

# National Drought Management Authority Baringo County Drought Early Warning Bulletin for October 2019



A Vision 2030 Flagship Project



OCTOBER EW PHASE	Early Warning Phase Classification			
<b>Drought Status: NORMAL</b>  <small>Shughull xi kiyatta</small>	<b>LIVELIHOOD ZONE</b>	<b>EW PHASE</b>	<b>TRENDS</b>	
<p><b>Drought Situation &amp; EW Phase Classification</b> Drought Phase: Normal- Stable</p> <p><b>Biophysical Indicators</b></p> <ul style="list-style-type: none"> <li>Most biophysical indicators are within the expected seasonal ranges.</li> <li>Above average rainfall was received in the month of October 2019.</li> <li>The Vegetation Condition Index values for Baringo County are above normal and stable.</li> <li>The Water levels in most water sources are normal at (80%-100%)</li> </ul> <p><b>Socio Economic Indicators (Impact Indicators)</b></p> <p><b>Production indicators:</b></p> <ul style="list-style-type: none"> <li>The forage condition is good in both quality and quantity and expected to remain stable with the on-going rains.</li> <li>Livestock body condition is fair to good in all livelihood zones.</li> <li>Milk production is slightly below the normal seasonal range but on an increasing trend.</li> <li>No Drought related Livestock deaths reported in all Livelihood zones.</li> </ul> <p><b>Access indicators</b></p> <ul style="list-style-type: none"> <li>Terms of trade are currently above normal seasonal ranges and on an improving due to improving livestock body conditions.</li> <li>Distances to water sources for households currently are within normal seasonal ranges and stable due to recharge of most of surface water sources.</li> </ul> <p><b>Utilization indicators:</b></p> <ul style="list-style-type: none"> <li>The number of under-five children at risk of malnutrition was 15.9%, a decrease as compared 16.4% in the previous month.</li> <li>Copping strategy index for households is still within normal ranges.</li> </ul>	PASTORAL	NORMAL	STABLE	
	AGRO PASTORAL	NORMAL	STABLE	
	IRRIGATED CROP	NORMAL	STABLE	
	COUNTY	NORMAL	STABLE	
	<b>Biophysical Indicators</b>	<b>Value for the month Baringo</b>	<b>LTA-Monthly Baringo</b>	<b>Normal Kenya % ranges</b>
	Average rainfall MM (%)	51.6	45.6	80-120
	VCI-3month	86.79	54	35-50
	% Of water in the water pan	70%-90%		50-60
	<b>Production indicators</b>	<b>Value</b>	<b>Normal ranges</b>	
	Livestock Migration Pattern	Normal	Normal	
	Livestock Body Condition	4-5	3-4	
	Milk Production (Ltr /HH/Month)	1.7	1.8	
	Livestock deaths (for drought)	No deaths	No death	
	<b>Access Indicators</b>	<b>Value</b>	<b>Normal ranges</b>	
	Terms of Trade (ToT)	70.1	>63	
Milk Consumption (Ltr)	1.5	>=1.7		
Water for Households-trekking distance (km)	4	0-4		
Crops area planted for the season (%) (October 2019)	(Maize) 2,500(Beans)	LTA (40,046Ha) LTA (20,028Ha)		
<b>Utilization indicators</b>	<b>Value</b>	<b>Normal ranges</b>		
At Risk (%)	15.9%	<15		
CSI	12.5	>19.0		

<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

## 1.2 AMOUNT OF RAINFALL AND SPATIAL DISTRIBUTION

- During the month of October, 27.3mm and 45.6mm of rainfall was received in the 1<sup>st</sup> and 2<sup>nd</sup> dekad respectively.
- The amounts received were above the LTA.
- Both temporal and spatial distribution was good across all the sub-counties.

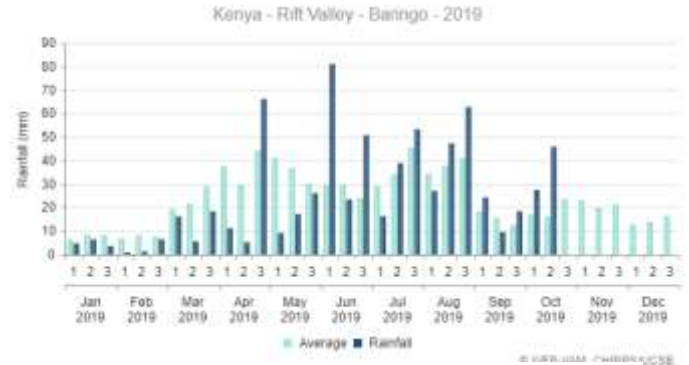


Fig. 1. Rainfall performance

# 2. IMPACTS ON VEGETATION AND WATER

## 2.1.1 VEGETATION CONDITION INDEX (VCI)

The vegetation condition in the County was above normal and stable compared to the previous month as shown in the table below.

COUNTY	Sub County	VCI as at 29 <sup>th</sup> September 2019	VCI as at 28 <sup>th</sup> October 2019	
BARINGO	County	86.79	76.64	The county is in above normal vegetation greenness with all its sub counties in above normal vegetation greenness. The county experienced above normal rains during the month that has impacted positively the vegetation condition for the county.
	Central	85.87	84.66	
	Eldama	80.71	72.74	
	Mogotio	89.54	78.93	
	North	81.9	75.33	
	South	90.96	80.85	
	Tiaty	87.67	74.48	

Table.1. Source BOKU

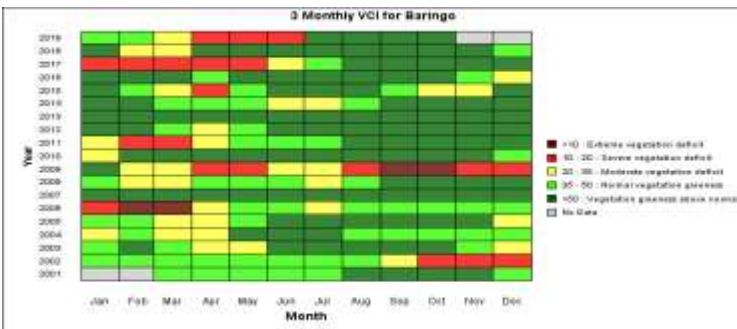


Fig 2. VCI

The vegetation condition index for Baringo County was at 76.64 that was above normal vegetation greenness as compared to the LTA. In comparison to the previous month the current vegetation cover has declined slightly in quantity and quality. The situation is expected to continue improving due to the ongoing rains

The vegetation condition is stable and expected to improve more throughout the county due to the on-going rains.

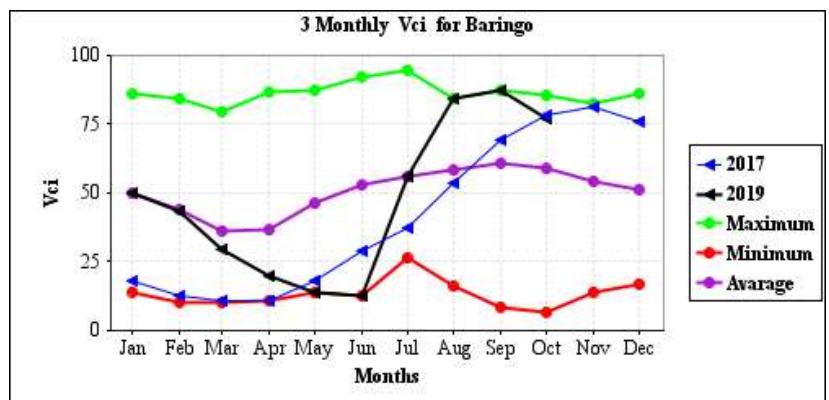
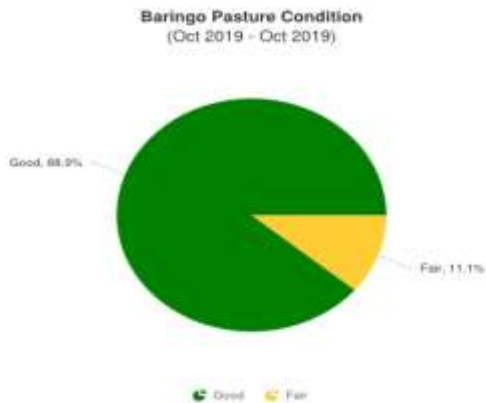


Fig.3.VCI trend

## 2.1.2 Pasture



- The pasture condition is good both in quantity and quality in irrigated and Agro Pastoral Livelihood Zones. While fair to good in Pastoral livelihood zones; these conditions are normal at this time of the year.
- The pasture is expected to last for three to four months across all livelihood zones.

Fig.4.Pasture Condition

## 2.1.3 Browse

- The browse condition is good in quantity and quality across all livelihood zones; the condition is normal as compared to seasonal ranges for this time of the year.
- The available browse is expected to last for four to five months in pastoral and agro pastoral livelihood Zones and five months in irrigated cropping livelihood zone.

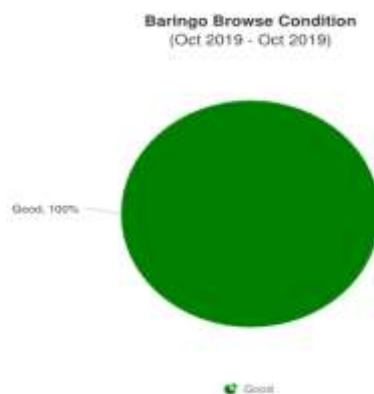


Fig.5. Browse Condition

## 2.2 WATER RESOURCE

### 2.2.1 Source

- The main water sources for both livestock and human consumption across all livelihoods were Rivers, traditional river wells and water pans.
- Most water pans and dams were at 80% to 100% of their full capacity.
- Water quality and quantity across pastoral and agro-pastoral livelihoods is good, which is normal for this time of the year.
- The current water sources are expected to last for six months in irrigated farming livelihood zone.
- In pastoral and agro pastoral livelihood zones, the water is likely to last for three to four months due to rains being experienced.

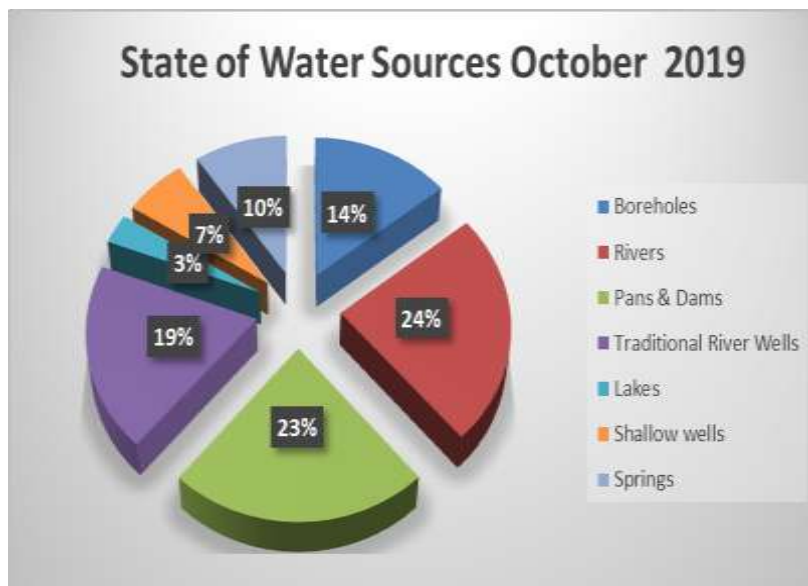


Fig.6 State of water Sources

### 1.3.2 Household access and Utilization

- The average household trekking distance to water sources was relatively stable at 4 Km in comparison to the previous month.
- The distances are above the LTA by 21 %.
- Irrigated cropping zone recorded the least average distance of 1km while pastoral livelihood recorded the highest average of 4.6 km.
- The decrease in distances is attributed to recharge of water sources across all livelihoods.

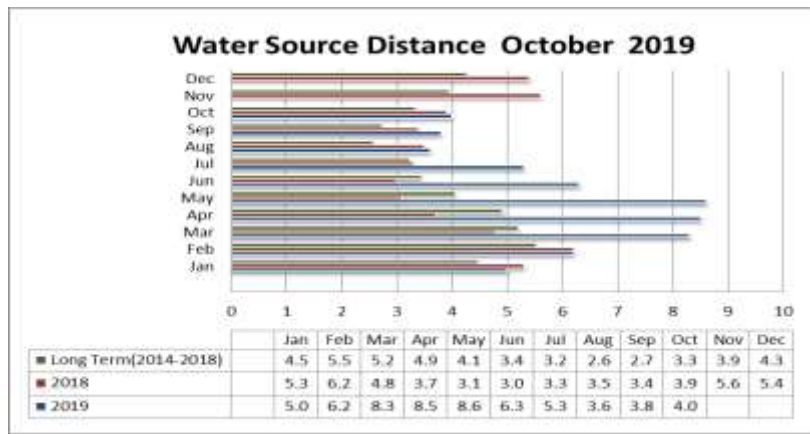


Fig.7. Water Source Trekking Distances

### 2.2.3 Livestock access

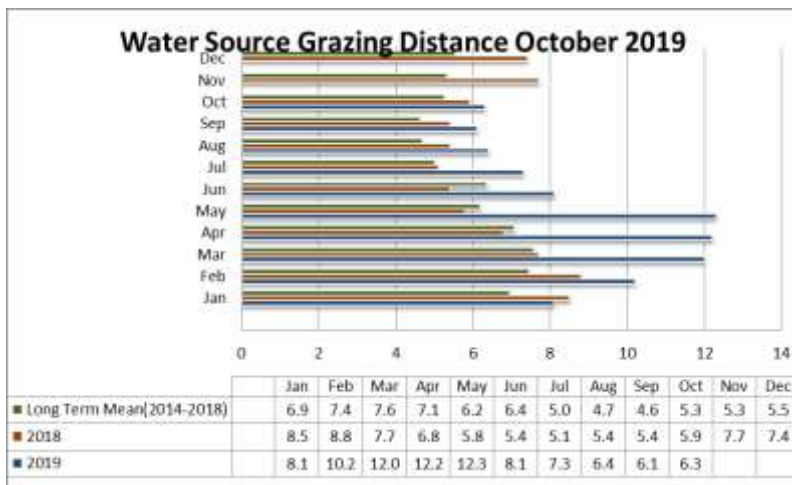


Fig.8. Water Source Grazing Distance

- The return distance for livestock from grazing zones to water points was relatively stable at 6.3Km as compared to the previous month. The pastoral livelihood zone covered the longest average distance of 6.8 km while irrigated livelihood zone covered the shortest average distance of 1.5 km.
- The situation is attributed to regenerated pastures and water availability at the traditional grazing zones across all livelihood zones.

## 3.0.0 PRODUCTION INDICATORS

### 3.1 Livestock Production

#### 3.1.1 Livestock Body Condition

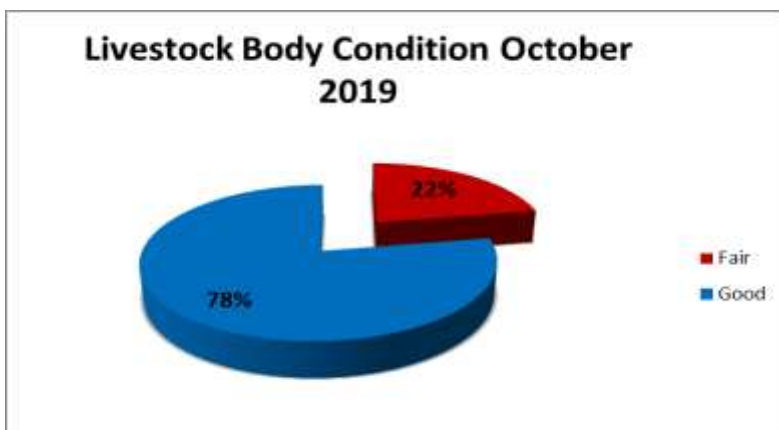


Fig.9. Livestock body condition

- During the month of October 22% of interviewed households reported fair and 81% reporting good livestock body condition.
- This fair to good body condition is occasioned by availability of enough pasture, browse and water across livelihood zones.
- The situation is likely to remain steady with the on-going short rains.

### 3.1.2 Livestock Diseases

- Cases of CCPP and CPPR were reported in all livelihoods; the livestock department is currently carrying out vaccinations against these diseases. There were no major livestock disease outbreaks in the county during the month.

### 3.1.3 Milk Production

- The average milk produced per household per day increased slightly at 2.2 litres compared to the previous month at 1.7 litres.
- The amount is above long-term average by 15 percent.
- The milk was mainly from camels and cattle.
- Irrigated livelihood zone had an average of 2.9 litres while pastoral had the least at 1.7 litres.

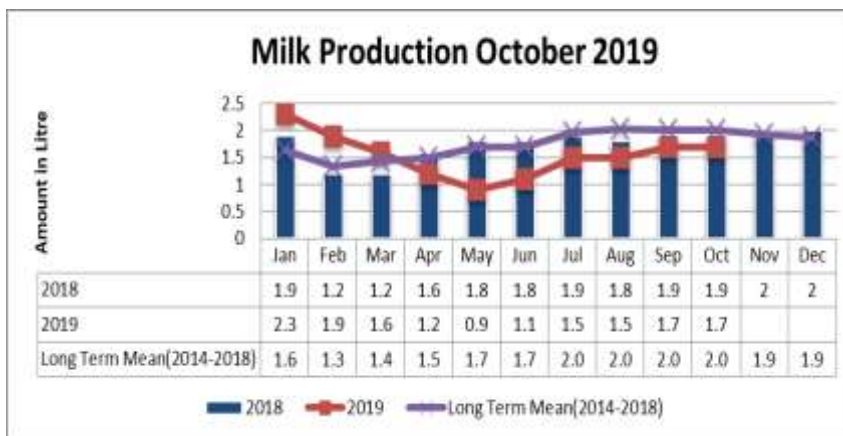


Fig.10. Milk Production

## RAIN FED CROP PRODUCTION.

### 3.2.1 Stage and Condition of food Crops

- Currently most farmers have finished harvesting maize from their farms in the Irrigated and Agro Pastoral livelihood zones. The farmers who harvested earlier in September have already prepared and planted their farms for the short rains season. The area under maize and beans is expected to be lower as compared to the Long term average due delay in the previous season.

## 4.0.0 MARKET PERFORMANCE

### 4.1.0 LIVESTOCK MARKETING

#### 4.1.1 Cattle Prices.

- The average price for medium-sized cattle was at Ksh. 19,833 an increase of 15 percent as compared to the previous month at Ksh. 17,259
- The price was above the long-term average by 42 percent.
- Irrigated livelihood zones had the highest prices of Ksh. 20,500 while Pastoral livelihood zone recorded the least average price of Ksh.17,236
- The increase in prices was attributed to improved livestock body condition across all livelihood zones.

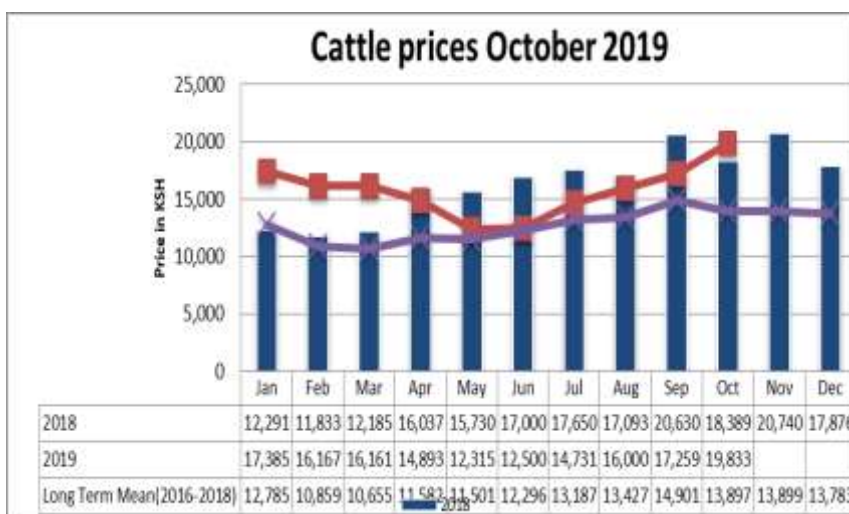


Fig.11. Cattle Prices

#### 4.1.2 Goat Prices.

- The average price of a medium size goat was Ksh.3, 098 as compared to the previous month at Ksh. 2,798.
- The average price of a goat was above the LTA by 21 percent.
- The prices were highest in irrigated cropping livelihood Zone at Ksh. 3,417 and lowest in Agro Pastoral livelihood zone at Ksh.2, 250.
- The better prices were as a result of improved livestock body conditions.

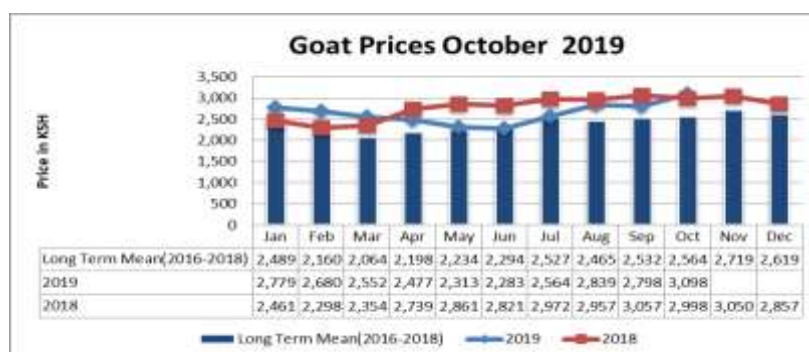
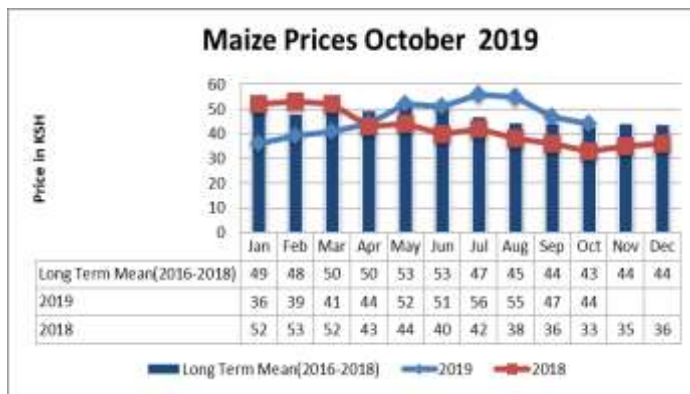


Fig.12. Goat Prices

## 4.2.0. CROP PRICES

### 4.2.1 Maize



- The current average price for kilogram maize decreased from Ksh.47 to October compared to Ksh. 44 the previous month.
- The price was slightly above the long-term average at this time of the year by 2 percent.
- Pastoral livelihood Zone recorded the highest price of Ksh.47 per Kg while irrigated Livelihood Zone recorded the lowest of Ksh.38 per Kg.
- This can be attributed by the on going harvest of at household levels and stocks at local retailers.

Fig.13. Maize Prices

### 4.2.2 Posho (Maize Meal)

- The price per a kilogram of Posho was at Ksh.52 from Ksh. 55, a decrease of 5 percent as compared to the previous month.
- These prices are attributed decreasing maize prices and availability of stocks at household level and those held by the retailers.
- The price was above the long-term average for the month by 6 %.



Fig.14.posho prices

### 4.2.3 Beans Prices

- The average price per kilogram for beans decreased by 4 percent from Ksh.113 to currently Ksh. 109.
- The price was attributed to the availability of the commodity across livelihood zones.
- The current prices are above the long-term average by 6 percent.
- Pastoral Livelihood Zone recorded the highest average prices of Ksh.118 while the irrigated recorded the least prices of Ksh.90.

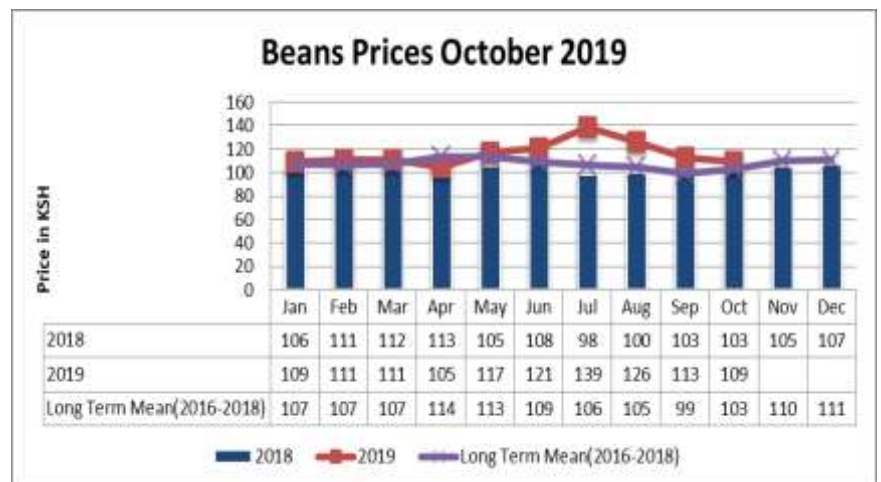


Fig.15. Beans Prices

### 4.3.0 Livestock Price Ratio/Terms of Trade

- The terms of trade were at 70.1 an increase of 17 percent as compared to the previous month at 60 this was attributed increase in the livestock prices and decreasing maize prices.
- The current terms of trade were above the long-term average, by 5 percent.
- Irrigated cropping livelihood zone had the highest terms of trade of 81.8 while Agro pastoral livelihood Zone had the least at 56.3.



Fig.16. Terms of Trade

## 5.0.0 FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1 Milk Consumption

- The average milk consumption per household per day was at 1.5 litres; which was similar compared to the previous month.
- The milk consumption was highest in the Irrigated and pastoral Livelihood zone at 1.4 litres and lowest in the Agro Pastoral livelihood zone at 1.1 litres.
- The amount consumed was below the long-term mean by 12 percent.

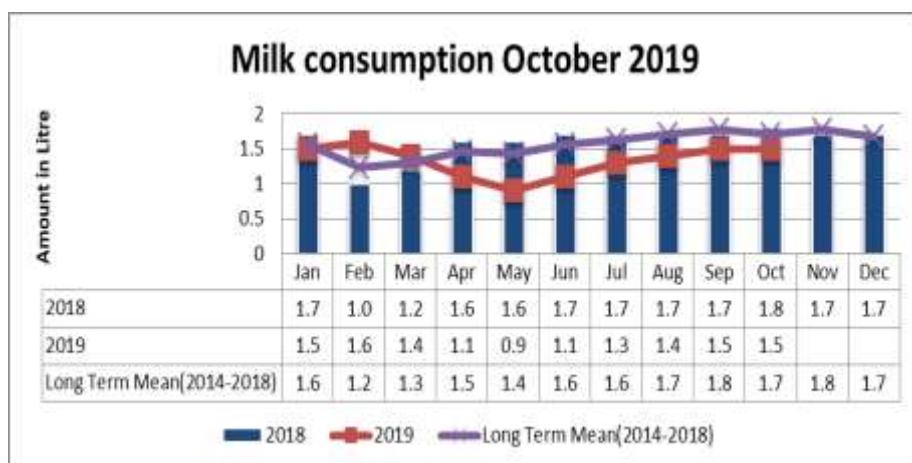


Fig.17. Milk Consumption

### 5.2 Food Consumption Score

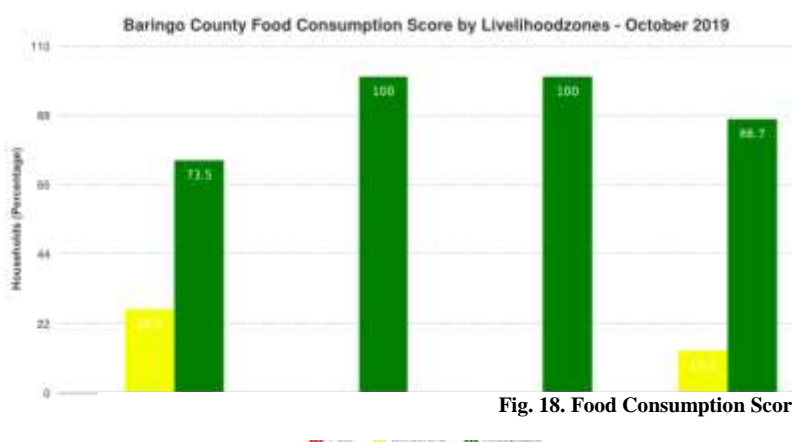


Fig. 18. Food Consumption Score

- There were no reported households with poor food consumption.
- The proportion of households with borderline food consumption was 26.5 in pastoral and 13.3 in fishing livelihood zones.
- The current FCS has improved as compared to the previous month.
- Generally, a proportion of 19%, and 81% of the households across the livelihoods have, borderline and acceptable food consumption score respectively.

- Food security situation across all livelihood zones has improved as compared to the previous month; this is attributed to availability of leafy vegetables and increase in purchasing power across all livelihood zones.

### 5.3.1 Health and Nutrition Status

- There was an improvement in the nutrition status of the proportion of sampled children under five years of age at risk of malnutrition at 15.9%, as compared to the previous month at 16.4%, the situation is attributed to an increase in milk production and consumption at household level together with improved households' purchasing power across livelihoods.
- Komolion, Kapenguria and Ribko wards in the pastoral livelihood zones recorded highest levels of malnutrition at 34.7%, 31.7% and 24.1% respectively.

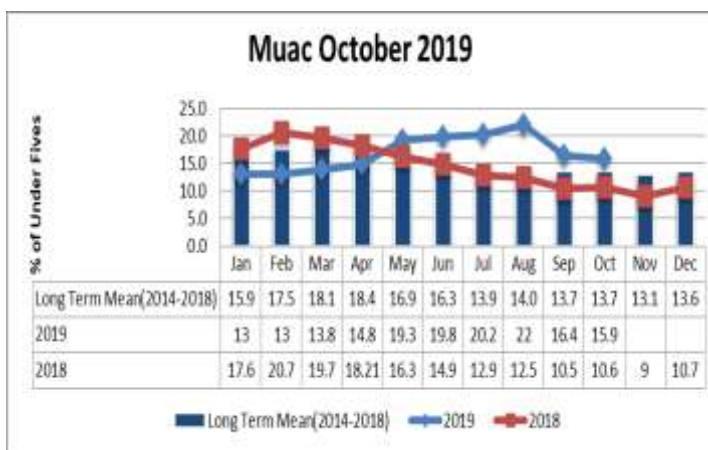


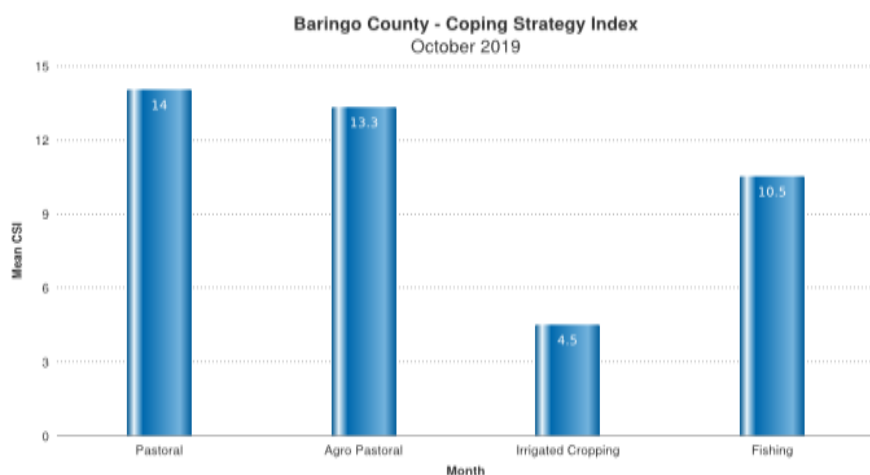
Fig.19. Muac

### 5.3.2 Health

- During the reporting period the commonly reported illnesses were malaria and diarrhoea across livelihood zones. This was due to poor hygiene practices at Household Level.
- No other major human disease incidences were reported during the month.

## 5. 4.0 COPING STRATEGIES

### Coping Strategy Index



across

Fig.20. Coping Strategy Index

- The average coping strategy index decreased 12.5 at as compared to last month at 13.08.
- Households in Pastoral livelihood zone employed most coping strategies at 14 followed by Agro Pastoral at 13.3. The irrigated zones employed least coping mechanisms at 4.5.
- The decrease in the coping strategies was due to increase in purchasing power and improving food security at household level across livelihood zones.

## 6.0 CURRENT INTERVENTION MEASURES.

### 6.1 NON-FOOD INTERVENTIONS

#### National Drought Management Authority

Currently implementing drought preparedness project in Churo/Amaya ward dubbed “Plesian center of excellence in integrating warring communities”. It is a joint partnership between, Baringo County Government, NG-CDF Tiaty and Churo /Amaya community. The project has various components that are meant to implemented by partners, so far NDMA components are over 90% completion (2 dormitories, dining hall and kitchen, 2 ablution blocks and water tower).



## **Baringo County Government**

### **Sustainable food systems programme**

- Provision of Galla bucks and Dorper rams for upgrading
- Provision of pasture seeds for reseeded
- Goats and sheep upgrading and restocking for Barwessa ward
- Promotion of pasture conservation.

### **Drought Resilience and Sustainable Livelihood program**

Identification of sites meant for drought preparedness initiatives that include; Pasture conservation (hay stores in Sinende and Mugurin), irrigation site in Sinene (Mogotio), Water pans in Kailer (Ilchamus ward), upgrading of livestock sale yards (Loruk and Marigat), borehole site in Koroto (Saimo Soi) and Saimet and water project site in Sawaiti in Kisanana.

### **Regional Pastoral Livelihood Resilience Project**

Completion of strategic pasture storage facility at Kamar location (10,000 bale capacity) and handing over the project to the community.

### **Anglican Development Service (ADS)**

Undertook Climate change initiatives in Ribkwo and Loyamorok wards of Tiaty and are in the process of preparing for the launch of drought resilience project in Baringo and Samburu counties with focus on early warning, response and resilience building to drought.

### **Kenya Red Cross Society**

Implementation of nutrition early action for scalable response in emergencies programme (integrated health nutrition in 27 sites in Tiaty) and capacity building for health workers on minimal initial service package for provision of sexual reproductive health and SGBV. Initial introductory meeting for the USAID-OFDA funded project whose goal is mainly to improve the capacities of communities, county and KRCS to anticipate, prepare and respond to disaster risks. The project has a component of DRR, which will be focused mainly on Baringo and Samburu counties; and preparedness for emergency response component, which will have a national coverage. The total budget is USD 2,800,000 and it will be implemented for a period starting September 6, 2019 to March 5, 2021, targeting 150,000 individuals. Total Number of Internally Displaced Persons (IDP) Targeted (Individuals) as subset of above: 30,000 (this will be covered mainly by the Emergency preparedness and response component.

## **6.2 Food interventions**

Distribution of food to 800 Households in Ripkwo under the food for work programme and relief food to 200 households in Loyamorok Silale and Tirioko ward by Anglican Development Service (ADS)

## **7.0 Emerging Issues**

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

	<b>Wild Animal</b>	<b>Areas Reported</b>	<b>Livestock</b>
<b>1.</b>	<b>Baboons</b>	Ribko, Akoret, Kolloa, Ng'oron	Shoats
<b>2.</b>	<b>Lynx</b>	Akoret, Ribko, Kolloa	Shoats
<b>3.</b>	<b>Hyena</b>	Ribko, Akoret, Komolion	Shoats
<b>4</b>	<b>Wild Dogs</b>	Ng'ambo, Kiserian, Komolion	Sheep

- Tension remains high in areas of Chemoe, Kagir, Tuluk, Chemanangoi, Nawe Natan and Ng'aratuko in Baringo North.
- Human-wildlife conflicts where a number of livestock were killed as highlighted in the Table.

### **7.2 Migration**

- There have been no cases of livestock migrations reported during the month in the county; however, the livestock are still at the dry season convergence zones.

### **7.3 FOOD SECURITY PROGNOSIS**

The sustained rains from July to date have rejuvenated forage and browse recharged of water sources; reducing access distances to water for both livestock and households. Improved pasture resulted into good livestock body condition and enhanced milk availability and overall livestock sale prices, household incomes and purchasing power. Equally the on-going crop harvests, availability of local vegetables and milk will likely improve household dietary diversity and the nutritional security among the under-fives. This situation will be bolstered further given the prevailing positive weather conditions and the related forecasts on the performance of the short rain season.

The on-going safety net initiatives by the government, County government and all non state actors targeting pocket of the vulnerable and at high-risk households should be sustained across livelihoods in the affected livelihood zones.

## **8.0 RECOMMENDATIONS**

### **8.1.1. General Recommendations:**

- Strengthening sector specific drought preparedness and resilience building initiatives at Sub-County and community level.
- Regular County and Sub- County drought coordination, monitoring and reporting meetings with emphasis on the nature of on-going interventions partnerships and resources gaps.

### **8.2.0 Proposed Recommendations**

#### **8.2.1. Water Sector**

- Capacity building of community water management committees as well as formation of water user associations.
- Construction of climate proofed strategic water sources in under-provided areas to ensure optimum coverage through construction of water supplies systems, Drilling and equipping of boreholes, constructions of dams
- Rehabilitate existing water sources; water harvesting, construction of underground cisterns
- Sensitization of communities on Sanitation and hygiene, Water management/Resources based Conflict resolution and management committees
- Pre-positioning of fast moving spare parts for strategic borehole along migratory routes and areas of convergence during drought
- Construct contingency boreholes for use only in drought
- Pre-positioning of water storage facilities targeting vulnerable institutions and communities.

#### **8.2.2. Nutrition and Health**

- Strengthen the technical and human resource capacity for health care workforce in health and nutrition service delivery through technical trainings.
- Initiate and roll out IMAM surge model and link with early warning information
- Intensify disease surveillance especially in areas where there is upsurge in Malaria cases
- Support hygiene and sanitation health campaigns (health promotion)
- Intensify Nutrition Surveillance and service provision in the hard to reach areas to support case findings through nutrition and health outreaches through partnership with stakeholders

#### **8.2.3. Education**

- Equip schools with roof catchments and covered storage tanks and cisterns
- Pipeline extension to schools that are neighboring permanent water source e.g. boreholes and river intakes
- Training of board of management on basic O&M of water supply systems and roof water harvesting system for sustainability.

#### **8.2.4. Livestock and Veterinary sector**

- Community sensitization on need for commercial off-take
- Infrastructure development in feeder and main livestock markets
- Improvement of livestock market information system

- Promote production and storage of hay as well as strengthening of capacity on use of crop residue as forage
- Carry out routine disease surveillance and vaccination over notifiable diseases to ensure normal livestock market operations especially for rift valley fever
- Provide for strategic disease control infrastructure, and promote inter-county and cross border disease surveillance and control mechanisms

### 8.2.5. Agriculture Sector

- Support cultivation of drought tolerant and early maturing crops
- Promote Water Harvesting for household food security- Farm ponds and equipping existing ones and irrigation schemes
- Support development of risk management institutions such as cereal banks
- Support strategic post-harvest management of crops
- Support development of integrated water and soil conservation infrastructure for production

## REFERENCE TABLES

**Table 3: Drought Phase Classification**

Normal	Alert	Alarm	Emergency
All environmental Agricultural and pastoral indicators are within the seasonal ranges	Meteorological drought indicators move outside seasonal ranges	Environmental and at least two 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 signaled by the environmental indicators returning to seasonal norms; local economies starting to recover			

**Table 4: 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 5: Vegetation Condition Index Values (VCI)**

Color	VCI values 3-monthly average	Agricultural Drought Category
	≥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 6: Livestock Body Condition**

Level	Classification	Characteristics (this describes majority of the herd and not individual isolated Stock)
1	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
2	Moderate	Moderate. Neither fat nor thin

3	Stressed	Borderline fore-ribs not visible. 12th & 13th ribs visible
4	Critical	Thin fore ribs visible
5	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, and 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 signaled 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.