National Drought Management Authority
Baringo County
Drought Early Warning Bulletin for April 2019

A Vision 2030 Flagship Project

APRIL EW PHASE

Early Warning Phase Classification

LIVELIHOOD ZONE	EW PHASE	TRENDS
PASTORAL	ALARM	**WORSENING**
AGRO PASTORAL	ALARM	**WORSENING**
IRRIGATED CROP	ALERT	**DETERIORATING**
COUNTY	ALARM	**WORSENING**

Drought Situation & EW Phase Classification
Drought Phase: Alarm-Worsening

Biophysical Indicators

- Most biophysical indicators show fluctuations outside the expected seasonal ranges.
- Below average rainfall was received in the month of April 2019.
- The Vegetation Condition Index values for Baringo County are below normal and on a declining trend compared to the last month.
- The Water levels in most water sources are below normal at (5%- 10 %).

Biophysical Indicators	Value for the month Baringo	LTA-Monthly Baringo	Normal ranges Kenya %
Average rainfall MM (%)	82	110.2	80-120
VCI-3month	19.36	54	35-50
% Of water in the water pan	3(5-10%)		5-6

Socio Economic Indicators (Impact Indicators)

Production indicators:

- The forage condition is fair to poor in both quality and quantity but expected to worsen with the continuing dry spell. Livestock migrations were reported in pastoral livelihood zones.
- Livestock body condition is fair to poor in all livelihood zones.
- Milk production is below normal the seasonal and on a worsening trend.
- No Drought related Livestock deaths were reported across all Livelihood zones.

Production indicators	Value	Normal ranges
Livestock Migration Pattern	Normal	Normal
Livestock Body Condition	3-4	4-5
Milk Production (Ltr /HH/Month)	1.5	1.8
Livestock deaths (for drought)	No death	No death

Access indicators

- Terms of trade are currently below normal seasonal ranges and worsening however many households can still afford major food commodities.
- Distances to water sources for households currently are above normal ranges with the Pastoral livelihood zones being mostly affected.

Access Indicators	Value	Normal ranges
Terms of Trade (ToT)	48.9	>63
Milk Consumption (Ltr)	1.4	>=1.7
Water for Households-trekking distance (km)	8.5	0-4
Crops area planted for the season (%)(by July 2018)	3,000(Maize) 2,500(Beans)	LTA (40,046Ha) LTA (20,028Ha)

Utilization indicators:

- The number of under-five children at risk of malnutrition was 14.8%, an increase as compared 13.8% in the previous month.
- Copping strategy index for households still within normal ranges but on a worsening trend.

Utilization indicators	Value	Normal ranges
At Risk (%)	14.8%	<15
CSI	15.9	>19.0

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
▪ Short rains harvests ▪ Short dry spell ▪ Reduced milk yields ▪ Increased HH Food Stocks ▪ Land preparation		▪ Planting/Weeding ▪ Long rains ▪ High Calving Rate ▪ Milk Yields Increase				▪ Long rains harvests ▪ A long dry spell ▪ Land preparation ▪ Increased HH Food Stocks ▪ Kidding (Sept)					▪ Short rains ▪ Planting/weeding

1. CLIMATIC CONDITIONS
1.1 RAINFALL PERFORMANCE
1.2 AMOUNT OF RAINFALL AND SPATIAL DISTRIBUTION

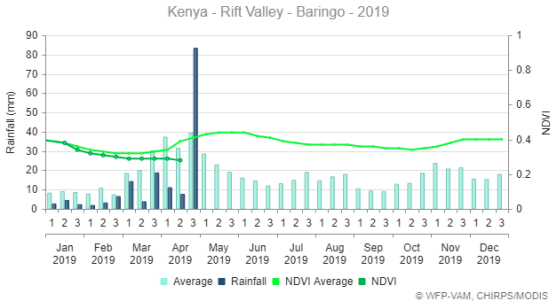


Fig. 1

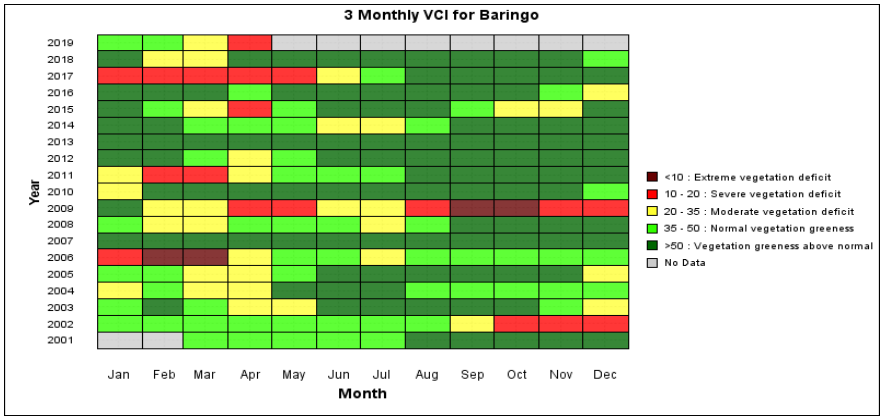
- During the month of April, 10.5mm, 5mm and 66.5mm of rainfall was received in the 1st, 2nd and 3rd dekad respectively.
- The amounts received in the 1st and 2nd were below the LTA while the rainfall received in the 3rd dekad was above the LTA.
- Both temporal and spatial distribution was poor across all the sub-counties.
- The current NDVI was also below the LTA and on a deteriorating trend.

2. IMPACTS ON VEGETATION AND WATER
2.1.1 VEGETATION CONDITION INDEX (VCI)

The vegetation condition in the County was below normal and on declining trend compared to the month of March 2019 as shown in the table below.

COUNTY	Sub County	VCI as at 25th March 2019	VCI as at 29th April 2019	
BARINGO	County	29.47	19.39	Below normal vegetation conditions experienced in Baringo county compared to last month. All sub-counties are experiencing depletion in vegetation cover as indicated in the table.
	Central	37.48	22.65	
	Eldama	28.42	18.45	
	Mogotio	26.31	12.97	
	North	24.39	17.19	
	South	35.22	22.7	
	Tiaty	29.03	20.44	

Table.1. Source BOKU



The vegetation condition index for Baringo County was at 19.36 indicating below normal vegetation greenness as compared to the LTA. In comparison to the previous month the current vegetation cover has reduced in quantity and quality. This attributed to the on the on-going dry spell.

Fig.2

The vegetation condition is on a deteriorating throughout the county due to the continued dry weather conditions, the situation is expected to worsen due failed long rains

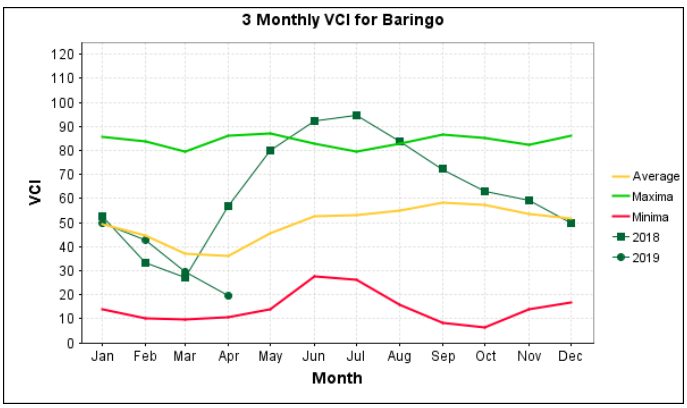
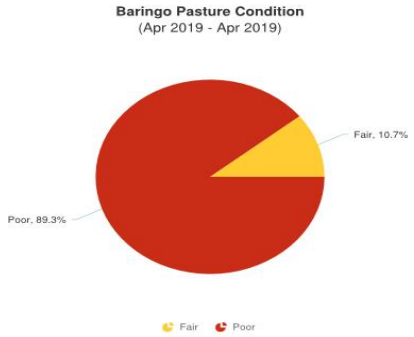


Fig.3

2.1.2 Pasture



- The pasture condition is fair to poor both in quantity and quality in agro pastoral and irrigated livelihood zones in the county; while poor in the pastoral livelihood zones, these conditions are below normal at this time of the year.
- The pasture is expected to last for less than one month across all livelihood zones.

Fig.4

2.1.3 Browse

- The browse condition is fair to poor in quantity and quality across all livelihood zones; the condition is above the normal seasonal ranges for this time of the year.
- The available browse is expected to last for approximately one month in pastoral and agro pastoral livelihood Zones and two months in irrigated cropping livelihood zone.

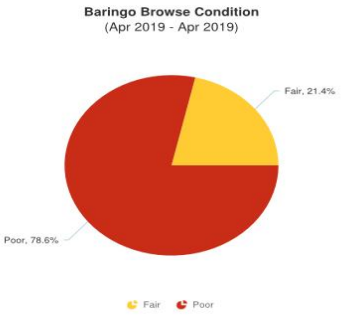


Fig.5

2.2 WATER RESOURCE

2.2.1 Sources

- The main water sources for both livestock and human consumption across all livelihoods were traditional river wells, boreholes, pans and dams, and rivers.
- Most water pans and dams were at 5% to 10% of their full capacity. Households are currently using Traditional River Wells and boreholes
- Water quality and quantity across pastoral and agro-pastoral livelihoods is poor, which is abnormal for this time of the year.
- The current water sources are expected to last for one month in irrigated farming livelihood zone. In pastoral and agro pastoral livelihood zones, the water is likely to last for less than one month due to high temperatures and strong winds being experienced.

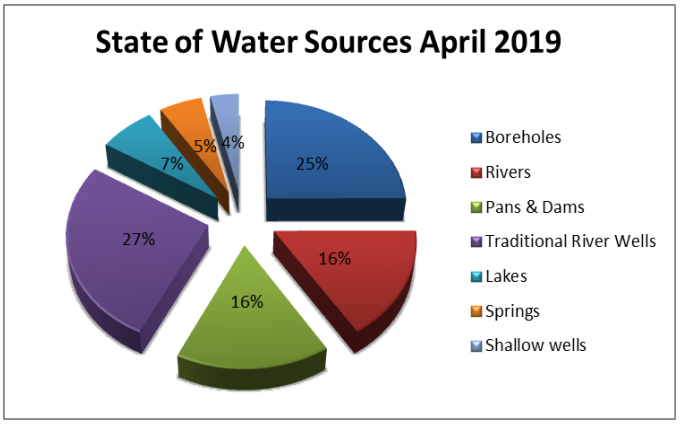
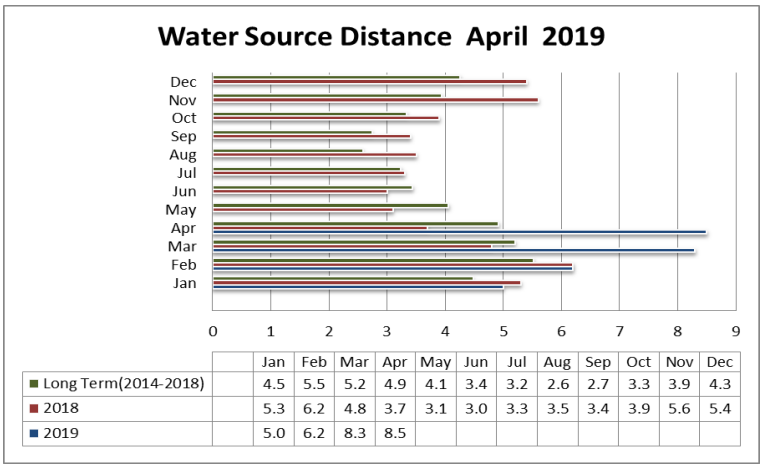


Fig.6

1.3.2 Household access and Utilization

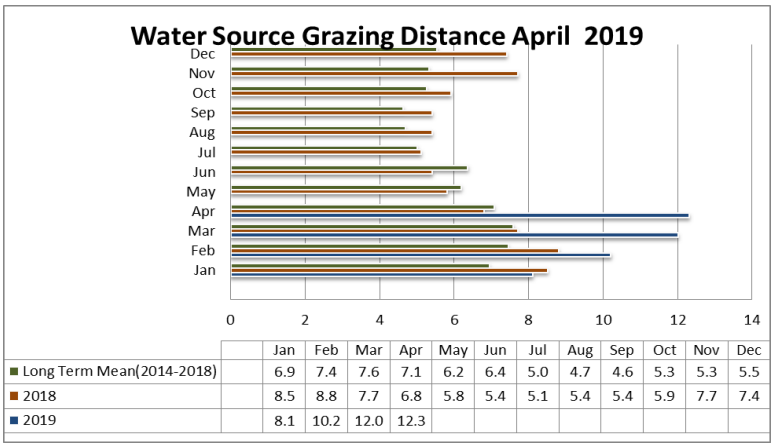


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Long Term(2014-2018)	4.5	5.5	5.2	4.9	4.1	3.4	3.2	2.6	2.7	3.3	3.9	4.3
2018	5.3	6.2	4.8	3.7	3.1	3.0	3.3	3.5	3.4	3.9	5.6	5.4
2019	5.0	6.2	8.3	8.5								

Fig.7

- The average household trekking distance to water sources increased slightly from 8.3km to 8.5Km as compared to the previous month.
- The distances are above the LTA by 73%.
- Irrigated cropping zone recorded the least average distance of 3km km while pastoral livelihood recorded the highest average of 12km in Kollowa and Ng'oron.
- The increases in distances are attributed to drying up of 90% of the water pans and other open water sources in all livelihood zones.

2.2.3 Livestock access



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Long Term Mean(2014-2018)	6.9	7.4	7.6	7.1	6.2	6.4	5.0	4.7	4.6	5.3	5.3	5.5
2018	8.5	8.8	7.7	6.8	5.8	5.4	5.1	5.4	5.4	5.9	7.7	7.4
2019	8.1	10.2	12.0	12.3								

Fig.8

- The return distance for livestock from grazing zones to water points increased from 10.4km to 12km recorded the previous month. The pastoral livelihood zone covered the longest average distance of 12.8km while irrigated livelihood zone covered the shortest average distance of 8.7km.
- The situation is attributed to declining pastures and water at the traditional grazing zones across all livelihood zones forcing herders to move further in search of the pasture.

3.0.0 PRODUCTION INDICATORS

3.1 Livestock Production

3.1.1 Livestock Body Condition

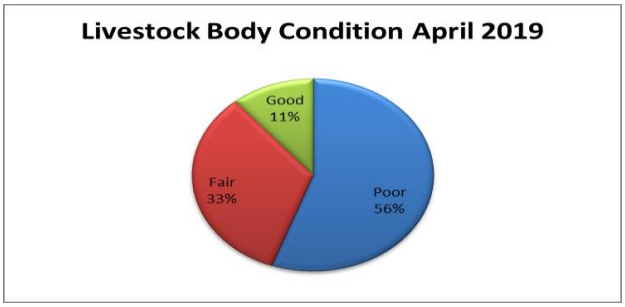


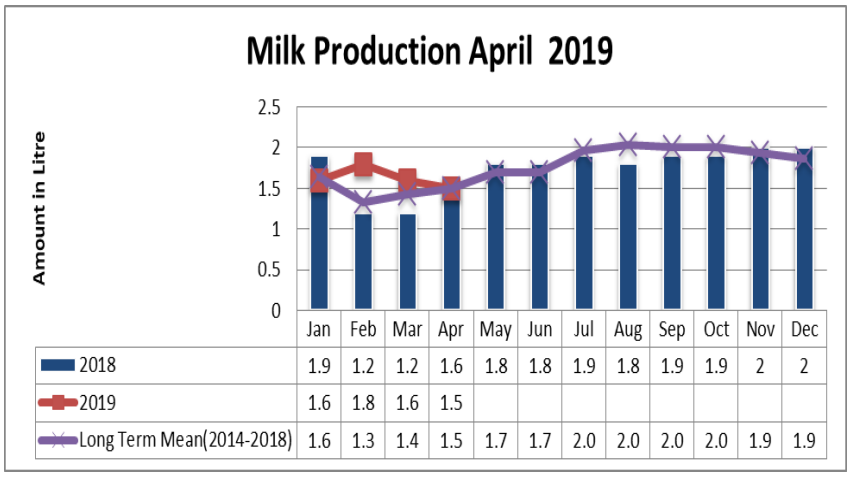
Fig.9

- During the month 56% of households interviewed reported poor livestock body condition with 33% and 11% indicating fair and good respectively. This situation was as result of dwindling pastures and water access across livelihood zones.
- The situation is likely to deteriorate as the dry spell continues to be experienced.

3.1.2 Livestock Diseases

- Outbreak of Anthrax was reported in Kailel in Baringo South while Foot and Mouth and CPPR were reported in Agro-pastoral and mixed farming livelihood zones of Mochongoi in Baringo South and Baringo North sub-counties. The livestock departed is currently carrying out vaccinations against these diseases.

3.1.3 Milk Production



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	1.9	1.2	1.2	1.6	1.8	1.8	1.9	1.8	1.9	1.9	2	2
2019	1.6	1.8	1.6	1.5								
Long Term Mean(2014-2018)	1.6	1.3	1.4	1.5	1.7	1.7	2.0	2.0	2.0	2.0	1.9	1.9

Fig.10

- The average milk produced per household per day was 1.5 litres a slight reduction of 6 percent as compared to the previous month, however the amount was similar to the long-term average.
- The milk was mainly from camels and Goats.

RAIN FED CROP PRODUCTION.

3.2.1 Stage and Condition of food Crops

- Most farmers have not planted theirs farms as they are still waiting the onset of the long rains season. The few who planted their crops failed to germinate due to low soil moisture. The acreage under both rain fed and irrigated agriculture is anticipated to reduce drastically.

4.0.0 MARKET PERFORMANCE
4.1.0 LIVESTOCK MARKETING
4.1.1 Cattle Prices

- The average price for a medium sized cattle was at Ksh. 16,161 fairly comparable to Ksh.16,167 the previous month.
- The price was significantly above the long-term average by 52%. Agro-Pastoral livelihood zones had the highest average prices of Ksh.19,000 while Pastoral livelihood zone recorded the least average price of Ksh.15, 184.
- The decline in prices was attributed to declining livestock body conditions across all livelihood zones.

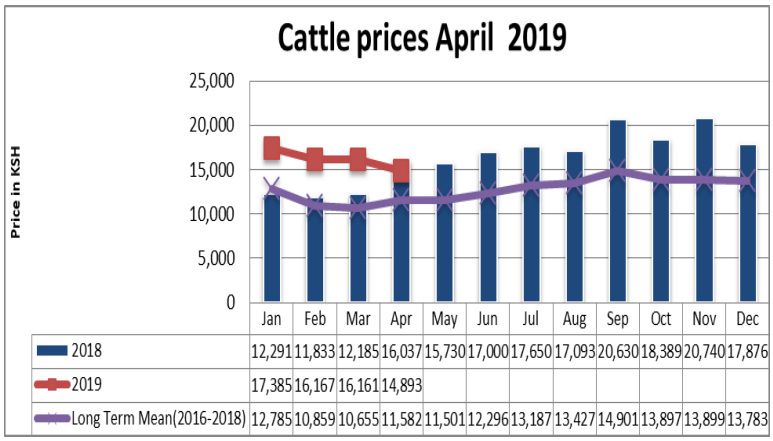


Fig.11

4.1.2 Goat Prices

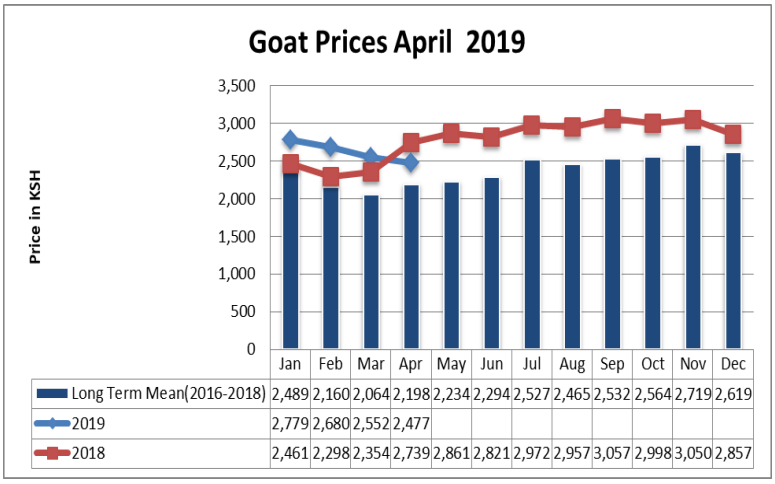


Fig.12

- The average price of a medium size goat decreased marginally from Ksh. 2,552 to Ksh.2, 477 as compared to the previous month.
- The average price of a goat was above the LTA by 20 percent.
- The prices were highest in irrigated cropping livelihood Zone at Ksh. 3,029 and lowest in Agro Pastoral livelihood zone at Ksh.1, 900.
- The reduction in prices was due to farmers increased sales in exchange for cereal and pulses purchase in the local markets and in search of school fees.

4.2 CROP PRICES
4.2.1 Maize

- The average price for kilogram maize was Ksh.44 during the month, which was a slight increase as compared to the previous month.
- The price was below the long-term average at this time of the year by 12%. Pastoral livelihood Zone recorded the highest price of Ksh.50 per Kg while irrigated Livelihood Zone recorded the lowest of Ksh.37 per Kg.
- This can be attributed to availability of stocks at household levels and at local retailers.

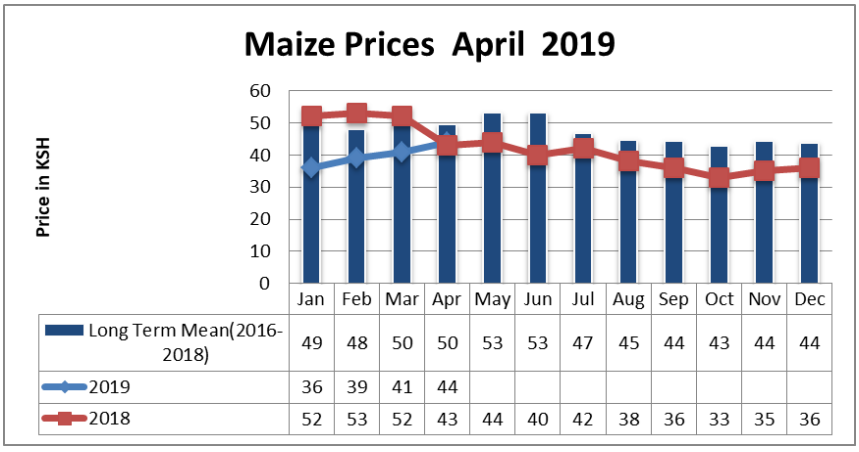
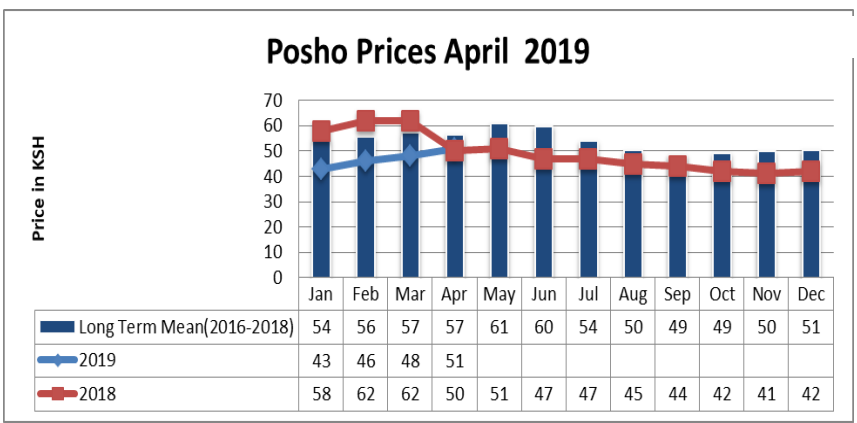


Fig.13



4.2.2 Posho (Maize Meal)

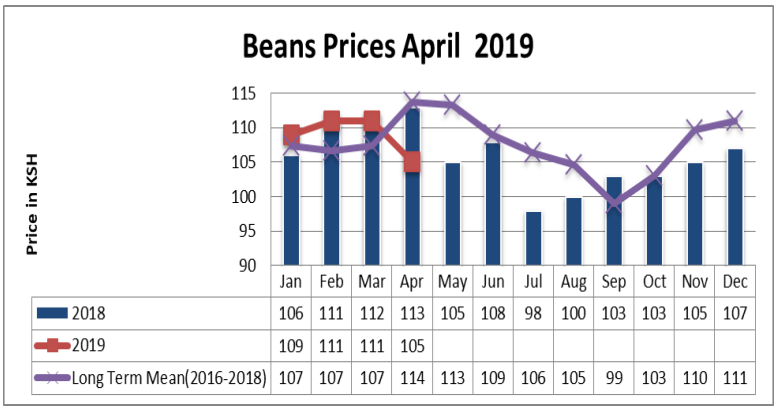
- The price of a kilogram of Posho was at Ksh.51, a marginal increase as compared to the previous month.

- The price was below the long-term average for the month by 11%.
- These stable prices are attributed to relative low prevailing maize prices and imports by retailers into the county from the neighbouring counties.

Fig.14

4.2.3 Beans Prices

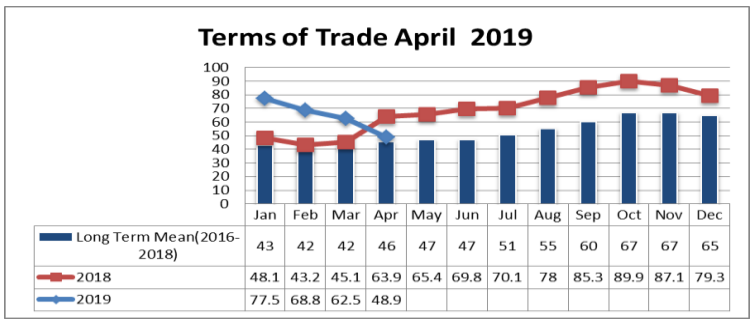
- The average price per kilogram for beans was at Ksh.105 compared to Ksh. 111 the previous month; the slight reduction in prices was attributed to the availability of relief food in the pastoral livelihood zones.
- The current prices are below the long-term average.
- Pastoral Livelihood Zone recorded the highest prices of Ksh.160 while the irrigated recorded the least prices of Ksh.90



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	106	111	112	113	105	108	98	100	103	103	105	107
2019	109	111	111	105								
Long Term Mean(2016-2018)	107	107	107	114	113	109	106	105	99	103	110	111

Fig.15

4.3 Livestock Price Ratio/Terms of Trade



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Long Term Mean(2016-2018)	43	42	42	46	47	47	51	55	60	67	67	65
2018	48.1	43.2	45.1	63.9	65.4	69.8	70.1	78	85.3	89.9	87.1	79.3
2019	77.5	68.8	62.5	48.9								

Fig.16

- The terms of trade decreased by 22 % from 62.5 the previous month to 48.9 currently; this was attributed to decrease in the livestock prices and increase in maize prices.
- The current terms of trade are slightly above the long-term average.
- Irrigated cropping livelihood zone had the highest terms of trade of 85.1 while pastoral livelihood Zone had the lowest at 46.8.

5.0.0 FOOD CONSUMPTION AND NUTRITION STATUS

5.1 Milk Consumption

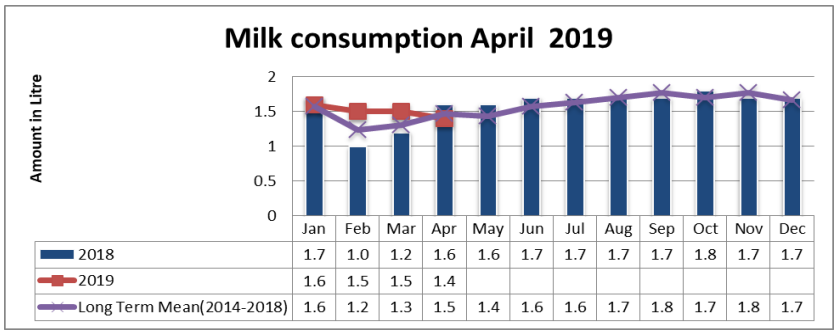


Fig.17

- The average milk consumption per household per day steady at 1.4 litres. The milk consumption was highest in the irrigated livelihood zone at 1.8 litres. While 1.3 litres and 1 litre in the Pastoral and Agro Pastoral livelihood Zones respectively.
- The amount consumed was above the long-term mean by 7 percent.

5.2 Food Consumption Score

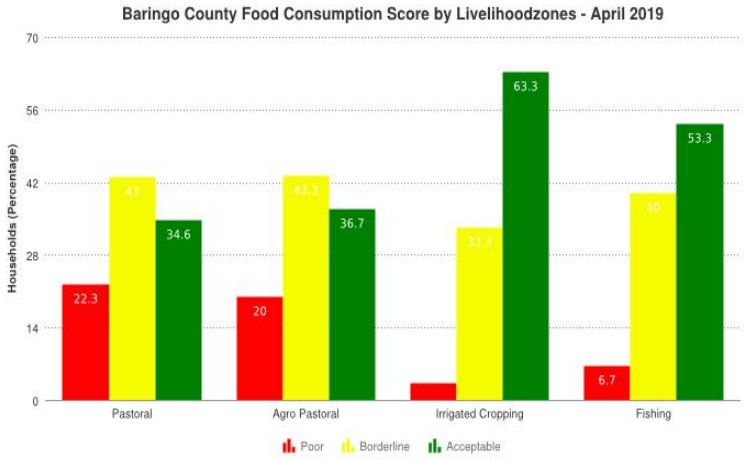


Fig.18

- There were households with poor food consumption gaps across all livelihoods.
- The proportion of households with borderline food consumption was 43%, 43.3% and 33.3% in Agro-pastoral, Pastoral and irrigated Livelihood Zones respectively.
- The current FCS has declined as compared to the previous month.
- A proportion of 18%, 42% and 40% of the households across the livelihoods have poor, borderline and acceptable food consumption score respectively.
- Food security situation across all livelihood zones has deteriorated; however the situation is expected to improve due to the on-going response interventions across the county and availability of foodstuffs in the local markets from the neighbouring counties.

5.3 Health and Nutrition Status

- The proportion of sampled children under five years of age at risk of malnutrition was at 14.8%, an increase as compared to the previous month, the increase is attributed to decrease of milk production and consumption and reduction in the number of food groups consumed at household level together with declining household purchasing power across livelihoods.
- Ribko, Kolowa and Komolion, wards in the pastoral livelihood zones recorded highest levels of malnutrition at 31.1%, 26.9% and 22% respectively.

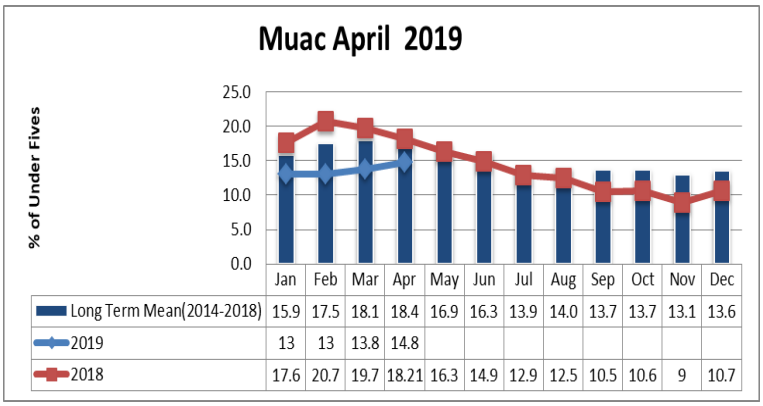


Fig.19

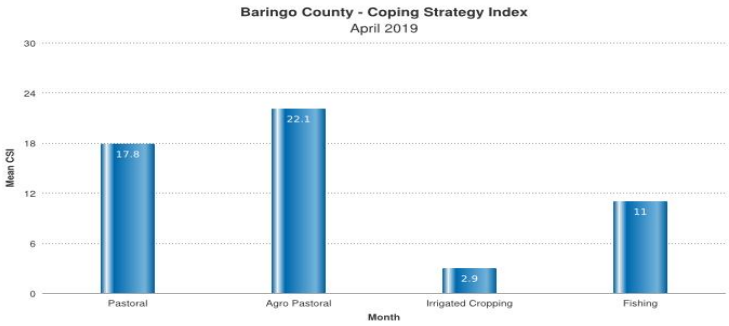
5.3.2 Health

- During the reporting period the commonly reported illnesses were diarrhoea, malaria and respiratory infections across livelihood zones. This was due to poor water quality and quantity and dust occasioned by strong winds.
- No major human disease outbreaks were reported during the month.

5. 4.0 COPING STRATEGIES

Coping Strategy Index

- The average coping strategy index increased from 15.13 to 15.9 compared to last month.
- Households in Agro-Pastoral livelihood zone employed most coping strategies at 22.1 followed by Pastoral at 17.8. The irrigated zones employed least coping mechanisms at 2.9.
- This trend is attributed to increasing food prices in the pastoral and Agro pastoral livelihood zones.



6.0 CURRENT INTERVENTION MEASURES.

6.1 Non-food interventions

a) SFSP (Sustainable Food Systems Program targeting of vulnerable households for social protection support supported by GoK and WFP.) Targeting and beneficiary registered 4500HHs as follows:
   - Tiaty sub county- 1915HHs
   - Mogotio Sub county- 554HHs
   - B. South Subcounty - 532HHs
   - Central SubCounty- 419HHs
   - North Subcounty- 1080HHs

Electronic Registration of tier 1 beneficiary attained 99.6% among the projects for implementation during the first year are; Pasture establishment, Provision of water through water pan and sinking of boreholes and farm ponds equipping.

6.2 Food interventions

a) Food aid in all livelihood Zones by GOK/KRC. A total of 4,660 household were reached; Maize- 88,248Kgs (88.2 MT), Beans- 38,000Kgs (38.0 MT) and Cooking Oil- 540liters (20pcs@20l, 14pcs@10L
b) Water trucking to institutions and health facilities by NDMA/BCG

7.0 Emerging Issues

7.1 Insecurity/Conflict/Human Displacement

- There were no major insecurity incidences in county though still there are tensions along the borders.
- Human-wildlife conflicts where a number of livestock were killed as highlighted in the Table 1

	Wild Animal	Areas Reported	Livestock
1.	**Baboons**	Ribko, Akoret, Kolloa, Ng'oron	Shoats
2.	**Lynx**	Akoret, Ribko, Kolloa	Shoats
3.	**Hyena**	Ribko, Akoret, Komolion	Shoats

***Table 1*.**

7.2 Migration

- There have been cases intra-county livestock migrations reported during the month of April especially within the Pastoral and agro-pastoral livelihood zones.
- Livestock herds have moved from pastoral livelihood zone to Arabal, Paka Hills, Rugus, Kosechei, Kapau and Mochongoi.

7.3 FOOD SECURITY PROGNOSIS

Dwindling forage and browse, drying up of water sources has resulted in increased water access distance for both livestock and households in most parts of the county particularly, the pastoral and Agro-pastoral posing serious threat to the livestock sector. This situation coupled with declining milk availability thus increasing malnutrition among the under-fives, declining livestock body condition and subsequent reduction in market prices will likely affect the overall County food and nutrition security across Livelihoods. This situation will be made even worse following the delayed onset of the long rains season in the County.

The current situation will require urgent multi-sector response strategies and resource mobilization and allocation more so from the Baringo County government focusing on overall health and nutrition integrated outreaches, WASH through provision of clean portable water and water treatment chemicals, provision of livestock feeds and accelerated commercial off-take.

The on-going relief food provision operations and all other safety net initiatives should be scaled up and sustained across the vulnerable households in the hotspot livelihoods to ensure safety of lives and livelihoods.

8.0 RECOMMENDATIONS

8.1.1. General Recommendations:

- Strengthening drought status CSG surveillance and reporting for inform timely resource mobilization, response, monitoring and reporting.

8.2.0 Proposed Recommendations

8.2.1. Water Sector

- Mechanized Desilting and expansion of 24 No. Critical water pans during this dry period.
- Scale up water trucking to schools and health institutions and provision of Water treatment Chemicals to forestall closures.
- Provision of fuel/diesel subsidy to community high yielding boreholes.
- Repair and servicing of the existing water bowsers
- Allocation of resources to the rapid response teams to address the current water crisis in the County.
- Repair of broken down water supply systems and critical boreholes to ensure normalcy.

8.2.2. Nutrition and Health

- Stepping up of Vitamin A Supplementation
- Scale up mass screening in Baringo North, Tiaty and Baringo South
- 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

- Provision of School meals programme to the ECDEs to reduce pressure on the regular school meals programme in primary schools.

8.2.4. Livestock and Veterinary sector.

- Disease surveillance and vaccination over notifiable diseases to ensure normal livestock market operations.
- Provision of livestock feeds to the vulnerable herds in the hotspots.
- Purchase and distribution of livestock feeds to areas experiencing acute pasture shortage especially in Tiaty, Baringo North, South and Mogotio Sub-counties.
- Promotion of accelerated commercial livestock off-take

8.2.5. Agriculture Sector

- Pre- positioning of farm inputs provision in anticipation of the long rains season onset.

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.
Recovery: **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
	> +1.5or 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	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 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	Emerciated	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.