



**National Drought Management Authority
LAIKIPIA COUNTY
DROUGHT EARLY WARNING BULLETIN FOR SEPTEMBER 2021**

SEPTEMBER 2021 EW PHASE: LATE



Drought Situation & EW Phase Classification

Biophysical Indicators

Rainfall:

- **Performance:** the County received on average 3 to 5 days of rainfall across the Pastoral, Marginal Mixed Farming (MMF) and Mixed Farming (MF) zones, with majority of the days being characterised by heavy to moderate rainfall. The temporal and spatial distribution of the rains was fair to poor across the County.

• **Vegetation Condition:**

- The Vegetation Condition Index (VCI) was within the normal range for the period, indicating a fair state of vegetation. However, field observations indicate a poor state of pasture in most of the Pastoral and MMF zones.
- The available pasture and browse can last for less than a month to two months, depending on the area.

Socio Economic Indicators (Impact Indicators)

Production Indicators:

- There were reported cases of livestock migration within Laikipia County and from neighbouring Counties of Isiolo and Samburu to Mt. Kenya, neighbouring ranches and farmlands, in some cases resulting in conflict.
- The body condition of animals was below the normal range for the period.

Access indicators:

- The terms of trade were below the long term average.
- The return distance from water sources to grazing areas was outside the normal range.

Utilization indicators:

- Within the normal range.

LIVELIHOOD ZONE	EW PHASE	TREND
PASTORAL	Alarm	Declining
MMF	Late Alert	Stable
MF	Normal	Stable
COUNTY	Late Alert	Declining
Biophysical Indicators	Value	Normal range
% of Average rainfall	69%	80-120%
VCI (1 month)	40	35.0-50.0
State of Water Sources	3-5	4-5
Production indicators	Value	Normal range
Livestock Migration Pattern	Migration	No Migration
Livestock Body Condition	3-4	4-5
Milk Production (Lt)	4.5	>3.4
Reported livestock deaths (due to drought)	Yes	No death
Crops area planted (%)	-	% of LTA
Access Indicators	Value	Normal ranges
Terms of Trade (ToT)	96.5	>100
Milk Consumption (Lt)	1.5	>1.6
Return Distance (Water Sources to households)	3.5	<3.3
Return Distance (water sources to grazing areas)	5.4	<4.8
Utilisation indicators	Value	Normal ranges
MUAC (Mid at risk)	0%	< 18
Coping Strategy Index (CSI)	3.50	<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

- In the month of September, the County received 3 to 5 days of rainfall largely across the Mixed Farming (MF) zones and some areas in the Marginal Mixed Farming (MMF) with majority of the days being characterised by heavy rainfall to moderate showers.
- The MMF zone reported 3 days of heavy rainfall and 2 days of moderate rainfall with poor to fair distribution, while the MF zone reported 4 days of heavy rainfall and 3 days of moderate rains with good distribution. The Pastoral zones recorded 2 days of heavy rainfall and 1 day of moderate rains with poor distribution.

1.2 Amount of Rainfall and Spatial Distribution

- For the month of September, the rains received amounted to 27.5 mm by, which is 69% of the long-term average of 27.5 mm by the same time, which is below the normal range expected for the period.
- Compared to the previous month by the same time (47.8 mm), the amount of rainfall received has recorded a significant decrease.
- The temporal distribution and the spatial distribution of the rains was fair to poor across the County.

2 IMPACT ON VEGETATION AND WATER

2.1 Vegetation Condition

2.1.1 Vegetation Condition Index (VCI)

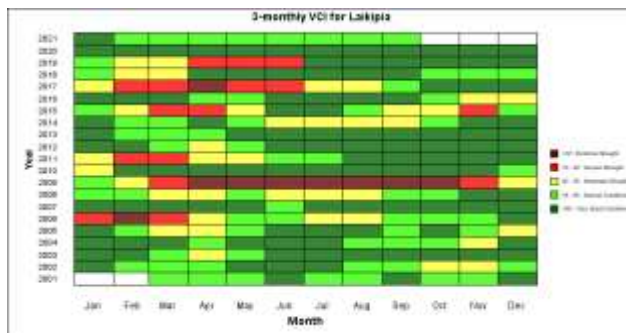


Figure 2: 3 Monthly VCI Matrix September 2021

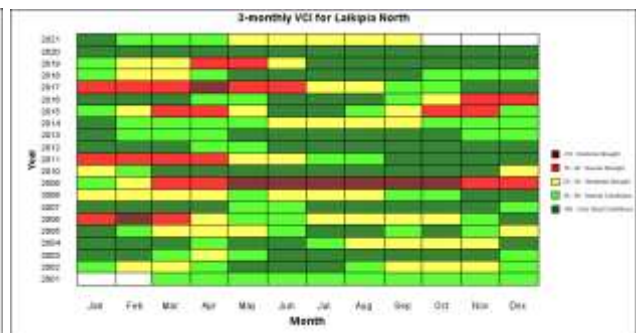


Figure 2.1: 3 Monthly VCI Matrix-Lkp North Sept 2021

Source - BOKU

- The VCI matrix above (left) indicates a normal vegetation condition for the whole County, same as the previous month. However, the VCI matrix (right) indicates a moderate drought vegetation condition in Laikipia North. This was evident in most Pastoral zones and MMF zones (especially in Mukogodo East, Mukogodo West, Segera and Tigithi wards), which is largely attributed to low precipitation levels and long sunny spells recorded in the zones.
- The actual VCI (3 month) at 40 indicated a slight improvement compared to the previous month (37.62) and was within the normal range for the month.
- Laikipia North Sub County recorded the lowest VCI at 31.25 (moderate), a slight increase compared to 30.25 (moderate) the previous month.
- Laikipia West Sub County recorded a significant improvement the highest VCI at 58.94 (above normal), a significant improvement compared to 43.93 (normal) the previous month.

2.1.2 Pasture

- Key informant interviews indicated that the pasture condition was poor (66.7%), fair (23.8%) and good (9.5%) as shown in the chart below.

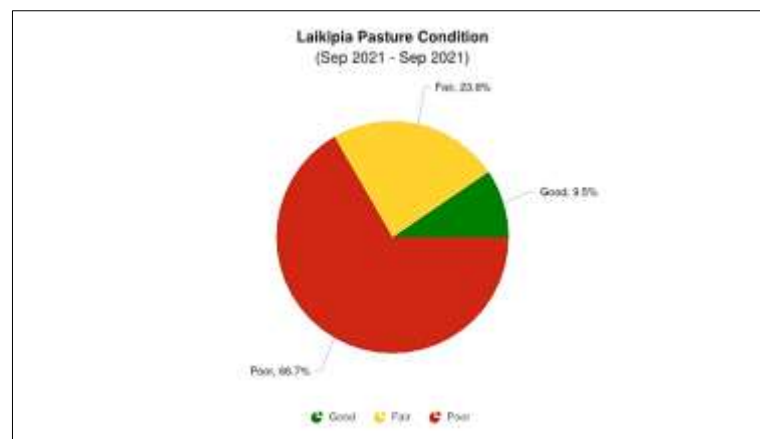


Figure 3: Pasture Condition September 2021

Source - KDEWS

- Compared to the previous month; poor (70.8%), fair (25%) and good (4.2%), the pasture condition largely remained the same but exhibited slight improvement (attributed to the good rains recorded in Laikipia West). From field observation, the pasture condition is poor in quality across most of the Pastoral zones and some MMF zones. The current trend is attributed to the below normal precipitation levels during MAM rains. However, Laikipia West has recorded showers good in the later part of July, August and September. This has fostered pasture regeneration and crop production. Laikipia North and East have also recorded some light showers in a few areas.

- The current general situation is below normal for this time of the year.
- The major constraint to pasture access was diminished pastures in most Pastoral and MMF zones.

2.1.3 Browse

- According to the key informants interviewed, the browse condition was fair (71.4%) and poor (28.6%) as shown in the chart below.

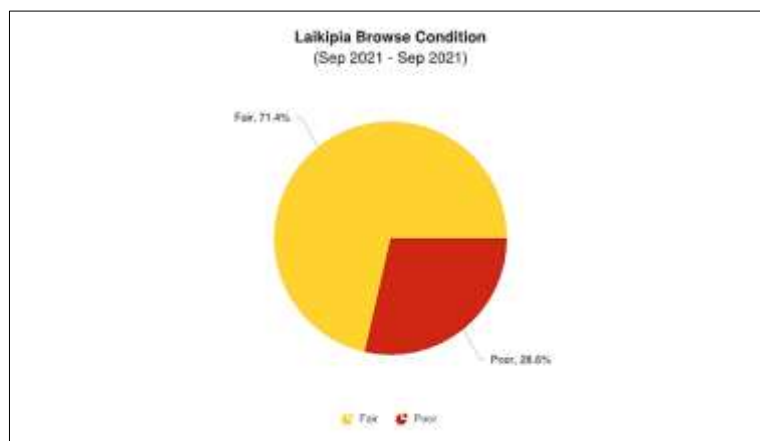


Figure 4: Browse Condition September 2021

Source - KDEWS

- Compared to the previous month: good (8.3%), fair (58.3%) and poor (33.3%), the browse condition is largely fair but has slightly declined in terms of quantity and quality.
- The major constraint to browse access was declining browse quality and quantity.

2.2 Water Resource

2.2.1 Sources

- The main water sources for the month under review for both domestic and livestock use in the County were pans and dams (26.5%), boreholes (28.6%), shallow wells (22.4%) and rivers (14.3%). Others were traditional river wells (8.2%), as shown in the chart below.

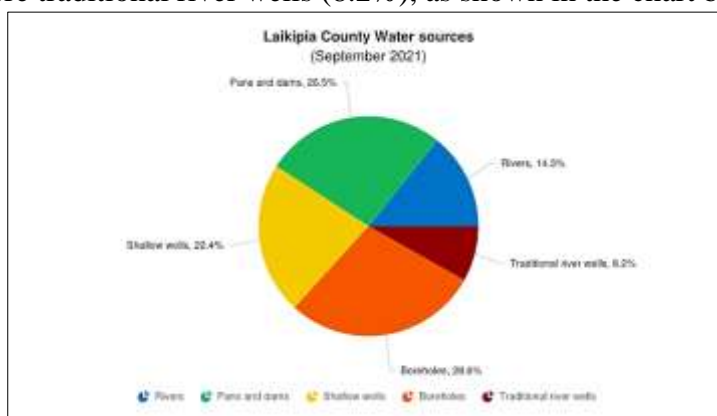


Figure 5: County Water Sources Sept 2021

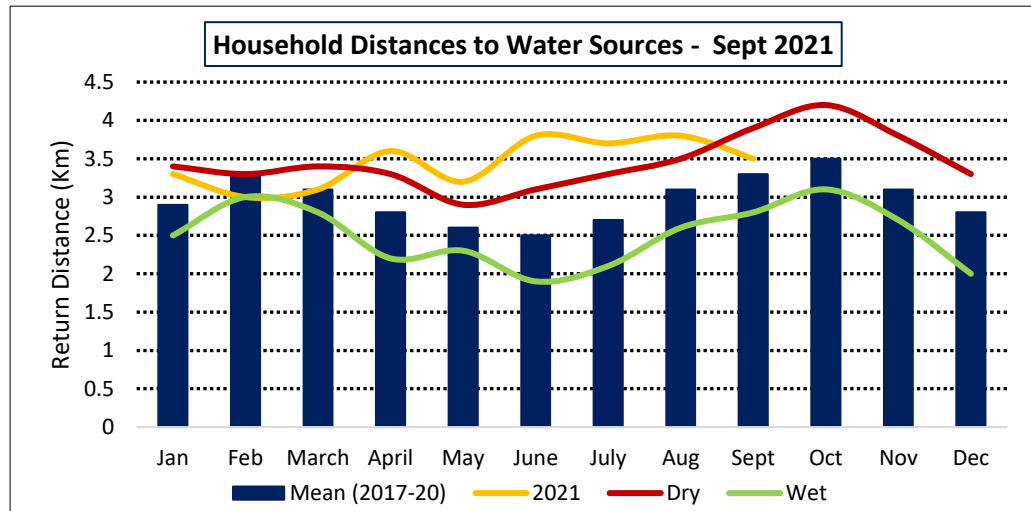
Source - KDEWS

- Compared to the previous month: pans and dams (26%), boreholes (28%), shallow wells (22%), rivers (16%) and traditional river wells (8%). The water quantity is relatively stable across the County except for some pockets already exhibiting water stress, especially in Laikipia North and East due to the prevailing hot and dry conditions. As a result, there was a slight shift towards sub-surface water sources. Water sources in Laikipia West are above normal for the period.
- The main water sources are expected to last as follows: - Pastoral (boreholes - permanent, seasonal rivers – 1 month, pans & dams – 1 month or less), MMF (borehole – permanent,

seasonal rivers – 2 months, pans & dams – 1 month), MF (shallow wells – 4 months, traditional river wells – 4 months, pans & dams – 4 months).

2.2.2 Household Access and Utilization

- The average return distances from households to water sources was 3.5 Km in September, a slight decrease compared to the previous month (at 3.8 Km). This trend can be attributed to the good rains recorded in Laikipia West and Nyandarua County. The MMF zone recorded the farthest return distance of 4.4 Km, down from 4.8 Km the previous month.



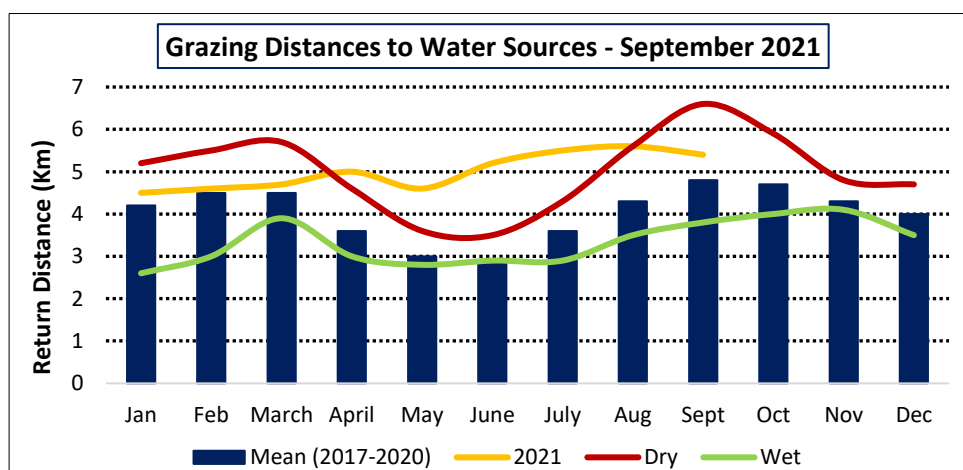
Graph 1: County Water Distances – September 2021

Source – KDEWS

- The current distances are above the long-term average for the period (by 6%).
- The current trend is attributed to the good rains recorded in Laikipia West as well as the prevailing hot conditions across the County compared to the previous month.
- The notable constraint to water access is above normal distances.

2.2.3 Livestock Access

- The average return distance from water sources to grazing areas was 5.4 km, a slight decrease compared to the previous month (5.6 km). The longest return distance of 6.4 km was recorded in the Pastoral zones, down from 6.8 Km the previous month.



Graph 2: County Water Distances to Grazing Areas – September 2021

Source – KDEWS

- The current distances were way above the long-term (at 4.8 Km) average for the month.
- The high grazing distance is attributed to the below normal pasture and browse condition across the County. The increase in grazing distance recorded in Laikipia North is as a result of the prevailing hot and dry conditions coupled with insecurity.

3 PRODUCTION INDICATORS

3.1 Livestock Production

3.1.1 Livestock Body Condition

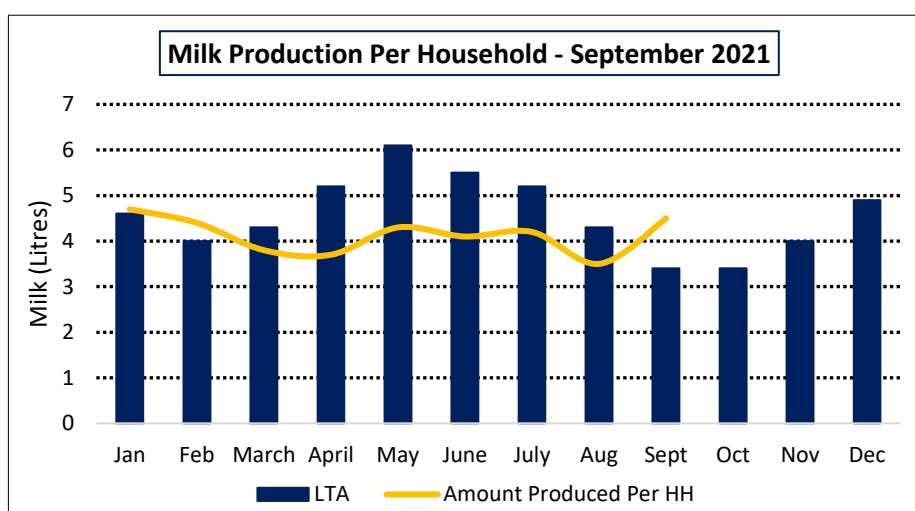
- During the month under review, the livestock body condition across the county was classified at level 3 (Borderline fore-ribs not visible. 12th & 13th ribs visible).
- Generally, the livestock body condition was fair for grazers but showing signs of stress (especially for some Pastoral and MMF zones) and fair for browsers across all livelihood zones.
- Compared to last month, the livestock body condition is more or less the same.
- Compared to same time last year, the body condition of livestock is below normal.

3.1.2 Livestock Diseases and Deaths

- No cases of livestock diseases was reported during the period under observation.

3.2 Milk Production

- The sampled households recorded an average milk production of 4.5 litres per household per day, a significant increase compared to the previous month at 3.5 litres. This is attributed to the good rains experienced in the August-September period in Laikipia West. This milk was largely obtained from cattle.



Graph 3: Milk Production per Household – September 2021

Source – KDEWS

- The milk production is above the average levels (> 3.4 litres per household) expected at this time of the year.

3.3 Rain-fed Crop Production

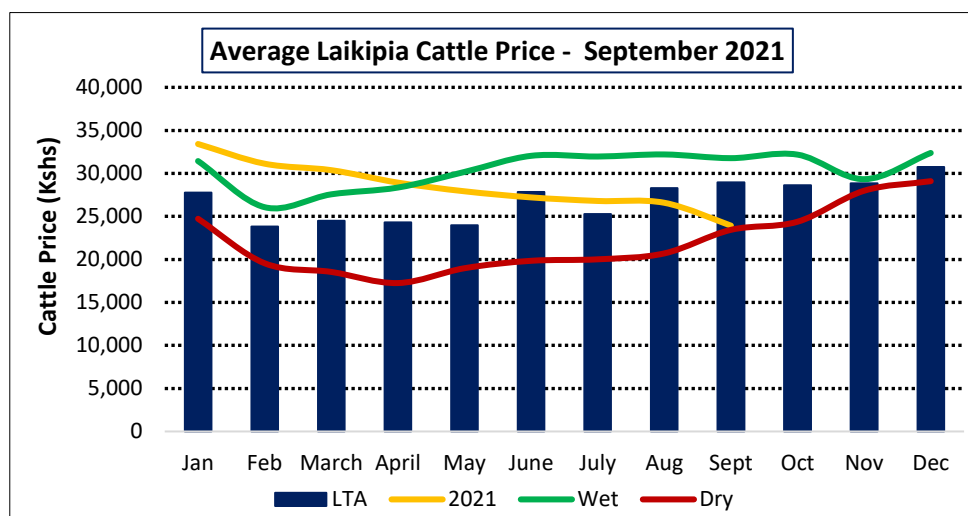
3.3.1 Stage and Condition of Food Crops

- In the MF zone, in most farms the crops are at the reproductive stage (flowering and filling) while in others second weeding is taking place. In the MMF areas crops are at the flowering stages depending on when planted whereas some farms the maize is at knee high where farmers planted late on the likelihood of good off season rains. In some other parts of MMF and MF zones some few farms are undertaking sowing of beans and potatoes. Due to the depressed MAM rains, crop yield is expected to be below normal for the period.
- Casual labour is available but daily wages have increased in some areas across the County.

4 MARKET PERFORMANCE

4.1 Livestock Marketing

4.1.1 Cattle Prices (Market)

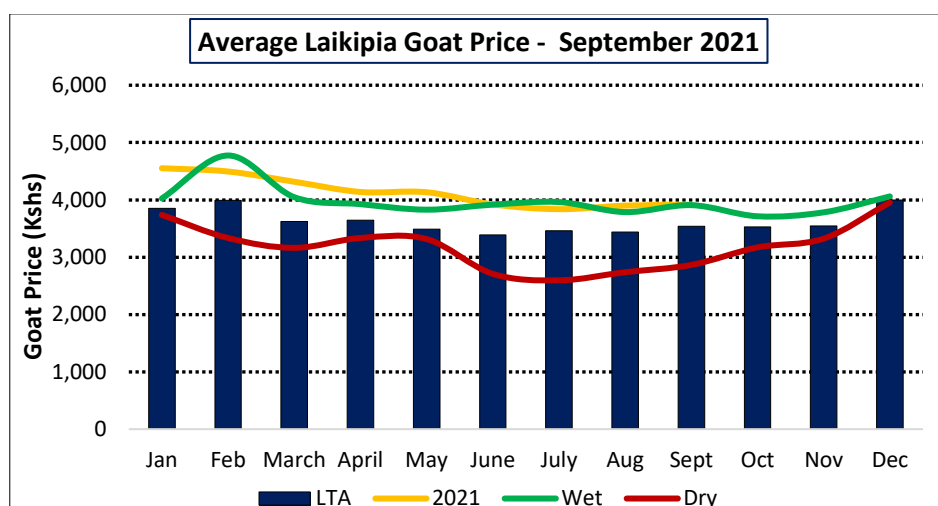


Graph 4: County Cattle Prices – September 2021

Source – KDEWS

- In September, the chart above indicates that the County recorded an average cattle price of Kshs. 23,925 at the markets, 10% lower compared to the previous month at Kshs. 26,583. The current price decrease was attributed to increased supply at the markets and the declining body condition. The prices are lower than the average expected for the period.
- The MMF zone recorded the highest average cattle price at Kshs. 28,750 (Sirima market).
- Compared to the long-term average, the current price is below what is expected for the month by approx. 21%.

4.1.2 Small Ruminants Prices (Goat)



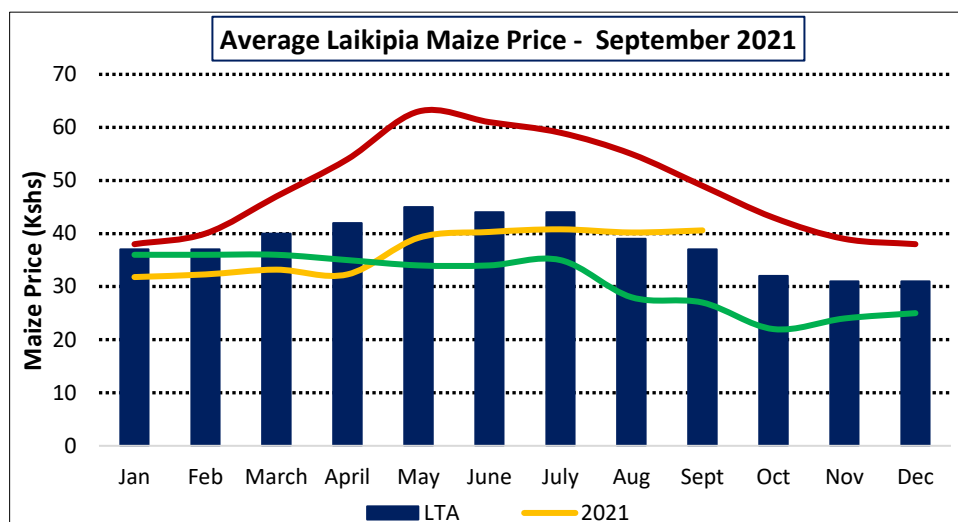
Graph 5: County Goat Prices – September 2021

Source – KDEWS

- During the month under review, the average price of a goat in Laikipia was recorded at Kshs. 3,915; a slight increase compared to the previous month at Kshs. 3,900. The above average goat price was attributed to renewed demand as markets stabilised but is reducing because of increase of supply at the markets.
- The highest average goat price was recorded in the MF zone at Kshs. 6,000.
- Compared to the long-term average, the current goat price was higher by 11% hence above the normal range for the period.

4.2 Crop Prices

4.2.1 Maize (market price)

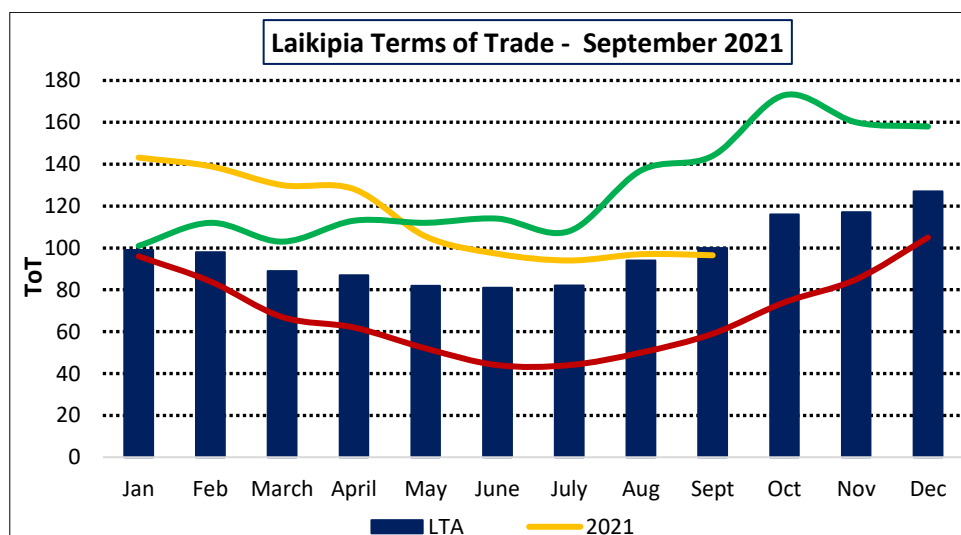


Graph 6: County Maize Prices – September 2021

Source - KDEWS

- The average maize price of Kshs. 40.6 per Kg was recorded at the markets as shown above, more or less same compared to the previous month (at Ksh.40.2). The stable market price was attributed to the readily available stock at the markets and piece meal harvests in some zones. Some of the maize sold at local markets is obtained from neighbouring countries. More households are purchasing cereals at the shops.
- The highest average market price of maize at Kshs.45 per Kg was recorded at Sirima and Matanya markets (MMF) whereas the lowest at Kshs. 30 was recorded at Timau market (MMF).
- Compared to the long term average (LTA), the current price is slightly higher (by approx. 10%).

4.3 Livestock Price Ratio/Terms of Trade



Graph 7: Terms of Trade (Goat/ Maize) – September 2021

Source – KDEWS

- As per the graph above, the September average price of a goat at Kshs. 3,915 was able to purchase 96.5 Kg of maize, same compared to the previous month (at 97 Kg).
- The current trend in the ToT (Terms of Trade) can be attributed to the stable maize and goat price at the markets. Compared to the long term average, the ToT were still in favour of livestock keepers.

- When compared to the three-year average, the ToT is slightly below the normal range (by 3%) for the period.

4.4 Implication on Food Security

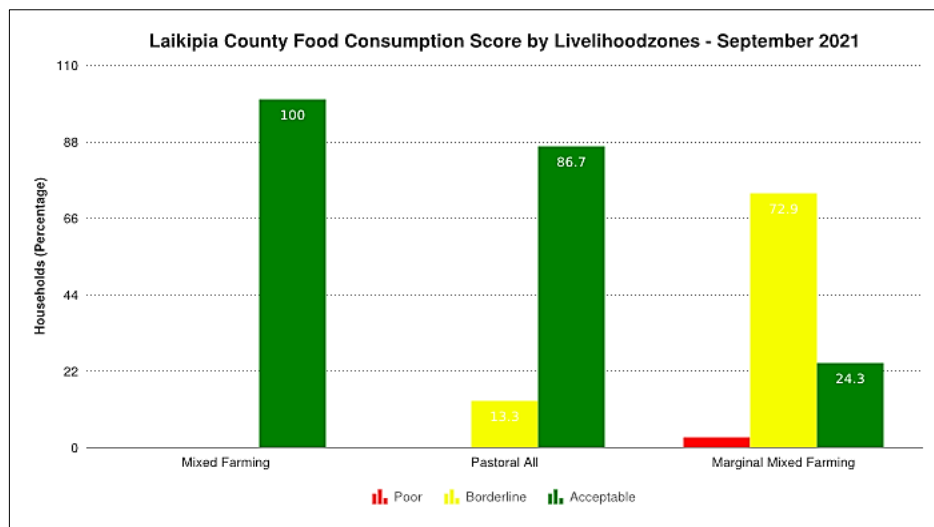
- The prevailing hot and dry conditions in Laikipia North (Pastoral) and parts of Laikipia East (MMF) coupled with the effects of below normal MAM rains had led to long distances to water sources compared to normal, below normal water levels in water sources, below normal pasture and browse condition and the underperformance of crops. However, the areas received minimal off-season rains recorded in August and September, which led to a slight improvement in distance to water sources. Areas in Laikipia West, which have received good rains, have seen significant improvement of crop condition and pasture, browse, and most of the indicators for the Mixed Farming zone are above normal.
- The pasture condition in Laikipia North and parts of Laikipia East is way below normal and deteriorating. The body condition of the small stock can still be deemed as fair to good but for large stock (cattle) it is on the decline (fair to poor). Livestock productivity is low compared to the expected levels for the period.

5 FOOD CONSUMPTION AND NUTRITION STATUS

5.1 Milk Consumption

- During the month under review, the sampled households recorded an average milk consumption of 1.5 litre per day, a slight increase compared to the previous month (1.3 litres), with most of the milk coming from cattle.
- The milk consumption level is slightly below the normal (>1.6 litres) expected at this time of the year.
- For the MMF and MF zones, the larger percentage of the milk produced (70% and 78% 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



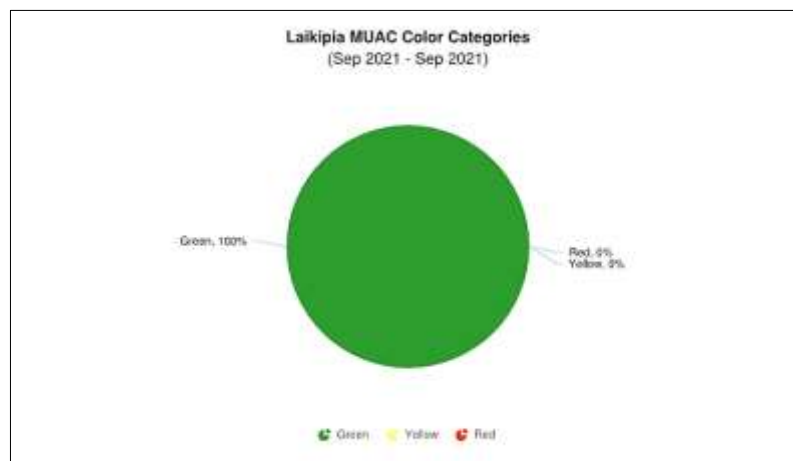
Graph 8: Food Consumption Score for September 2021

Source - KDEWS

- The graph above indicates that 100% of the sampled households in the Mixed Farming livelihood zone recorded an acceptable food score, same compared to the previous month. The Pastoral zone recorded an acceptable food score of 86.7% (91.7% the previous month) and a borderline food score of 13.3% (8.3% the previous month) hence indicating a slight decrease in dietary diversity.
- 24.3% of the households in the Marginal Mixed Farming (MMF) zone had an acceptable score, 72.9% had a borderline score and 2.8% poor food score. This is a slight improvement on the acceptable score (compared to last month's 46.7% acceptable, 48.9% borderline and 4.4% poor), indicating a few areas in the MMF zone with declining dietary diversity.
- According to the above data, the Pastoral and MMF zones have recorded a slight decline in terms of the household dietary diversity. MF zones remain food secure. The MMF has 2.8% poor dietary score that needs to be addressed.

5.3 Health and Nutrition Status

5.3.1 Nutrition Status



Graph 9: Percentage of Children at Risk of Malnutrition for September 2021

Source - KDEWS

- For the households under review, the percentage of children under-five years of age who are at risk of malnutrition was 0%, slightly lower compared to the previous month at 0.3 %. The prevailing low percentage can be attributed to the generally acceptable food availability and dietary diversity across the county. However, there are pockets of poor food dietary diversity in Pastoral and MMF zones that need to be addressed.
- There were no reported cases falling under SAM and MAM for the current month.

5.3.2 Health

- The County is still on alert for COVID-19 and isolation centres are functional.
- There were no reported major human diseases apart from reported cases of URTIs i.e. common cold, flu and fever affecting both adults and children across the sentinel sites during the period under review.

5.4 Consumption based coping strategies

- The most common types of the strategies employed were borrowing and purchasing food on credit and relying on well off relatives.

6 CURRENT INTERVENTION MEASURES (ACTION)

6.1 Non-Food Interventions

- No Non Food Interventions were reported during the period under review.

6.2 Food Aid

- No Food aid interventions were reported during the period under review.

7 EMERGING ISSUES

7.1 Insecurity/Conflict/Human Displacement/ Pests and Diseases

- The invasion of private farms and ranches by bandits in Laikipia North and West was reported. Security operations to flush out the attackers are ongoing.
- Human wildlife conflict cases were reported at Tiamamut in Kimanjo (Pastoral Zone in Mukodogo West Ward), whereby a man was killed by an Elephant while looking after his livestock.
- Cases of Wildlife animals (Elephants, Zebra and Elands) destroying crops in farms at Kijabe, Githira areas (MMF Zone) in Ngobit Ward and Magadi (MMF Zone) in Sosian Ward have been reported during the period under review.

7.2 Migration

- Migration of livestock from Pastoral areas and neighbouring Counties to Mt. Kenya Forest, private farms in some parts of MMF zones near pastoral areas and neighbouring ranches has been reported across the pastoral zone in search of pasture.

Food Security Prognosis

- The prevailing hot and dry conditions in Laikipia North (Pastoral) and parts of Laikipia East (MMF) coupled with the effects of below normal MAM rains had led to long distances to water sources compared to normal, below normal water levels in water sources, below normal pasture and browse condition and the underperformance of crops. However, the areas received minimal off-season rains recorded in August and September, which led to a slight improvement in distance to water sources. Areas in Laikipia West, which have received good rains, have seen significant improvement of crop condition and pasture, browse, and most of the indicators for the Mixed Farming zone are above normal.
- The pasture condition in Laikipia North and parts of Laikipia East is way below normal and deteriorating. The body condition of the small stock can still be deemed as fair to good but for large stock (cattle) it is on the decline (fair to poor). Livestock productivity is low in the affected areas compared to the expected levels for the period. Cases of conflict and insecurity due to the rise in farm and ranch invasions by herders are on the rise.
- The current moderate drought situation as a result of the underperformance of the MAM rains and the subsequent minimal off season rains, coupled with the reduced economic activity occasioned by the effects of the Covid-19 pandemic is a threat to food security in the present and the near future.

8 RECOMMENDATIONS

- Roll out the response plan for planned drought mitigation interventions. **Action; NDMA, CSG.**
- Implement measures/ interventions geared towards mitigating conflict now and in future. **Action: County Government, County Commissioner (Interior), KWS and Other stakeholders**
- Enhance animal disease surveillance along the stock migratory routes as migration cases increase. **Action: County Govt. – Livestock, relevant stakeholders.**
- Implement projects geared towards enhancing community resilience and building new livelihoods, especially in consideration of the ongoing Covid-19 pandemic. **Action: County Govt. and relevant stakeholders**
- Advise communities on sanitation, hygiene and social distancing in order to mitigate the effects of the covid-19 pandemic. **Action: County Govt. (Health and Water).**

REFERENCES

MMF – Marginal Mixed Farming Zone

MF – Mixed Farming Zone

Pastoral Zone

MAM – March, April and May rains

OND – October, November and December rains

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	Meteorological 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 follows:

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.