

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



A Vision 2030 Flagship Project



JANUARY 2017 EW PHASE: ALERT

Drought Status: ALERT



Maandalizi ya mapema

Drought Situation & EW Phase Classification

Biophysical Indicators

Rainfall: January recorded very depressed precipitation levels across all parts of the County and across all livelihood zones. The recorded rainfall was below average compared to the long term. The rainfall was 59% of the normal in January (1 month anomaly). The rainfall distribution was poor in terms of time and space across all livelihood zones.

Vegetation Condition: The Normalized Difference Vegetation index (NDVI) was below the normal range, indicating a fair to poor state of pasture and browse condition across most areas. According to field observations, the pasture condition in MMF is fair to poor. The pasture condition in MF zones is fair while in Pastoral zones and some MMF zones the same is poor largely due to the poor regeneration coupled with overgrazing. The browse condition is largely fair 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 within the normal range but has recorded a huge decline. No livestock deaths due to drought were reported. However, the body condition of animals below the normal range for the period and is fast deteriorating.

Access indicators - The terms of trade are within the normal range. Milk consumption is also within the normal range. **Utilization indicators** - are within the normal range.

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

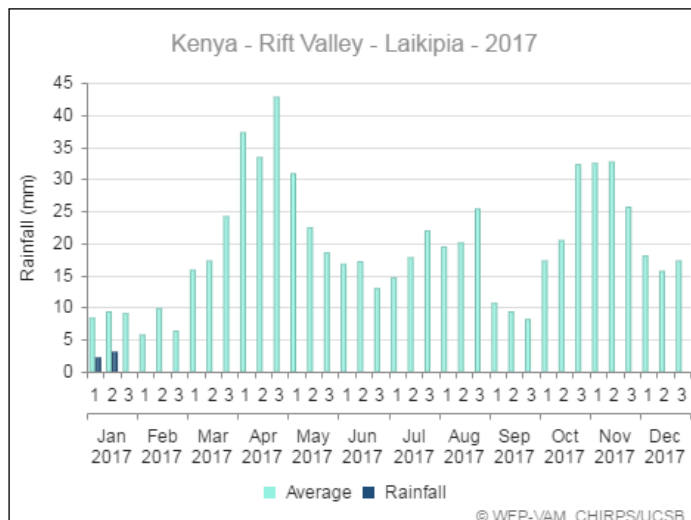
The effects of mild to moderate drought are being felt across the County. In view of the current situation, it is important to embark on drought mitigation and response activities across the Pastoral zone and parts of the MMF and MF zones.

LIVELIHOOD ZONE	EW PHASE	TREND
PASTORAL	Alarm	Deteriorating
MMF	Alert	Deteriorating
MF	Alert	Stable
COUNTY	Alert	Deteriorating
Biophysical Indicators	Value	Normal range
% of Average rainfall	59%	80-120%
SPI-3 month (TAMSAT)	-	-1 to 1
NDVI (Entire County)	0.37	>=0.52
State of Water Sources	3	5
Production indicators	Value	Normal range
Livestock Migration Pattern (Pastoral & parts of MMF)	Not Normal	Normal
Livestock Body Conditions (score) County Wide	3-4	4-5
Milk Production (Lt)	1.57	1.5 to 2
Livestock deaths (Drought)	0	No death
Crops area planted (%)	NA	% of LTA
Access Indicators	Value	Normal ranges
Terms of Trade (ToT)	86	>83
Milk Consumption (Lt)	0.79	> 0.6
Return Distance to Water Sources from grazing areas	3.17	<5
Utilisation indicators	Value	Normal ranges
MUAC	3.5	< 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

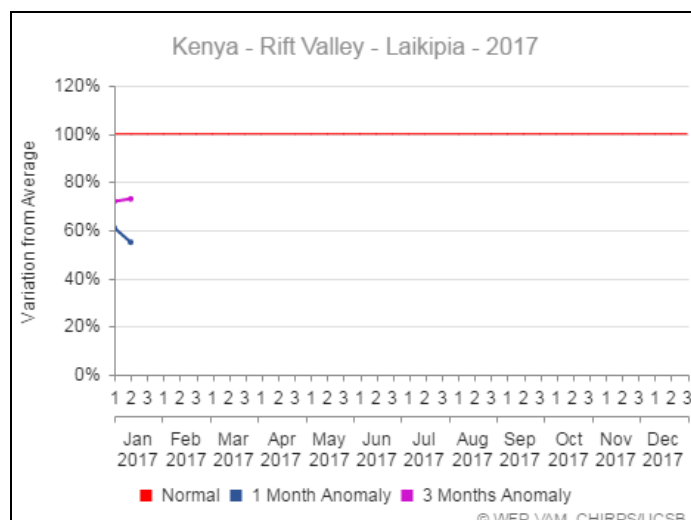
1. CLIMATIC CONDITIONS

1.1. Rainfall Performance



- According to the chart above, very minimal precipitation (3mm) was recorded in the month of January across all livelihood zones against an average of 11mm expected for the month; hence the rainfall was below average compared to the long term average.

1.2. Amount of Rainfall and Spatial Distribution

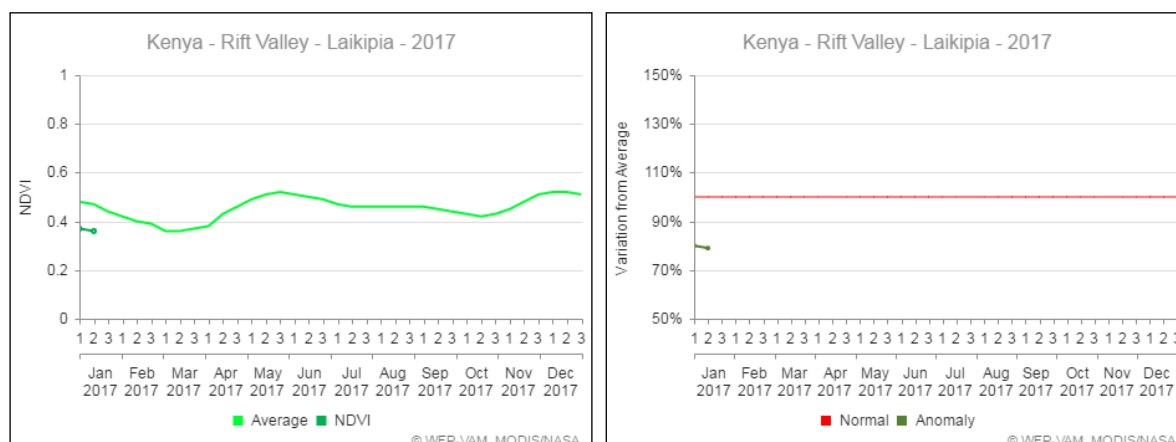


- According to the rainfall variation graph above, there is a significant decrease in the rainfall trend compared to the average expected for the month. The rainfall decreased from 90% of the normal in December to 59% of the normal in January (1 month anomaly).
- The Mixed Farming (MF) and the Marginal Mixed Farming (MMF) zone reported 2 days of light showers. The Pastoral (all species) zone reported 1 day of moderate rainfall.
- The rainfall distribution was poor in terms of time and space across the all livelihood zones.

2. IMPACT ON VEGETATION AND WATER

2.1 Vegetation Condition

2.1.1 Normalized difference vegetation Index (NDVI)



- According to the NDVI charts above, the vegetation condition recorded a decrease from 0.44 in December to the current 0.37. The recorded NDVI is below normal compared to an average of 0.48 expected in January. This is largely due to the very minimal precipitation coupled with the hot and dry weather recorded across all livelihood zones in the month of January.
- The vegetation condition is expected to deteriorate with time since there is zero to very minimal precipitation and also due to the prevailing hot and dry weather condition.

2.1.2 Pasture

- Across the County, the pasture condition is fair to 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.
- The pasture condition in the Pastoral zone is poor (especially in Mukogodo West) due to poor regeneration owing to the poor rains received in the area. The pasture condition in the MF zone is fair whereas in most parts of the MMF zone the same is fair to poor.
- The quantity of pasture available is expected to last an average of two months in the MF, an average of one to two months in most parts of the MMF zones but in parts bordering the Pastoral zone it is expected to last for less than a month owing to the poor rains received in the region. In the Pastoral zone the pasture is expected to last for less than a month with the prevailing hot dry condition.

2.1.3 Browse

- The browse condition in Pastoral zone is poor and is expected to change to worse with the prevailing hot and dry weather condition. In the MF zones, the browse is fair to good whereas that of the MMF zone is fair to poor.
- The browse condition is below normal in Pastoral zones and parts of MMF whereas it is normal in MF zones.
- The quantity of browse available is expected to last an average of one to two 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 January, the main water sources for domestic and livestock use in the MF and parts of MMF zones were dams, boreholes and natural rivers.
- In the Pastoral livelihood zone and other parts of MMF zones, pans, dams and boreholes were the main sources. Alternate water sources were hand pumps and rock catchments.
- The current water levels in water sources have significantly decreased during the period under review especially in the Pastoral zones and the MMF zones with some sources having dried up.
- Challenges in access to water sources were destruction of sources by wildlife animals, 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 1.78 Km, up from 1.43 Km in December last year. The farthest return distance of 2 Km was recorded in Pastoral and MMF livelihood zones, slightly up from 1.8 Km the previous month.
- The lowest distance of 0.8 Km was recorded in the Mixed Farming zone, up from 0.4 Km in the previous month. The longest average return time taken by households to water points was 1.3 hours in the Marginal Mixed Farming 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 and dry weather and the early cessation of the short rains.

2.2.3 Livestock Access

- For the County as a whole, the average return distance from water sources to grazing areas increased from 2.35 Km in December to the current 3.17 Km. The longest return distance of 5.5 Km was recorded in the Pastoral zones, up from 3.8 Km in December. MMF zones recorded 2.3 Km, a slight increase compared to the previous month.
- 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 early cessation of the short rains season.

2.3 Implication on Food Security

- The early cessation of the short rains, the below average rainfall and the prevailing hot and dry weather conditions have led to mild to moderate drought especially in all of the Pastoral zone, parts of MMF (Sosian, Salama and Tigithi wards). Some MF zones i.e. Githiga are also experiencing mild drought.
- 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 across the county. In the Pastoral zone and MMF zones, the cattle body condition was fair to poor while for MF the same was fair.
- 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 shoats was fair across all livelihood zones.
- On average, livestock body condition across the county has deteriorated with an EW phase classification score of 3-4.

3.1.2. Livestock Diseases

- 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.

3.1.3. Milk Production

- The sampled households recorded an average milk production of 1.57 Litres per day (significantly down from 2 litres in December) and most of the milk was obtained from cattle.
- The quantity of milk produced in January significantly decreased by 30% compared to the previous month. The decrease in production was largely contributed to by the decrease of pasture and browse quality and quantity coupled with decreased water levels and the increase in distance to and from water sources.
- The milk production levels are still within 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 and MMF zones through irrigation.
- In a few farms in MMF zones, maize planted during the OND season is at tussling stage but drying up due to inadequate precipitation, late bright disease and attacks by maize stalk borers. Potatoes are prematurely grown due to late bright attack.
- Majority of the farms in the MF zone have no any ongoing activity since nothing was planted during the OND season.

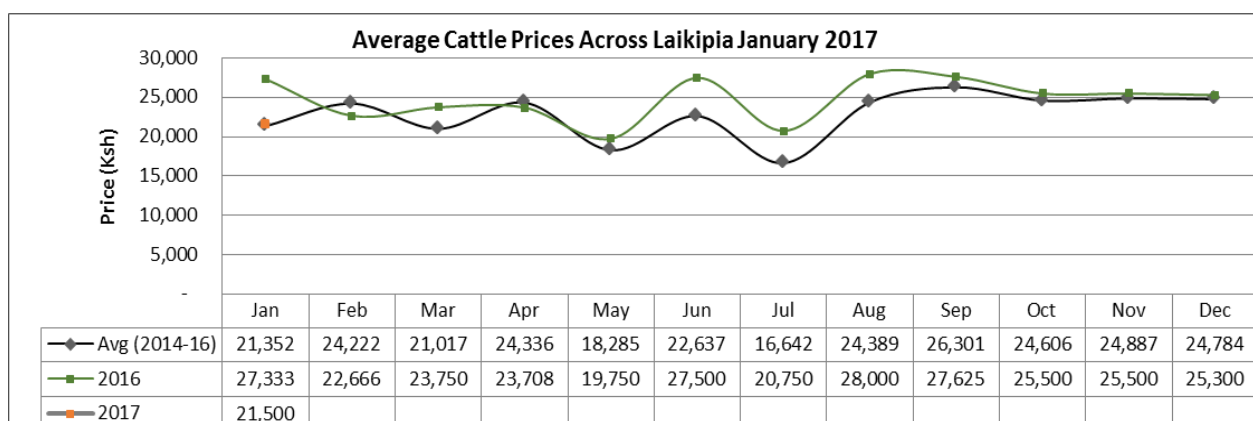
3.3. Implications on Food Security

- The deteriorating body condition of cattle across the county has resulted to a significant decrease in milk production therefore contributing to increased food insecurity. The situation may worsen due to the prevailing hot and dry weather condition.
- The influx of livestock from other Counties may lead to increased disease incidences
- The early cessation of OND rains has led to massive crop failure in MMF zones where farmers had planted in anticipation of good rains.

4. MARKET PERFORMANCE

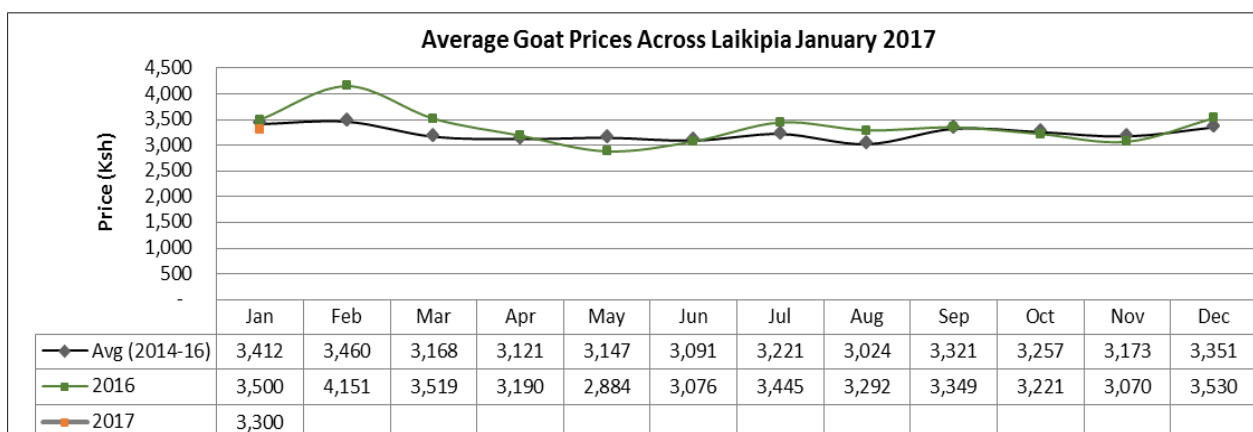
4.1. Livestock Marketing

4.1.1. Cattle Prices



- The average price of cattle across the County at the farm gate recorded a significant decline (16%) compared to the previous month at Kshs. 21,500. 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 body condition will continue to deteriorate as the drought persists and herders are under pressure to sell their animals before the situation worsens.
- 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 within the expected range for the month.

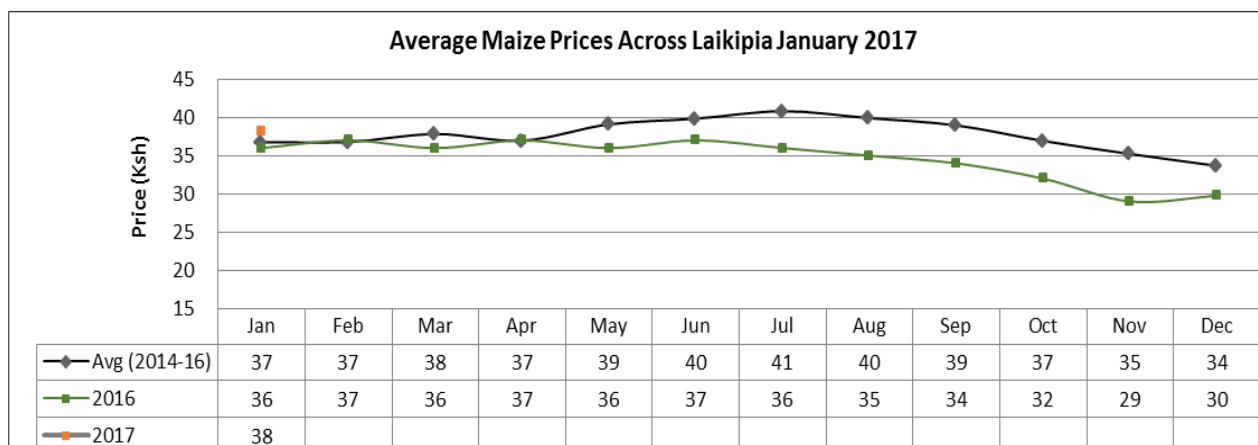
4.1.2. Small Ruminants Prices



- During the month under review, the average price of a goat (at the farm gate) across all livelihoods significantly decreased to Kshs. 3,300, a 7% decrease compared to the previous month. The price is slightly lower compared to the long term average by 3%. This can be attributed to the slight deterioration of the body condition of shoats across the Pastoral and MMF livelihood zones due to the deteriorating browse quantity and quality.
- The highest average goat price was recorded in the MF zone.
- The current price lower compared to the same time last year and the long term average.

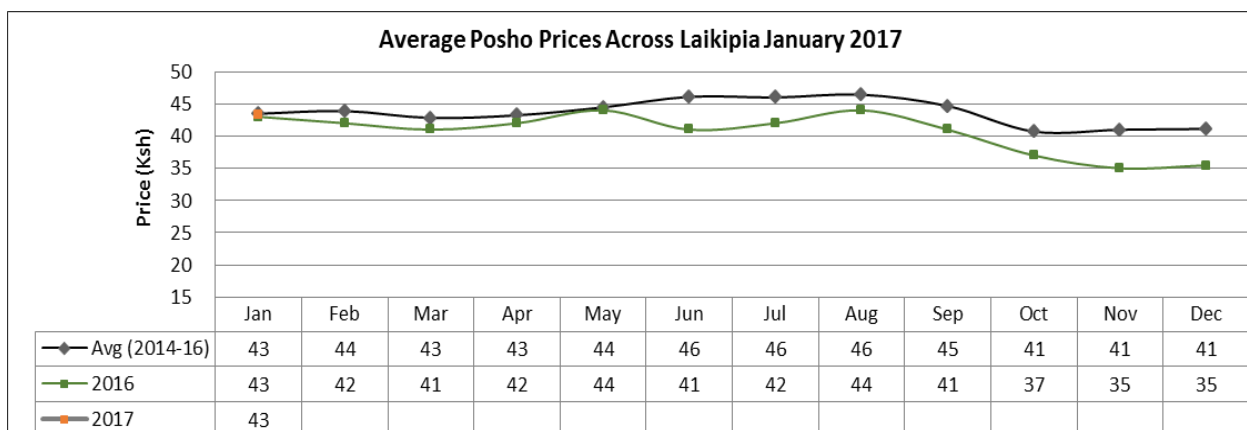
4.2. Crop Prices

4.2.1. Maize



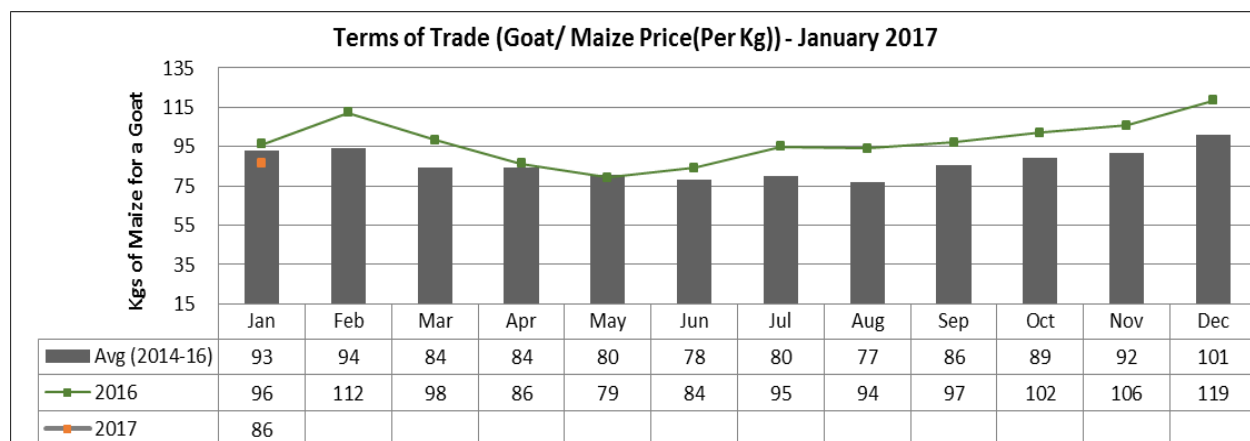
- The recorded average maize prices at the markets recorded a significant increase (by 12%) when compared to the previous month. This is attributed to the cease in maize harvest activities across all maize growing zones and also due to decline in available stocks as the drought persists.
- The highest average market price of maize at Kshs.40 was recorded in the Pastoral zones, a slight increase compared to December whereas the lowest average price of Kshs. 35 was recorded in the MF zone, a very significant increase (by 52%) compared to the previous month at Kshs.23.
- Compared to the three year average, the current price is slightly higher. The last year had recorded much improved weather conditions in general but the short rains ceased earlier than normal, leading to the sharp increase in cereal prices.

4.2.2. Posho



- The recorded average Posho prices at the markets slightly increased to Kshs. 43, a significant increase (by 23%) compared to December. The increase in price is attributed to the increase in the price of maize across maize growing zones (MF and MMF).
- The highest average market price of Posho at Kshs.45 was recorded in the Pastoral zones, a 10% increase compared to December. The lowest average price of Kshs. 37 was recorded in the MF zone, a significant increase compared to the previous month.
- However, the current posho prices are the same as the long term average.

4.3. Livestock Price Ratio/ Terms of Trade



- The average price of a goat at Kshs 3,300 is able to purchase 86 Kg of maize, which is a very significant decrease compared to the previous month at Kshs. 119. The ToT (Terms of Trade) indicates a significant shift in favour of maize farmers for the first time since mid-last year. This is due to the increase in maize prices and the decrease in livestock prices.
- When compared to the three year average, the ToT is significantly lower but slightly above normal.
- Households were able to sell up to 1.04 goats to purchase a 90 Kg bag of maize, which is significantly less compared to the previous month at 0.76 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 failing livestock prices and therefore livestock keepers are unable to get better value for their livestock. If the situation continues to deteriorate, livestock prices are bound to fall further, leading to food insecurity in all livelihood zones, with the Pastoral zone being the most drastically affected.
- The October – December stable maize prices have now destabilized, with the sudden increase in price increase in January. 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 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.

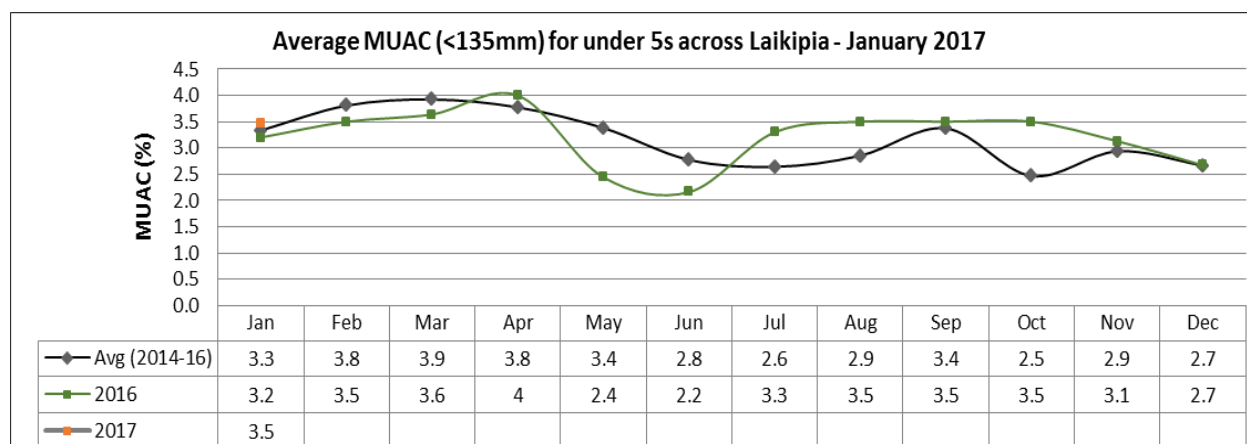
5. FOOD CONSUMPTION AND NUTRITION STATUS

5.1. Milk Consumption

- The sampled households recorded an average milk consumption of 0.79 litres per day and this was mostly milked from cattle. The quantity of milk consumed in January decreased by 23% 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 across the Pastoral and MMF zones. For the MF zone, the milk consumption recorded a slight decline. The decrease in milk consumption is attributed to deterioration of pasture and browse, the increase in distances to water sources and the outmigration of livestock in search of pasture.
- For MMF and MF zones, the larger percentage of the milk produced (73% and 58% 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

5.2.1.1.1. Nutrition Status



- The percentage of children under five years of age who are both at risk of malnutrition and have malnutrition was recorded as 3.5%, slightly higher than the previous month. The highest number of children both at risk of malnutrition and have malnutrition was recorded in Ingwesi (Pastoral) at 5.9%, which is a slight decrease compared to the previous month.
- The overall percentage of children who are at risk of malnutrition and with malnutrition is slightly lower compared to the three year average (2013-2015) at 3.3 %.

5.2.2. Health

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

5.3. Coping Strategies

- The coping strategies index at 0.9 has recorded a slight increase compared to 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 significant decrease in milk consumption levels across Pastoral and MMF zones could lead to decreased dietary diversification and thereafter a negative impact on food security.

6. CURRENT INTERVENTION MEASURES (ACTION)

6.1. Non-Food Interventions

- Ingwesi livestock and fodder commercialization project by NDMA is on-going.
- Vaccination of livestock against foot and mouth disease by the County Veterinary department was reported in MMF and Pastoral zones.

6.2. Food Aid

- Food aid distribution was reported across all livelihood zones in form of maize and beans courtesy of the national government.

7. EMERGING ISSUES

7.1. Insecurity/ Conflict/ Human Displacement

- Cases of conflict were reported in the Pastoral and MMF live hood zones between invading herders and private ranches as livestock from neighbouring Counties and locals entered the ranches in search of pasture and water. The most affected ranches were Mugie, Laikipia nature conservancy, Kivuku, Suyian and Loisaba.
- Increased cases of human wildlife conflict have been reported across all livelihood zones as wildlife and livestock compete for the diminishing water sources.

7.2. Migration

- The immigration of livestock from neighbouring counties (Samburu, 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 late onset and the early cessation of the OND rains, the below average rains performance coupled with the prevailing hot and dry weather has led to mild to moderated drought. The vegetation condition is below normal and major crop failure has been reported. All these has negated the gains of the precipitation recorded in November and December and has had a negative impact on food security across the County. If the situation persists as it is currently, there is danger of moderate to severe drought especially if the long rains delay.

7.0 RECOMMENDATIONS

- Activate the drought contingency plan. **Action: NDMA**
- 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, Olmoran and Survey. **Action: KWS.**
- Rehabilitate broken down boreholes and dams in MMF and Pastoral zones. **Action: County department of Water, NDMA.**
- Close monitoring, screening and referral of malnutrition status in the county, sensitization of mothers on diet diversification for the under-fives in the county. **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
	> +1.5 or more	Wet Conditions
	0 to +1.5	No drought
	-0.1 to -0.99	Mild drought
	-1 to -1.99	Severe drought
	<-2 and less	Extreme drought

Table 3: Vegetation Condition Index Values (VCI)

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

Table 4: Livestock Body Condition

Level	Classification	Characteristics (this describes majority of the herd and not individual isolated Stock)
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, 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.