

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



A Vision 2030 Flagship Project



MARCH 2017 EW PHASE: ALARM



Drought Situation & EW Phase Classification

Biophysical Indicators

Rainfall: The long (MAM) rains were expected to commence in the third week of March (according to the seasonal calendar) but are yet to start. However, minimal and erratic showers were recorded across most parts of the County and across all livelihood zones. The recorded rainfall was slightly below average compared to the long term. The rainfall was 45% of the normal by the third dekad of March. The rainfall distribution was poor in terms of time and space across all livelihood zones.

Vegetation Condition: The Vegetation Condition Index (VCI) is way below the normal range, indicating a very poor state of pasture and browse condition across most areas. According to field observations, the pasture condition in MF zones is fair to poor while in the Pastoral zones and most MMF zones the same is very poor largely due to the poor regeneration coupled with overgrazing. The browse condition is largely fair to poor and deteriorating fast across all livelihood zones.

Socio Economic Indicators (Impact Indicators)

Production Indicators – Livestock migration patterns in the pastoral and some MMF zones are not normal for the time of the year. Milk production per household is below the normal range and has recorded a huge decline. Livestock deaths due to drought were reported. The body condition of animals is below the normal range for the period and is fast deteriorating.

Access indicators - The terms of trade are way below the normal range. However, milk consumption is still within the normal range.

Utilization indicators – are all still within the normal range.

The EW phase is **Alarm – deteriorating** for the whole County.

The effects of severe drought are being felt across the County. In view of the current situation, it is important to fast track drought mitigation and response activities across the Pastoral zone and parts of the MMF and MF

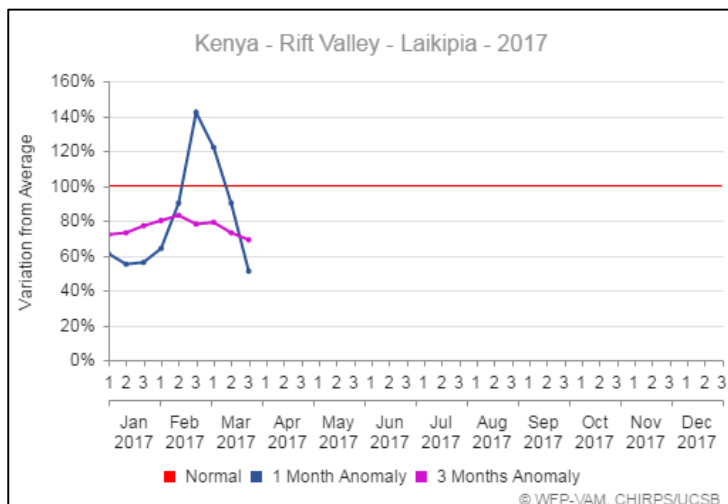
LIVELIHOOD ZONE	EW PHASE	TREND
PASTORAL	Alarm	Deteriorating
MMF	Alarm	Deteriorating
MF	Alarm	Deteriorating
COUNTY	Alarm	Deteriorating
Biophysical Indicators	Value	Normal range
% of Average rainfall	60%	80-120%
SPI-3 month (TAMSAT)	-	-1 to 1
VCI (Entire County)	14.19	35-50
State of Water Sources	2	5
Production indicators	Value	Normal range
Livestock Migration Pattern	Not Normal	Normal
Livestock Body Conditions (score) County Wide	2-3	4-5
Milk Production (Lt)	1.2	1.5 to 2
Livestock deaths (Drought)- from 180 interviewed HHs	36	No death
Crops area planted (%)	NA	% of LTA
Access Indicators	Value	Normal ranges
Terms of Trade (ToT)	59	> 83
Milk Consumption (Lt)	0.70	> 0.6
Return Distance to Water Sources from grazing areas	3.7	< 5
Return Distance from Grazing areas (Pastoral)	6	< 5
Utilisation indicators	Value	Normal ranges
MUAC	6.3	< 18.36
Coping Strategy Index (CSI)	0.9	<1

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

1 CLIMATIC CONDITIONS

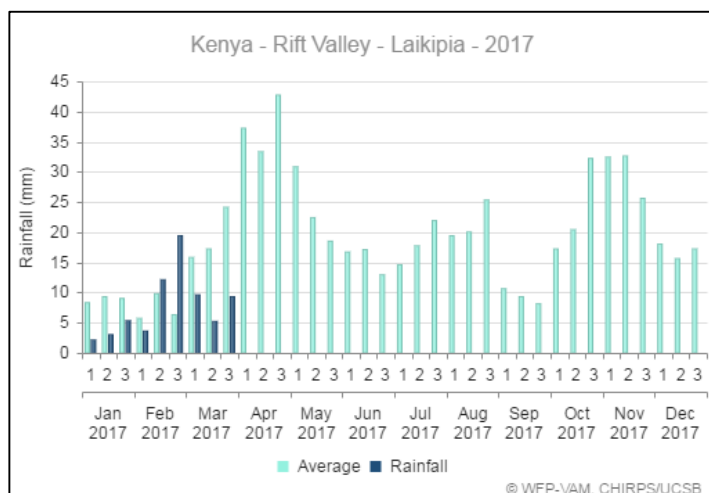
1.1 Rainfall Performance

- The long (MAM) rains were expected to commence in the third week of March (according to the seasonal calendar) but are yet to start. However, the County has been experiencing light sporadic showers which are very poorly distributed in terms of time and space.
- The Mixed Farming (MF) and the Marginal Mixed Farming (MMF) reported 1 to 2 days of light erratic showers and whereas the Pastoral (all species) zone recorded 1 day of the same.



- In terms of variation from the long term average, the amount of rain received was 60% of the expected amounts for the month of March, thus it was way below normal. This is a decrease compared to the recorded 73% of the expected amount in February.

1.2 Amount of Rainfall and Spatial Distribution

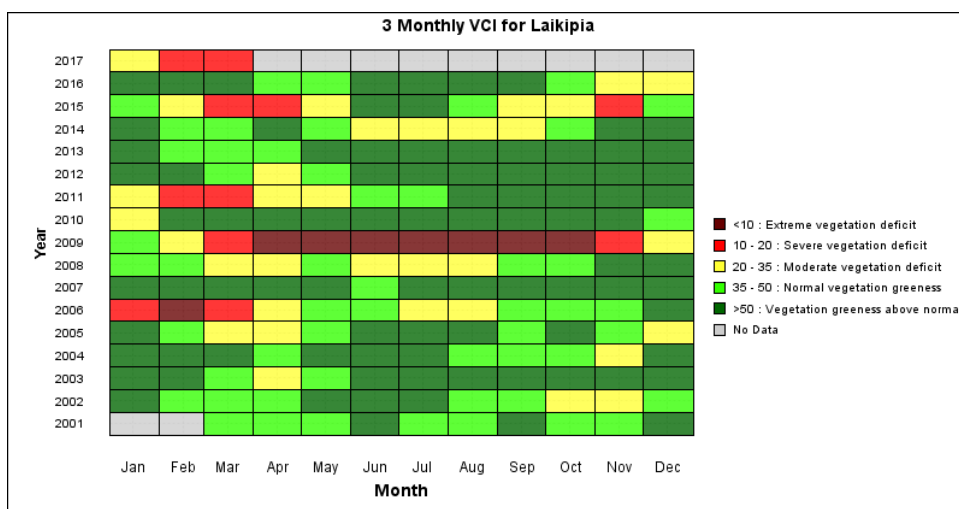


- According to the chart above, there was a significant decrease in precipitation levels in the month of March across all livelihood zones. The precipitation levels at 24.1 mm were way below the long term average (at 57.1 mm).
- The rainfall distribution was very poor in both terms of time and space across the all livelihood zones.

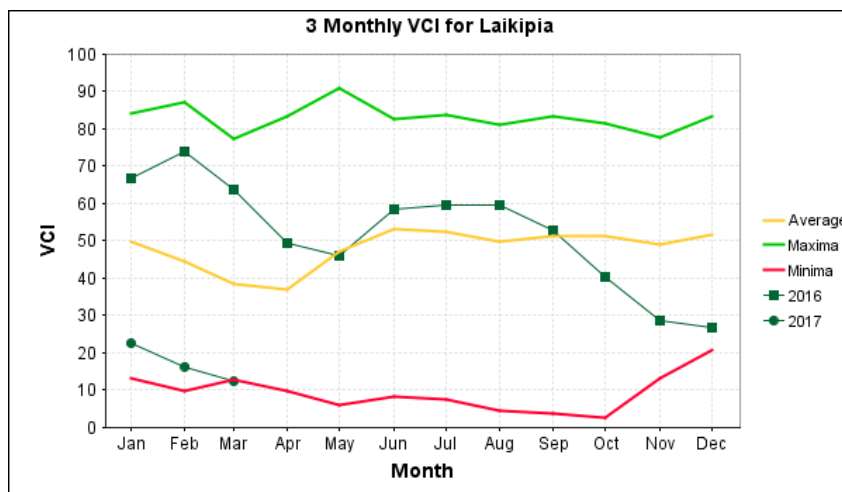
2 IMPACT ON VEGETATION AND WATER

2.1 Vegetation Condition

2.1.1 Vegetation Condition Index (VCI)



- According to the VCI matrix charts above, the vegetation condition has continued to deteriorate over the last five months. The current situation is that the county has been experiencing severe vegetation deficit since February, with areas like Laikipia West (MMF and MF) and North (mainly Pastoral) being the worst hit.



- According to the chart above, the VCI at 14.19 is way below the normal range (35-50) and has slightly decreased compared to February at 16.1. This is largely due to the minimal precipitation coupled with the hot and dry weather recorded across all livelihood zones in the month of March.
- The vegetation condition is on a deteriorating trend since there is zero to very minimal precipitation, the delayed onset of the long rains and also due to the prevailing hot and dry weather conditions. However, this situation may change if the long rains commence.

2.1.2 Pasture

- Across the County, the pasture condition is poor to very poor and has continued deteriorating in both quantity and quality. This is accelerated by the prevailing hot and dry weather conditions. The pasture condition is below normal in the MF zones and seriously below normal in the Pastoral zones and most parts of MMF zones. Although some light showers have been reported in the MF and MMF zones, this has yet to change anything. The Pastoral zone has experienced very minimal precipitation as at March.

- The pasture condition in the Pastoral zone is in a very poor condition whereby there is bare ground in most of the areas due to overgrazing (especially in Mukogodo West) and poor regeneration owing to the poor rains received in the area during the short rain season. In addition, pastures in the ranches have been depleted. The pasture condition in the MF zone is fair to poor whereas in most parts of the MMF zone the same is poor.
- The quantity of pasture available is expected to last less than a month in few areas with some little pastures remaining (mainly in the ranches and MF zones), hastened by overgrazing and the prevailing hot dry conditions.

2.1.3 Browse

- The browse condition in Pastoral zone is poor and is expected to deteriorate further with the prevailing hot and dry weather conditions and with very minimal precipitation experienced in the zone. In the MF zones, the browse condition is fair whereas that of the MMF zone is fair to poor.
- The browse condition is below normal in all livelihood zones and is on a decline trend with most of the palatable species having been exhausted especially in the MMF and the Pastoral areas.
- The quantity of browse available is expected to last an average of 1 to 2 months in the MF and MMF zones and one month in the Pastoral zone

2.2 Water Resource

2.2.1 Sources

- During the month of March, the main water sources for domestic and livestock use in the MF and parts of MMF zones were dams, boreholes and natural rivers.
- The Pastoral livelihood zone and other parts of MMF zones used permanent rivers, pans, dams, springs, wells and boreholes as their main water sources. Alternate water sources were hand pumps.
- The current water levels in water sources have significantly decreased with some sources having disappeared during the period under review especially in the Pastoral zones and parts of the MMF zones with most rivers having dried up and hence no flow of water especially for livestock use.
- Challenges in access to water sources were the destruction of sources by wildlife, pollution and broken down boreholes especially in some parts of the MMF and the Pastoral zones.

2.2.2 Household Access and Utilization

- The average return distances from households to water sources increased to 2.2 Km in March, up from 1.85 Km in February this year. The farthest return distance of 2.5 Km was recorded in Pastoral zones followed by 2.2 Km in MMF livelihood zones, slightly up from 2.1 Km in the previous month.
- The lowest distance of 0.8 Km was recorded in the Mixed Farming zone, same as the previous month. The longest average return time taken by households to water points was 1.85 hours in the Marginal Mixed Farming (MMF) zone.
- In general, there is an increase in distances from households to water sources across all livelihood zones. This is attributed to the prevailing hot dry weather and the delayed onset of the long rains.

2.2.3 Livestock Access

- For the County as a whole, the average return distance from water sources to grazing areas slightly increased from 3.52 Km in February to the current 3.7 Km. The longest return distance of 6 Km was recorded in the Pastoral zones, same as the previous month. MMF zones

recorded 3 Km, a slight increase compared to the previous month at 2.6 Km.

- Overall, a significant increase in distances from water sources to grazing areas has been recorded across the County. This is attributed to the prevailing hot and dry conditions coupled with the delayed commencement of the long rains season.

2.3 Implication on Food Security

- The delayed onset of the long (MAM) rains, the depressed precipitation levels and the prevailing hot and dry weather conditions have led to severe drought especially in all of the Pastoral zone, most of MMF and some MF zones.
- The increase in distances to water sources have had a negative impact on the body condition of animals and household hygiene standards. This has also been accelerated by destruction and pollution by wildlife.
- Broken down water sources like boreholes in the MMF zone and strategic boreholes in the Pastoral zone which are the main water sources to communities living in the area are most likely to negatively affect the livelihoods of people living around these areas.

3 PRODUCTION INDICATORS

3.1 Livestock Production

3.1.1 Livestock Body Condition

- The general body condition of cattle was fair to poor across the county. In the Pastoral zone and MMF zones, the cattle body condition was poor to very poor while for MF the same was fair to poor.
- The cattle body condition is fast deteriorating due to diminishing pasture and browse quality and quantity coupled with reducing water sources and the resultant increase in trekking distance. This situation applies across all livelihood zones, with the Pastoral zone being the most affected.
- The body condition of browsers was poor across all livelihood zones.
- On average, livestock body condition trend across the county is that, in all the livelihood zones the body condition of all the livestock classes is on a declining (worsening) trend with the body condition of lactating cattle being in a poor condition.

3.1.2 Livestock Diseases and Deaths

- No major livestock disease outbreaks were reported during the period under review. However, the influx of livestock from other counties may lead to increased disease incidences.
- 36 Livestock deaths in both cattle and shoats were reported as having resulted from drought. Cattle and sheep deaths were reported in MMF and Pastoral zones whereas goat deaths were reported in the Pastoral livelihood zones.

3.1.3 Milk Production

- The sampled households recorded an average milk production of 1.2 litres per day, down from 1.4 litres in February and 1.7 litres in January. Most of the milk was obtained from cattle.
- The quantity of milk produced in March slightly decreased by 3% compared to the previous month. The decrease in production was largely contributed by the continued decrease in pasture and browse quality and quantity coupled with decreased water levels and the increase in distances to and from water sources.
- The milk production is slightly below the normal levels (1.5 to 2 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

- The major on-going agricultural farming activity reported was the planting of tomatoes, kales and spinach in a few pockets of the MF by horticultural farms through irrigation.
- Majority of the farms in the MF and MMF zone are in the preparation stage ahead of the onset of the rain season. Major ongoing activities are ploughing and harrowing.

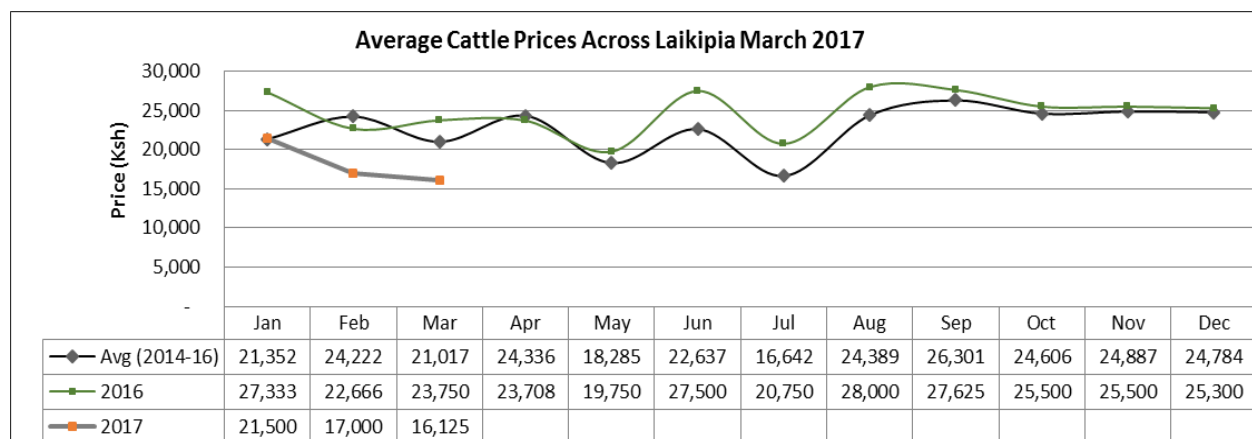
3.3 Implications on Food Security

- The deteriorating body condition of cattle across the county has resulted in decrease in milk production therefore contributing to increased food insecurity. The situation is worsening due to the prevailing hot and dry weather conditions.
- The influx of livestock from other Counties may lead to increased disease incidences

4 MARKET PERFORMANCE

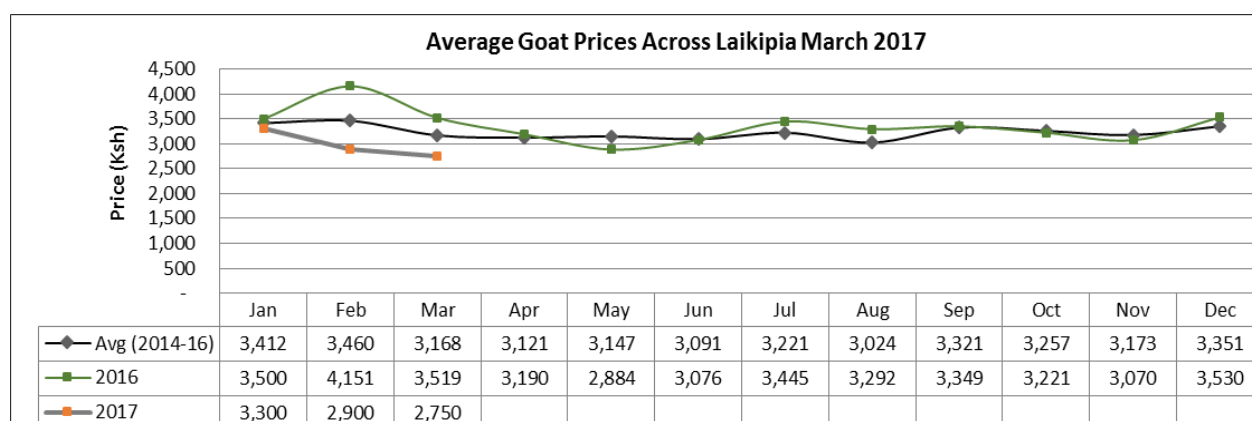
4.1 Livestock Marketing

4.1.1 Cattle Prices



- The average price of cattle across the County at the farm gate recorded a slight decline (5%) compared to the previous month at Kshs. 16,125. Cattle prices have been steadily decreasing since December last year. The decrease in prices can be attributed to the deteriorating body condition of the cattle due to the declining quality and quantity of pastures. It can also be attributed to price manipulation by brokers since they know the livestock body condition is deteriorating as the drought persists and herders are under pressure to sell their animals before they lose them.
- The lack of access to external markets in some sentinel sites especially in the Pastoral and MMF zones is negatively affecting the net value accrued from animal sales by livestock keepers. This situation only favours brokers, with the farmer not getting value for their cattle.
- Compared to the long term average, the current price is way below the expected range for the month.

4.1.2 Small Ruminants Prices

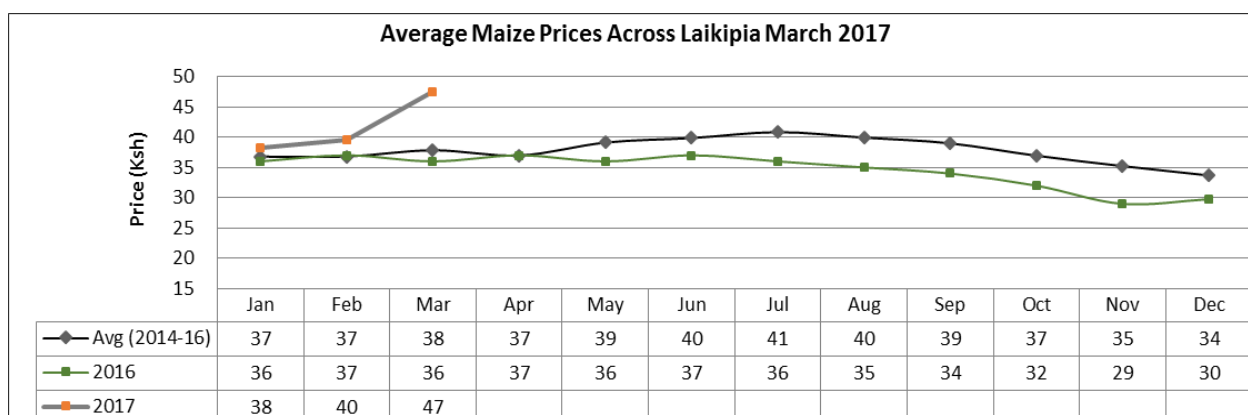


- During the month under review, the average price of a goat (at the farm gate) across all livelihoods slightly decreased to Kshs. 2,750, a 5% decrease compared to the previous month. The price is very low (by 13%) compared to the long term average. This can be attributed to the deterioration of the body condition of goats across the Pastoral and MMF livelihood zones due to the deteriorating browse quantity and quality and also due to price manipulation by brokers.
- The highest average goat price was recorded in the MF zone followed by the MMF zone.

- The current price is much lower compared to the same time last year and the long term average.

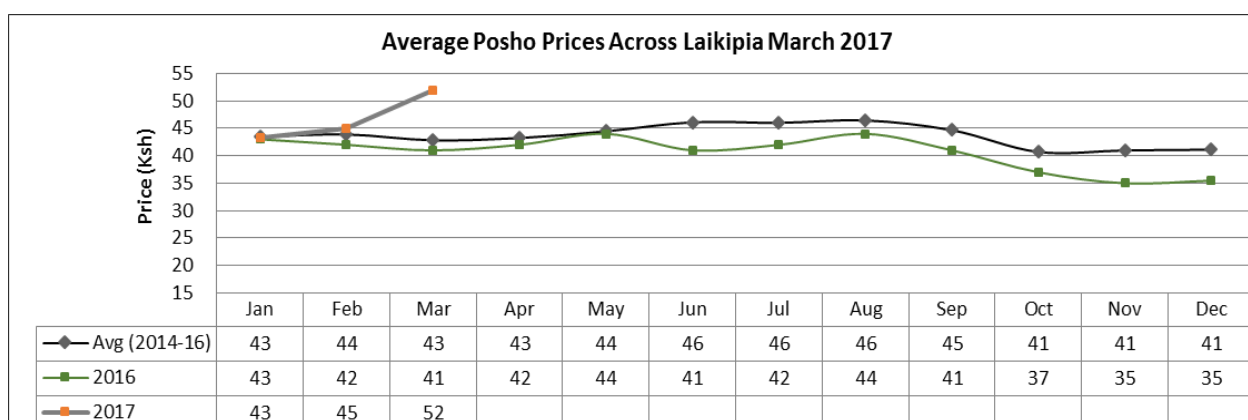
4.2 Crop Prices

4.2.1 Maize



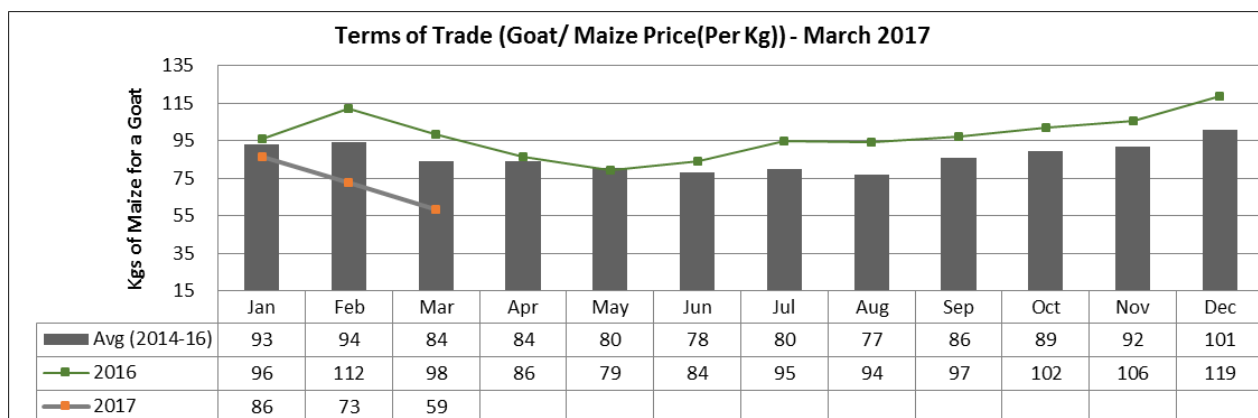
- The recorded average maize prices at the markets recorded a significant increase (by 20%) from Kshs.40 in February to the current Kshs.47. This is attributed to the cease in maize harvest activities across all maize growing zones and also due to decline in available stocks as the drought persists.
- The highest average market price of maize at Kshs.52 was recorded in the MMF zones, a significant increase compared to February (at Kshs. 41). The lowest average price of Kshs. 43 was recorded in the MF zone, which indicates a significant increase (by 19%) compared to the previous month (at Ksh.36).
- Compared to the three year average, the current price is much higher by 24%. The last year (2016) had recorded much improved weather conditions in general but the short rains ceased earlier than normal, leading to the sharp increase in cereal prices. The prolonged drought spell has also worsened the situation.

4.2.2 Posho



- The recorded average Posho prices at the markets significantly increased to Kshs. 52, a significant increase (by 16%) compared to February. The increase in price is attributed to the increase in the price of maize across maize growing zones (MF and MMF) as maize stocks decline.
- The current Posho prices are way above the long term averages by 21%.

4.3 Livestock Price Ratio/ Terms of Trade



- The average price of a goat at Kshs 2,750 is able to purchase 59 Kg of maize, which is a very significant decrease (by 19%) compared to the previous month at 73 Kg. The ToT (Terms of Trade) favours maize farmers/ brokers as maize prices have increased whereas at the same time livestock prices have decreased. However, maize farmers may not take advantage of the increase in maize prices because their stocks have drastically declined.
- When compared to the three year average, the ToT are significantly lower.
- Households were able to sell up to 1.54 goats to purchase a 90 Kg bag of maize, which is high compared to the previous month at 1.24 goats across all livelihood zones in Laikipia County.

4.4 Implication on Food Security

- The deteriorating body condition of livestock and the ongoing drought has resulted in falling livestock prices and therefore livestock keepers are unable to get better value for their livestock. As the situation continues to deteriorate, livestock prices are bound to fall further, contributing to increasing food insecurity in all livelihood zones, with the Pastoral zone being the most drastically affected. The price decline is also attributed to price manipulation by brokers since they know that livestock keepers are under pressure to sell their animals before the situation worsens.
- The October–December 2016 stable maize prices have now destabilized, with the sudden price increase in the January–March 2017 period. This means that access to cereals is diminishing hence leading to food insecurity as available stocks dwindle and the prices rise further. This is further exacerbated by lack of storage facilities in maize producing areas.
- The terms of trade now favour maize farmers, although the majority may not take advantage of the increased maize price because most of them had already sold-off their stock in the November–December period at throw away prices.

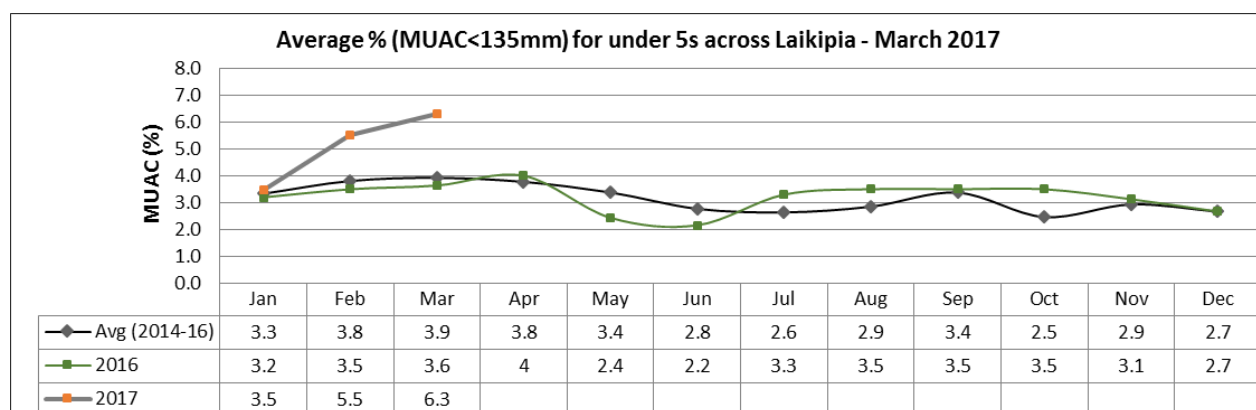
5 FOOD CONSUMPTION AND NUTRITION STATUS

5.1 Milk Consumption

- The sampled households recorded an average milk consumption of 0.70 litres per day and this was mostly milked from cattle. The quantity of milk consumed in February is more or less the same compared to the previous month.
- The milk consumption levels are still within the normal levels (>0.6 litres) expected at this time of the year. The largest decrease in milk consumption was recorded in Pastoral and MMF zones. The decrease in milk consumption is attributed to deterioration of pasture, increase in distances to water sources and the outmigration of livestock in search of pasture.
- For the MMF and MF zones, the larger percentage of the milk produced (68% 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 Health and Nutrition Status

5.2.1 Nutrition Status



- The percentage of children under five years of age who are both at risk of malnutrition and have malnutrition was recorded as 6.3%, higher than the previous month. The highest number of children both at risk of malnutrition and have malnutrition was recorded in Magadi (MMF) at 11.8% and Iingwesi (Pastoral) at 8%.
- The overall percentage of children who are at risk of malnutrition and with malnutrition is much higher compared to the three year average (2014-2016) at 3.9 %.

5.2.2 Health

- There were no major reported cases of disease outbreaks apart from few cases of respiratory tract infections in both adults and children in MF, MMF and Pastoral zones.

5.3 Coping Strategies

- The coping strategies index at 0.9 is same compared to the previous month but remains within the normal range. The most common types of the strategies being employed are taking fewer meals, purchasing food on credit and swapping consumption to less preferred or cheaper foods.

5.4 Implication on Food Security

- The decrease in milk consumption levels across Pastoral and MMF zones could lead to decreased dietary diversification and thereafter a negative impact on food security.
- The increase in the percentage of children under five years of age who are both at risk of malnutrition and have malnutrition has resulted from decreased food security and sounds a

warning that as the situation worsens, malnutrition levels are bound to increase.

6 CURRENT INTERVENTION MEASURES (ACTION)

6.1 Non-Food Interventions

- Livestock feed supplements amounting to 300 tonnes were distributed across all the sub-counties of Laikipia courtesy of NDMA with the support of the EU under the KRDP ASAL DCF. The Kenya Defence Forces supported in the distribution of the feeds.
- The MOH is conducting mass nutrition screening courtesy of NDMA with the support of the EU under the KRDP ASAL DCF.
- NDMA in conjunction with the Laikipia County Government is undertaking water trucking in drought hotspots across the county.

6.2 Food Aid

- Food aid distribution was reported at Withare and Olmoran both (MMF zone) and Ilingwesi (Pastoral zone) courtesy of National Government. Food aids inform of rice, beans, maize and cooking oil was reported at Ilingwesi (Pastoral zone) courtesy of the Kenya Red Cross Society in collaboration with the County Government.

7 EMERGING ISSUES

7.1 Insecurity/ Conflict/ Human Displacement

- Cases of conflict were reported in the Pastoral and MMF livelihood zones between herders and private ranchers as livestock from neighbouring Counties and locals entered the ranches in search of pasture and water. The most affected areas were Mugie, Laikipia Nature Conservancy, Kifuku, Suyian, Loisaba and Sosian ranches. Communities living in the Ilingwesi neighbourhoods of Nadungoru, Sanga and Lokusero were displaced by armed herders.
- Increased cases of human wildlife conflict have been reported across all livelihood zones as wildlife and livestock compete for the diminishing water sources and pasture.
- The on-going security operation in the pastoral zone of the County has seen herds of livestock being moved out of private ranches to surrounding areas. Herders have had nowhere else to take their livestock since the inception of the operation. The exercise has resulted in loss of livestock as a result of shootings while the animals were being forcefully moved out of the ranches.

7.2 Migration

- The livestock immigration from neighbouring counties (Samburu, West Pokot, Baringo and Isiolo) into ranches in Pastoral and MF livelihood zones were reported. Local herds were also reported to have migrated to Ngare Ndare, Mukogodo and Mt. Kenya forests. Others have moved into neighbouring ranches and conservancies (especially in Mukogodo East and West wards) under herding arrangements with the ranchers.

7.3 Food Security Prognosis

- The prevailing hot and dry weather conditions, the delayed onset of the long (MAM) rains coupled with the zero to minimal precipitation have all contributed to the current severe drought across all livelihood zones. The vegetation condition is way below normal and this is aggravated by overgrazing. The situation is further exacerbated by the immigrating livestock from the neighbouring counties whereby all resources are now under immense pressure. All these has negated the gains of the precipitation recorded in November and December 2016 and has had a negative impact on food security across the County. If the situation persists, the

current severe drought situation will lead to extreme levels of food insecurity especially now that the long rains have delayed.

8 RECOMMENDATIONS

- Expand and enhance the ongoing drought response operations. **Action: NDMA**
- Promote distribution of subsidized seeds and drought resilient crops to farmers in the county especially in the MMF zones. **Action: DAO, NDMA, County Government and Other stakeholders.**
- Increase peace building activities and surveillance in conflict prone zones **Action: County Commissioner, County Government, Private Stakeholders**
- Increase disease surveillance especially in high livestock convergence zones and migratory routes. **Action: County Government, NDMA**
- Put in place intervention measures to curb the human wildlife conflicts especially in areas of Withare, Mwenje, Muruku, Endana, Matanya, Olmorani and Survey. **Action: KWS.**
- Rehabilitate broken down boreholes and dams in MMF and Pastoral zones. **Action: County department of Water, NDMA.**
- Close monitoring, continued screening and referral of malnutrition cases in the county, sensitization of mothers on diet diversification for the under-fives. **Action: County department of Health.**

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.
Recovery: 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
Dark Green	> +1.5 or more	Wet Conditions
Light Green	0 to +1.5	No drought
Yellow	-0.1 to -0.99	Mild drought
Red	-1 to -1.99	Severe drought
Dark Red	<-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.