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Issue # 3

Seasonal Pastoral Climate Advisory (June to Aug 2024) for Ethiopia

June, 2024

AKNOWLEDGEMENTS

This pastoral climate advisory was produced by the leadership of the team of researchers from the Climate and Computational Science Research Directorate (C&CSRD) of the Ethiopian Institute Agricultural Research (EIAR), in close collaboration with the Yabello Pastoral and Dryland Agriculture Research Centre, the Alliance of Bioversity International and CIAT and Addis Ababa University.

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ACRONYMS

BoM - Bureau of Meteorology

EIAR - Ethiopian Institute of Agricultural Research

EMI - Ethiopian Meteorology Institute

ENSO - El Niño Southern Oscillation

IOD - Indian Ocean Dipole

ITCZ - Intertropical Convergence Zone

JJA - June, July and August

MAM - March, April, and May

MME - Multi-Model Ensemble

NAO - North Atlantic Oscillation

PCA - Pastoral Climate Advisory

PCoPS - Pastoral Communities of Practices

WRSI - Water Requirement Satisfaction Index

KEY MESSEGES

- Moderate to severe heat stress is likely in the Afar and Somali regions during the upcoming JJA season, while Borana zone is expected to experience minimal heat stress.
- With the projected wetter-than-average kiremt rainfall in the northern highlands, there is an increased risk of the Awash River overflowing and causing flash flooding in the Afar region.
- The recent March to May (MAM) season rainfall has benefited rangelands in the country's pastoral areas substantially. This has resulted in visible improvements in pasture availability in many of the Southern Oromia zones (Borana & Guji zone) and south and western parts of the Somali Regional State.
- Pastoral areas in the Borana zone are anticipated to have good rangeland conditions during the JJA season, while the Eastern part of the Somali Regional State is expected to experience very poor conditions. It's strongly recommended that regions with good rangeland stockpiles feed for potential future shortages. Pastoralists in areas with very poor rangeland conditions are advised to closely monitor rangeland and consider moving their livestock to areas with better grazing availability.
- The water points in the Borana Zone and most parts of the Somali Regional State are expected to decline due to dry and reduced rainfall, high evaporation, and limited water resources. Therefore, close monitoring of the water points is key.

INTRODUCTION

The June to August season in Borana and southeast lowlands is characterized by a climate with extremely scarce rainfall. The Borana and Guji zones refer to this period as "Adolessa[m1]," while the Somali region uses the term "Xagaa" f[m2] or JJA in their respective local language. To ensure clarity for all audiences, this advisory prefers to use the term "JJA." The El Niño–Southern Oscillation (ENSO) is predicted to be in a La Niña watch. Future projections indicate that the JJAS rainfall season will be substantially responsive to ENSO. Model projections suggest an enhanced La Niña-related rainfall anomaly over Eastern Africa during July–September (BoM). The Indian Ocean Dipole (IOD) also plays a major role in causing year-to-year changes in the region's rainfall. Positive IOD is likely in the coming June to August season and most models also projected a probability of neutral IOD in October and November. **This probability, coupled with the development of La Nina highlights the need to be cautious and to start preventive measures.**

2. SITUATION ASSESMENT

2.1 Rainfall

The rainfall anomalies for the last three months are shown below. The 90-day summary indicates that most pastoral areas experienced wetter-than average condition, consistent with the MAM forecast provided earlier. The season has brought wetter conditions to western and southern parts of Borana and Guji zones in Oromia, as well as most of Afar and Somali Regional States, represented by the light green and green colors.

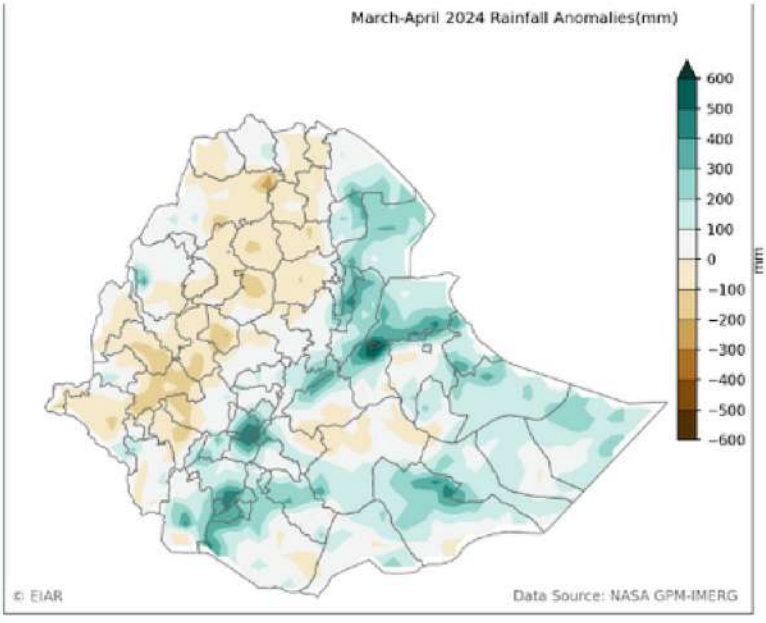

Figure 1. Sub seasonal rainfall forecast for the March-April-May period

However, some areas in the Southern and Central Somali Region, along with Eastern Borana, exhibited a negative deviation compared to historical climate patterns. The pastoral areas with wetter seasons have the advantage of more grazing opportunities and benefit from holding more water in the waterpoints which could be utilized for livestock and domestic use.

2.2. Waterpoint Status

Figure 2: Waterpoint status as of May 26,2024

During the March-April-May (MAM) season, waterpoints in the Borana Zone and Somali region exhibited favorable conditions. The image above illustrates the status of these water points during this season. The majority of the water points which are colored green dissipated a good status. Good status refers to the condition of water points above the long-term median depth of the waterpoint. Overall, the MAM season has significantly benefited these water points. This ensures the availability of water for livestock and domestic consumption by pastoral communities in the coming June to Aug. If efficient water harvesting mechanisms were implemented during the MAM season, the sustainability of stored water would further enhance the upcoming dry season.

However, due to unstructured pond management and inadequate environmental protection measures, there has been a gradual accumulation of sediments in the water points located in the Borana zone. This sediment accumulation has reduced the water points' capacity to hold sufficient water, negatively impacting the sustainability of these critical water sources. For further monitoring of water points and related information, please visit www.et.waterpointsmonitoring.net

2.3. Temperature-Humidly Index Forcast

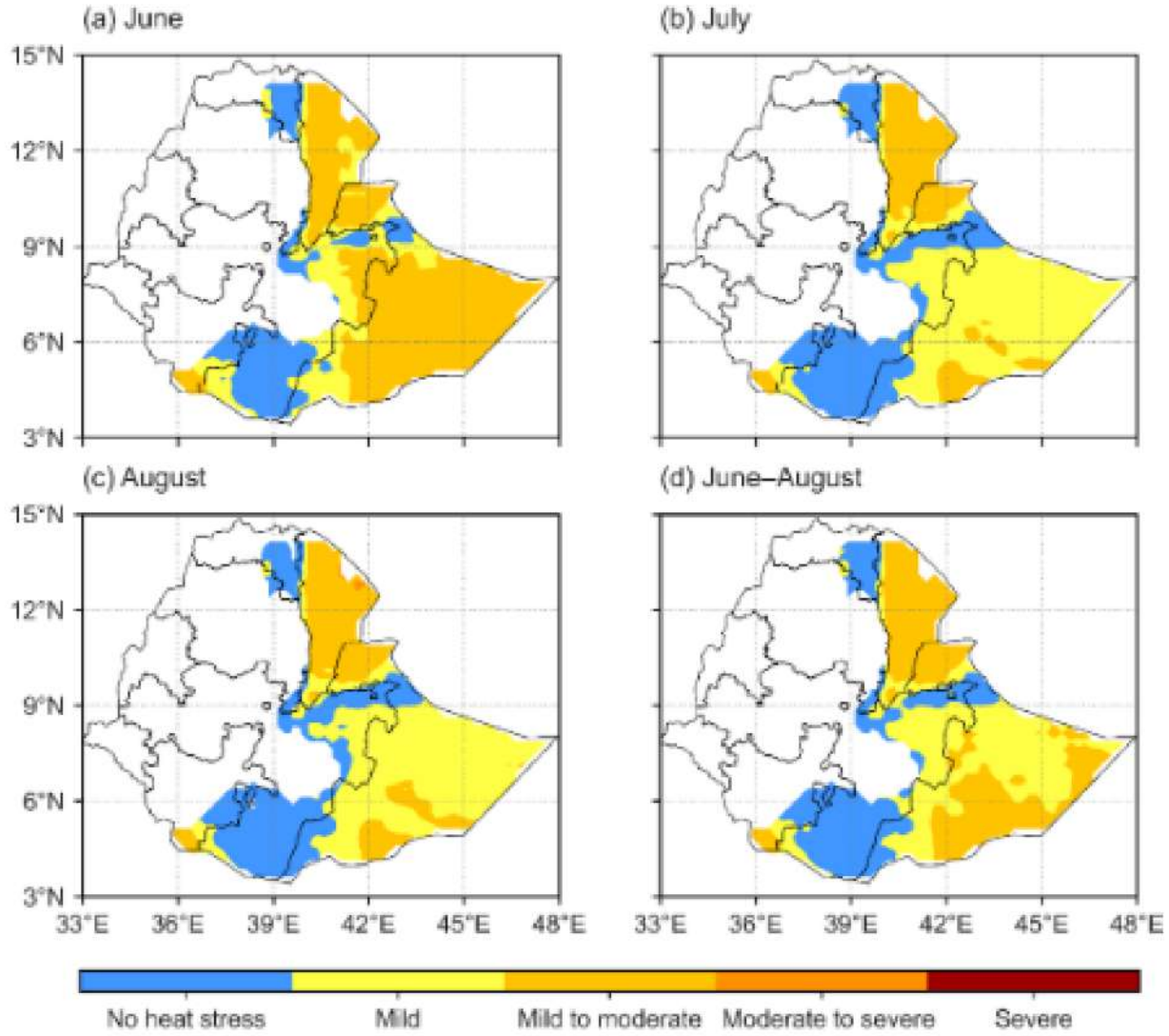

Figure 3: The likelihood of heat stress occurrence in cattle producing pastoral zones-Ethiopia during the 2024 June -July- August season

The Temperature-Humidly Index (THI) forecast, considers the combined effect of ambient temperature and relative humidity, on the likelihood of cattle heat stress in cattle during the coming 2024 June–August cool and dry season in the target pastoral zones.

The THI forecast indicates less likelihood of heat stress in cattle production across the Borana zone during the coming JJA season. Additionally, a potential effect on dairy and cattle health is likely due to the expected moderate temperature and humidity level during this season. In the Afar Regional State, moderate to severe stress is anticipated during the JJA season; while a similar level of stress is probable in the Somali Region during June, which could potentially reduce dairy production and calving rates.

2.4. Seasonal Rangeland Water Requirement Satisfaction Index (WRSI) Outlook

The recent past MAM season (2024) rainfall in pastoral areas of the country has significantly benefited the rangeland. This has led to noticeable improvements in pasture in most parts of the different pastoral regions. This is especially true when there's a positive Indian Ocean Dipole (IOD) coinciding with El Niño episodes. In these situations, the combination of good rainfall patterns and climate conditions leads to strong rangeland performance.

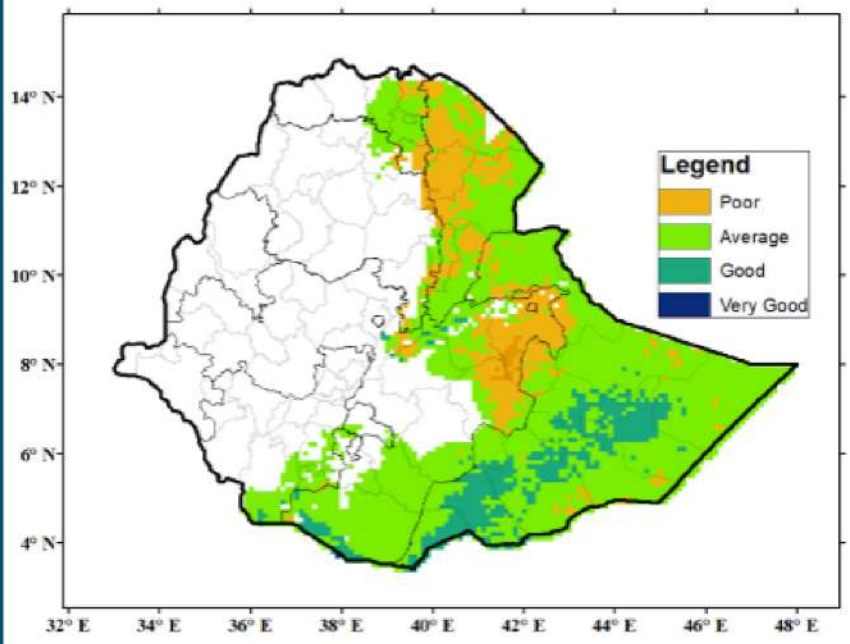

Figure 4: Rangeland spatial distribution in May

Borana zone experienced substantial enhancements in rangeland quality. East However, Hararghe and East Bale of the Oromia region and the Western part of Zone 2 and Zone 4 in the Afar Regional State experienced poor rangeland performance. This has provided pastoral communities with temporal grazing options. The Ethiopian Meteorology Institute (EMI) predictes the *JJA* season as a wetter-than-average rainy season which could bring more water to the lower catchment areas of the Genale Dawa and Shebelle rivers benefiting the rangelands.

3. ADVISORY

3.1. Waterpoint Advisory

- **Water usage monitoring**

During the upcoming season, water availability decreases due to the dry and reduced rainfall conditions and increased evaporation. Community leaders, and other relevant local authorities must ensure sustainable usage by continuously monitoring water resources. Thus, prompt action should be taken to employ efficient water resources management practices.

- **Livestock Watering**

Implementing traditional water management methods, such as constructing water storage systems, like "Meri" in Borana, is recommended. Additionally, livestock watering should be done at water outlet points rather than inlets to minimize pond sedimentation and preserve the integrity of the pond buffer zone. In Borana, *Abba_Heregaa* (a traditional water manager) should establish a schedule or adjust the frequency of water resource utilization for each type of livestock based on their species and age, as well as for household consumption.

- **Irrigation**

In Borana, sites like *Fina* Pond, communities should prioritize and adopt efficient irrigation techniques, considering factors such as timing and irrigation systems. To ensure optimal irrigation, the channels should be cleaned thoroughly, and crops should be watered during periods of lower sunshine, such as in the morning or evening. It is also crucial to minimize soil disturbance to retain soil moisture and prevent excessive evaporation. For instance, utilizing oxen instead of tractors or lighter tractors can be beneficial.

- **Water conservation**

It is crucial to limit the excessive use of water for other purposes, including construction activities to ensure sustainable water resources. Instead it is advisable to encourage pastoralists and agro-pastoralists to apply sustianable water conservation practices specific to their respective contexts.

3.2. Heat Stress Advisory

Pastoralists in these areas may need to implement additional cooling measures, such as considering natural ventilation improvements to increase airflow, providing adequate fresh water sources to prevent dehydration, as well as, to meet livestock water requirements.

- **Nutritional Measures**

Providing nutritional support, increasing the nutritional concentration of the ration to increase the digestibility of the feed, feeding at cooler times (night), and more often could also help to alleviate the decreased weight gain and poor body conditions posed by heat stress.

- **Milk production**

In the Somali Regional State, the heat stress will likely ease to mild during the July and August months, during which providing shade for dairy cows may help reduce heat stress's impact on milk production and reproductive breeds.

- **Disease**

·During the cool dry season in Borana zone, livestock are susceptible to outbreaks of common diseases and parasites due to cool temperature stress. To prevent these outbreaks, pastoralists should regularly monitor their animals' health, vaccinate them early, and provide treatment when necessary. Also, government assistance should be sought for vaccination services, if not readily available. Infected animals should be isolated and treated with appropriate antibiotics, such as tylosin for Mycoplasmal. Additionally, regular observation and treatment for external parasites like ticks, using products like Diaznol, are crucial during this season.

3.3. Rangeland Advisory

- **Prevent feed waste**

It is advised to implement hay-making and storing practices to minimize feed wastage, preserve feed for future use during low feed periods or as a feed supplement, and consider enclosing productive grassland of rangeland areas for seed collection that can be used for reseeding degraded areas or reserve as seed Banking. If mobility migration is required and announced by Abbaa Dheedaa, conducting a pre-assessment of rangeland resources potential and water availability is recommended.

3.4. Crops

- **Safe and timely harvesting**

In pastoral areas, where agricultural and irrigation activities occur, agro-pastoral communities should ensure safe harvesting, collection, and disposal of their field crops on time during the cool and dry season. This prevents any potential damage resulting from unexpected rainfall or livestock interference.

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- **Drought resistant crops**

Given the limited water availability, agro-pastoralists should choose crop varieties resistant to drought and mature early. These selected crops can be cultivated through irrigation in the Fina pond areas. For instance, when it comes to cereals, it is advisable to go for varieties like Maize (Malkasa_4) and Wheat (Fentale 2 and Anivar 2). Similarly, Onion (Adama red and Bonbe) and Banana (Robusta and Grand nine) are considered suitable options for horticulture. To effectively utililize these recommended crop varieties for irrigated cropping in the Fina Pond areas, the support of the government or other relevant bodies in providing these varieties is crucial

3.5. Climate Service for Peace Security

- **Strengthen traditional institutions**

Pastoralists share a socio-cultural background that fosters mutual respect. However, conflicts can arise when there are limited rangeland resources. Although the current season is not expected to have severe scarcity, local elders should promptly resolve any unexpected conflicts, drawing upon their sociocultural traditions. Additionally, a potential increase in the movement of livestock from neighboring countries like Kenya and Somalia, may escalate regional tensions and violence. To address this, it is essential to strengthen platforms like the Pastoralist Community of Practices (PCoPs) in the Borana zone to promote dialogue and peaceful conflict resolution mechanisms.

- **Livelihood diversification**

Aligning cross-border livelihood diversification interventions with national and regional development initiatives, such as the Regional Pastoral Livelihoods Resilience Project (RPLRP) and the Pastoralists Training Centers (PTCs), can promote sustainable practices, enhance economic opportunities, and foster cooperation between neighboring countries.

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