

**National Drought Management Authority
(Nyeri) COUNTY
DROUGHT EARLY WARNING BULLETIN FOR APRIL 2019**



A Vision 2030 Flagship Project



APRIL 2019 EWS PHASE

Drought Status: ALERT



Maandalizi ya mapema

Drought Situation & EW Phase Classification

Biophysical Indicators

- The March-April-May (MAM) rains were late by more than a month. The rains began in the third dekad of April compared to the second dekad of March normally.
- The vegetation condition deteriorated during the month under review compared to the previous month.
- Access to water improved slightly during the month under review compared to the previous month. Rivers are flowing at near normal levels. Household distances to water sources have reduced slightly compared to the previous month.

Socio Economic Indicators (Impact Indicators)

Production Indicators

- In mixed farming livelihood zones maize and beans are at two leaf stage while in agro pastoral livelihood zones farmers are replanting since the crops were lost at the germination stage.
- Livestock body condition is critical.
- Milk production was relatively stable compared to the previous month.
- In migration of livestock from the neighbouring counties was reported.

Access indicators

- Milk consumption was within the normal threshold
- Distances to water sources dropped from 2.6 in March to 1.6 in April.

Utilization Indicators

- No children were at risk of malnutrition during the month under review.
- Coping strategy Index was above the normal threshold.

Early Warning (EW) Phase Classification

Livelihood Zone	Phase	Trend
Mixed Farming	Alert	Stable
Agro pastoral	Alert	Stable
County	Alert	Stable
Biophysical Indicators	Value	Normal Range/Value
Rainfall (% of Normal)	41%	80%-120%
VCI-3Month	43.9	35-50
Forage	poor	Fair
Production indicators	Value	Normal
Crop Condition (specify crop)	poor	Fair
Livestock Body Condition	Critical	Moderate
Milk Production	4.7 litres	5.8 litres
Livestock Migration Pattern	In migration	No Migration
Access Indicators	Value	Normal
Milk Consumption	1.5	1.6
Distance to water sources	1.6	1.5
Utilization indicators	Value	Normal
Nutrition Status, MUAC (% at risk of malnutrition)	0	0
Coping Strategy Index (CSI)	7.26	<5.0

<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

1.0 CLIMATIC CONDITIONS

1.1 RAINFALL PERFORMANCE.

- The March-April-May (MAM) rains were late by more than a month. The rains began in the third dekad of April compared to the second dekad of March normally. Amounts received were moderate and fairly distributed in time and space. However, some pockets in agro pastoral livelihood zone areas did not receive rains, these areas include:- Karemno, Nairutia, Kamariki and parts of Lamuria.
- The better part of April was dry, windy and cold during the night and hot during the day.
- On average the rains were received for four days. Figure 1 shows the regions overall rainfall performance for Nyeri County during the month under review, indicating it was below normal. In the first and second dekad the county received 54.8 mm compared to long term averages of 133 mm.

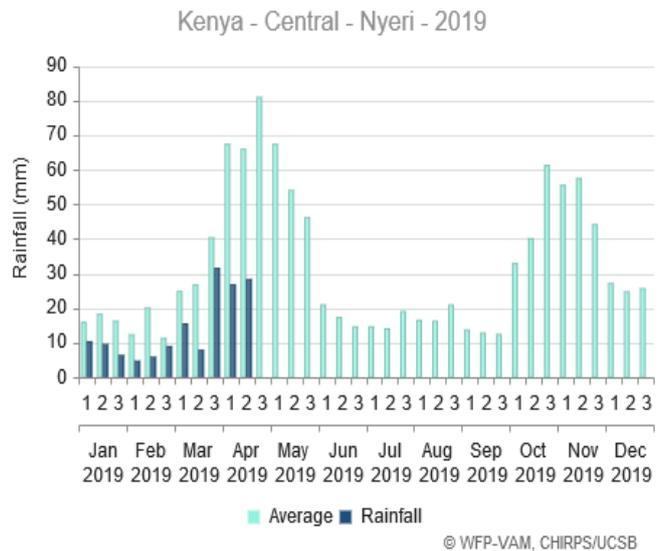


Figure 1: Presentation of the rainfall trend 2019

2.0 IMPACTS ON VEGETATION AND WATER

2.1 VEGETATION CONDITION

2.1.1 Vegetation Condition Index (VCI)

- The vegetation condition index has been declining since January. The month's vegetation condition deteriorated during the month under review compared to the previous month. This is attributed to the harsh weather condition that have been experienced since the cessation of the OND rains in December and the delay in the start of the MAM. The situation was worsened further by strong winds that were blowing away straws and influx of livestock into Kieni from the

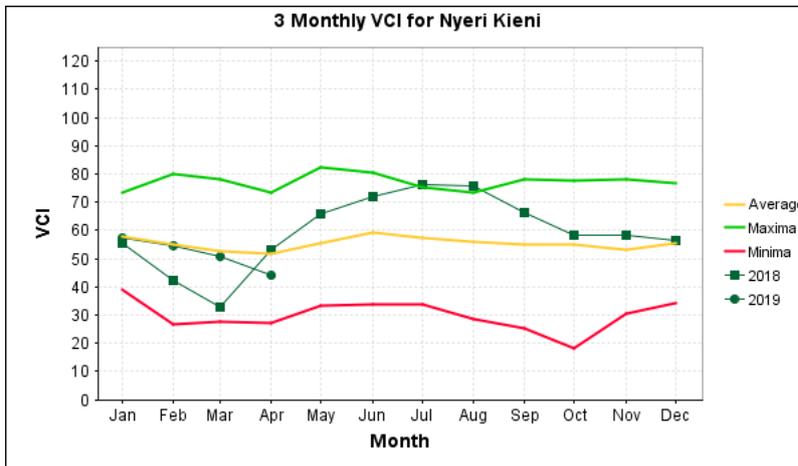


Figure 2: 3 monthly VCI for Nyeri County

neighbouring counties.

- The vegetation condition was below the long term average and worse compared to the previous month as shown in figure 2.
- The situation is expected to improve if the on-going rains continue. The month VCI stood at 43.9 in April compared to 50.7 in March.

2.1.2 Pasture

- The pasture condition was poor across the livelihood zones with an exception of some pockets in mixed farming livelihood zones that recorded fair conditions as shown in figure 3. These areas were Gakawa and Naromoru/Kiamathaga in Kieni East. Due to the start of the MAM rains in the third dekad of April regeneration was noted across the livelihood zones with exception of some pockets that did not record any rains. These areas include:- Karemeno, Nairutia, Kamariki, ruai and parts of Lamuria. The current condition is below normal

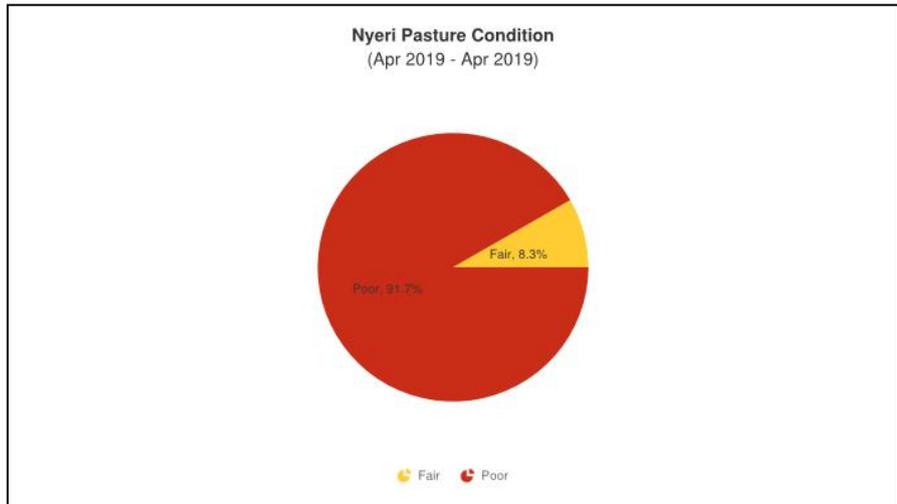


Figure 3: Pasture conditions in Nyeri County

compared to a normal year and compared to the same period last month. This is attributed to the delay in the onset of the MAM rains, harsh weather condition experienced for the better part of April and immigration of livestock from the neighbouring counties that led to the fast depletion of the available pastures. Currently grass is about two inches long and too low for grazers. Most of the grazing fields are bare and hence livestock are still moving to forests in search of pasture. Some farmers are currently sourcing hay from ranches in Laikipia county at a cost of Ksh 150 to Ksh 200.

- The situation is expected to improve if the rains continue.

2.1.3 Browse

- Gradual Sprouting of browse was visible during the month under review. The browse condition was poor across all the livelihood zones with exception of some pockets in mixed farming livelihood zones that registered fair conditions. These areas include: Gakawa and Naromoru Kiamathaga in Kieni East. The browse condition was below normal compared to a normal year and the same period last year.

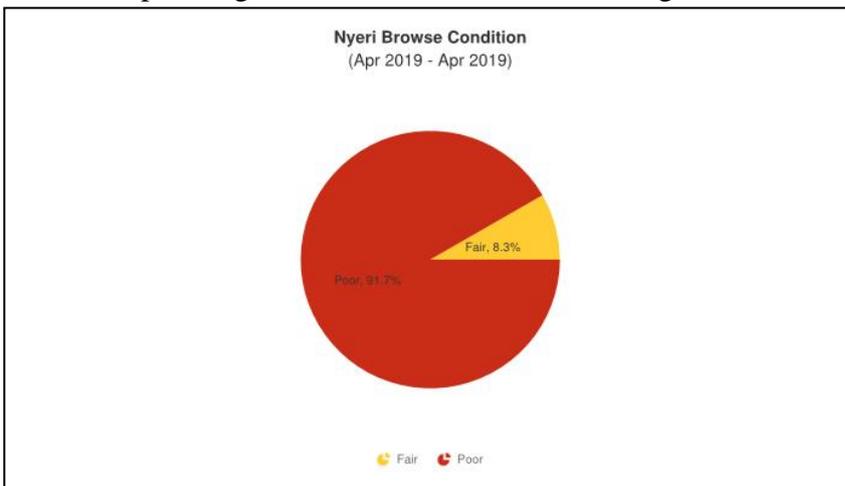


Figure 4: Browse condition Nyeri County

This can be attributed to the late onset on the MAM rains, the dry and hot weather conditions that have been experienced since December last year and influx of shoats from the neighbouring counties.

- The most affected areas were Karemeno, Nairutia, Kamariki, ruai and parts of Lamuria. Available browse was expected to last for less than a month in agro pastoral livelihood zones

and one month in mixed farming livelihood zones. The situation is expected to improve if the current situation persists.

2.2 WATER RESOURCE

2.2.1 Sources

- The main sources of water during the month of April were rivers, pans, dams and springs. Access to water had improved during the month under review compared to the previous month. This is attributed to the on-going MAM rains. Rivers are flowing at near normal levels

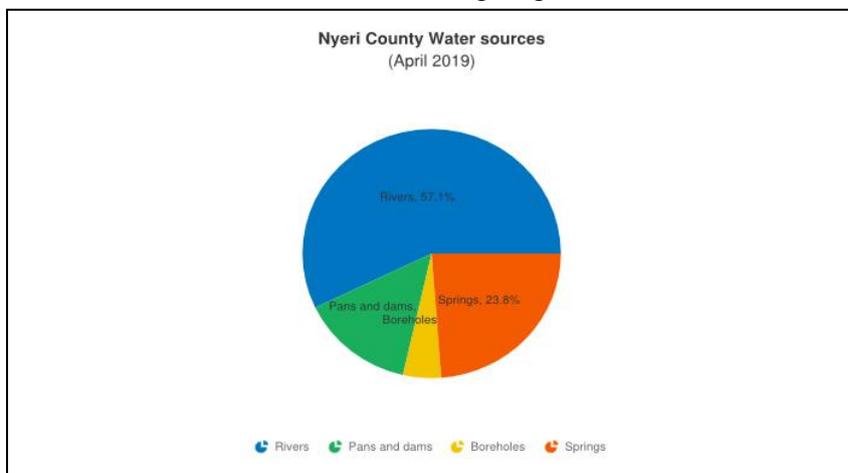


Figure 4: Water sources for Nyeri County

across all the livelihood zones. Majority of the open water sources are still dry with an exception of Kienjero dam, Kinyaiti, burguret dams and newcity dam that are holding less than 25 percent of the full capacity.

- Compared to a normal year and the same period last year the current situation is below normal. This is

attributed to the delay in the onset of the MAM rains and hot and dry weather conditions that were experienced for the better part of the year. The current situation is expected to improve further if the rains continue.

2.2.2 Household access and Utilization

- Distances from the household to water sources dropped by 62 percent from 2.6 Km in March to 1.6 Km in April. In agropastoral livelihood zones distances increased by 11.9 percent from 4.2 Km in March to 4.7 Km in April. Mixed farming livelihood zones registered 16.7 percent drop in distances from 1.8 Km in March to 2.1 Km in April.

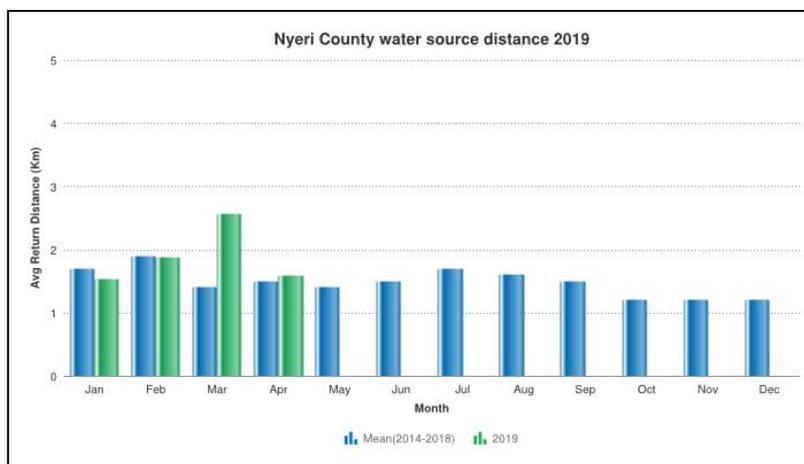


Figure 5: presentation of the average return distances to water sources

- Registered distances were above the 2014-2018 long term averages of 1.5 Km by 6.7 percent as shown in figure 5 below.
- The high distances could be attributed to the delay in the Onset of the MAM rains compared to a normal year.

2.2.3 Livestock access

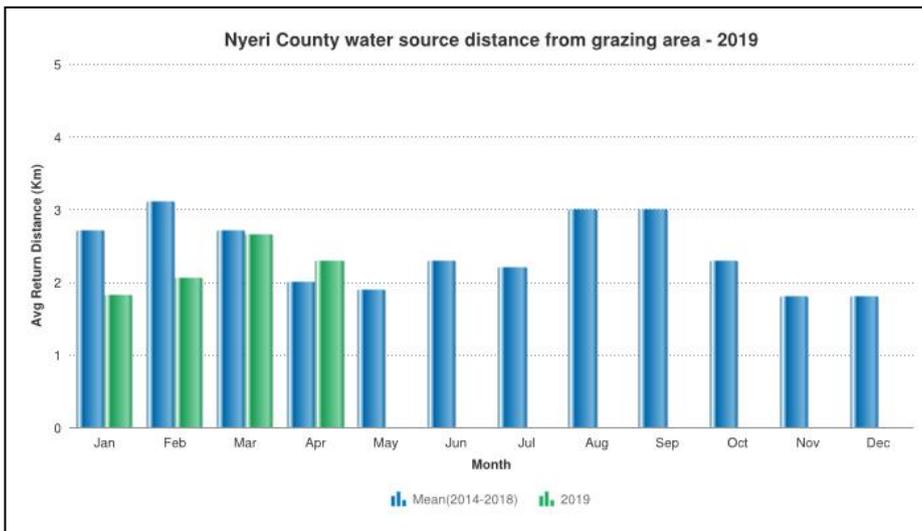


Figure 6: Average distances from the grazing field to water sources

normally at this time of the year.

- Average distances from grazing field to watering points dropped by 14.8 percent from 2.7 Km in March to 2.3 Km in April. Compared to 2014-2018 long term average of 2 Km, reported distances were within the normal threshold as shown in figure 6.
- Current watering frequency for animals is once daily compared to twice

3.0 PRODUCTION INDICATORS

3.1 LIVESTOCK PRODUCTION

3.1.1 Livestock Body Condition

- The livestock body condition deteriorated during the month under review compared to the previous month. This is attributed to poor pasture conditions and increased distances in search of water and pasture. The livestock body conditions were stressed in mixed farming livelihood zones and critical in the agropastoral livelihood zones. Compared to the normal year and same period last year the current body condition are poor.
- Due to the poor pasture conditions some of the farmers are relying on hay from ranches in Laikipia where they are sourcing at a cost of Ksh 150 to Ksh 200.

3.1.2 Livestock Diseases

- Cases of Foot and Mouth Disease were reported in Gakawa in Kieni East Sub County. LSD was also reported in most parts of the larger Kieni. Currently over 3000 heads of cattle have been vaccinated against FMD.

3.1.3 Milk Production

- Milk production at the household level during the month under review was quite comparable to that of the previous month. The month's production was 4.7 litres compared to 4.6 litres the previous month.
- The month's production was lower by 19 percent compared to the 2014-2018 long term average of 5.8 litres as shown in figure 7. The low production could attributed to poor livestock body condition.

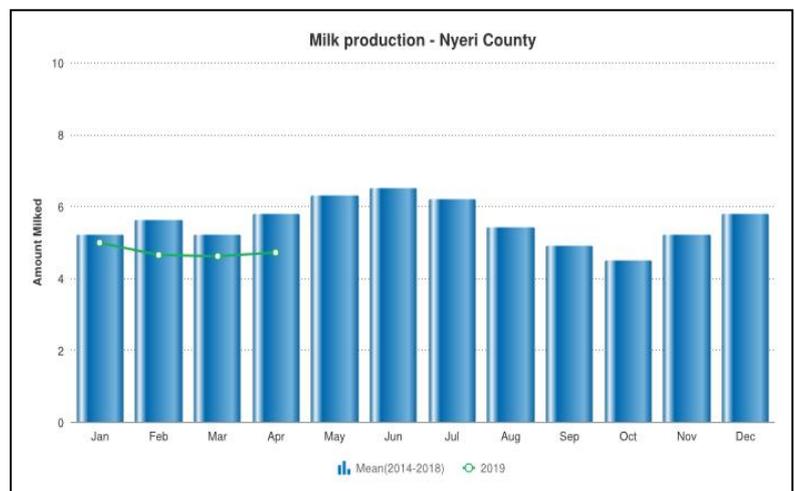


Figure 7: presentation of the average milk production

3.2 RAIN-FED CROP PRODUCTION

3.2.1 Stage and Condition of food Crops

- Due to the delay in the start of the MAM rains crops that were planted did germinate with constrained soil moisture. Most of the dry plantings were lost to high heat and lack of enough soil moisture. With the delayed onset of the rains most the farmers are replanting with the hope that the rains will extend. However, in some areas in the mixed farming livelihood zones maize and beans are at the two leaf stage. These areas include Gakawa and Naromoru/ Kiamathanga ward in Kieni East Sub County.
- Most farmers have practised minimum tillage on fallow farms from failed OND rain season.
- A notable observation is that acreage put under crop production has significantly reduced compared to the last cropping season. This is attributed to the poor performance of the OND seasonal rains that saw farmers experience little or no harvest and the delayed onset of the MAM rains.

4.0 MARKET PERFORMANCE

4.1 LIVESTOCK MARKETING

4.1.1 Cattle Prices

- Cattle prices remained relatively stable during the month under review compared to the previous month. A mature four year old bull sold for Ksh 25,000 in April which was quite comparable to Ksh 24,900 in March.
- The month's price was lower by 6.8 percent compared to the long term average of Ksh 26,707 as shown in figure 9. The low prices could be attributed to the poor livestock body conditions.

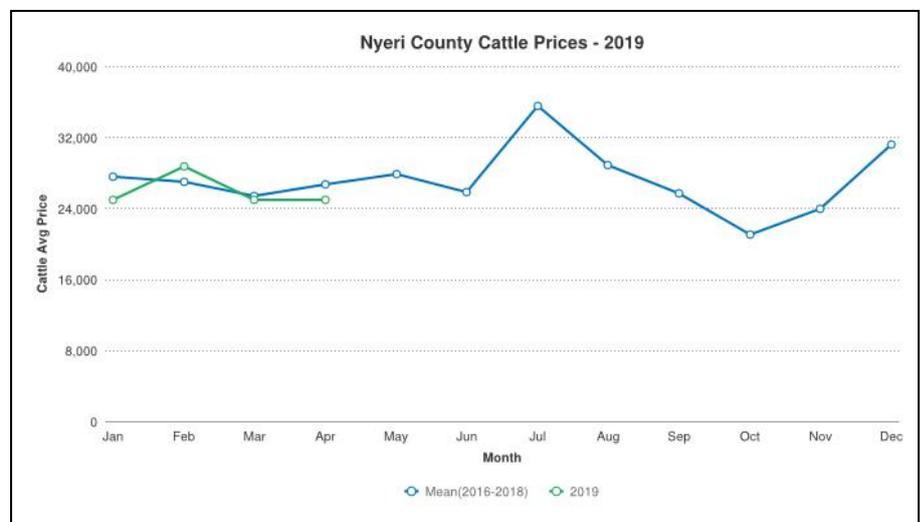


Figure 9: presentation of the average cattle prices

4.1.2 Sheep prices

- Sheep prices dropped by 14 percent to sell at Ksh 3,850 in April from Ksh 4,500 in March.

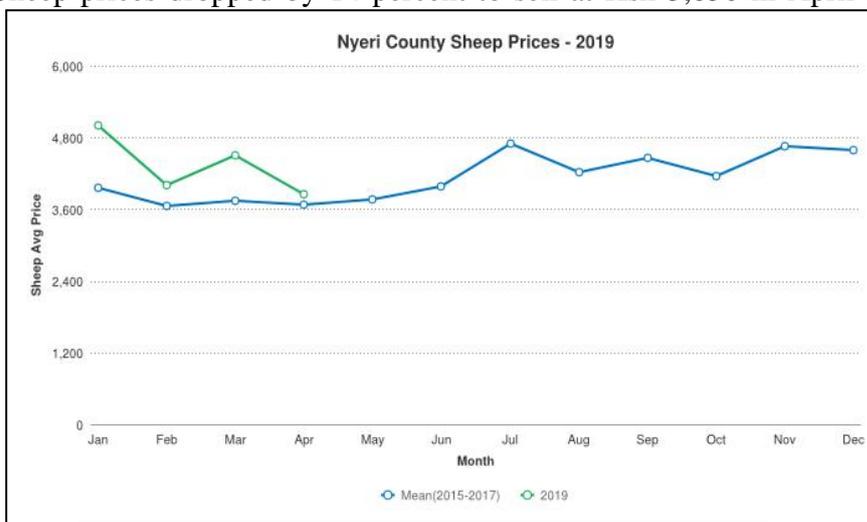


Figure 10: presentation of the sheep prices

- Drop in prices could be attributed to poor livestock body conditions coupled with a decrease in demand due to household's low purchasing power.
- The registered prices were higher by 4.7 percent compared to the 2016-2018 short term averages of Ksh 3,678 as shown

in figure 8.

4.2 CROP PRICES

4.2.1 Maize

- Maize prices increased by 52 percent to retail for Ksh 49 in April from Ksh 32 in March. The

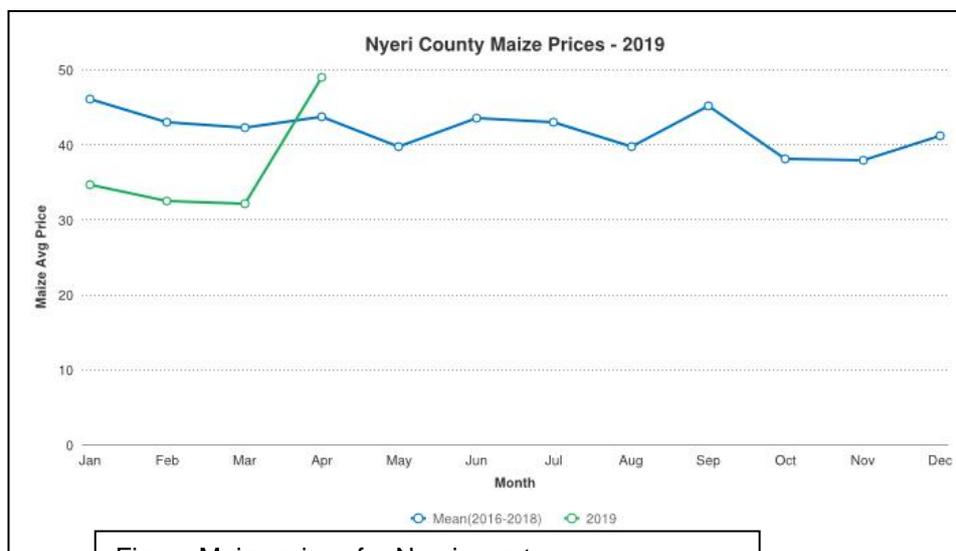


Figure Maize prices for Nyeri county

increase in prices could be attributed the failed OND season where farmers realised no harvest hence household are solely relying on markets for supply. Compared to the 2016-2018 short term averages of Ksh 43.6,

current price were lower by 12.4 percent as shown in figure 9.

4.2.2 Beans

- Beans prices increased by 11 percent to retail at Ksh 88 in April from Ksh 82 in March. This is attributed to overreliance of market for supply as household have exhausted stock.
- The month's price was lower by 11 percent compared to the 2016-2018 short term average of Ksh 99 as shown in figure 12.

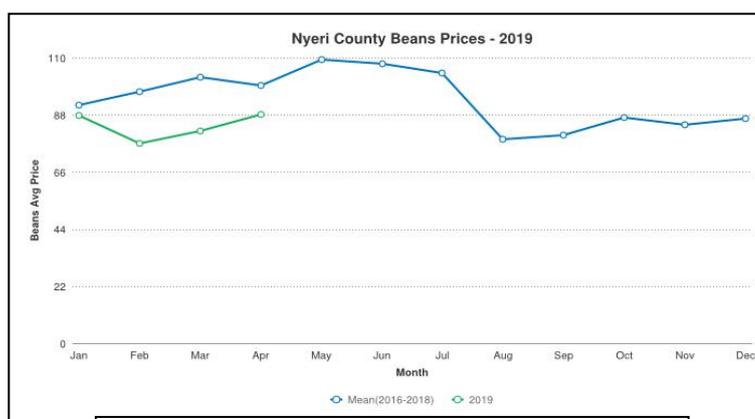


Figure 12: Beans prices for Nyeri County

5.0 FOOD CONSUMPTION AND NUTRITION STATUS

5.1 MILK CONSUMPTION

- Milk consumption recorded during the month under review remained same as was reported last month at 1.5 litres.
- The month's milk consumption at the household level was lower compared to the 2014-2018 long term average of 1.6 litres as shown in figure 11.

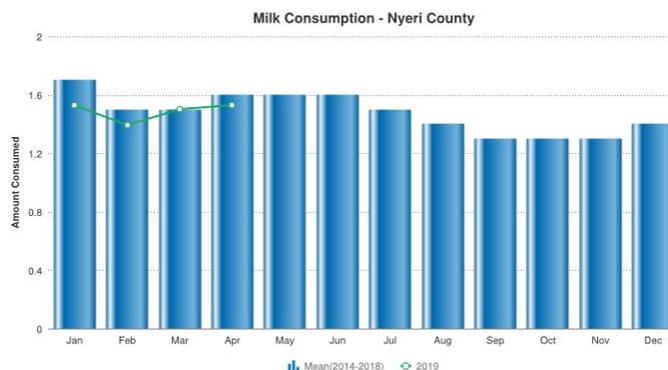


Figure 13: Presentation of the average milk consumption

5.2 FOOD CONSUMPTION SCORE

- The food consumption score for Kieni deteriorated during the month of April compared to the previous month. This is attributed to the poor performance of the OND seasonal rains and the harsh conditions that were experienced since December. The situation was further worsened by the delay in the start of the MAM rains. Households have also exhausted food stocks and were wholly relying on markets for supply. Proportion of household at poor, borderline and acceptable food consumption score was five percent, 49 percent and 46 percent compared to 3 percent, 40 percent and 57 percent in the previous month.

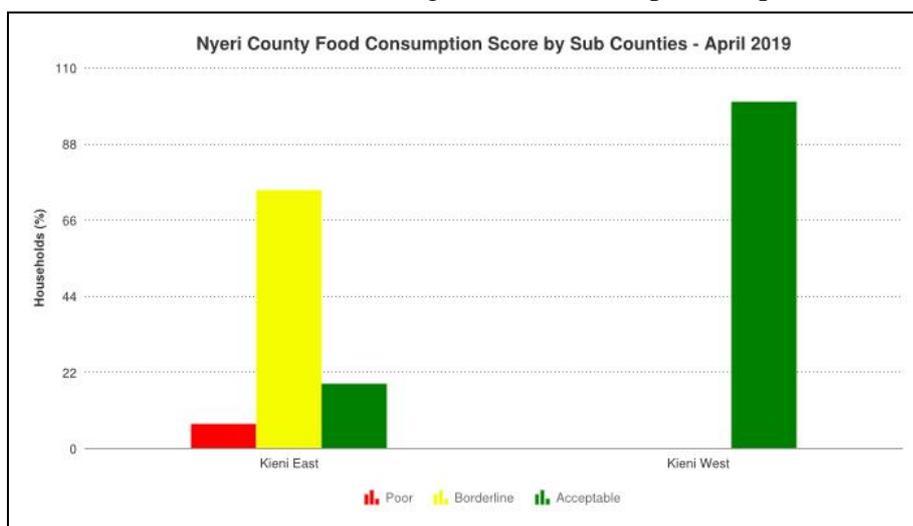


Figure 14: Outlines the FCS by livelihood zones

- There were inconsistencies in food consumption patterns at the livelihood zones with at least five percent of the households in mixed farming livelihood zones having a poor consumption score compared to those in agro pastoral livelihood zones where no household was reported to have a poor consumption score. 100 percent of the households in agropastoral livelihood zones had an acceptable food consumption score compared to 18.6 percent in mixed farming livelihood zones as shown in figure 14, indicating that households in agro pastoral livelihood zones had a better dietary diversity and consumption frequency.

5.3 HEALTH AND NUTRITION STATUS

5.3.1 Nutrition Status

- No children were reported to be at risk of malnutrition during the month under review.

5.4 COPING STRATEGIES

- Households applied coping strategies more frequently during the month of April compared to the previous month. This is attributed to exhaustion of food stock at the household level leading to overreliance of markets for supply hence an increase in food prices. The situation was also worsened by lack of income from the agricultural labour due to the impact of delayed rains. The mean CSI for Kieni increased by 43 percent from 5.06 in March to 7.26 in April. In agro pastoral livelihood zones and mixed farming livelihood zone the mean CSI increased by 125 percent and seven percent from 5.6 and 4.3 in March to 12.6 and 4.6 in April.

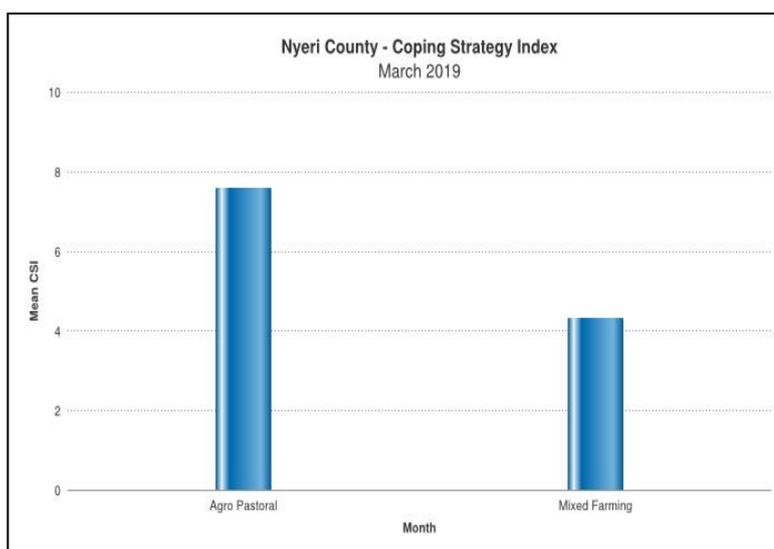


Figure 15: Outlines the mean coping strategy index

6.0 CURRENT INTERVENTION MEASURES

6.1 NON-FOOD INTERVENTIONS

- During the month under review over 3,000 heads of cattle were vaccinated against Foot and Mouth Disease (FMD) in Kieni.

6.2 FOOD AID

- During the month under review, the national government through the department of special programmes distributed 300 (50Kg) bags of maize, 200(50Kg) bags of beans and 40 cartons of cooking oil in Kieni west and 200 (50Kg) bags of maize, 200 (50kg) bags of beans and 40 cartons of cooking oil in Kieni East to the vulnerable households.

7.0 EMERGING ISSUES.

7.1 FOOD SECURITY PROGNOSIS

- The onset of the MAM rains delayed by more than a month leading to delayed agricultural production activities in marginal agricultural areas and depletion of forage and water sources. The start of the rains in late April are expected to partly refill forage and water sources and support crop production of early maturing crops and drought tolerant crops.
- Poor performance of the OND rains lead to farmers experiencing a total crop failure. Majority of the households have exhausted food stocks at the household level and are fully relying on markets for supply. This has led to an increase in food prices, and with the below normal performance of the MAM rains the prices are expected to increase further reducing the household purchasing power more.

7.2. LIVESTOCK AND MIGRATION.

- The numbers of livestock migrating into Kieni from the neighbouring counties have not changed except for internal relocation of herds to areas seemingly with better pastures. Currently, approximately 5,100 heads of cattle and 4,600 goats and sheep (Shoats) are still in the county.

7.3 CONFLICTS.

- Resource based conflict have been reported in areas of Gakawa ward in Kieni East sub county, between pastoralist that had migrated from the neighbouring counties and residents of the area.

8. RECOMMENDATIONS

- Activation of sectoral working groups to prepare for response plans (Action: NDMA)
- Rehabilitation of strategic water points and de-siltation of pans and dams in preparation of MAM rainfall (Action: CGN)
- Vaccination of livestock against Lumpy Skin Disease (LSD) and Foot and Mouth disease (FMD) (Action: CGN)
- Encourage surface water harvesting (Action: CGN)
- Provision of supplementary feeds for livestock (Action: CGN)
- Activation of peace committees in anticipation of likely conflict arising from scarce of resources (Action: NDMA)
- Provision of relief food to needy households (Action: Department of special programmes)
- Undertake a rapid assessment (Action: NDMA)
- Support with livestock drought pellets. (Action: NDMA)
- Provision of water treatment tablets (aqua tabs) (Action: CGN NDMA NIB stakeholders).
- Supply of water using tankers for domestic and livestock at strategic points for incoming pastoralist for temporary use. (Action: CGN NDMA NIB stakeholders).
- Up scaling on Preventive Vaccination against FMD, CCPP and NCD in livestock (Action: NDMA, DALF/County government).

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.
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 biophysical and production indicators are back to normal range.