

**National Drought Management Authority**  
**LAIKIPIA COUNTY**  
**DROUGHT EARLY WARNING BULLETIN FOR DECEMBER 2017**



A Vision 2030 Flagship Project



**DECEMBER 2017 EW PHASE: ALERT**



**Drought Situation & EW Phase Classification**

**Biophysical Indicators**

**Rainfall: Onset**-The October, November, December (OND) rains commenced on the third week of October. In December, the County experienced rainfall ranging from heavy to light showers. Generally, the rains were distributed fairly in terms of time and space except in few pockets in the Pastoral and MMF zones.

The received rainfall was approximately 67% of the expected amount for the month, which is way below the normal range.

**Vegetation Condition:** The Vegetation Condition Index (VCI) is above the normal range, indicating a good state of pasture and browse condition across most areas. From field observations, this is largely true but there still exists areas with moderate vegetation deficit i.e. some parts of Mukogodo East & West, Ngobit and Tigithi wards. The browse condition was largely good in all zones.

**Socio Economic Indicators (Impact Indicators)**

**Production Indicators** – Livestock migration patterns in the Pastoral and some MMF zones were normal for the time of the year. Milk production per household was above the normal range at this time of the year. The body condition of animals was within the normal range for the period.

**Access indicators** - The terms of trade are within the normal range and are on an upward trend. The return distance from water sources to grazing areas is within the normal range.

**Utilization indicators** – within the normal range.

The EW phase is **Normal** for the whole County.

A larger part of the county is within the normal range.

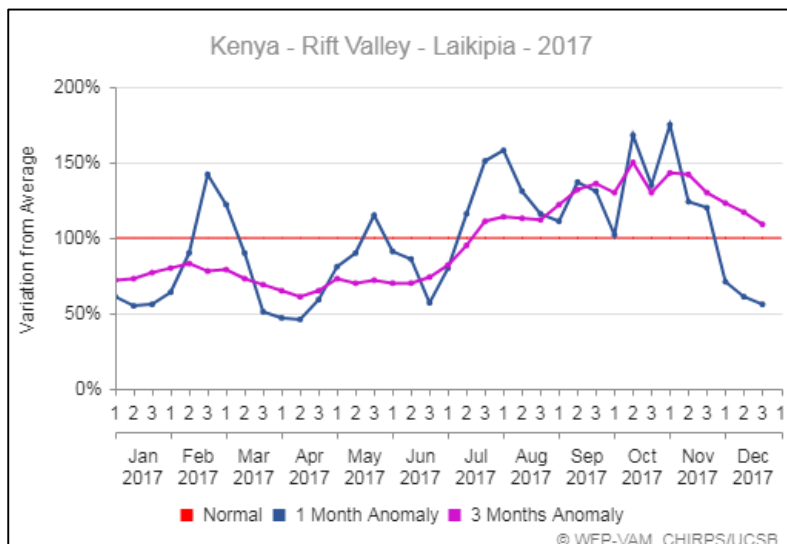
LIVELIHOOD ZONE	EW PHASE	TREND
PASTORAL	Normal	Stable
MMF	Normal	Stable
MF	Normal	Stable
COUNTY	Normal	Stable
Biophysical Indicators	Value	Normal range
% of Average rainfall (first 2 dekads)	67%	80-120%
SPI-3 month (TAMSAT)	-	-1 to 1
VCI (Entire County)	62.6	35-50
State of Water Sources	5	5
Production indicators	Value	Normal range
Livestock Migration Pattern	Yes	No Migration
Livestock Body Condition (score) County Wide	4-5	4-5
Milk Production (Lt)	5.5	4.5
Livestock deaths	-	No death
Crops area planted (%)	-	% of LTA
Access Indicators	Value	Normal ranges
Terms of Trade (ToT)	87	> 83
Milk Consumption (Lt)	1.6	> 1.6
Return Distance (Water Sources - grazing areas)	3.9	< 5
Return Distance water to Grazing areas (Pastoral)	4.6	< 7
Utilisation indicators	Value	Normal ranges
MUAC (Mid at risk)	2.7	< 18.36
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

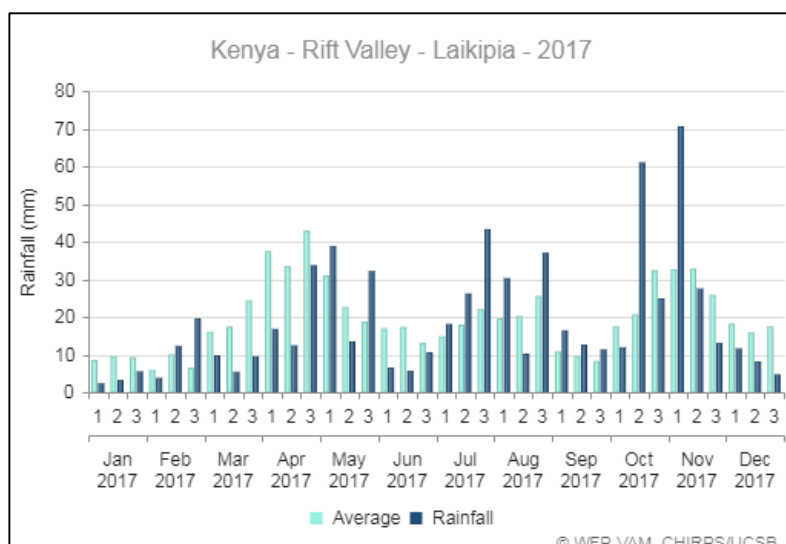
## 1.1 Rainfall Performance

- The October November December (OND) rains commenced on the third week of October. The rainfall ranged from heavy to moderate have been observed across the County.
- The Mixed Farming (MF) zone received 7 days of moderate showers whereas the Marginal Mixed Farming (MMF) reported 7 days of moderate rainfall to light showers. The Pastoral (all species) zone reported 0 to 2 days of moderate to light showers.



- In relation to variation from the long term average, the amount of rain received was approximately 67% of the expected amount for the month way below the normal range (80-120%). This is a significant decrease compared to the recorded 143% of the expected amount in November and 135% in October.

## 1.2 Amount of Rainfall and Spatial Distribution



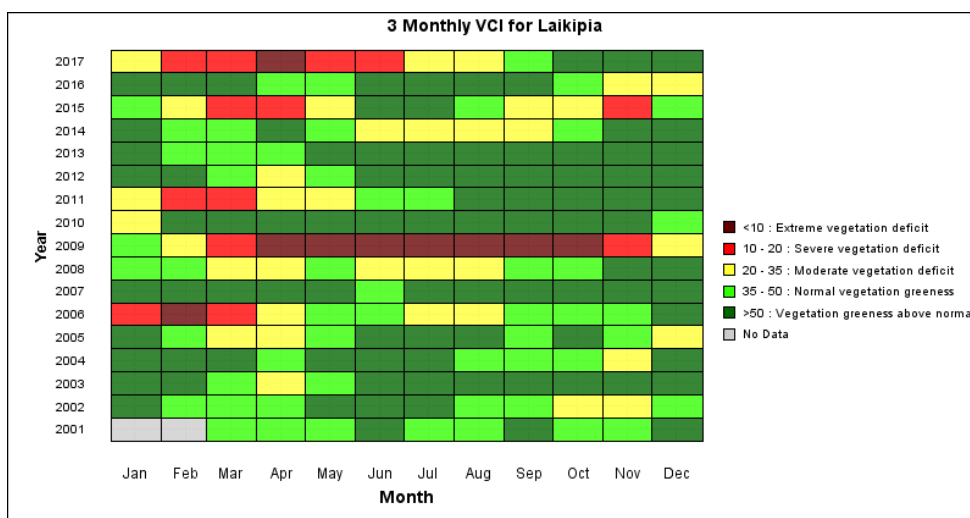
- According to the chart above, the rain received in November amounted to 23.8 mm, which is below the long term average of 50.8 mm by the same time hence way below normal. Compared to November, the precipitation levels decreased significantly.
- The rainfall distribution was fair in both terms of time and space in the MF and parts of MMF zones. In the Pastoral zone, the same was poor in time and space.

## 2 IMPACT ON VEGETATION AND WATER

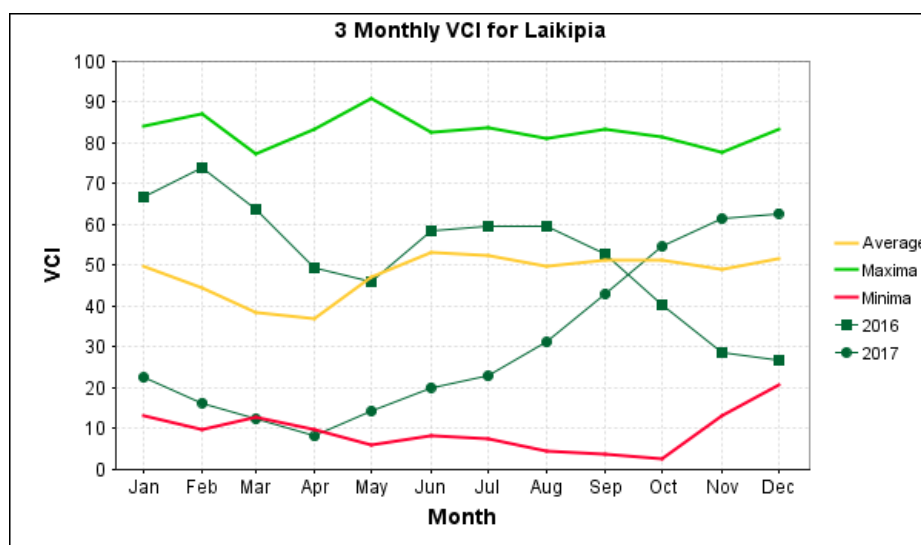
### 2.1 Vegetation Condition

#### 2.1.1 Vegetation Condition Index (VCI)

- The vegetation condition has shown improvement across the county.



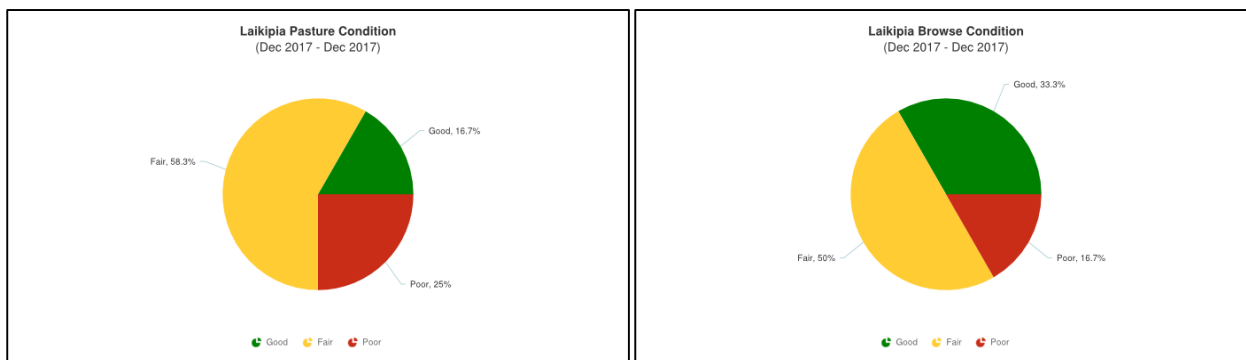
- The VCI matrix above indicates a slightly above normal vegetation greenness in the last three months (OND). From field observations, this is largely true. However, some areas are now exhibiting stress due to inadequate rains in December. However, there still exists a few areas with moderate vegetation deficit i.e. some parts of Mukogodo East, West, Ngobit and Tigithi wards and which is on a diminishing trend in the said areas.



- According to the chart above, the VCI at 62.6 is above the normal range (35-50) and shows slight improvement compared to November at 61.3.

#### 2.1.2 Pasture

- According to the key informant's interviewed, the pasture condition was largely good (62.7%), and fair (37.5%) as shown in the chart below. This is due to the ongoing OND rains and the resultant pasture regeneration.



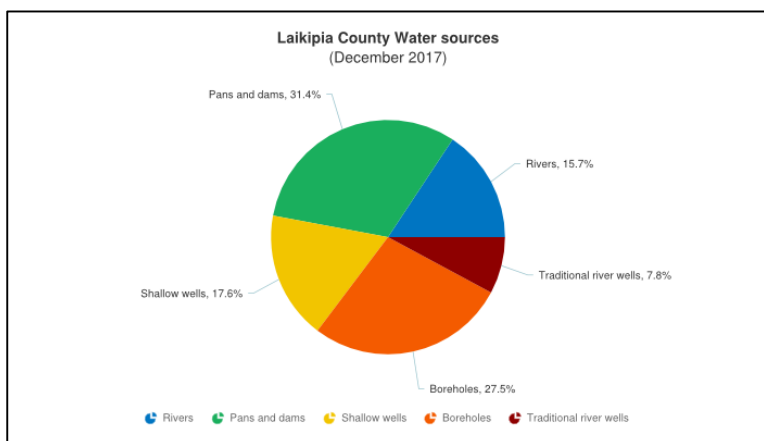
- The pasture condition is largely good to fair in the MF zones and most of the of MMF zone.
- Compared to the previous month, there was a significant improvement and this can be attributed to the OND rains experienced across most areas.
- The quantity of pasture available is expected to last two months in the Pastoral and parts of the MMF zone. In the MF zone the pasture condition is expected to last for three months.

### 2.1.3 Browse

- The browse condition in Pastoral zone is largely fair to good in both quantity and quality. The browse condition in the MF zones is good whereas in MMF zone the same is largely good, with some few areas having fair conditions.
- The browse condition is above the normal range for the period compared to the long term average in all livelihood zones.
- The quantity of browse available is expected to last an average of 3-4 months in the MF and 3 months in the MMF and Pastoral zones.

## 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 (31.4%), boreholes (27.5%), shallow wells (17.6%) and rivers (15.7%).
- The Pastoral zone largely utilised the natural rivers, shallow wells and boreholes while the MMF livelihood zones utilized boreholes followed by pans / dams and rivers whereas the MF zone largely utilized shallow wells, pans and dams and traditional river wells. Alternate water sources were springs and piped water systems.
- The current water levels in water sources have slightly increased owing to the rains experienced in most parts of the County.

### **2.2.2 Household Access and Utilization**

- The average return distances from households to water sources remained at 2.9 km in December, slightly higher than the previous month. The furthest return distance of 3.6 Km was recorded in Laikipia East (MMF zone), up from 3 Km in November.
- In general, the increasing distances can be attributed to the decreased precipitation recorded in December. If the current situation continue, the distances are expected to increase progressively.

### **2.2.3 Livestock Access**

- The average return distance from water sources to grazing areas slightly decreased to 3.9 Km, down from 4.1 Km in November. The longest return distance of 4.6 Km was recorded in the Pastoral zones, a slight increase compared to 4.5 Km in November. MMF zones recorded 3.4 Km, a slight decrease from 3.7 Km the previous month.
- The decrease in distances from water sources to grazing areas can be attributed to the decrease in distances covered in search of pasture.

### **2.3 Implication to Food Security**

- The combined positive effect of the off-season rains and OND rains has led to improved vegetation cover, hence the resultant increase in pasture and browse quality and quantity. It has also led to the decrease in distances to water sources.
- However, some pockets in the Pastoral and MMF zones (small parts of Mukogodo West, Ngobit and Tigithi wards) have received depressed rains and this coupled with over grazing has resulted in poor forage regeneration.

### **3 PRODUCTION INDICATORS**

#### **3.1 Livestock Production**

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

- During the period under review, the general body condition of cattle was fair to good across the County. In the Pastoral zone and most parts of the MMF zones, the cattle body condition was fair to good. For MF the same was good.
- The cattle body condition has had a significant improvement in MF and parts of MMF zone due to the off season rains experienced and the ongoing short rains season due to the increase in pasture and browse quality and quantity. In the Pastoral zone, significant improvement of body condition has been observed.
- The body condition of browsers was good across all livelihood zones.
- On average, the livestock body condition trend across the county is on an improving trend.

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

- There were no major cases of livestock diseases and deaths reported in December.

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

- The sampled households recorded an increased average milk production of 5.5 litres per household per day in December, up from 4.8 litres in November. The Pastoral zone recorded the least milk production per household at 2.9 litres, which is a significant increase compared to 2.1 litres in November. Most of the milk was obtained from cattle.
- The milk production is slightly above the average levels (5 litres per household) at this time of the year.
- The improvement in milk production levels is attributed to the improvement of forage as a result of the off season rains and the just ended OND rains.

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

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

- Depending on the time planted, green and dry maize harvesting in most of the farms in MF zone and MMF zones is ongoing while others are at final weeding stage.
- Some farms are in the planting stage for the short rains season. Farmers in the MF are planting short term crops such as tomatoes, kales and cabbages.
- Cases of frost bite and early blight affecting both crops and pasture have reported at Matanya and Withare sentinel site in Tigithi and Ngobit ward(both in MMF zone)

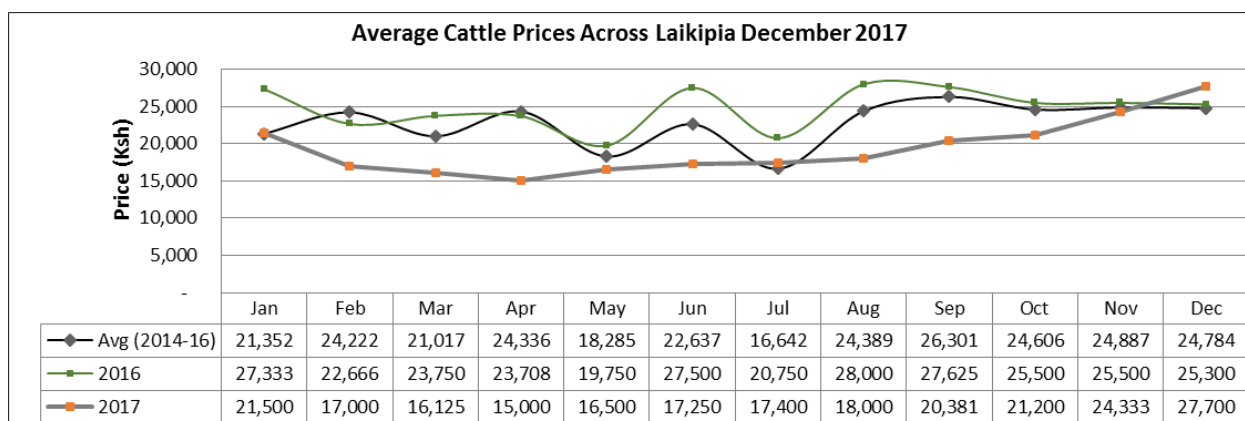
##### **3.3 Implications to Food Security**

- The effect of the previous off-season rains combined with the ended OND rains has had a positive impact on pasture regeneration leading to the improvement in the body condition of livestock across the county which in turn has led to the increase in milk production.
- The OND rains have resulted to the current maize harvests ongoing in the MF zone of Laikipia west. This in turn has improved food security in the area and at the same time resulted in the drop in maize prices. However, the drastic drop in maize prices has resulted in reduced incomes for maize farmers. A 90kg maize bag is going for an average of Ksh. 1,800 in Laikipia West, down from an average of Ksh. 4,000 in July.

## 4 MARKET PERFORMANCE

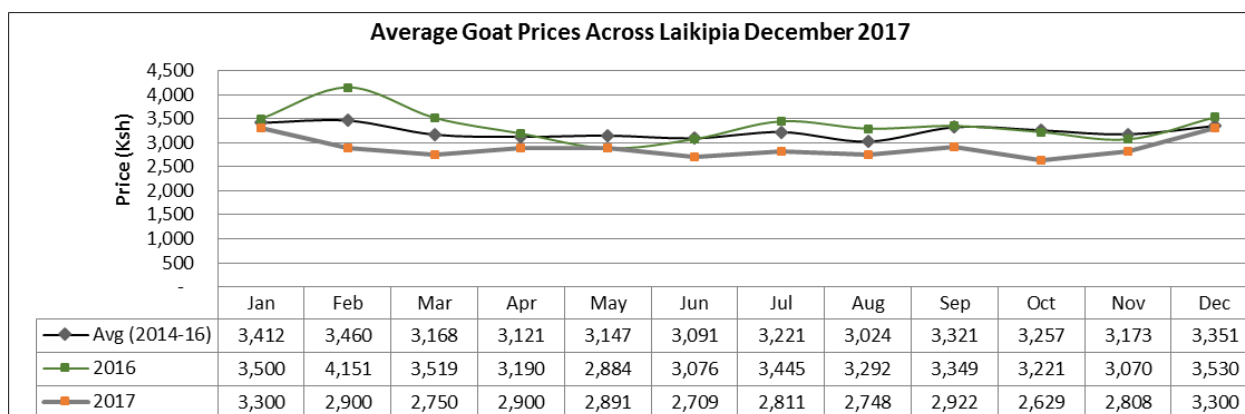
### 4.1 Livestock Marketing

#### 4.1.1 Cattle Prices (at the farm gate)



- The average price of cattle across the County at the farm gate recorded a significant increase (by 14%) in December compared to the previous month. This can be attributed to the improved body condition in most areas and hoarding in order to fetch of better prices during the festive season.
- Compared to the long term average, the current price is slightly higher than the long term average by 12%.

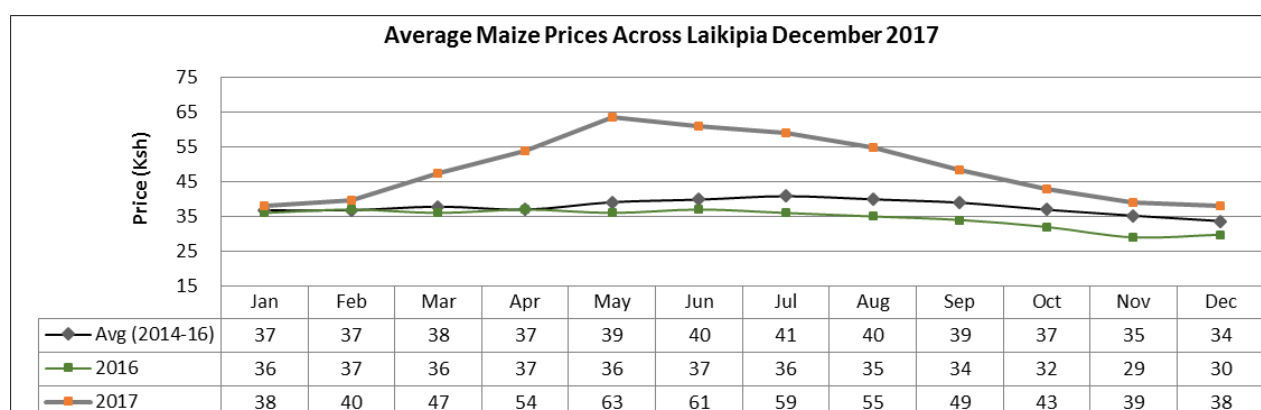
#### 4.1.2 Small Ruminants Prices (Goat)



- During the month under review, the average price of a goat (at the farm gate) in Laikipia increased to Kshs. 3,300, an 18% increase compared to the previous month. Compared to the long term average, the current price is lower by 2%. The increase in goat price can be attributed to the improvement in sheep and goats body condition across the county and also due to increased demand attributed to the festive season.
- The highest average goat price was recorded in the MF zone followed by the MMF zone. The current price is lower compared to the same time last year and the long term average.

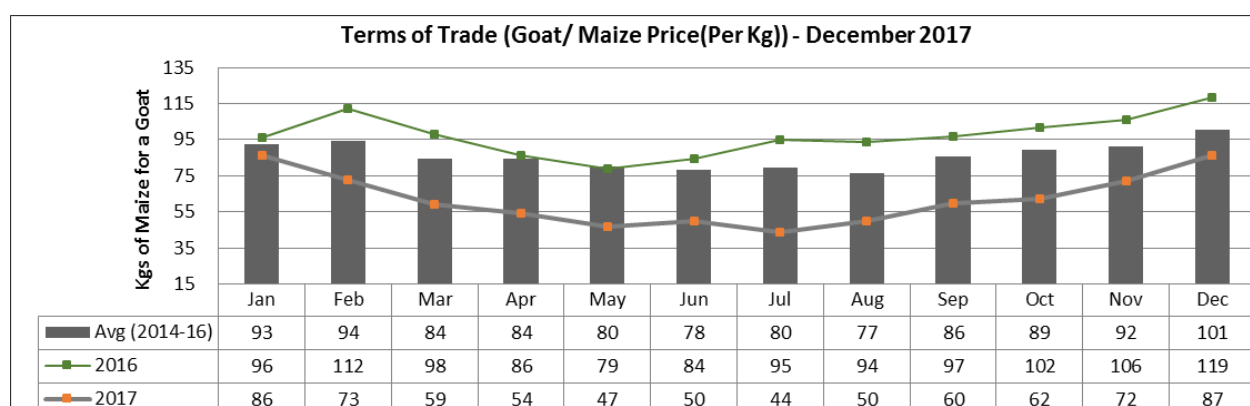
## 4.2 Crop Prices

### 4.2.1 Maize (market price)



- The average maize prices at the markets recorded a very slight decrease in December. The decline in price is attributed to the ongoing maize harvests in Laikipia West and increased supply from other counties.
- The highest average market price of maize at Kshs.50 was recorded in Sirima market (MMF). Compared to the three year average, the current price is slightly higher by 4 shillings.

### 4.3 Livestock Price Ratio/ Terms of Trade



- The December average price of a goat at Kshs. 3,300 was able to purchase 87 Kg of maize, a significant increase compared to the previous month at 72 Kg. The shift in ToT (Terms of Trade) can be attributed to the drop in maize prices coupled with the increase in livestock prices across all livelihood zones. The shift favours livestock keepers as they are now able to purchase more maize for the price of a goat.
- When compared to the three year average, the ToT are still way below normal.

### 4.4 Implication on Food Security

- The improved pasture quantity and quality has had a positive contribution to the improvement of the livestock body condition. This coupled with the increased demand over the festive season has contributed to a slight improvement in cattle prices. The increased income will foster food security.
- The reduction in maize prices has had a positive contribution to food security since maize meal is now affordable.

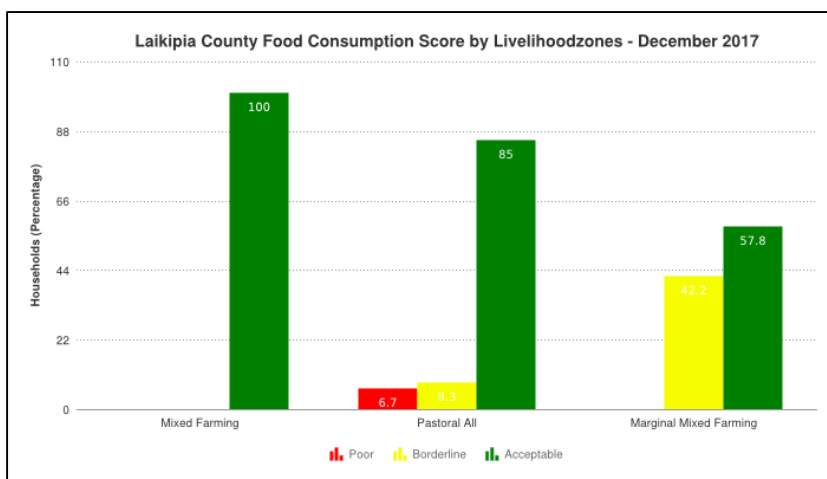


## 5 FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1 Milk Consumption

- During the month under review, the sampled households recorded an average milk consumption of 1.6 litres per day which is the same compared to the previous month, with most of the milk coming from cattle.
- The milk consumption levels are still within the normal levels (>1.6 litres) expected at this time of the year.
- For the MMF and MF zones, the larger percentage of the milk produced (71% and 62% 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.

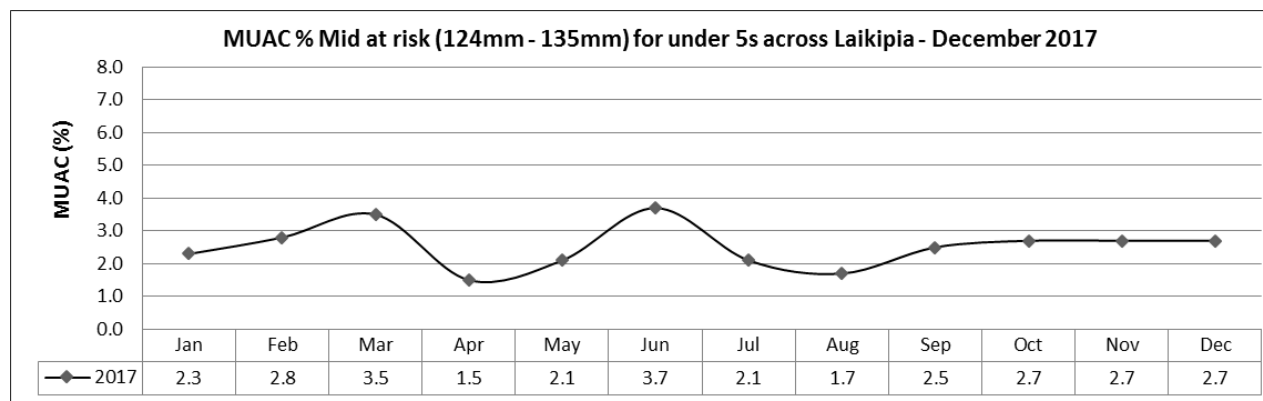
### 5.2 Food Consumption Score



- According to the chart above, all the households in the MF livelihood zone maintained an acceptable food score. The Pastoral zone followed with an acceptable food score of 85%, a borderline food score of 8.3% and a poor score of 6.7%.
- 57.8% of the households in the MMF zone had an acceptable score whereas 42.2% had a borderline score. This indicates a slight increase in dietary diversity in the MMF zones considering it had an acceptable food score of 53.3% in November. The food consumption gaps can be attributed to moderate vegetation deficit observed in some pockets of Tigithi, Ngobit, Mukogodo East and West wards.

### 5.3 Health and Nutrition Status

#### 5.3.1 Nutrition Status



- The percentage of children under five years of age who are at risk of malnutrition is 2.7%, same as the previous month.

### **5.3.2 Health**

- There were no major reported cases of disease outbreaks apart from slightly increased cases of respiratory tract infections in both adults and children across all zones and few cases malaria in the Pastoral zone of Kimanjo.

### **5.4 Coping Strategies**

- The most common types of the strategies being employed are swapping consumption to less preferred or cheaper foods, taking fewer meals and purchasing food on credit.

### **5.5 Implication on Food Security**

- The slightly improved milk consumption levels across the Pastoral and MMF zones have had positive contribution to dietary diversification as livestock body condition has improved due to the improvement in forage condition.
- The off season rains and the ongoing OND rains have contributed positively to food security through improved water access hence leading to better sanitation in households thus minimising diseases. Households in the MF and MMF zones are also able to supplement their diets with leafy vegetables hence increased dietary diversity, leading to improved food security.

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

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

- The NDMA has distributed drought pellets amounting to 7800 bags of 50kg each across the county with the aid of European Union between September and November 2017.
- The NDMA also distributed diesel fuel to strategic boreholes and aqua tabs for water purification across the three sub counties.

### **6.2 Food Aid**

- No food intervention was reported in the County during the period under review

## **7 EMERGING ISSUES**

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

- Some livestock markets i.e. Olmorani that had been inactive since July due to conflicts which resumed market operations in the month of November is still functional.
- Cases of cattle rustling as a result of immigration of rustlers from neighbouring counties (Samburu) in Ilgvesi (Pastoral zone) area are still being reported. Community members who were displaced from around Nadungoru (Ilgvesi Pastoral zone) due to invading herders are yet to go back due to fear of repeat attacks.
- Human wildlife conflict cases reported during the previous months at eighteen in Mwenje (MF zone) and Ex-erock in Withare (MMF zone) of wildlife invading farms have been reported again during the month.
- No cases of Human- human conflict was reported in the county during the period under review.

### **7.2 Migration**

- No unusual migration pattern was witnessed except few reported small cases of cattle migration from neighbouring Isiolo County around Ilgvesi towards nearby ranches and Mukogodo forest (Pastoral all species Zone).

### **7.3 Food Security Prognosis**

- The OND rains coupled with the previous off-season rains have had a significant positive impact on various indicators, particularly the biophysical indicators. The socio-economic indicators

have improved, which is evidenced by the decrease in food commodity prices. This has resulted in increased food diversity and hence better food security.

- Human security, which is a major factor affecting food security needs to be addressed comprehensively in order to enable communities to increase production and hence alleviate food scarcity.

## 8 RECOMMENDATIONS

- Embark on scenario building and preparedness activities in anticipation of the January-March 2018 period. **Action: County Government, NDMA, Stakeholders.**
- Provision of extension advisory services on proper, certified seeds and proper farming methods to small scale farmers. **Action: County Government.**
- Increase sensitization of farmers on Conservation agriculture. **Action: County department of Agriculture, FAO, Private Stakeholders.**
- Increase peace building activities and surveillance in conflict prone zones **Action: County Commissioner, County Government, NDMA, Private Stakeholders**
- Initiate interventions geared towards curbing human wildlife conflicts especially in areas of Withare, Mwenje, Muruku, Endana, Matanya, Olmorani and Survey. **Action: KWS.**
- Servicing and repair of the major strategic boreholes in the county in anticipation of the January-March 2018 period under the Preparedness component. **Action: County department of Water, NDMA and other Stakeholders.**

## REFERENCE TABLES

**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	Metrological 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
	<b>3-monthly average</b>	
	≥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.