technical and financial assistance, infrastructure and capacity building to improve wide access and use of climate information, to enable and encourage the generation and use of climate services and applications for decision making processes at all levels.
• A dekad is defined as the (roughly) 10-day period extending from day 1-10 of the month, 11-20 of the month, and 21-end of the month. Note that the dekad of the year is a circular variable, i.e. dekad 36 is followed by dekad 1 of the next year.
• Season progress is the percentage of the total growing season period experienced at the selected date (0% is the start of season and 100% is end of season).

• Water balance: water deficit possibly evolving in poor growth (triggered only in water limited units).
• Biomass: evidence of poor growth.
• Water balance + biomass: poor growth and negative prospects (triggered only in water limited units).
• End of the season biomass: poor season growth (triggered only toward the end of the season).
• Not analyzed: units not assessed because with very limited or no crop/rangeland area.
• No warning units: areas with no critical conditions.
• Not active units: where agricultural area is not active at the moment of the analysis.

More information can be obtained at:

• ICPAC Agriculture Hotspots https://agriculturehotspots.icpac.net/
• More detailed information on methodology https://mars.jrc.ec.europa.eu/asap/documentation.php
• For global conditions visit https://mars.jrc.ec.europa.eu/asap/wexplorer/

About ICPAC

ICPAC is a Regional Climate Centre (RCC) accredited by the World Meteorological Organization. It provides climate Services to 11 East African countries and aims at creating resilience in a region deeply affected by climate change and extreme weather.