

**National Drought Management Authority**  
(Nyeri) COUNTY  
**DROUGHT EARLY WARNING BULLETIN FOR APRIL 2018**



A Vision 2030 Flagship Project



**April 2018 EW PHASE**



**Early Warning (EW) Phase Classification**

Livelihood Zone	Phase	Trend
Mixed Farming	Normal	stable
Agro pastoral	Normal	stable
County	Normal	stable
Biophysical Indicators	Value	Normal Range/Value
Rainfall (% of Normal)	224.6 %	80-120
VCI-3Month	53.26	35-50
Forage condition	Good	Fair
Production indicators	Value	Normal
Crop Condition (specify crop)	Fair	good
Livestock Body Condition	good	Fair
Milk Production	5.8 litres	4.6 litres
Livestock Migration Pattern	no migration	Normal
Access Indicators	Value	Normal
Terms of Trade (ToT)	110	92.4
Milk Consumption	1.6	1.5
Return distance to water sources		
Utilization indicators	Value	Normal
Nutrition Status, MUAC (% at risk of malnutrition)	0	1.4
Coping Strategy Index (CSI)	3.91	<5.0

**Drought Situation & EW Phase Classification**

**Biophysical Indicators**

- The month of April experience above normal rainfall. The rainfall was heavy in space and time across all livelihood zones.
- The vegetation greenness was above normal in all the livelihood zones.
- Rivers were recharged to above normal flows while water holding structures are at full capacity.

**Socio Economic Indicators (Impact Indicators)**

**Production Indicators**

- Crops are at knee height for maize and flowering stage for beans and potatoes.
- Livestock body condition was good for all species.
- Milk production was slightly above normal threshold.
- No livestock in or out migration was reported.

**Access indicators**

- Terms of trade were favourable for livestock keepers.
- Milk consumption was slightly above normal ranges.
- Distances to water sources were below the long-term averages.

**Utilization Indicators**

- Children at risk of malnutrition were at zero percent.
- Coping strategies of 3.91 was report which was within normal range.

**Seasonal Calendar**

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

## 1.0 CLIMATIC CONDITIONS

### 1.1 RAINFALL PERFORMANCE

- The MAM rainfall continued into the month of April. Above normal rainfall continued being realised as compared to the normal. The precipitation has been heavy in both space and time across all livelihood zones.
- In the first, second and third dekad, amount of rainfall recorded was 141.3 mm, 201.9 mm and 137.1 mm compared to the long-term averages of 67.2 mm, 65.8 mm and 80.8 mm respectively. The amount of precipitation received accounted for 224.6 percent of normal rains.

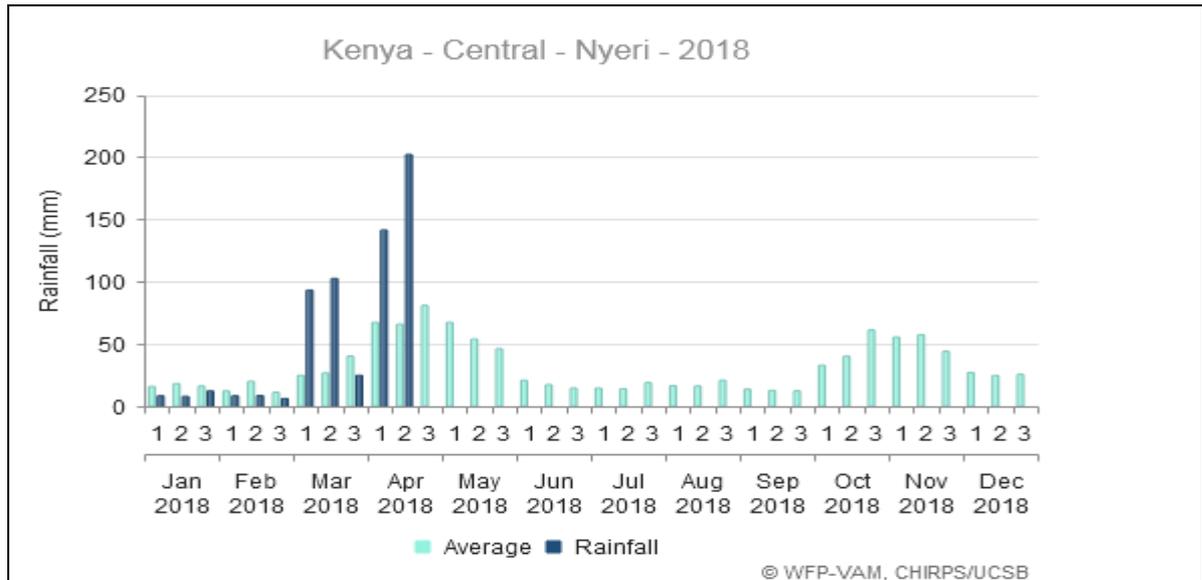


Figure 1: Presentation of the rainfall performance for April 2018

### 1.2 AMOUNT OF RAINFALL AND SPATIAL DISTRIBUTION

- All the livelihoods across Kiambu sub counties received rainfall for an average of 17 days. The volumes were high leading to water logging on flat lands, erosion on sloped crop lands and flooding in the valleys.

## 2.0 IMPACTS ON VEGETATION AND WATER

### 2.1 VEGETATION CONDITION

#### 2.1.1 Vegetation Condition Index (VCI)

- The vegetation conditions have improved from 39.91 in March to 53.26 in April as a result of the ongoing precipitation. The three Months' VCI was within normal vegetation greenness as shown in figure 2 (a) and 2 (b).

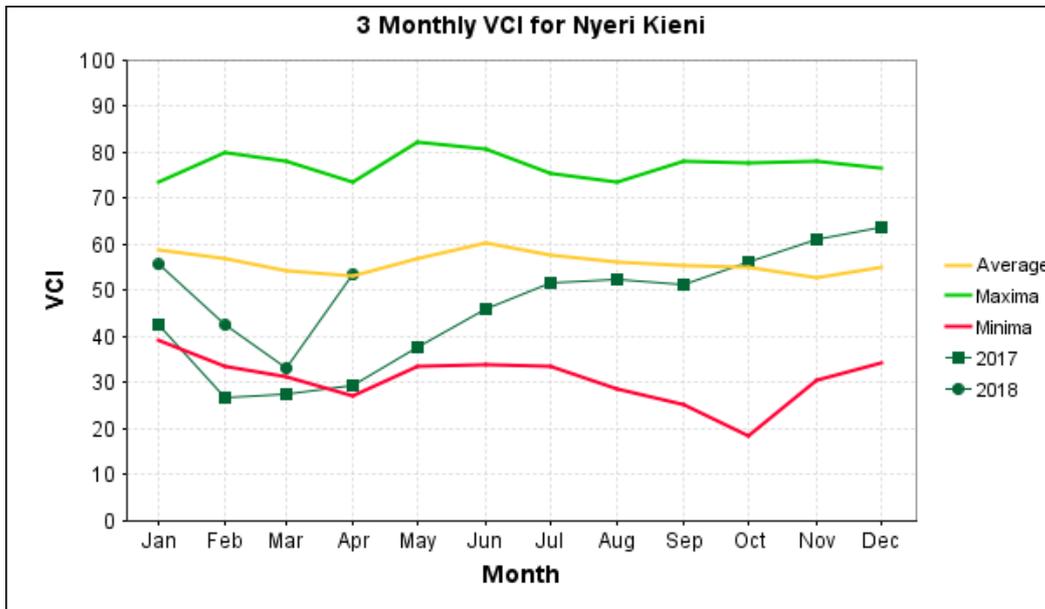


Figure 2(a): Vegetation Condition Index (VCI)-January 2018

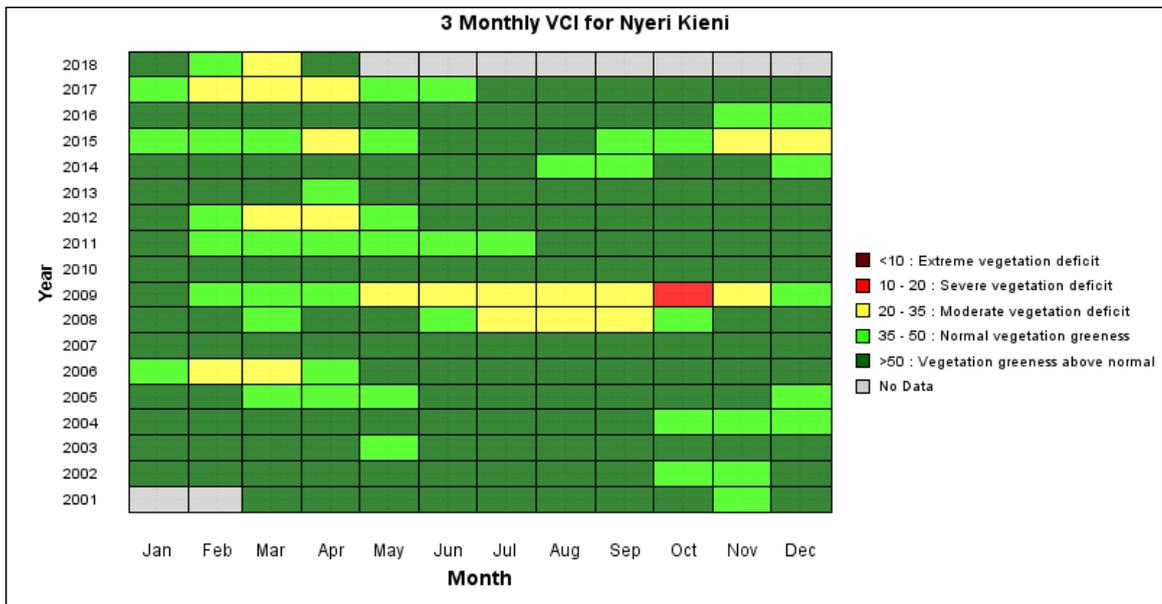
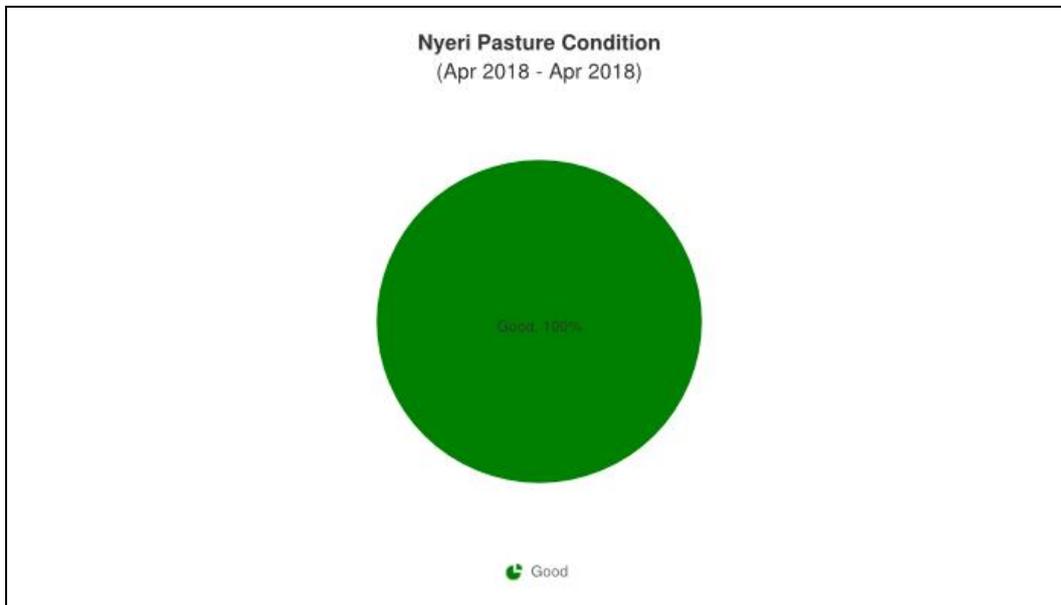


Figure 2(b): 3 monthly VCI for Nyeri County.

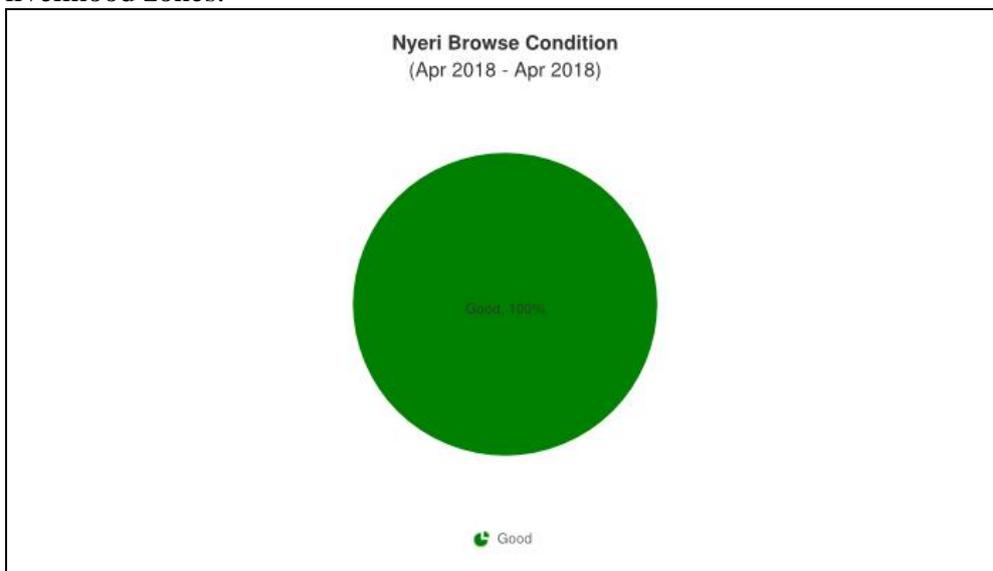
### 2.1.2 Pasture

- Pasture regeneration was noted across all livelihood zones, pasture conditions improved from fair to good as a result of the continuous rainfall though it has been heavy.
- During our monthly monitoring, a remarkable improvement was noted in pasture from 100 percent fair to 100 percent good across all livelihood zones. This was noted through the improvement of livestock body condition which was good smooth appearance.
- Available pasture is expected to last for 3 months in both mixed farming and agro pastoral livelihood zones. Compared to a normal year the current situation was normal.



### 2.1.3 Browse

- Browse conditions from all samples registered an improvement from 75 percent good and 25 percent fair conditions to 100 percent good which was within normal thresholds. This was a drastic improvement compared to conditions witnessed last month. The improvement can be attributed to the heavy precipitation received in April.
- Available browse is expected to last for four months in both mixed farming and agro pastoral livelihood zones.



## 2.2 WATER RESOURCE

### 2.2.1 Sources

- Majority of the homes in Kieni have piped water which they use for domestic and minor irrigation. Main water sources are Pans and dams at 47.8 percent, rivers at 47.8 percent and traditional river wells at 4.3 percent. The mentioned open sources usually used in support of minor irrigation and livestock use are currently not in use.
- Access to water has improved due to recharge of water sources registering impressive flow and volumes in rivers and surface holding structures.
- Rivers are flowing at the maximum base level while open water sources are full to capacity.

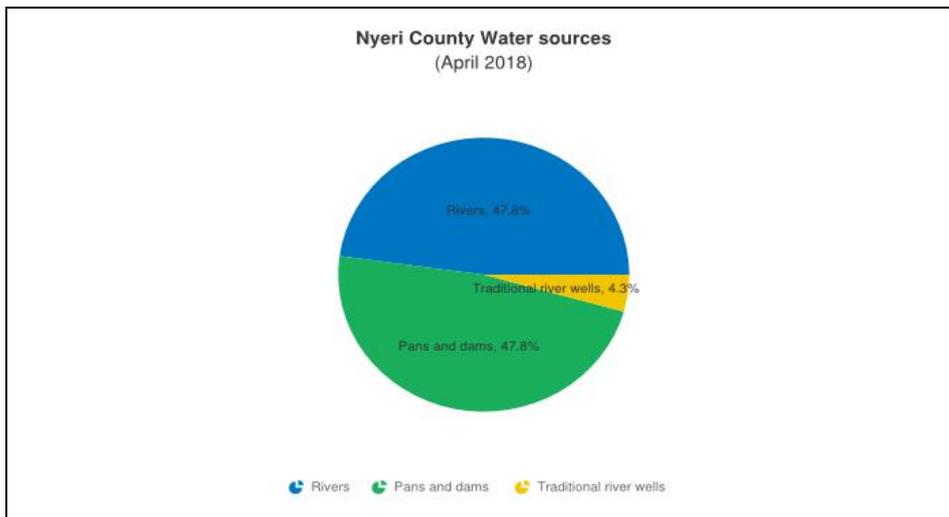


Figure 3: Nyeri county water sources

### 2.2.2 Household access and Utilization

- Distance from the household to water source have significantly reduced by 12.5 percent from 0.8 in March to 0.7 in April. Drop in distances can be attributed to improved flows and volumes in rivers and surface holding structures. Compared to the 2013-2017 mean averages of 1.6 Km, distances covered in April were lower by 56.3 percent as indicated in figure 4.

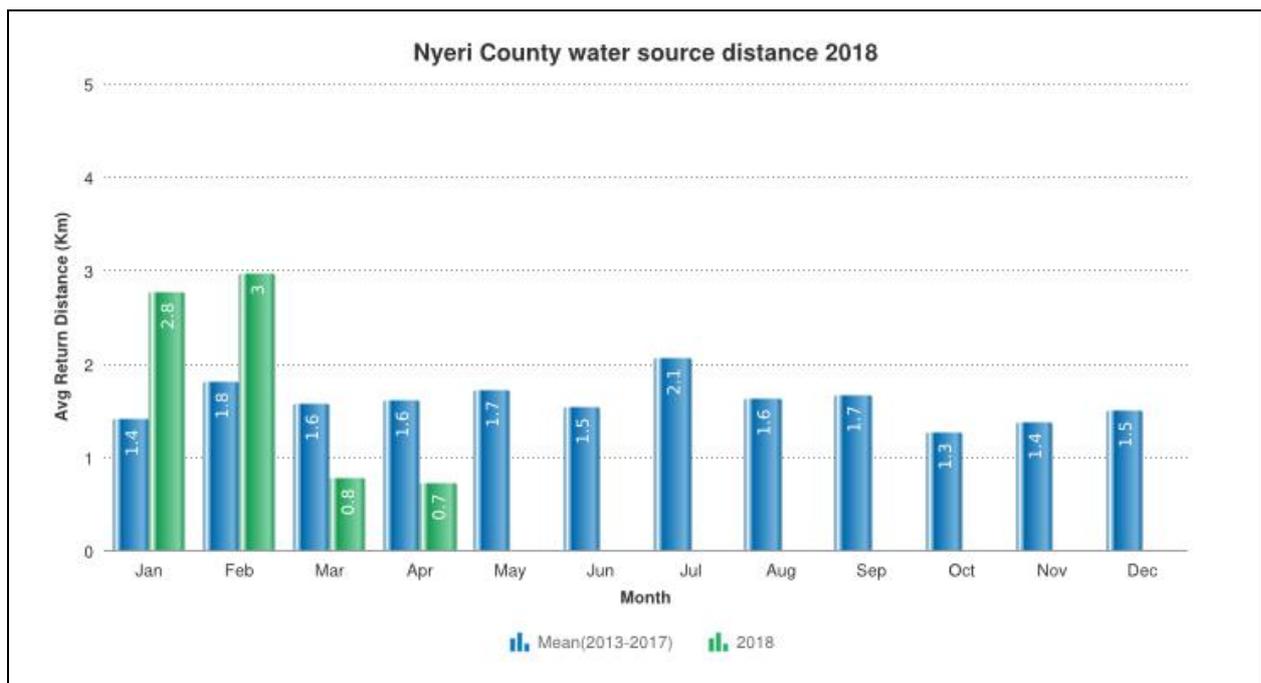


Figure 4: presentation of average return distances to water

### 2.2.3 Livestock access

- Average distances from grazing field to watering points have reduced by half from 1.4 Km in March to 0.7 Km in April. Reduced trekking distances were as a result of recharge of various water sources. Reported distances were lower by 70.8 percent as compared to 2013-2017 mean average of 2.4 Km as indicated in figure 5.

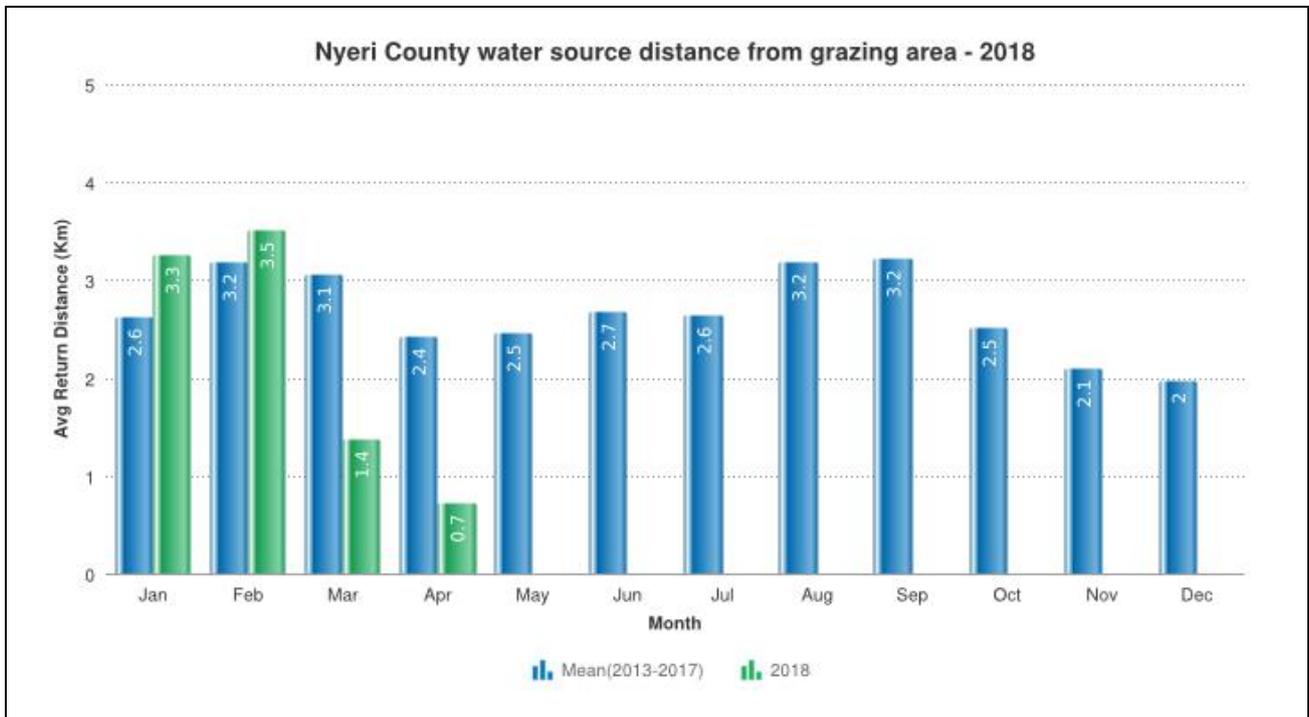


Figure 5: presentation of average grazing distances to water

### 3.0 PRODUCTION INDICATORS

#### 3.1 LIVESTOCK PRODUCTION

##### 3.1.1 Livestock Body Condition

- Livestock body conditions have improved from fair to good for all species across the livelihood zones. Current body condition is satisfactory with smooth appearance.
- This can be attributed to available and adequate pastures and browse, improved access to water sources thus reducing trekking distances. Compared to similar period normally, current body conditions are good.

##### 3.1.2 Livestock Diseases

- No livestock diseases were reported during the period under review.

##### 3.1.3 Milk Production

- Milk production registered some improvement during the month in review .These improvement was occasioned by sufficient pasture i availability and readily accessible water for watering.
- Milk production has increased by 26.1 percent from 4.6 litres in March to 5.8 litres in April.
- Compared to the 2013-2017 mean averages of 4.7 litres the month’s production was higher by 23.4 percent as indicated in figure 6.

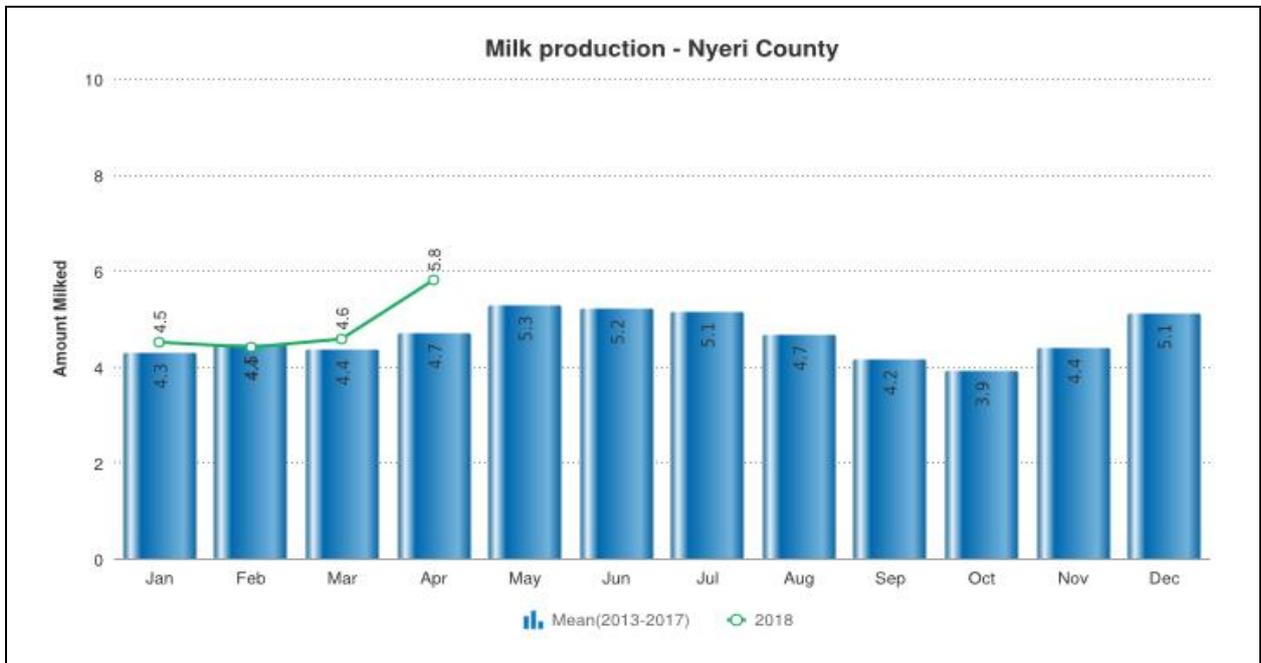


Figure 6: Presentation of average milk production for the region

### 3.2 RAIN-FED CROP PRODUCTION

#### 3.2.1 Stage and Condition of food Crops

- Different crops are at different stages of growth. For example, maize is at knee height while beans and potatoes are at flowering stage.
- Current ongoing farm activities are first weeding. However, ongoing heavy rains continue hampered the activity due to soggy and muddy field. A few farmers are practising conservation agriculture.
- The continuous heavy precipitation has caused water logging in flat croplands this has caused nitrogen leaching and potatoes have started rotting.
- Fall Armyworm infestations continue causing havoc to crops although County Government is still undertaking its disease surveillance routine.

### 4.0 MARKET PERFORMANCE

#### 4.1 LIVESTOCK MARKETING

##### 4.1.1 Cattle Prices

- Cattle prices increment can be attributed to improved body conditions.
- Mature cattle sold at Ksh 23,000 in April as compared to Ksh 21,500 in March which was 6.5 percent higher. Compared to the 2015-2017 mean averages of Ksh 27,000, reported prices were lower by 14.8 percent as indicated in figure 7.

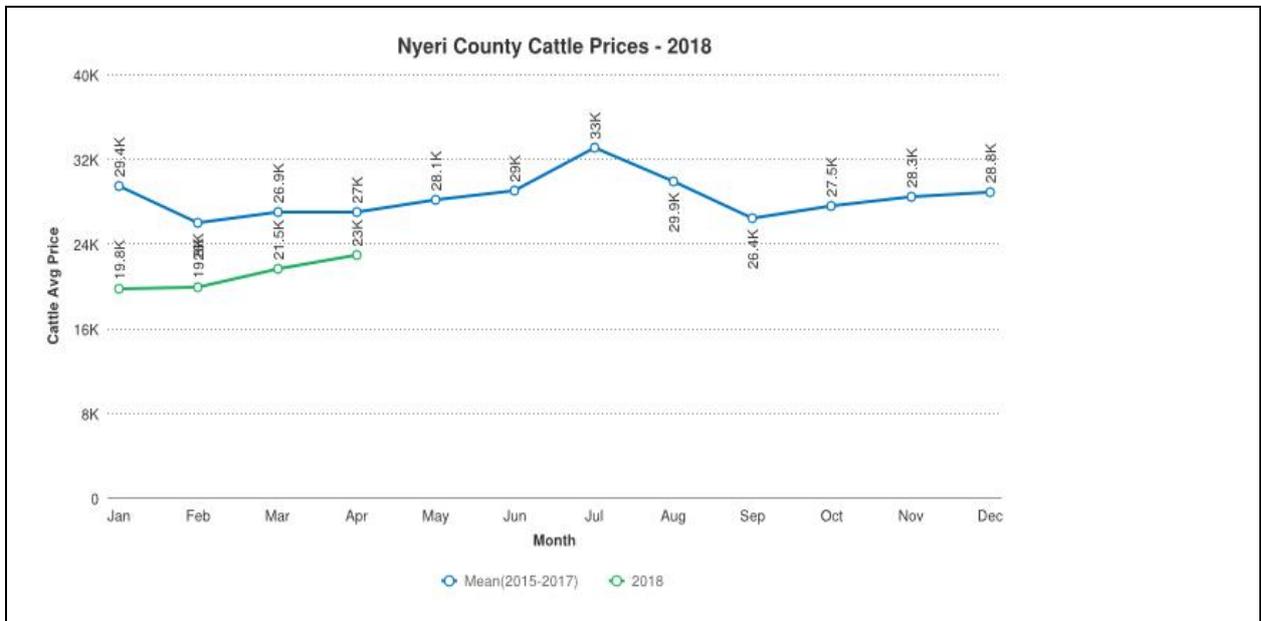


Figure 7: Presentation of average cattle prices

#### 4.1.2 Sheep prices

- Sheep prices also increased by 12.8 percent to retail for Ksh 4,400 in April from Ksh 3,900 in March. Compared to the 2015-2017 mean averages of Ksh 3,800 reported prices were higher by 15.8 percent as indicated in figure 8.

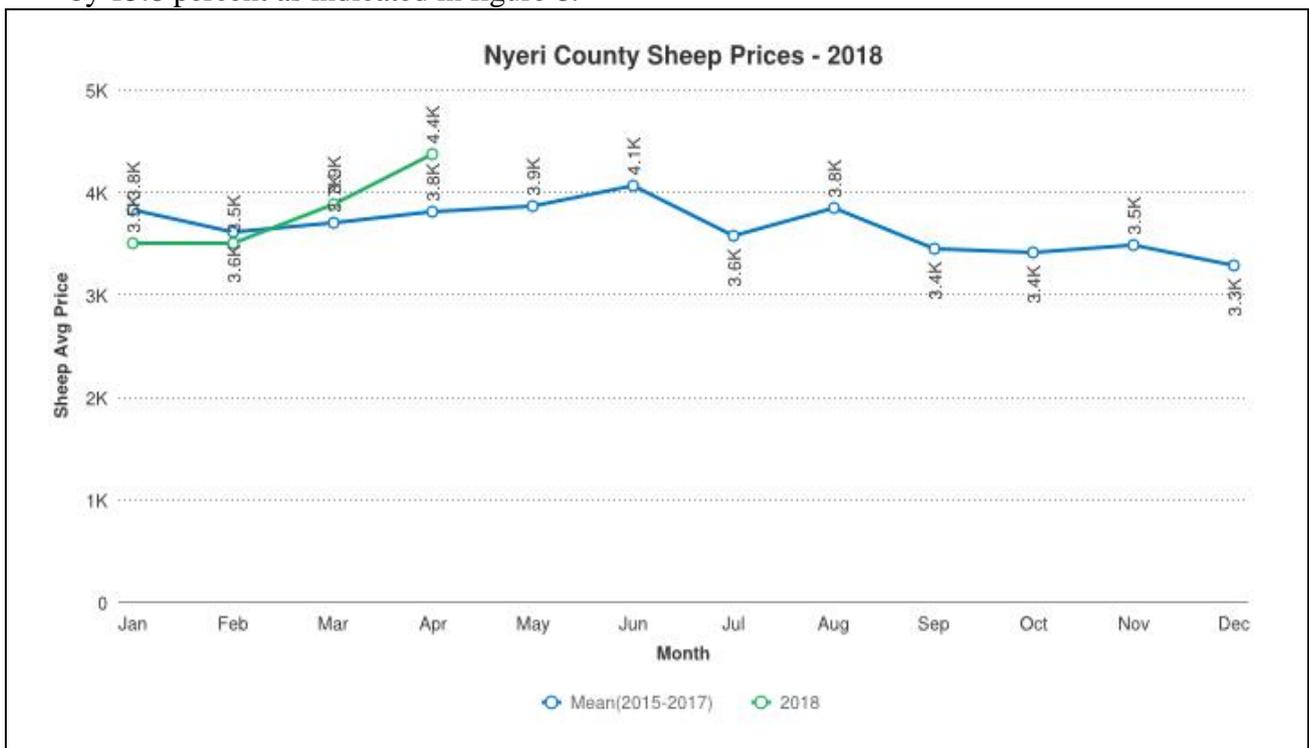


Figure 8: Presentation of average sheep prices

## 4.2 CROP PRICES

### 4.2.1 Maize

- Supplies from Laikipia West and Rift valley into the market have pushed maize prices downward.
- A reduction in maize prices of 6.4 percent from Ksh 43.8 in March to Ksh 41 April was

registered. Compared to the 2015-2017 mean averages of Ksh 41, the month's price was within normal range.

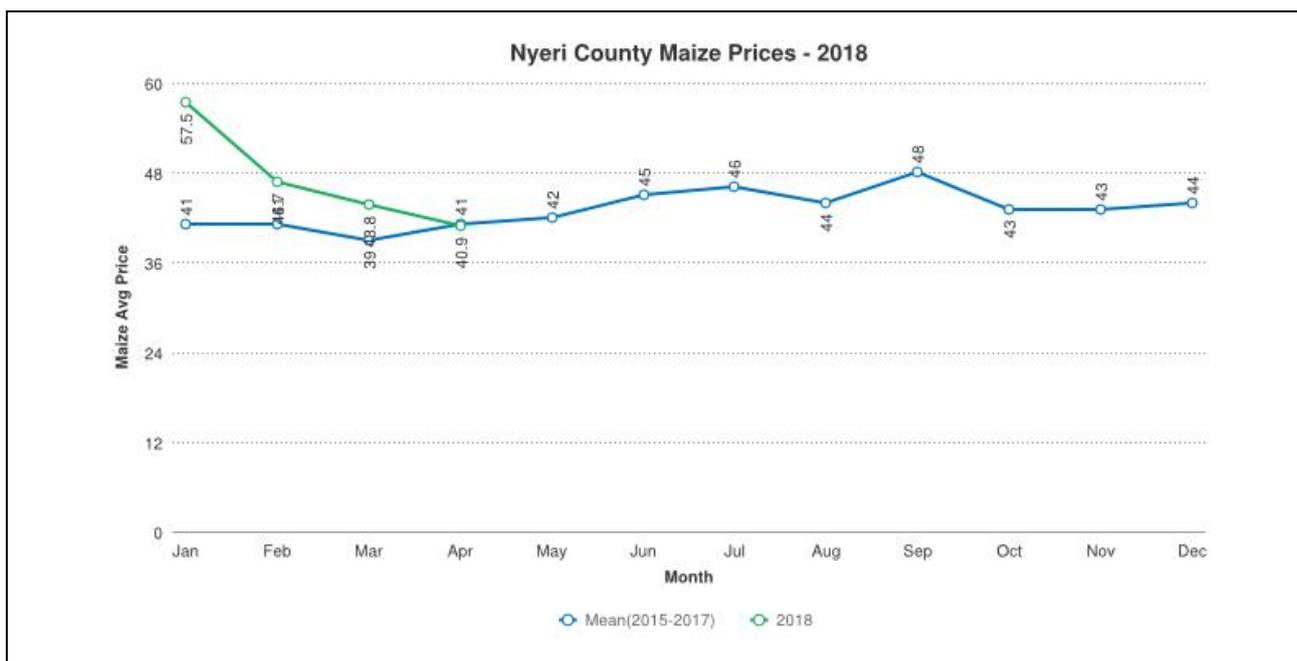


Figure 9: Outlines average price trends for maize

### 4.2.3 Beans

- Beans prices equally reduced by 5.6 percent from Ksh 85.8 in March to Ksh 81 in April. Stability in prices could be attributed to realised beans harvest along the forests and Laikipia West sub counties. Compared to the 2015-2017 mean averages of Ksh 87.5 the month's price was lower by 7.4 percent as shown in figure 10 below.

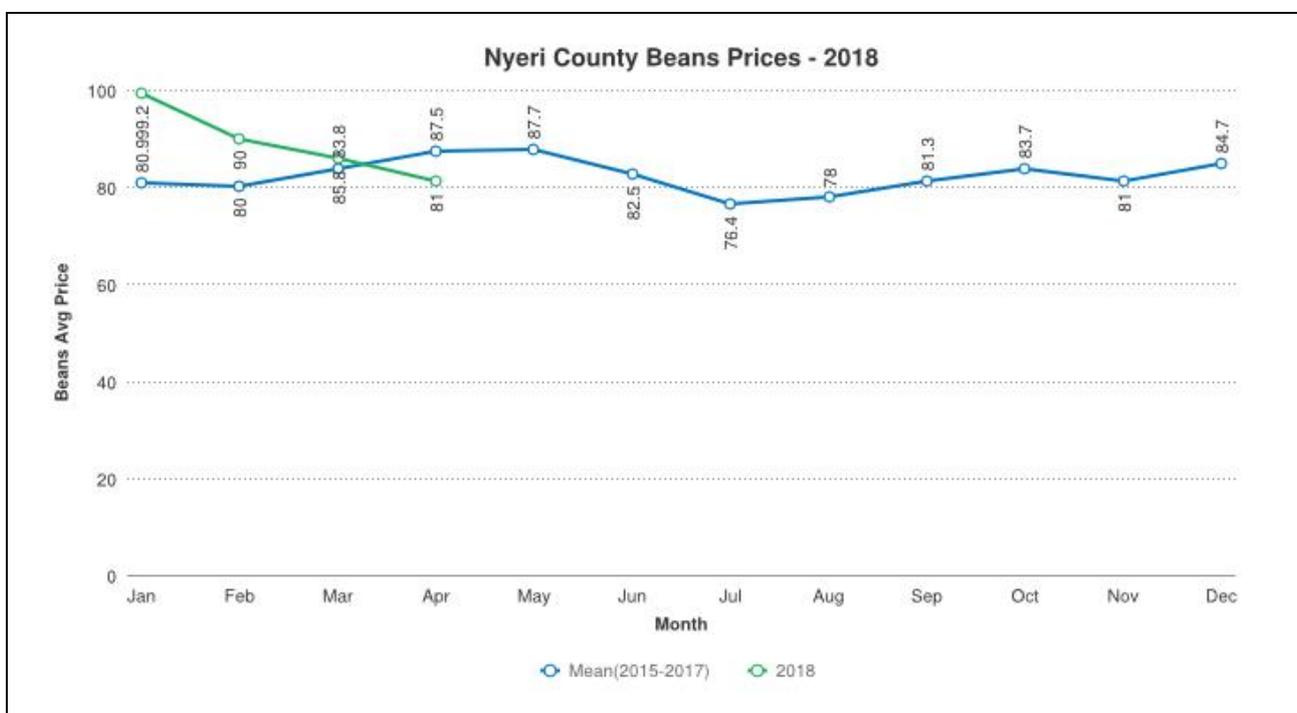


Figure 10: Outlines average price trends for beans

### 4.3 Livestock Price Ratio/Terms of Trade

- Terms of trade ratio increased by 20.4 percent from 91.4 in March to 110. This is attributed to

increased prices of livestock, stable food prices and varies of food commodities in the market thus giving household purchasing power.

- Kieni west had lower term of trade at 100 compared to Kieni East which was at 125.
- Compared to the 2015-2017 mean averages of 92.4 current TOR was higher by 19 percent.

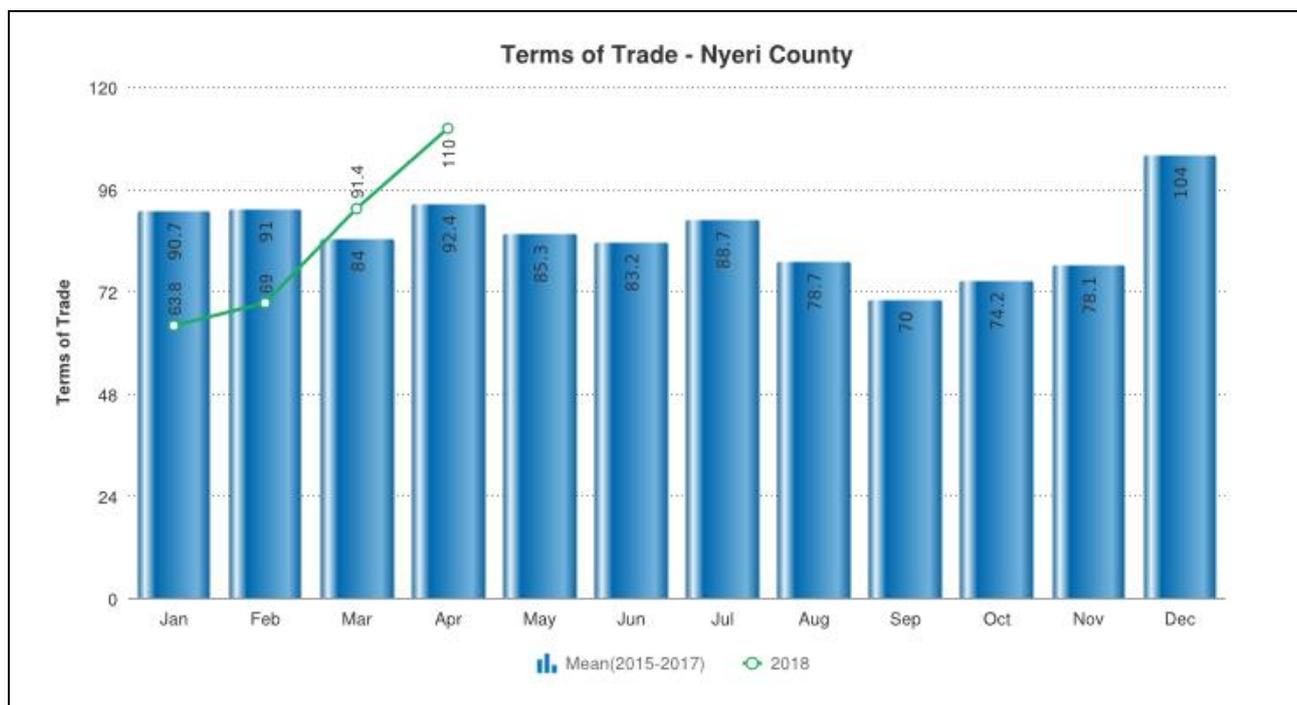


Figure 10: Outlines terms of trade

## 5.0 FOOD CONSUMPTION AND NUTRITION STATUS

### 5.1 MILK CONSUMPTION

- With increased milk production, households had more milk thus milk consumption at household level increased by 6.7 percent from 1.5 litres in March to 1.6 litres in April.
- Milk consumption in Kieni East was at 1.9 litres which was higher compared to Kieni West at 1.4 litres.
- Compared to the 2013-2015 short term average of 1.5 litres the month's consumption was above normal averages by 6.7 percent as shown in figure 11 below.

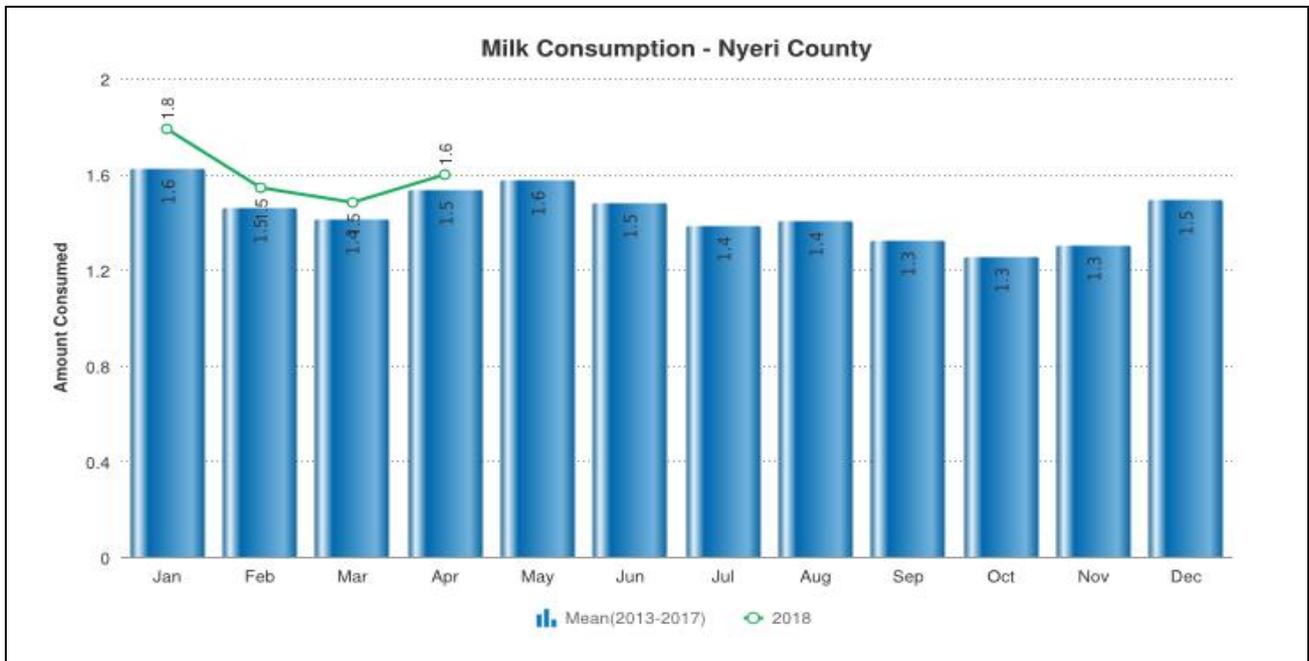


Figure 11: Outlines milk consumption for the county

## 5.2 FOOD CONSUMPTION SCORE

- Food consumption scores have improved compared to the previous month. The proportion of households with poor, borderline and acceptable food consumption score in the sampled population were nil percent, 33.3 percent and 66.67 percent respectively.
- Kieni West had a better consumption score at 95 percent acceptable and 5 percent borderline compare to Kieni East at 38.3 percent acceptable and 61.7 percent borderline. This is an indication that households in Kieni West had a higher dietary diversity and consumption frequency.

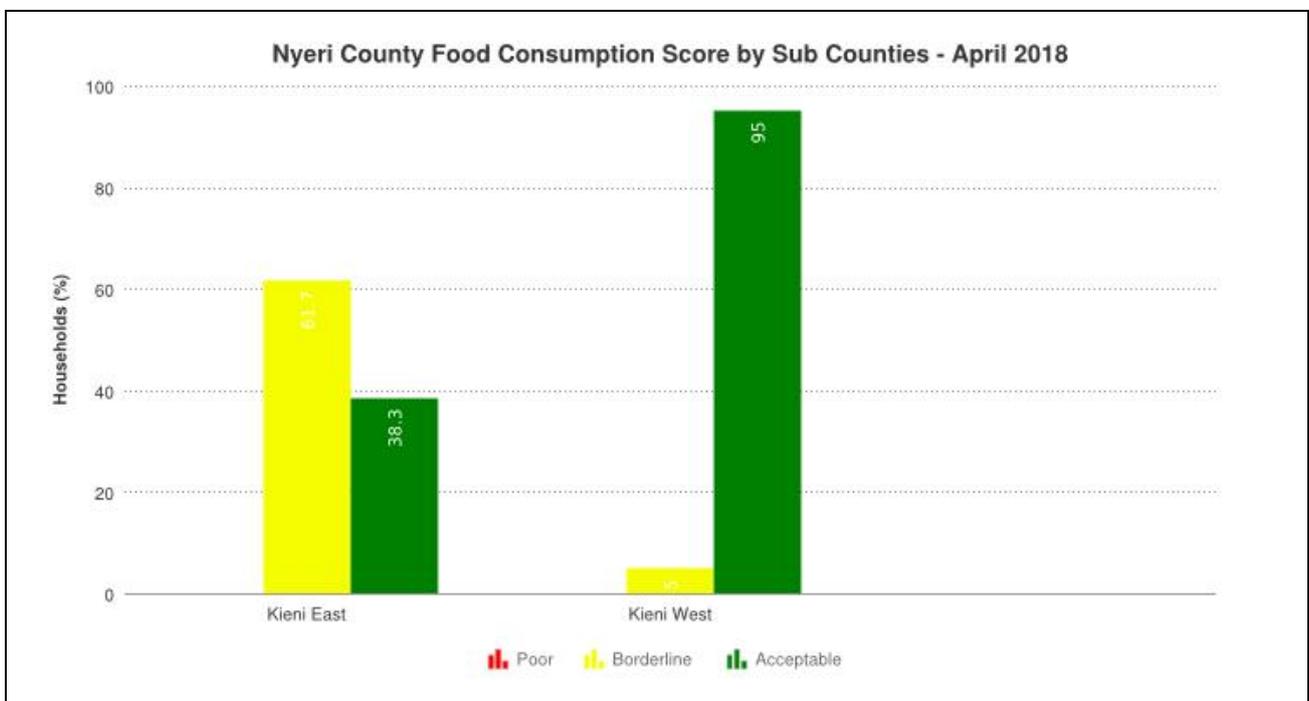


Figure 12: Outlines milk consumption for the county

### 5.3 HEALTH AND NUTRITION STATUS

#### 5.3.1 Nutrition Status

- The proportion of children below the age of five years at risk of malnutrition remained at nil percent as registered last month. By MUAC percentage remaining zero can be attributed to increase in milk consumption at household level and availability of a variety of vegetables whose growth was hastened by the MAM rainfall.

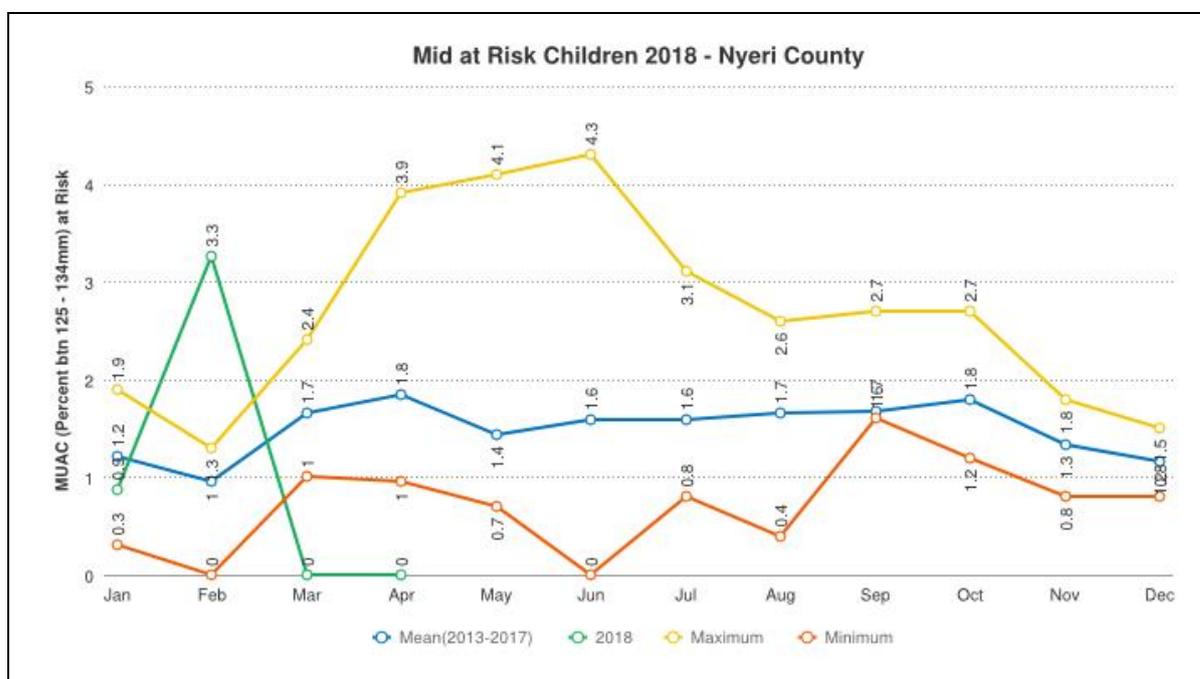


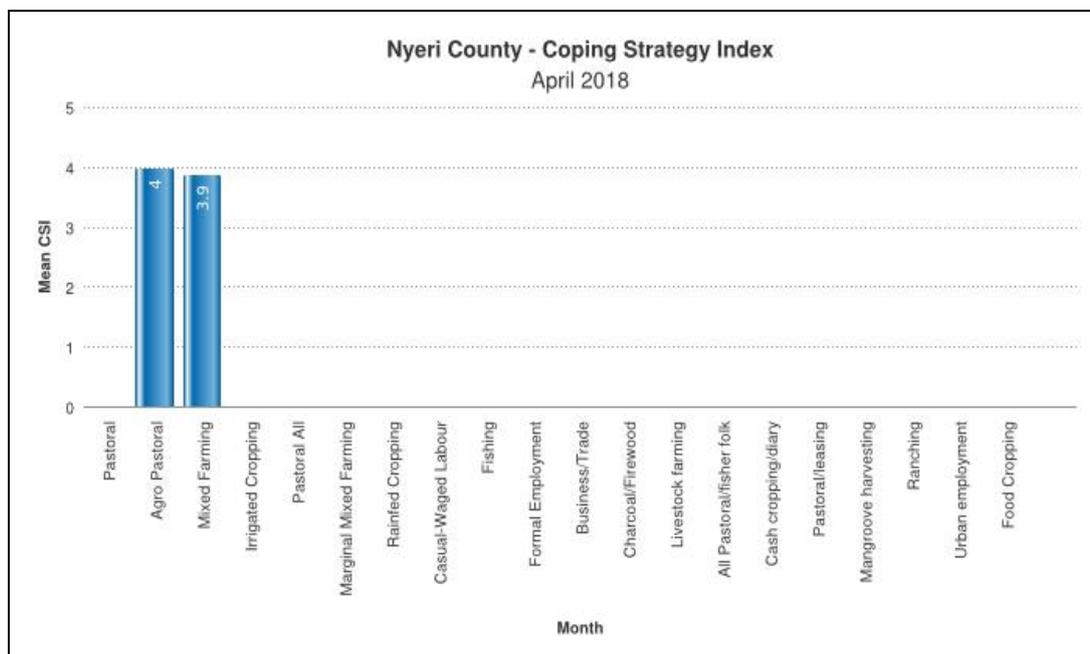
Figure 13: Presentation of nutrition status of children below five years

#### 5.3.2 Health

- No human disease outbreaks were reported in the region for the period of monitoring.

### 5.4 COPING STRATEGIES

- The month's mean coping strategy Index (CSI) stood at 3.91 from 4.04 in March registering a 3.2 percent decrease. Registered CSI was lower compared to similar period last year. A decrease in the mean CSI can be attributed to good performance of the MAM rainfall thus households reducing a lot of coping strategies and work on their farms. Agro pastoral farming livelihood zones registered high coping strategy index of 4 as compared to 3.9 in Mixed farming livelihood zones as indicated in figure below.



**6. CURRENT INTERVENTION MEASURES (ACTION)**

**6.1 NON-FOOD INTERVENTIONS - NOTE THE FOLLOWING**

No non-food interventions were currently ongoing.

**6.2 FOOD AID - NOTE THE FOLLOWING**

No food interventions were currently ongoing.

**7. EMERGING ISSUES**

**7.2 Flooding.**

This has caused water logging on the flat cropland areas and flooding of down valley farms in Kieni East and West Sub Counties.

**7.3 FOOD SECURITY PROGNOSIS**

The food security situation is expected to improve, given that the MAM rainy season has started. Forage condition and water sources are expected to improve leading to fair to good livestock body condition hence increase in milk production.

## **8. RECOMMENDATIONS**

- Promote livelihood diversification projects like, bee keeping, Pasture establishment, local poultry and dairy goats. (N.D.M.A and livestock department).
- Continued livestock diseases surveillance and Deworming. (Livestock Department).
- Continued pest surveillance. (Department of Agriculture)
- Water borne diseases surveillance. (Departments of health and water)
- Enhanced water harvest both run off and roof catchment. (N.D.M.A and Water department).
- Tree planting and reforestation. (N.D.M.A).
- Review of county drought contingency plans. (N.D.M.A).
- Training of farmers on value addition.(NDMA & County govt)

## REFERENCE TABLES

**Table 1: Drought Phase Classification**

Normal	Alert	Alarm	Emergency
All environmental Agricultural and pastoral indicators are within the seasonal ranges	Meteorological drought indicators move outside seasonal ranges	Environmental and at least two production indicators are outside Long term seasonal ranges	All Environmental, Metrological and Production indicators are outside normal ranges.
<b>Recovery:</b> 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 biophysical and production indicators are back to normal range.