

**National Drought Management Authority**  
**LAIKIPIA COUNTY**  
**DROUGHT EARLY WARNING BULLETIN FOR AUGUST 2019**



A Vision 2030 Flagship Project



**AUGUST 2019 EW PHASE: NORMAL**



**Drought Situation & EW Phase Classification**  
**Biophysical Indicators**

**Rainfall:**

**Performance:** The County recorded moderate to heavy rains spanning 8-12 days across the livelihood zones. The temporal distribution of the rains was fair whereas the spatial distribution was fair to poor.

**Vegetation Condition:**

- The Vegetation Condition Index (VCI) was above the normal range for the period, indicating a fair state of pasture and browse. However, some pockets recorded poor state of pasture and browse.
- The available pasture and browse can last for three weeks to two months, depending on the area.

**Socio Economic Indicators (Impact Indicators)**

**Production Indicators:**

- There were reported cases of livestock in migration from neighbouring Counties of Samburu and Isiolo. Intra-migration within the county was also reported.
- Milk production per household was within the normal range for this time of the year.
- The body condition of animals was within the normal range for the period.

**Access indicators:**

- The terms of trade were below the normal range
- Milk consumption within the normal range
- The return distance from water sources to grazing areas was within normal range.

**Utilization indicators:**

- All within the normal range.

LIVELIHOOD ZONE	EW PHASE	TREND
PASTORAL	Normal	Stable
MMF	Normal	Stable
MF	Normal	Stable
<b>COUNTY</b>	Normal	Stable
Biophysical Indicators	Value	Normal range
% of Average rainfall	77%	80-120%
VCI (1 month)	72.2	35-50
State of Water Sources	4	4
Production indicators	Value	Normal range
Livestock Migration Pattern	Migration	No Migration
Livestock Body Condition	4	4
Milk Production (Lt)	4.7	>4.3
Reported livestock deaths (due to drought)	No death	No death
Crops area planted (%)	-	% of LTA
Access Indicators	Value	Normal ranges
Terms of Trade (ToT)	90.5	94
Milk Consumption (Lt)	1.8	>1.7
Return Distance (Water Sources to grazing areas)	4.3	< 4.3
Return Distance water to grazing areas (Pastoral)	4.8	<5
Utilisation indicators	Value	Normal ranges
MUAC (Mid at risk)	1.3	< 18
Coping Strategy Index (CSI)	-	<1

<ul style="list-style-type: none"> <li>▪ Short rains harvests</li> <li>▪ Short dry spell</li> <li>▪ Reduced milk yields</li> <li>▪ Increased HH Food Stocks</li> <li>▪ Land preparation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Planting/Weeding</li> <li>▪ Long rains</li> <li>▪ High Calving Rate</li> <li>▪ Milk Yields Increase</li> </ul>	<ul style="list-style-type: none"> <li>▪ Long rains harvests</li> <li>▪ A long dry spell</li> <li>▪ Land preparation</li> <li>▪ Increased HH Food Stocks</li> <li>▪ Kidding (Sept)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Short rains</li> <li>▪ Planting/weeding</li> </ul>								
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec

# 1 CLIMATIC CONDITIONS

## 1.1 Rainfall Performance

- In the month of August, the county received 8 to 12 days of moderate to heavy rains across the Pastoral, Marginal Mixed Farming (MMF) and Mixed Farming (MF) zones.
- The temporal distribution of the rains was fair while the spatial distribution was fair to poor. The MMF and the Pastoral livelihood zones recorded 8 days of light showers to moderate rains, while the Mixed farming zone reported 12 days of moderate to heavy rains.

## 1.2 Amount of Rainfall and Spatial Distribution

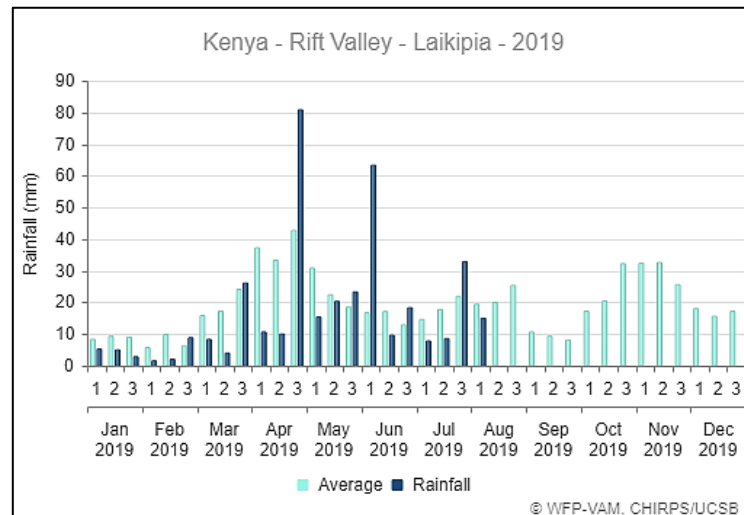


Figure 1: Rainfall (mm) for Aug 2019

Source – WFP VAM - CHIRPS

- For August, the amount of the rains received amounted to 15 mm by the first dekad for the month, which is 77% of the long-term average of 19.4 mm by the same time. The rainfall is slightly below the normal range expected for the period.

## 2 IMPACT ON VEGETATION AND WATER

### 2.1 Vegetation Condition

#### 2.1.1 Vegetation Condition Index (VCI)

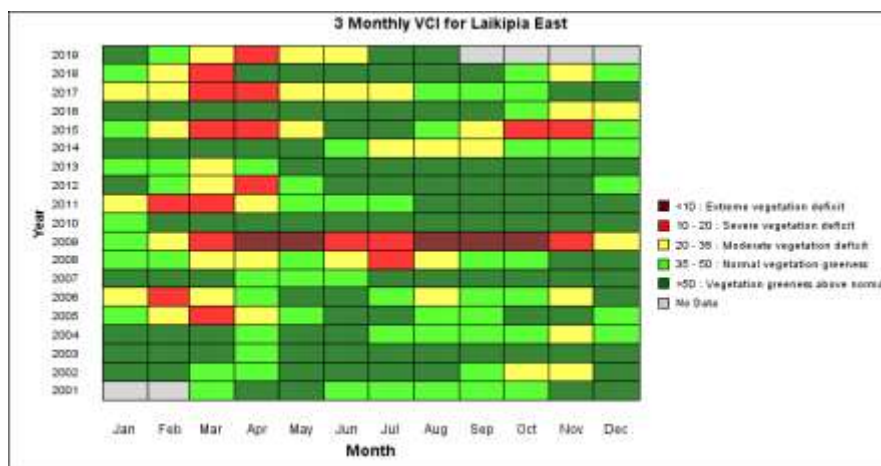


Figure 2: 3 monthly VCI Matrix August 2019

Source - BOKU

- The VCI matrix above indicates very good vegetation condition, a great improvement compared to a severe vegetation deficit recorded in the previous months. However, from field observations, the vegetation condition in some pockets across the Pastoral and MMF zones was poor, which is largely attributed to the poorly distributed rains and the influx of livestock from neighbouring counties.
- The actual VCI (3 month) at 72.2 was slightly above the normal range for the month.

#### 2.1.2 Pasture

- Key informant interviews indicated that the pasture condition was partly good (33.3%), fair (37.5%) and poor (29.2%) as shown in the chart below.

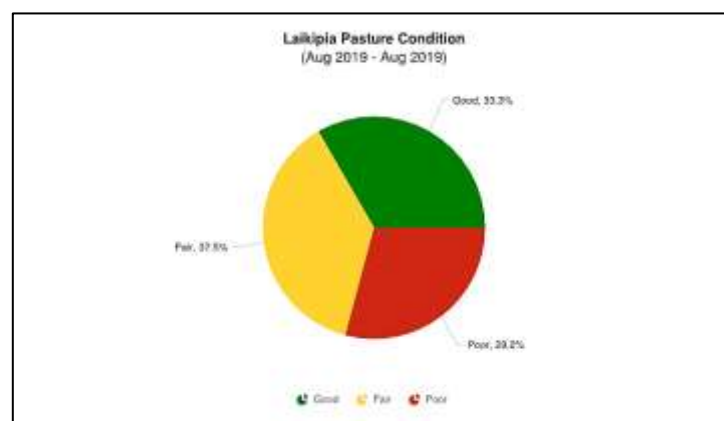


Figure 3: Pasture Condition August 2019

Source - KDEWS

- Compared to the previous month, there was a significant improvement in the pasture condition in both quantity and quality across all livelihood zones except in some pockets of Pastoral and MMF zones that received depressed rains and had influx of livestock. The current situation is within the normal expected at this time of the year.
- The major constraint to pasture access in areas that received depressed rainfall was above normal distances to grazing areas.

### 2.1.3 Browse

- According to the key informants interviewed, the browse condition was good (41.7%) and fair (45.8%) and poor (12.5%) as shown in the chart below.

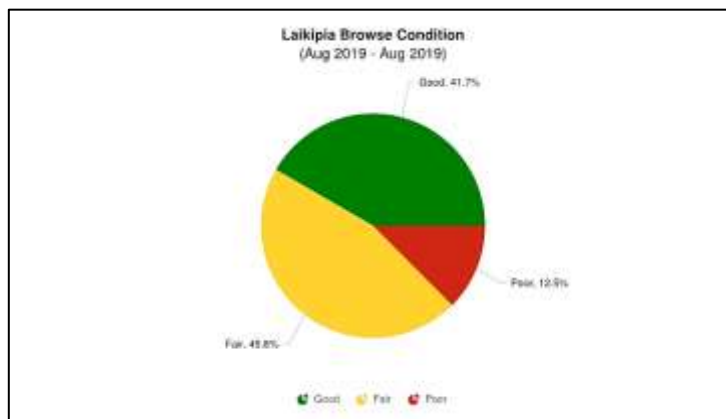


Figure 4: Browse condition Aug 2019

Source - KDEWS

- Compared to the previous month, the browse condition recorded a significant improvement. No major constraint to browse access was reported.

## 2.2 Water Resource

### 2.2.1 Sources

- During the month under review, the main water sources for domestic and livestock use in the County were pans and dams (31.5%), boreholes (22.2%), shallow wells (24.1%) and rivers (14.8%). Others were traditional river wells (7.4%).

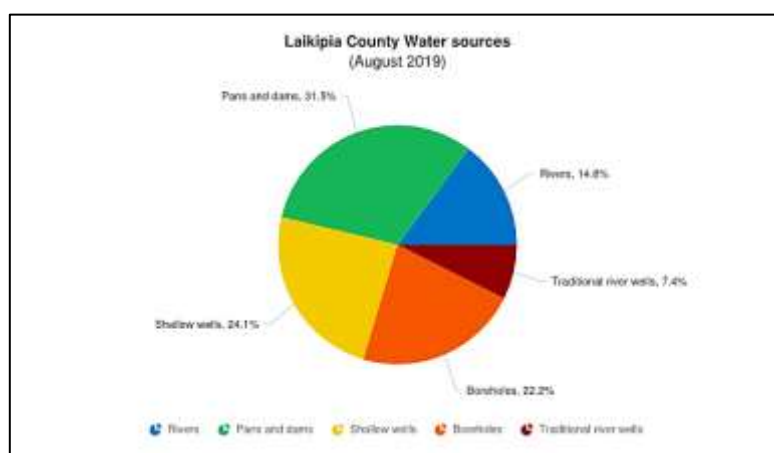


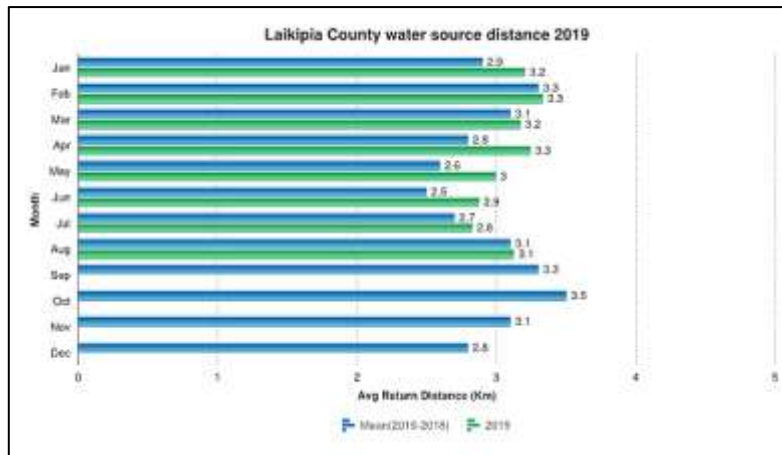
Figure 5: County Water Sources Aug 2019

Source - KDEWS

- Compared to the previous month, pans and dams (34%), boreholes (24.5%), shallow wells (17%) and rivers (17%) and traditional river wells (7.5%), the water quantity is stable and there is a shift towards sub surface water sources, indicating reduction in precipitation levels, which is expected at this time of the year.
- The main water sources are expected to last as follows: - Pastoral (boreholes - permanent, seasonal rivers – 1 month, pans and dams – 2 months), MMF (borehole – permanent, seasonal rivers – 1 month, pans and dams – 2 months), MF (shallow wells – 1.5 months, traditional river wells – 3 months, pans and dams – 2 months).

### 2.2.2 Household Access and Utilization

- The average return distances from households to water sources slightly increased to 3.1 km, up from 2.8 Km for the previous month. The MMF zone recorded the farthest return distance of 4.4 km.



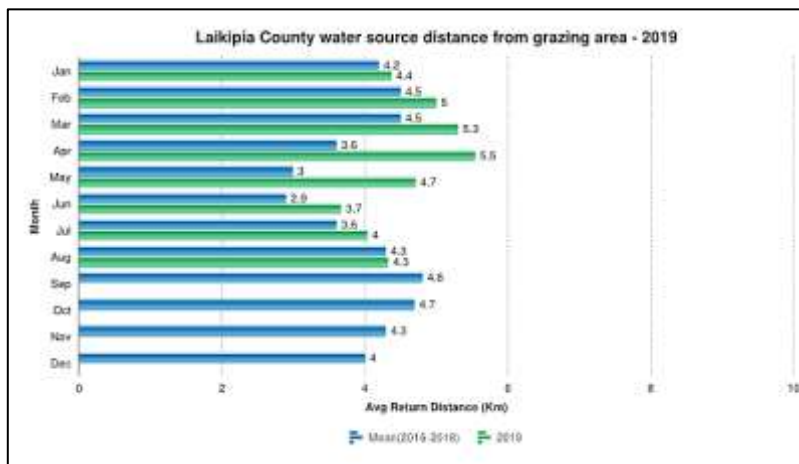
Graph 1: County Water Distances – Aug 2019

Source - KDEWS

- The current distances are within the long-term average.
- The slight increase in distances is due to the increased utilization of sub surface water sources as precipitation levels have reduced.
- The main constraint to water access is pollution and distance.

### 2.2.3 Livestock Access

- The average return distance from water sources to grazing areas has slightly increased to 4.3 km, up from 4 km in July. The longest return distance of 4.8 km was recorded in the Pastoral zones, which is a slight increase compared to 4.5 km the previous month.



Graph 2: County Water Distances to Grazing Areas – Aug 2019

Source - KDEWS

- The current distances were within the long-term average for the month. This is attributed to the off-season rains. However, some pockets of Pastoral and MMF zones recorded long distances to water sources due to long distances to grazing areas.

### **3 PRODUCTION INDICATORS**

#### **3.1 Livestock Production**

##### **3.1.1 Livestock Body Condition**

- In the month of August, the livestock body condition across the County was classified at level 4 (moderate, neither fat nor thin) and showed improvement.
- Generally, the livestock body condition was largely fair for both grazers and browsers across all livelihood zones. In the Pastoral zone, parts of the Marginal Mixed Farming zones and Mixed Farming (MF) zones, most of the grazers (specifically cattle) has shown improvement during the period. The body condition is within the normal for this time of the year.
- Compared to last month, the livestock body condition has slightly shown some improvement. Most grazers are neither fat nor thin.
- Compared to same time last year, the body condition of livestock is below normal.

##### **3.1.2 Livestock Diseases and Deaths**

- No major cases were reported during the period under review.

##### **3.1.3 Milk Production**

- The sampled households recorded an average milk production of 4.7 litres per household per day, a slight increase compared to the previous month at 4.6 litres. The largest share of the increase was recorded in the MF and MMF zones. This milk was largely obtained from cattle.
- The milk production is above the average levels (>4.3 litres per household) expected at this time of the year.

#### **3.2 Rain-fed Crop Production**

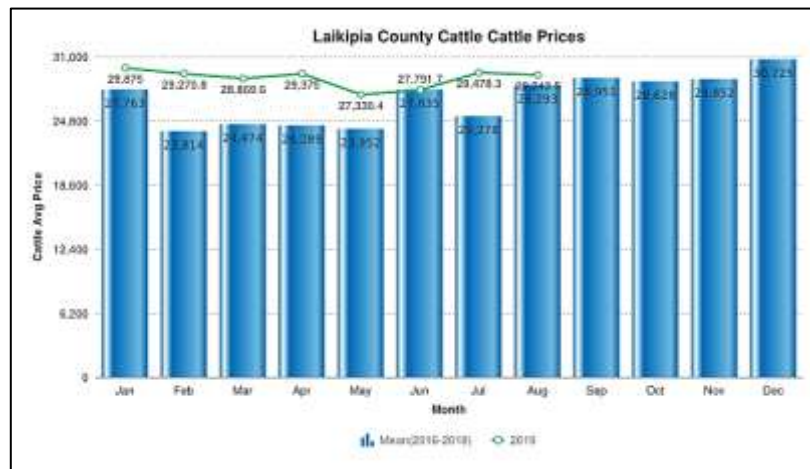
##### **3.2.1 Stage and Condition of Food Crops**

- In most farms in the MMF and MF zones, maize is at knee high to cobbing and filling stage and for those who planted early it is at physiological maturity. Harvesting of potatoes and beans is ongoing in farms while in other farms harvesting has taken place.

## 4 MARKET PERFORMANCE

### 4.1 Livestock Marketing

#### 4.1.1 Cattle Prices (Market)

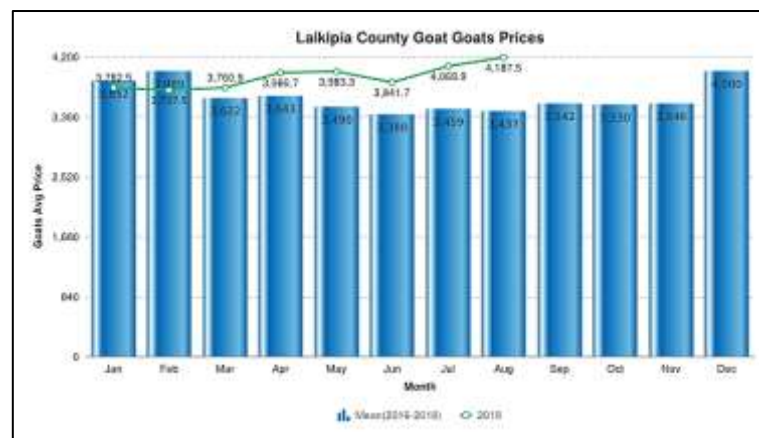


Graph 3: County Cattle Prices - Aug 2019

Source - KDEWS

- During the month under review, the County recorded an average cattle price of Kshs. 29,244 at the markets, more or less the same compared to the previous month. The current price is attributed to the fair body condition of the livestock on sale.
- The MMF zone recorded the highest cattle price.
- Compared to the long-term average, the current price is within the range.

#### 4.1.2 Small Ruminants Prices (Goat)



Graph 4: County Goat Prices - Aug 2019

Source - KDEWS

- During the month under review, the average price of a goat in Laikipia was recorded at Kshs. 4,188; a 3% increase compared to the previous month. The stable goat price was attributed to the fair body condition as browse is still available.
- The lowest goat price was recorded in the MMF zone.
- Compared to the long-term average, the current goat price was higher by 22% hence above the normal range for the period.



## 4.2 Crop Prices

### 4.2.1 Maize (market price)

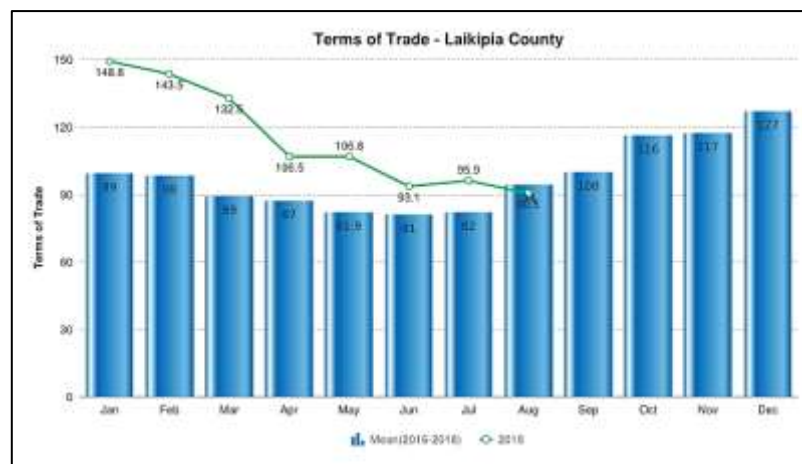


Graph 5: County Maize Prices - Aug 2019

Source - KDEWS

- The average maize price of Kshs. 46.3 per Kg was recorded at the markets as shown above, a significant increase compared to the previous month. The increase in market price was attributed to the diminishing maize supply both at the markets and at the household level. The price is way higher than the long-term average for the month due to steady supply at the markets.
- The highest average market price of maize at Kshs.50 per Kg was recorded at Sirima, Matanya, Olmoran (all MMF) and Kimanjo market (Pastoral) whereas the lowest at Kshs. 38 was recorded at Timau market.
- Compared to the three-year average, the current price is higher by 19%.

### 4.3 Livestock Price Ratio/Terms of Trade



Graph 6: Terms of Trade (Goat/ Maize) - Aug 2019

Source - KDEWS

- According to the graph above, the July average price of a goat at Kshs. 4,188 was able to purchase 90.5 Kg of maize, a significant decrease compared to the previous month at 96 Kg.
- The current trend in the ToT (Terms of Trade) can be attributed to the increase in maize prices across all livelihood zones. The ToT has shifted and now livestock keepers are able to purchase less maize for the price of a goat compared to the previous month.
- When compared to the three-year average, the ToT is below the normal range for the period.



#### **4.4 Implication on Food Security**

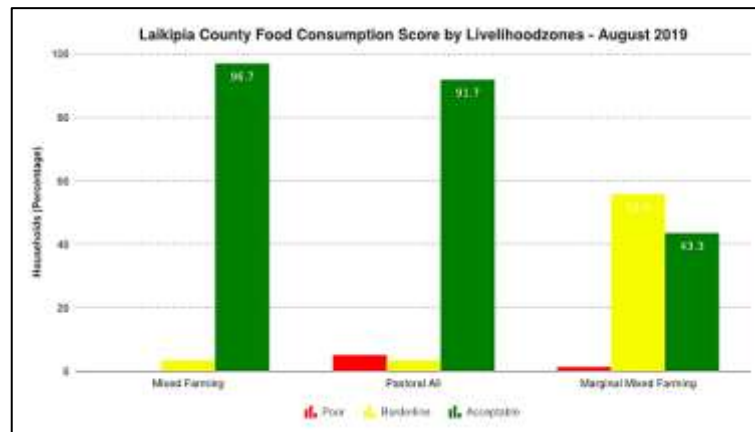
- The off-season rains recorded in the June-August period have had a positive impact on pasture and water availability, crop production and livestock body condition. However, the late onset of the long rains and the subsequent below normal amounts resulted in crop failure, late planting and below normal pasture and browse regeneration. Hence, low crop yield is expected in some pockets which had experienced severe rain deficit. However, farmers are hoping that the current crop at tussling stage will grow to maturity supported by offseason rains.
- Some pockets of the County experienced significant precipitation deficit during the period under review i.e. parts of Tigithi ward (MMF) and Mukogodo East ward (Pastoral). The areas are hence experiencing poor vegetation, leading to increased distances to water sources. The situation may compromise food security in these areas.
- Livestock productivity is within the expected levels compared to same time last year. The received rains have contributed positively to indicators such as distance to water sources, forage availability, water availability etc.

## 5 FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1 Milk Consumption

- During the month under review, the sampled households recorded an average milk consumption of 1.8 litres per day, slightly less than the previous month, with most of the milk coming from cattle.
- The milk consumption level within the normal (>1.7 litres) expected at this time of the year.
- For the MMF and MF zones, the larger percentage of the milk produced (74% and 55% respectively) was sold as households sought to raise income for other household needs whereas for Pastoral zones, 99% of the milk produced was used to supplement the diet.

### 5.2 Food Consumption Score



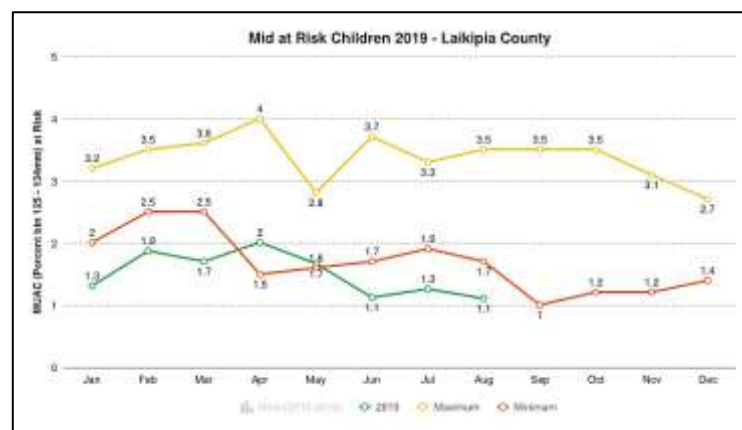
Graph 7: Food Consumption Score for Aug 2019

Source - KDEWS

- According to the graph above, all of the sampled households in the Mixed Farming livelihood zone maintained an acceptable food score except 3.3% (borderline). The Pastoral zone followed with an acceptable food score of 91.7% (a slight increase compared to July at 90%), a borderline food score of 3.2% (slightly lower than the previous month at 5%) and a poor food score of 5% (same as the previous month) hence indicating a slightly improved dietary diversity in the two zones.
- 55.6% of the households in the marginal mixed farming (MMF) zone had an acceptable score, 43.3% had a borderline score whereas 1.1% had a poor food score. This is a slight improvement compared to last month's 50% acceptable and 47.6% borderline and 2.4% poor.
- The household dietary diversity remained stable across all the livelihood zones except some areas in the Pastoral and MMF zones.

### 5.3 Health and Nutrition Status

#### 5.3.1 Nutrition Status



Graph 8: Percentage of children at risk of malnutrition for Aug 2019

Source - KDEWS

- The percentage of children under-five years of age who are at risk of malnutrition is 1.1%, a slight decrease compared to the previous month.
- There were no reported cases falling under SAM and MAM for the current month.

### **5.3.2 Health**

- There were no reported major human diseases apart from minor cases of common cold, flu and fever affecting both adults and children across the sentinel sites during the period under review.

### **5.4 Consumption based coping strategies**

- The most common types of the strategies employed were borrowing and purchasing food on credit, relying on well off relatives.

## **6 CURRENT INTERVENTION MEASURES (ACTION)**

### **6.1 Non-Food Interventions**

- No non-food interventions were reported in the sentinel sites during the period under review

### **6.2 Food Aid**

- No food aid interventions were reported in the sentinel sites during the period under review.

## **7 EMERGING ISSUES**

### **7.1 Insecurity/Conflict/Human Displacement**

- There were reported cases of insecurity in Matuiku and Eighteen areas in Githiga ward.
- Human – wildlife conflict was also reported in farms at Survey and Dam Samaki areas in Magadi (MMF zone) whereby food crops like maize were destroyed.

### **7.2 Migration**

- There were reported cases of livestock immigration from neighbouring Counties of Samburu and Isiolo. Intra-migration within the county was also reported. Livestock from pastoral areas of Ilingwesi in Mukogodo East have been reported to have migrated to the nearby Olenaisho farm in search of pasture.

### **7.3 Food Security Prognosis**

- The off-season rains recorded in the June-August period have had a positive impact on pasture and water availability, crop production and livestock body condition. However, the late onset of the long rains and the subsequent below normal amounts resulted in crop failure, late planting and below normal pasture and browse regeneration. Hence, low crop yield is expected in some pockets which had experienced severe rain deficit. However, farmers are hoping that the current crop at tussling stage will grow to maturity supported by offseason rains.
- Some pockets of the County experienced significant precipitation deficit during the period under review i.e. parts of Tigithi ward (MMF) and Mukogodo East ward (Pastoral). The areas are hence experiencing poor vegetation, leading to increased distances to water sources. The situation may compromise food security in these areas.
- Livestock productivity is within the expected levels compared to same time last year. The received rains have contributed positively to indicators such as distance to water sources, forage availability, water availability etc.
- Food consumption indicators are within the normal range albeit with some pockets in the Pastoral and MMF zones, which are experiencing food stress.
- Generally, the food security outlook for the county is expected to improve in the immediate short term because of the June-August offseason rains. The current worst-case scenario is that considerable crop failure may occur if the off-season rains fail by September. Also expected is considerable food stress in the pockets experiencing precipitation deficit.

## **8 RECOMMENDATIONS**

- Advice communities on sanitation and hygiene. Action: County Govt. (Health and Water).
- Enhance animal disease surveillance especially due to in migration of livestock from neighbouring counties. Action: County Govt. – Agriculture.
- Sensitize farmers on conservation agriculture and the adoption of drought resilient crops as a way to increase crop yields. Action: FAO, ASDSP, County Govt., and private stakeholders.
- Implement measures/interventions geared towards curbing human wildlife conflicts. Action: KWS.

## REFERENCES

### Livelihood zones

**MMF** – Marginal Mixed Farming Zone

**MF** – Mixed Farming Zone

**Pastoral Zone**

**Table 1: Drought Phase Classification**

Normal	Alert	Alarm	Emergency
All environmental Agricultural and pastoral indicators are within the seasonal ranges	Biophysical drought indicators move outside seasonal ranges	Environmental and at least three production indicators are outside long term seasonal ranges	All Environmental, Metrological and Production indicators are outside normal ranges.
<b>Recovery:</b> The drought phase must have reached at least Alarm stage. Recovery starts after the end of drought as signalled by the environmental indicators returning to seasonal norms; local economies starting to recover			

**Table 2: Standardized Precipitation Index (SPI)**

Color	SPI Values	Meteorological Drought Category
	> +1.5 or more	Wet Conditions
	0 to +1.5	No drought
	-0.1 to -0.99	Mild drought
	-1 to -1.99	Severe drought
	<-2 and less	Extreme drought

**Table 3: Vegetation Condition Index Values (VCI)**

Color	VCI values	Agricultural Drought Category
	3-monthly average	
	≥50	Wet
	35 to 50	No agricultural drought
	21 to 34	Moderate agricultural drought
	10 to 20	Severe agricultural drought
	<10	Extreme agricultural drought

**Table 4: Livestock Body Condition**

Level	Classification	Characteristics (this describes majority of the herd and not individual isolated Stock)
5	Normal	Very Fat Tail buried and in fat
		Fat, Blocky. Bone over back not visible
		Very Good Smooth with fat over back and tail head
		Good smooth appearance
4	Moderate	Moderate. neither fat nor thin
3	Stressed	Borderline fore-ribs not visible. 12th & 13th ribs visible
2	Critical	Thin fore ribs visible
1	Emaciated	Very thin no fat, bones visible
		Emaciated, little muscle left

### Definition of Early Warning Phases

The EW phases are defined as follow:

**NORMAL:** The normal phase occurs when **biophysical drought indicators (VCI and SPI) show no unusual fluctuations** hence remain within the expected ranges for the time of the year in a given livelihood zone, division or county

**ALERT:** The alert phase is when either the **vegetation condition index or the standard precipitation index (biophysical indicators) show unusual fluctuations below expected seasonal ranges** within the whole county/sub-county or livelihood zones.

**ALARM:** The alarm phase occurs when both **biophysical and at least three production indicators fluctuate outside expected seasonal ranges** affecting the local economy. The production indicators to be considered are livestock body condition, crop condition, milk production, livestock migration and livestock mortality rate.

If **access indicators** (impact on market, access to food and water) move outside the normal range, the status remains at “alarm” but with a worsening trend. Proposed access indicators include ToT, price of cereals, availability of cereals and legumes, and milk consumption. The trend will be further worsening when also welfare indicators (MUAC and CSI) start moving outside the normal ranges.

**EMERGENCY:** In the emergency phase, **all indicators are outside of normal ranges**, local production systems have collapsed within the dominant economy. The emergency phase affects asset status and purchasing power to extent that seriously threatens food security. As a result, coping strategy index, malnutrition (MUAC) and livestock mortality rates move above emergency thresholds.

**RECOVERY:** **Environmental indicators returning to seasonal norms.** The drought phase must have reached at least Alarm stage. Recovery starts after the end of drought as signalled by the environmental indicators returning to seasonal norms while production indicators are still outside the normal seasonal range but local economies start to recover. The status changes to normal once the bio physical and production indicators are back to normal range.