

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



A Vision 2030 Flagship Project



SEPTEMBER 2017 EW PHASE: ALERT

Drought Status: ALERT



Maandalizi ya mapema

Drought Situation & EW Phase Classification

Biophysical Indicators

Rainfall: The County experienced rainfall ranging from heavy to light showers. Generally, the rains were distributed fairly in terms of time and space except in the Pastoral zone.

The received rainfall was approximately 124% of the expected amount for the month, which is slightly above the normal range.

Vegetation Condition: The Vegetation Condition Index (VCI) is within the normal range, indicating a fair state of pasture and browse condition across most areas. According to field observations, the pasture condition in MF zones was fair to good while in the Pastoral zones and most MMF zones the same was fair to poor largely due to the poor regeneration of pasture coupled with overgrazing. The browse condition was largely fair in the MMF and MF zones but fair to poor in the Pastoral zone.

Socio Economic Indicators (Impact Indicators)

Production Indicators – Livestock migration patterns in the Pastoral and some MMF zones were not normal for the time of the year. Milk production per household was below the normal range at this time of the year. The body condition of animals is still below the normal range for the period but there is hope of improvement as the off season rains continue.

Access indicators - The terms of trade are still way below the normal range. The return distance from water sources to grazing areas is within the normal range.

Utilization indicators – were all still within the normal range.

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

The off season rains have had a significant impact on various indicators, particularly the biophysical and the situation is expected to improve if they continue. However, there are hotspots which need to be addressed in terms of drought response as drought recovery phase commences on the rest of the county.

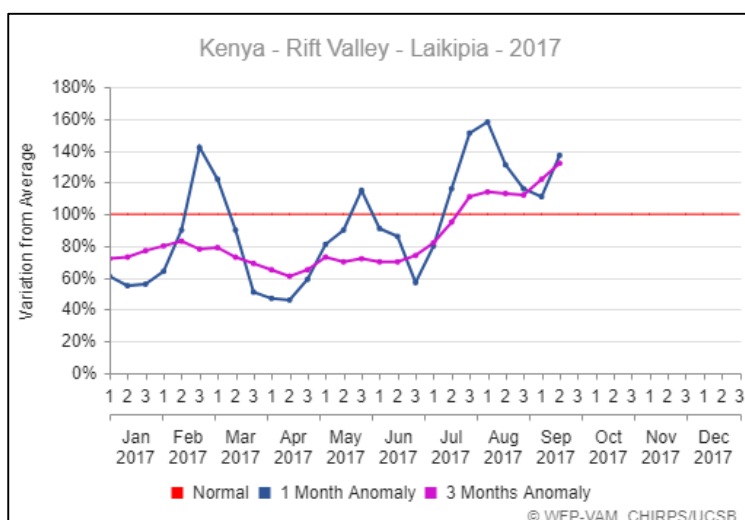
| LIVELIHOOD ZONE | EW PHASE | TREND |
|---------------------------------------------------|--------------|----------------------|
| PASTORAL | ALERT | Improving |
| MMF | ALERT | Improving |
| MF | NORMAL | Stable |
| COUNTY | ALERT | Improving |
| Biophysical Indicators | Value | Normal range |
| % of Average rainfall (first 2 dekads) | 124% | 80-120% |
| SPI-3 month (TAMSAT) | - | -1 to 1 |
| VCI (Entire County) | 42.9 | 35-50 |
| State of Water Sources | 5 | 5 |
| Production indicators | Value | Normal range |
| Livestock Migration Pattern | Yes | None |
| Livestock Body Condition (score) County Wide | 3-4 | 4-5 |
| Milk Production (Lt) | 3.8 | 4 |
| Livestock deaths | None | No death |
| Crops area planted (%) | - | % of LTA |
| Access Indicators | Value | Normal ranges |
| Terms of Trade (ToT) | 60 | > 83 |
| Milk Consumption (Lt) | 1.3 | > 1.5 |
| Return Distance (Water Sources - grazing areas) | 4.9 | < 5 |
| Return Distance water to Grazing areas (Pastoral) | 6 | < 7 |
| Utilisation indicators | Value | Normal ranges |
| MUAC | 6 | < 18.36 |
| Coping Strategy Index (CSI) | - | <1 |

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

1 CLIMATIC CONDITIONS

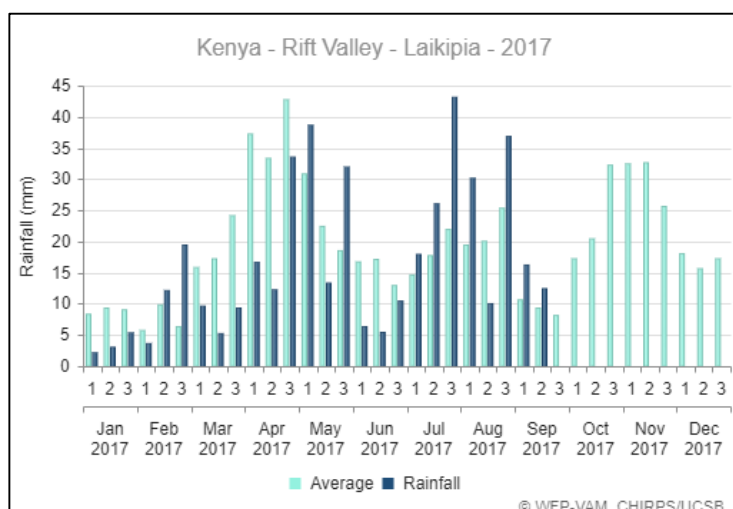
1.1 Rainfall Performance

- In the month of September, off-season rains ranging from heavy rains to moderate rains were observed across the County. The rainfall distribution was fair in both terms of time and space in the MF and parts of MMF zones. In the Pastoral zone, the same was poor in both time and space.
- The Mixed Farming (MF) zone received 7 days of heavy to moderate rainfall whereas the Marginal Mixed Farming (MMF) reported 3 days of moderate rainfall to light showers which was fairly distributed in terms of space but poorly in terms of time. The Pastoral (all species) zone reported 2 days of moderate to heavy rainfall which was poorly distributed in terms of both time and space during the period under review.



- In terms of variation from the long term average, the amount of rain received was approximately 124% of the expected amount for the month (according to the first 2 dekads) hence above the normal range (80-120%). This is a significant increase compared to the recorded 113% of the expected amount in August and 98% in July.

1.2 Amount of Rainfall and Spatial Distribution



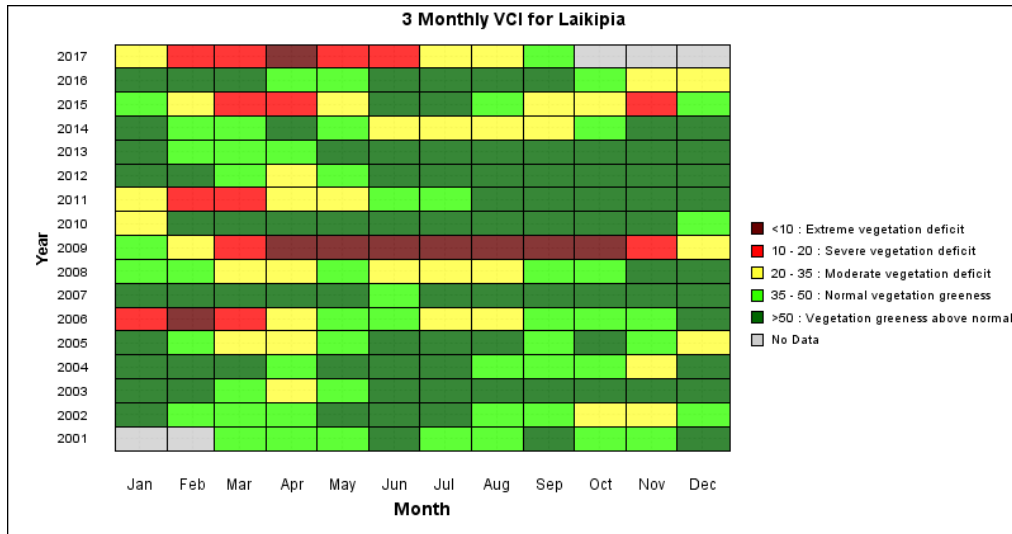
- According to the chart above, the rain received in August amounted to 76.9 mm, which is above the long term average of 64.7 mm in August hence above normal. Compared to July, the precipitation levels decreased by 12%.

2 IMPACT ON VEGETATION AND WATER

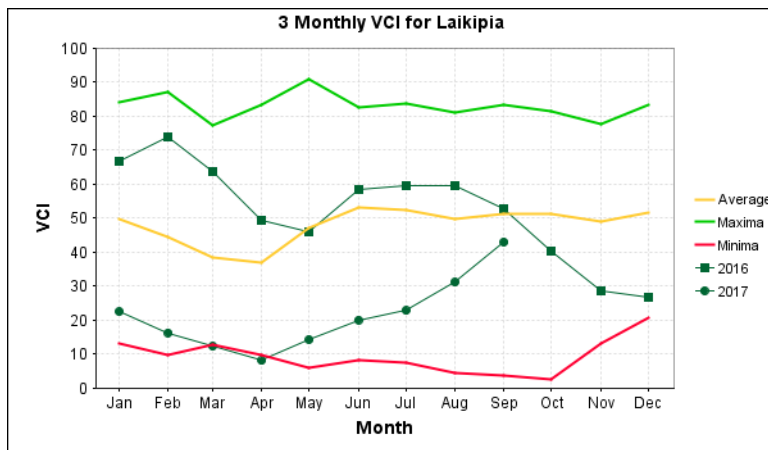
2.1 Vegetation Condition

2.1.1 Vegetation Condition Index (VCI)

- The vegetation condition has shown improvement across the county.



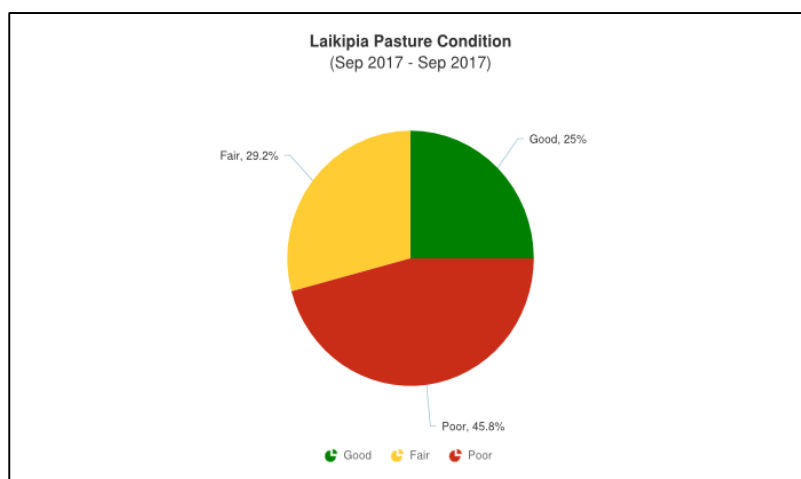
- The VCI matrix above indicates an improving trend with normal vegetation greenness compared to moderate vegetation deficit in August. From field observations, this is largely true but there exists areas with severe vegetation deficit in Tigithi and Mukogodo East Wards.



- According to the chart above, the VCI at 42.85 is within the normal range (35-50) and shows tremendous improvement compared to August at 31.

2.1.2 Pasture

- According to the key informant's interviewed, the pasture condition was poor (45.8%), fair (29.2%) and good (25%) as shown in the chart below. The poor pasture quantity and quality was found mainly in the Pastoral zone and parts of the MMF zone although signs of shooting and lash pasture regeneration were observed due to the off season rain reported in the areas.



- The pasture condition is good to fair in the MF zones and parts of MMF zone.
- Compared to the previous month, there was a major improvement and this can be attributed to the off season rains that have been reported across all zones.
- The pasture condition in the ranches are in good condition but neighbouring areas outside the ranches are still in poor condition.
- The quantity of pasture available is expected to last less than a month in the Pastoral and parts of MMF zone. In the MF zone the pasture condition is expected to last for 1.5 months due to the off season rains experienced in the area.

2.1.3 Browse

- The browse condition in Pastoral zone is fair to poor in both quantity and quality. In some areas the browse condition is deteriorating in quantity compared to last month owing that no precipitation was recorded in the said areas. In the MF zones, the browse condition is fair whereas that of the MMF zone is fair to poor owing to the off season rains.
- The browse condition is below normal compared to the long term average in all livelihood zones since most of the palatable species had been exhausted especially in the MMF and the Pastoral areas.
- The quantity of browse available is expected to last an average of 2 months in the MF and 1 month in the MMF zones and less than a month in the Pastoral zone.

2.2 Water Resource

2.2.1 Sources

- During the month under review, the main water sources for domestic and livestock use in the County were boreholes (28%) followed by shallow wells (27%), pans and dams (21%) and rivers (12%). Boreholes have overtaken pans and dams as the most utilized water sources.
- The Pastoral and MMF livelihood zones largely utilized boreholes followed by pans and dams whereas the MF zone largely utilized shallow wells also followed by pans and dams. Alternate water sources were rivers, traditional water wells, springs and piped water systems.
- The current water levels in water sources have slightly increased owing to the off season experienced in most parts of the County.

2.2.2 Household Access and Utilization

- The average return distances from households to water sources slightly decreased to 1.71 Km, down from 2.0 Km in September. The furthest return distance of 2.1 Km was recorded in Pastoral zones followed by 1.5 Km in MMF livelihood zones, much lower than the previous month.
- In general, the decrease in distances can be attributed to the prevailing off season rains.

2.2.3 Livestock Access

- The average return distance from water sources to grazing areas decreased by 26% from 6.6 to 4.9 Km in September. The longest return distance of 6 Km was recorded in the Pastoral zones at 6 Km, a significant decrease compared to 8.5 Km in August. MMF zones recorded 4.6 Km, down from 5.8 Km the previous month.
- The decrease in distances from water sources to grazing areas can be attributed to the recorded off season rains in the months of August and September which have resulted in significant recharge to water sources.

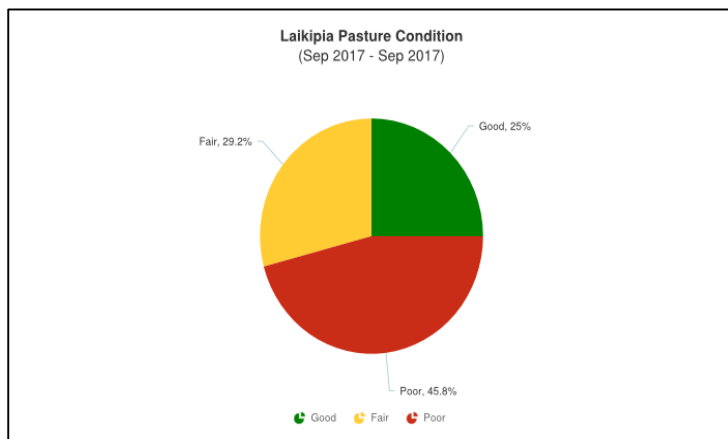
2.3 Implication to Food Security

- The off season rains have led to improved vegetation cover. However, the vegetation is still poor due to over grazing leading to denuded lands especially in the Pastoral and some MMF zones. A large part of the land in these areas is now bare due to overgrazing (especially in Mukogodo East) and exacerbated by the immigration of livestock from neighbouring counties and poor regeneration.
- The off season rains have helped recharge some of the traditional water sources therefore slightly improving water access. The distances to water sources for both livestock and humans have decreased significantly.

3 PRODUCTION INDICATORS

3.1 Livestock Production

3.1.1 Livestock Body Condition



- During the period under review, the general body condition of cattle was fair across the County. In the Pastoral zone and most parts of the MMF zones, the cattle body condition was fair and poor especially for lactating cows. For MF the same was fair to good.
- The cattle body condition has had a significant improvement in MF and parts of MMF zone due to the off season rains experienced in the parts which have seen regeneration of pasture and browse quality and quantity. The Pastoral zone still remains most affected.
- The body condition of browsers was fair to good across all livelihood zones.
- On average, livestock body condition trend across the county is that it is on an improving trend.

3.1.2 Livestock Diseases and Deaths

- No major livestock disease outbreaks were reported during the period under review.
- No livestock deaths in cattle (mostly calves) were observed and reported in MMF and Pastoral zones.

3.1.3 Milk Production

- The sampled households recorded an average milk production of 3.8 litres per household per day in September, up from 3.2 litres in August. The Pastoral zone recorded the least milk production per household at 1.2 litres. Most of the milk was obtained from cattle.
- The milk production is slightly below the normal levels (4 litres per household) expected at this time of the year.
- The below normal milk production levels are attributed to the spill over effects of failed long rains coupled with sustained pressure on grazing points due to slow regeneration especially in the Pastoral and parts of MMF zones.

3.2 Rain-fed Crop Production

3.2.1 Stage and Condition of Food Crops

- Different crops are at different stages depending on when they were planted and the onset of the rains at various livelihood zones. Food crops (maize, beans and potatoes) which were under moisture stress in MMF zones and parts of the MF have shown improvement due to the experienced off season rains hence farmers are hoping to get some harvest as a result of the off season rains experienced during the period under review. In most farms in parts of the MF and MMF zones, green maize is being harvested in piecemeal.

- Some farms are in preparation stage for the coming short rains season.

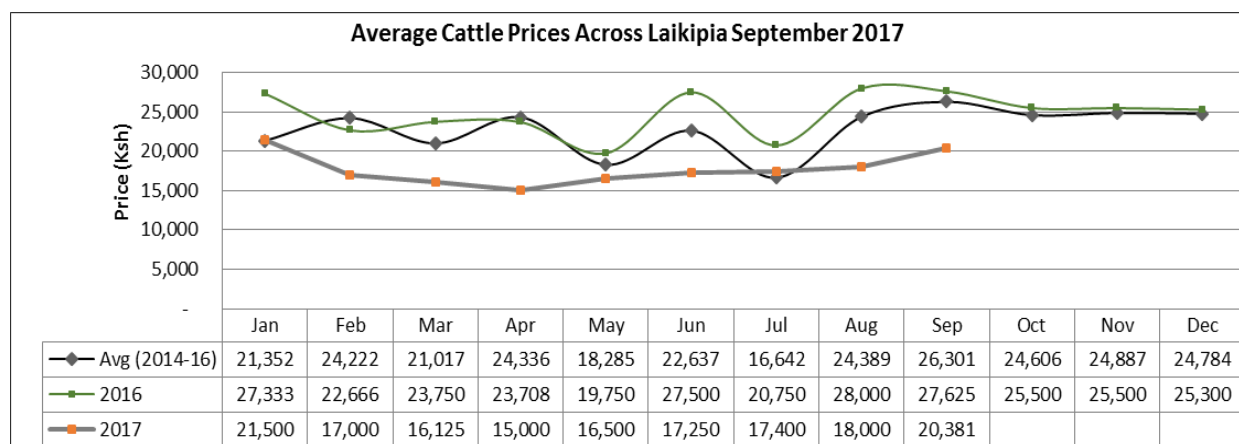
3.3 Implications to Food Security

- The slight improvement in pasture has had positive yet insignificant improvement in the body condition of cattle and sheep across the county which in turn has had a slight impact in milk production.
- The late onset and early cessation of the long rain season resulted into late crop planting and significant reduction in expected yields (mainly maize and beans). The off season rains have led to the assurance that farmers who planted late into the long rains season or who planted slow maturing maize types will get some harvest.

4 MARKET PERFORMANCE

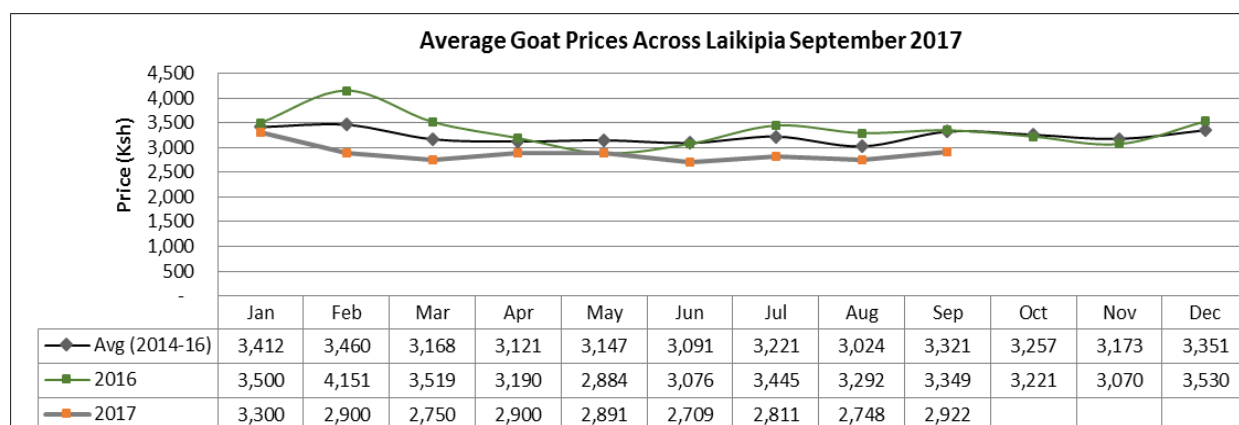
4.1 Livestock Marketing

4.1.1 Cattle Prices (at the farm gate)



- The average price of cattle across the County at the farm gate recorded a slight increase in September compared to the previous month. This can be attributed to the slight improvement in pasture quality and quantity due to the off season rains.
- Compared to the long term average, the current price is way much lower than the long term average by 23%.

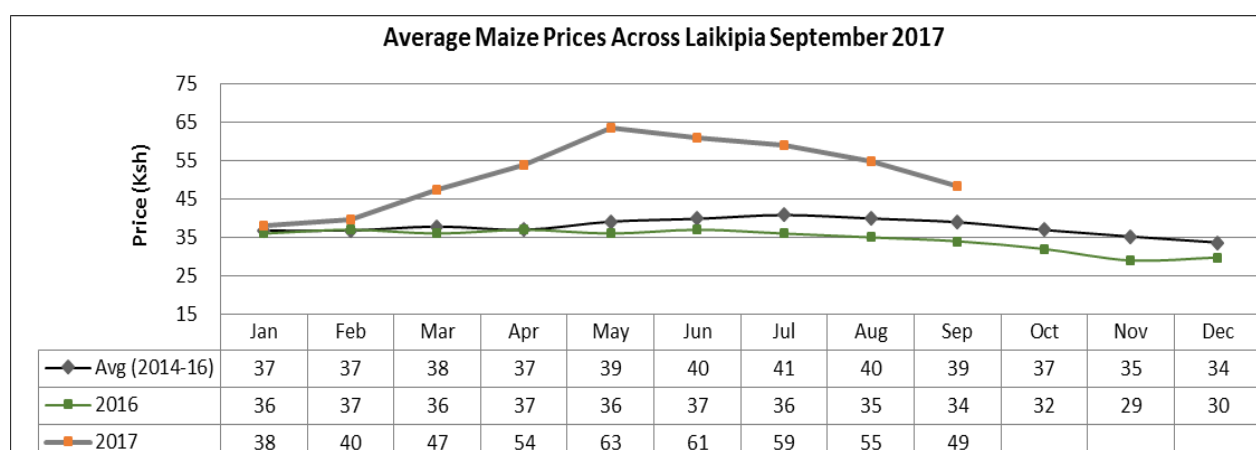
4.1.2 Small Ruminants Prices (Goat)



- During the month under review, the average price of a goat (at the farm gate) in Laikipia increased to Kshs. 2,922, a 6% increase compared to the previous month. Compared to the long term average, the current price is lower by 12%. The increase in goat price can be attributed to the improvement of browse condition over the period.
- The highest average goat price was recorded in the MF zone followed by the MMF zone. The current price is lower compared to the same time last year and the long term average.

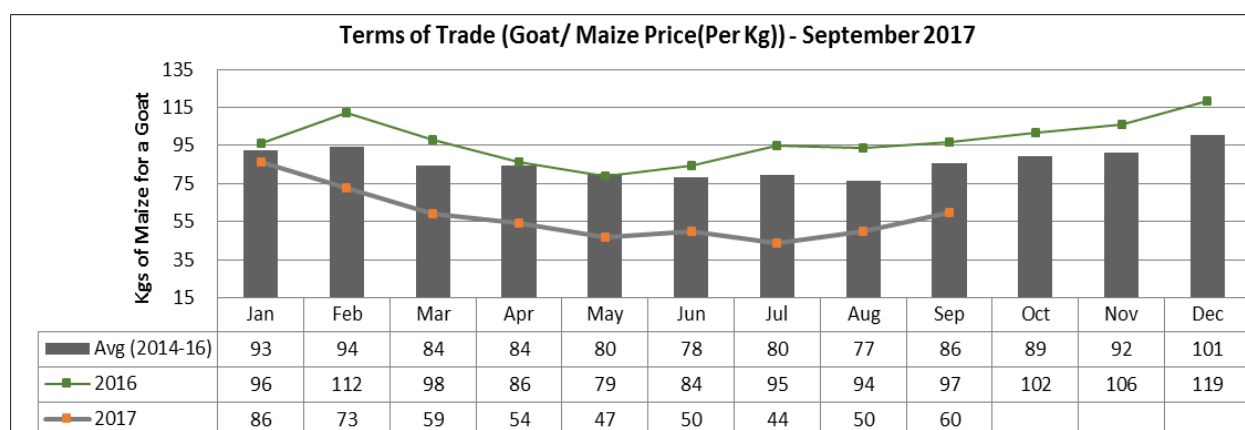
4.2 Crop Prices

4.2.1 Maize (market price)



- The average maize prices at the markets recorded a slight decrease (by 11.5%) from Kshs.55 in August to the current Kshs.49. The decline in price is attributed to the commencement of piecemeal maize harvests in Laikipia West.
- The highest average market price of maize at Kshs.60 was recorded in Olmoran market (MMF). Compared to the three year average, the current price is much higher by 26%.

4.3 Livestock Price Ratio/ Terms of Trade



- The average price of a goat at Kshs 2,922 is able to purchase 60 Kg of maize, which is a significant increase compared to the previous month at 50 Kg. The shift in ToT (Terms of Trade) can be attributed to the drop in maize prices across all livelihood zones. The shift favours livestock keepers as they are now able to purchase more maize for the price of a goat.
- When compared to the three year average, the ToT are still way below normal.
- Households were able to sell up to 1.8 goats to purchase a 90 Kg bag of maize, which is higher compared to the previous month at 1.6 goats across all livelihood zones in Laikipia County.

4.4 Implication on Food Security

- The still below normal body condition of livestock continues to command poor livestock prices and therefore livestock keepers are still unable to get better value for their livestock. The off-season rains have had a positive contribution to the improvement of the livestock body condition.
- The persisting issue of insecurity in the Pastoral and MMF zones has hampered market operations in Laikipia North and West and this has negatively affected market prices. Some livestock markets like Olmoran have been inactive since July because of the ongoing conflict between security personnel and illegal herders.

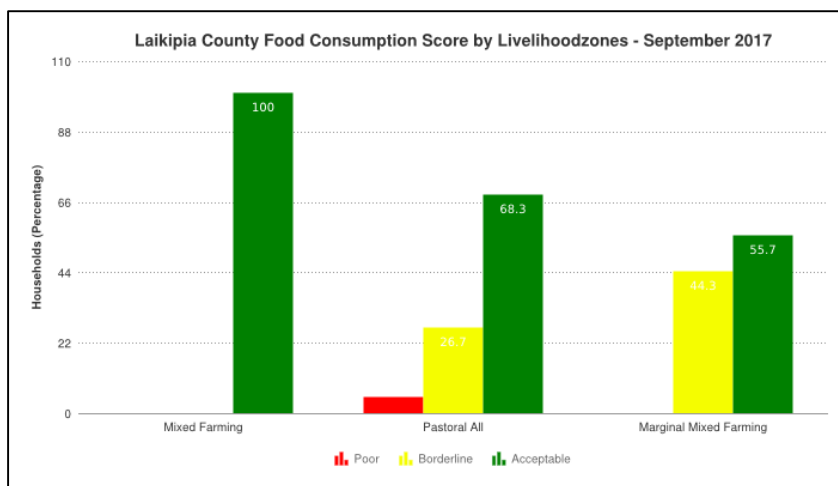
- In Laikipia, the lack of direct access to external markets in most areas especially in the Pastoral and MMF zones negatively affects the net value accrued from animal sales by livestock keepers. This situation only favours brokers, with the farmer not getting value for their cattle.
- The high maize prices have had a negative contribution to food security. However, the government has intervened through maize imports and some areas are getting subsidised sifted maize meal at 90-110 Kshs. per 2 Kg packet.

5 FOOD CONSUMPTION AND NUTRITION STATUS

5.1 Milk Consumption

- In September, the sampled households recorded an average milk consumption of 1.3 litres per day, a slight increase compared to 1.2 litres in August, with most of the milk coming from cattle.
- The milk consumption levels are still within the normal levels (>1 litres) expected at this time of the year.
- For the MMF and MF zones, the larger percentage of the milk produced (70% and 65% respectively) was sold as households sought to raise income for other household needs whereas for Pastoral zones, 99% of the milk produced was used to supplement the diet.

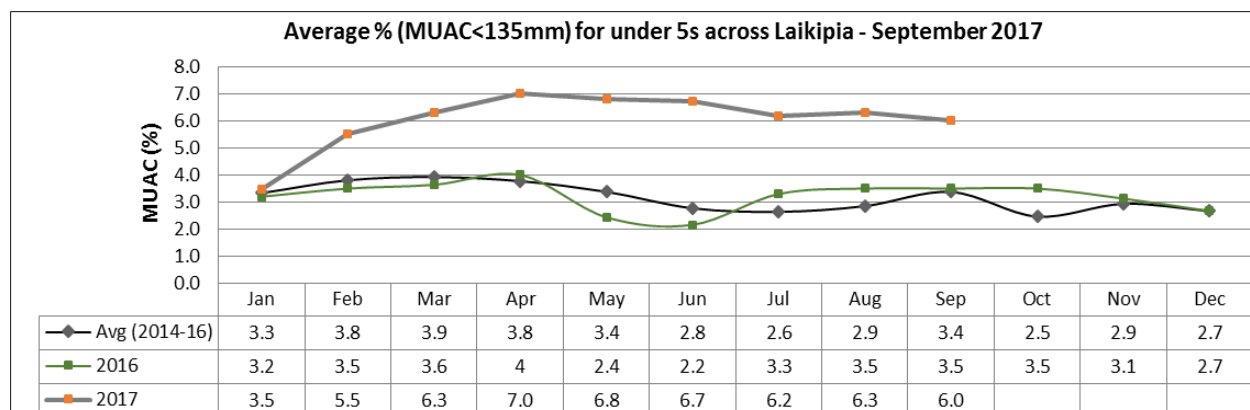
5.2 Food Consumption Score



- According to the chart above, all the households in the MF livelihood zone have an acceptable food score. The MMF zone follows with borderline food score of 55.7% and an acceptable food score of 46.3%. This is an improvement as there are no households with poor food score unlike the previous month.
- 5% of the households in the Pastoral zone had a poor food score, indicating a poor dietary diversity. However, there was major improvement as 68% of the households in the zone attained an acceptable food score compared to the previous months, 63%. The food consumption gaps can be attributed to poor pasture and browse regeneration in the Pastoral zone which has resulted in below normal milk production and consumption, reduced incomes and above average food commodity prices.

5.3 Health and Nutrition Status

5.3.1 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%, lower than the previous month. 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) by 2.6 %.

5.3.2 Health

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

5.4 Coping Strategies

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

5.5 Implication on Food Security

- The static milk consumption levels across the Pastoral and MMF zones have had limited contribution to dietary diversification as livestock (mainly cattle) are yet to recover fully due to poor pasture regeneration.
- The off season rains have contributed positively to food security through improved water access hence leading to better sanitation in households thus minimising diseases. Households in the MF and MMF zones are also able to supplement their diets with leafy vegetables hence increased dietary diversity, leading to improved food security.

6 CURRENT INTERVENTION MEASURES (ACTION)

6.1 Non-Food Interventions

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

6.2 Food Aid

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

7 EMERGING ISSUES

7.1 Insecurity/ Conflict/ Human Displacement

- Incidences of cattle rustling as a result of immigration of rustlers from neighbouring counties (Samburu) in Iingwesi (Pastoral zone) and Withare (MMF zone) area are still being reported.
- Cases of human wildlife conflict have been reported at eighteen in Mwenje (MF zone) and Ex-erock in Withare (MMF zone) as wildlife invade farms.
- Community members who were displaced from around Nadungoro (Iingwesi Pastoral zone) due to invading herders are yet to go back due to fear of repeat attacks.
- Insecurity has led to the closure of Olmorani livestock market at the MMF zone area (parts of Laikipia West bordering Laikipia North).

7.2 Migration

- Outmigration of livestock in search of pasture has been reported at Iingwesi (Pastoral zone) whereby local herds from around the area have been reported to have migrated to Ngare Ndare, Mukogodo and Mt. Kenya forests.
- Immigration of pastoralists from the neighbouring Baringo County has been reported at Olmorani (MMF zone) due to the ongoing security operations by the government.

7.3 Food Security Prognosis

- The off season rains have had a significant impact on various indicators, particularly the biophysical and the situation is expected to improve if they continue. However, there are

hotspots which need to be addressed in terms of drought response as drought recovery phase commences on the rest of the county.

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

8 RECOMMENDATIONS

- Continue with drought response operations in the remaining drought hotspots. **Action: NDMA**
- Increase peace building activities and surveillance in conflict prone zones **Action: County Commissioner, County Government, Private Stakeholders**
- Close monitoring, continued screening and referral of malnutrition cases in the county, sensitization of mothers on diet diversification for the under-fives under DCF. Conduct integrated health outreaches in Pastoral and MMF zones **Action: County department of Health.**
- Commence drought recovery activities across the county. **Action: County Government, NDMA.**
- Rehabilitate broken dams and water pans, strategic boreholes in the MMF and Pastoral zones. **Action: County department of Water, NDMA.**
- Initiate interventions geared towards curbing the human wildlife conflicts especially in areas of Withare, Mwenje, Muruku, Endana, Matanya, Olmorani and Survey. **Action: KWS.**

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) |
|-------|----------------|-----------------------------------------------------------------------------------------|
| 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.