

National Drought Management Authority

MERU COUNTY

DROUGHT EARLY WARNING BULLETIN FOR APRIL 2018



A Vision 2030 Flagship Project



APRIL EW PHASE



Early Warning (EW) Phase Classification

Livelihood Zone	Phase	Trend
Mixed Farming	Normal	Improving
Agro-pastoral	Normal	Improving
Rain-fed Cropping	Normal	Improving
Meru County (Meru North)	Normal	Improving
Biophysical Indicators	Value	Normal Range
VCI-3Month (County)	55.6	>35
Igembe Central	54.93	>35
Igembe South	58.09	>35
Production indicators	Value	Normal
Crop Condition (Maize/legumes)	Good vegetative conditions, flowering and podding in beans	Good vegetative conditions, flowering and podding
Livestock Body Condition	Fair	Fair to Good
Milk Production	1.7	1 - 2 Litres
Livestock Migration Pattern	Out-migration of non-resident livestock	No Migrations
Access Indicators	Value	Normal
Terms of Trade (Goat/cereal price ratio)	108 kg	167 kg
Return distance to water sources	7 km	<7 km
Utilization indicators	Value	Normal
Nutrition Status, MUAC (% at risk of malnutrition)	12.6	<20
Coping Strategy Index (CSI)	18.45	21.4

Drought Situation & EW Phase Classification

Biophysical Indicators

- Uncharacteristically high rainfall was received this month. Spatial distribution was however good. Temporal distribution was poor leading to flash floods in several pockets.
- Natural vegetation has improved significantly with Vegetation Condition Index increasing strikingly.
- Pastures and browse are of good conditions and in all livelihood zones.

Socio Economic Indicators (Impact Indicators)

Production indicators

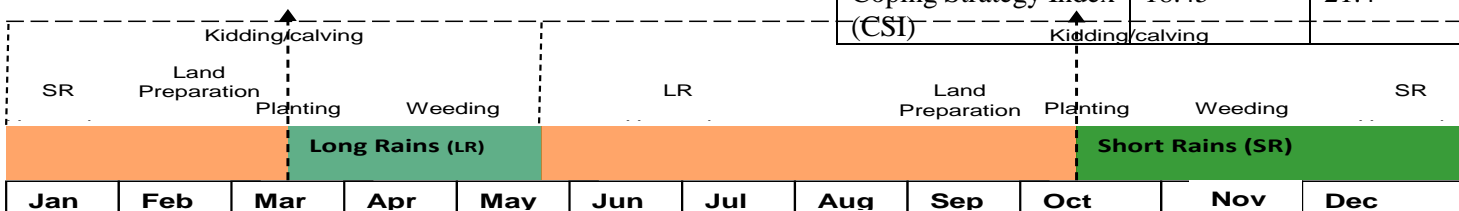
- Livestock body conditions are mostly fair in all livelihood zones due to low fiber content in pastures.
- Over 70 percent of livestock from Laikipia and Isiolo Counties that had in-migrated into the grazing areas of the agro-pastoral livelihood zone have migrated back.
- Weeding, pest, and disease control were major farm activities. Major crops are of good vegetative conditions.
- Fall armyworm infestation has been reported in over 20 percent of cropped land.
- Replanting was not carried out in areas where crops were washed away.

Access indicators

- Rivers were major sources of water for both livestock and domestic use. Distances have reduced significantly.
- Terms of trade improved slightly compared to February.

Utilization Indicators

- Proportion of children at risk of malnutrition have decreased further compared to February and March.



1. CLIMATIC CONDITIONS

1.1 RAINFALL PERFORMANCE

- Abnormally high rainfall was received across all livelihood zones during the month. In each dekad, rainfall totals exceeded 100 mm with the second dekad receiving rainfall in excess of 180 mm. Temporal distribution was poor as some pockets received large amounts within a short time and this, in turn, led to flash floods in several low lying areas and in urban centers where drainage was clogged.

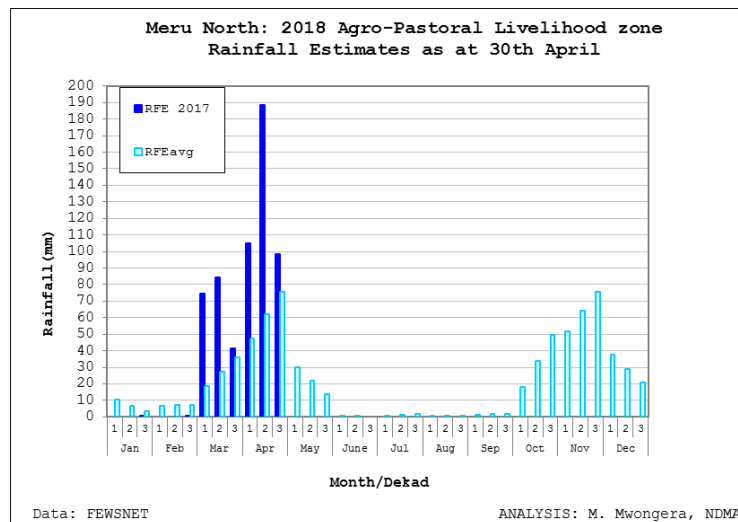


Figure 1a: Meru North: Rainfall totals in the agro-pastoral livelihood zone for April 2018 based on FEWS NET RFE data

- Spatial distribution was good across all livelihood zones with most areas receiving rainfall between 120 – 200 percent of normal. Comparatively, the mixed farming and rain-fed cropping livelihood zones received the highest amounts while the Agro-pastoral livelihood zone received the least amounts.

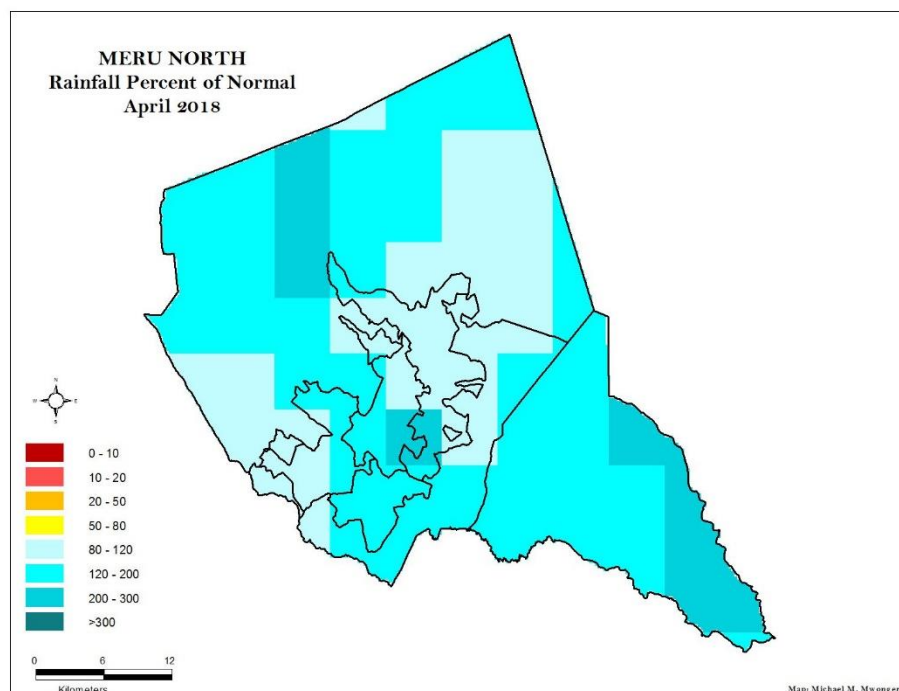


Figure 1b: Meru North: Rainfall percent of normal for April 2018 based on FEWS NET RFE data.

2. IMPACTS ON VEGETATION AND WATER

2.1 VEGETATION CONDITION

2.1.1 Vegetation Condition Index (VCI – 3 month)

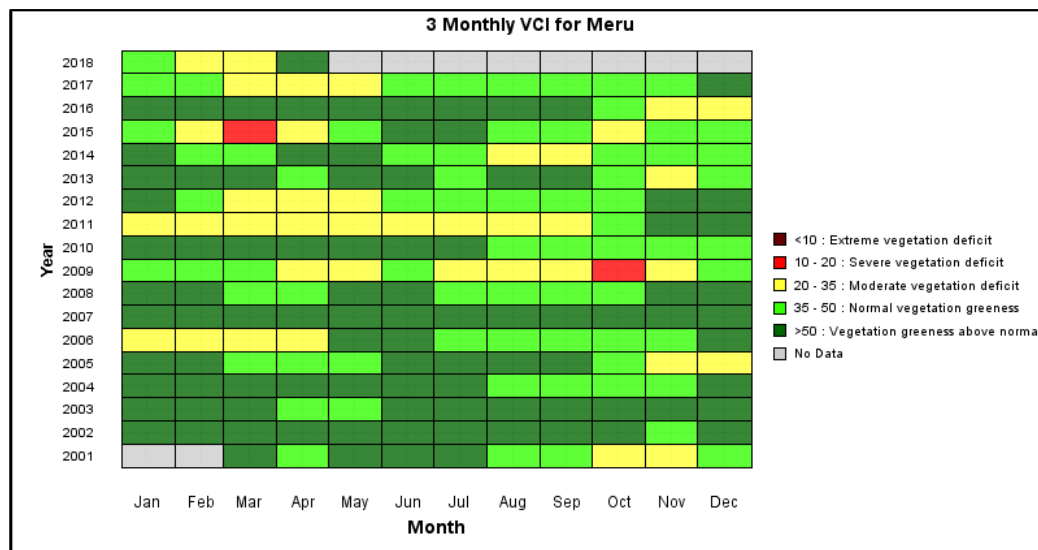


Figure 2a: VCI matrix for Meru County, 2001 – 2018

- Rains received during the month led to marked improvement of natural vegetation across all livelihood zones. VCI (3-month) improved from 28.4 in March to 55.6 this month. This improvement was noted in all sub-counties.

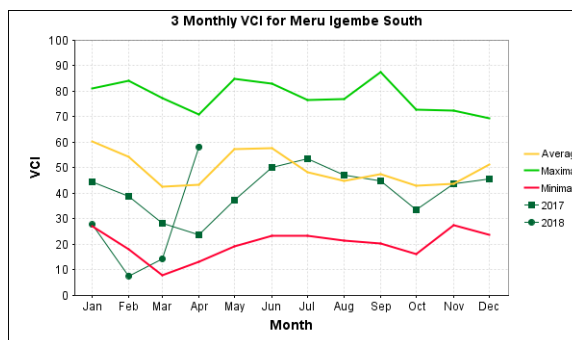
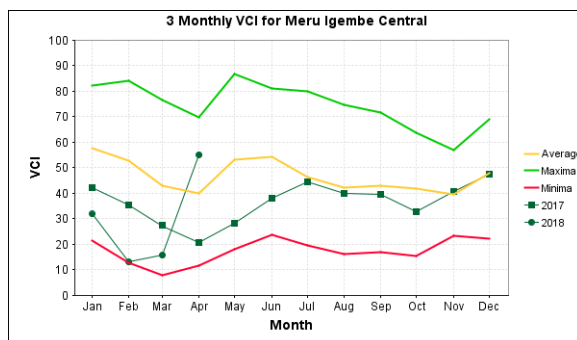


Figure 2b: VCI graph for Igembe Central, 2001 - 2018 Figure 2b: VCI graph for Igembe South, 2001 - 2018

2.1.2 Pasture

- Pastures improved this month compared to March following good rains that were received across all grazing lands. All communities that were interviewed across all livelihood zones reported pastures being of good conditions.

- Current pasture conditions and quantities are normal for this time of the year. If there will be no constraints in access to pastures or in-migration from neighboring Counties, pastures are likely to sustain livestock up to September.

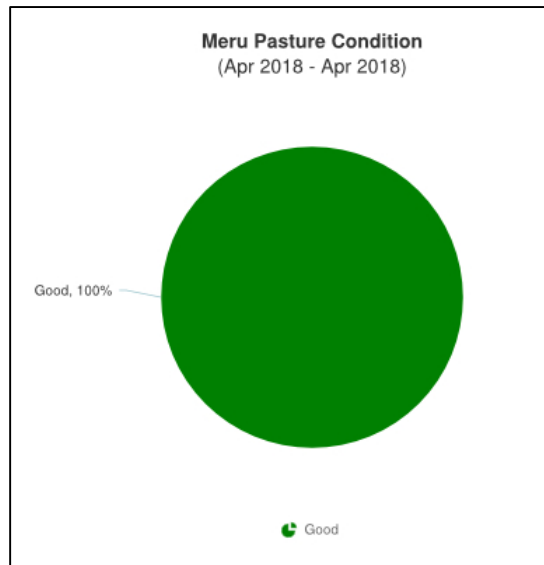


Figure 3: Pasture conditions

.1.3 Browse

- Quality and quantity of browse improved in April compared to the month of March. The improvements were noticeable across all livelihood zones. Interviewed communities reported browse being of good conditions and is likely to last up to September.
- Current browse conditions are normal for this time of the year.

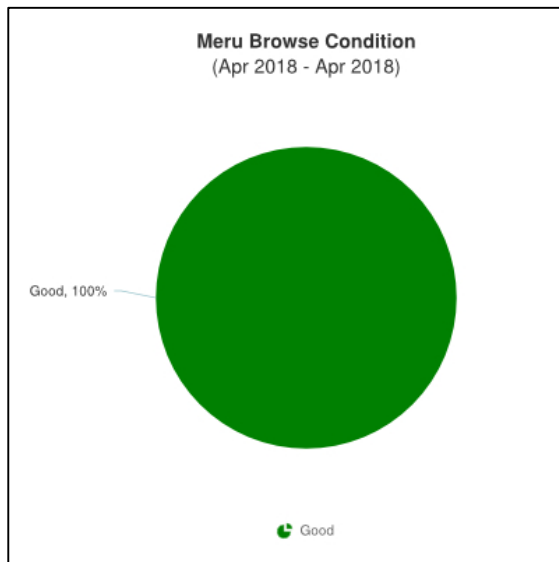


Figure 4: Browse conditions

2.2 WATER RESOURCE

2.2.1 Sources

- The major sources of water for both livestock and domestic use were rivers, boreholes, pans, and dams similar to the month of March. Majority of surface sources (rivers, pans, and dams) have recharged to full capacity.
- The proportion of users for each noted source changed noticeably in April compared to March. Households who relied on rivers increased from 45.5 percent in March to 77.8 percent in April due to improved water flow and volumes in permanent rivers and the resumption of flows in seasonal rivers and streams. Those that relied on boreholes, pans, and dams, on the other hand, decreased from 36.4 percent and 18.2 percent respectively in March to 11.1 percent respectively in April.
- Ndumuru borehole, which is a critical watering point for livestock in the grazing areas, is broken down.
- Others particularly roof catchments and community based piped water projects were also important sources.
- Current water sources are normal for this time of the year and are expected to be available for the next 2-3 months.

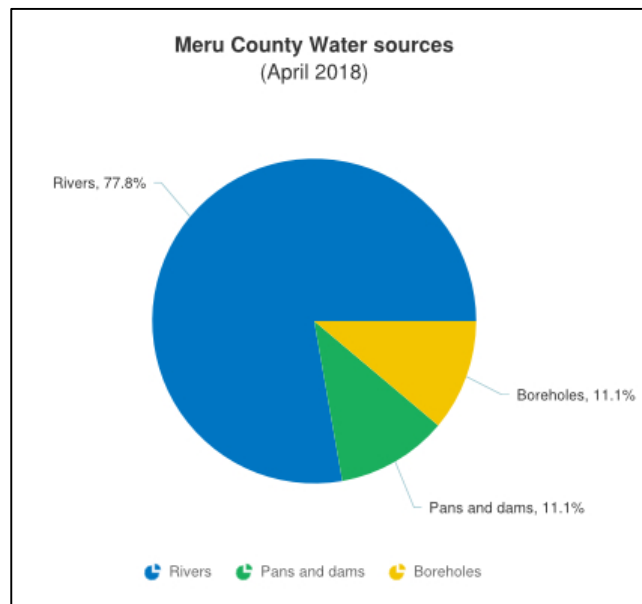


Figure 5: Major water sources

2.2.2 Household access and Utilization

- Average return distance for the month of April was 7 km having decreased from 8.8 km in March and 12.7 km in February. Improvement of river flows in addition to the availability of other sources such as roof catchments and community based piped water projects contributed to a decrease in average return distances for households in April.
- Cost of water at source, mainly boreholes, remained unchanged at Kshs. 5 per 20-liter jerry can similar to March.
- With the ongoing rains, distances are likely to decrease further in May.

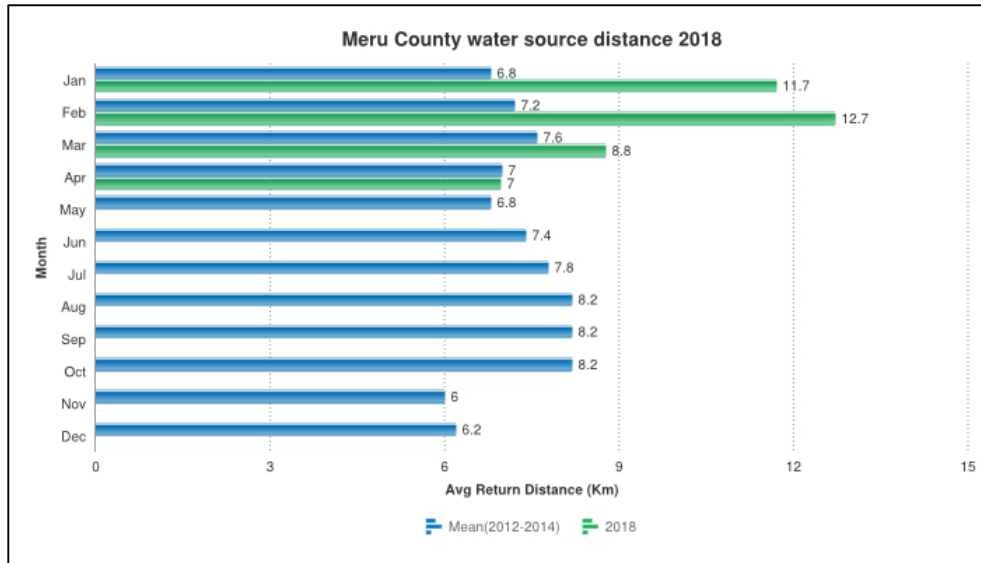


Figure 6: Household return distances to water sources.

2.2.3 Livestock access

- Distances from grazing areas to watering points reduced noticeably from 13.3 km in March to 10.6 km in April. Majority of livestock are concentrated in the wet grazing areas of Njaruine, Ithata, Thanake, Ranch, Malaene, Kibiru, and Kandebene. These grazing areas are closer to normal watering points.
- Watering distances for livestock are expected to remain relatively low over the coming 2 – 3 months.

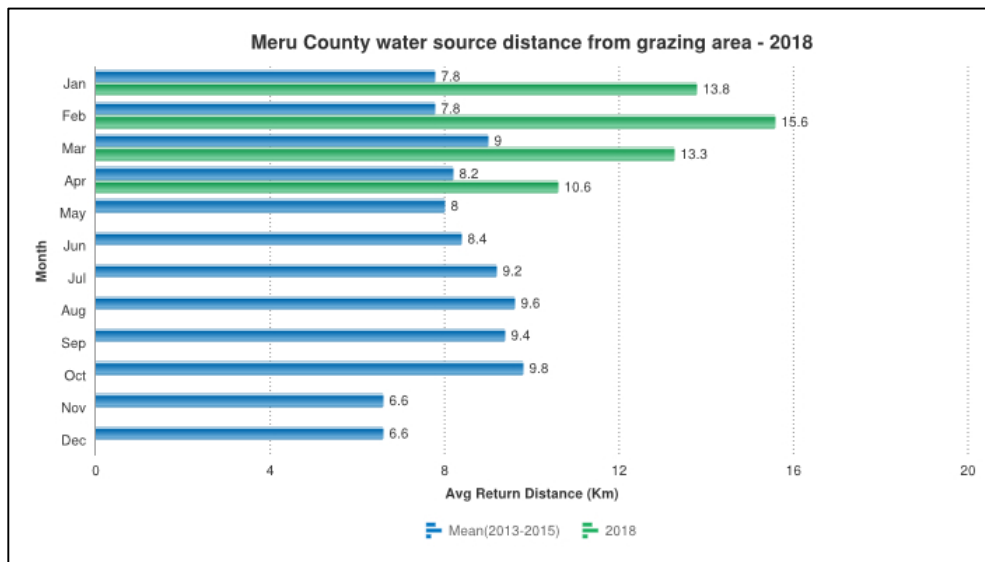


Figure 7: Livestock return watering distances from grazing areas

3.0 PRODUCTION INDICATORS

3.1 LIVESTOCK PRODUCTION

3.1.1 Livestock Body Condition

- Despite the sufficient regeneration of pastures and good recharge of water sources in the grazing areas, livestock body conditions are largely fair in all species across all livelihood zones.
- Current conditions are as a result of the low dry matter content in pastures, upsurge of intestinal worms that normally occurs during wet periods, and reduced grazing time as rains have been mostly experienced during the day. Nonetheless, livestock body conditions are likely to improve from next month as pastures are expected to become more palatable.

3.1.2 Livestock Diseases

- A confirmed outbreak of Anthrax has been reported in Igembe Central Sub-County.

3.1.3 Milk Production

- There has been general decline in milk production this month as livestock have not fully recovered from the just concluded dry spell. On average, 1.7 liters of milk per household per day was obtained from cattle compared to 2.3 liters in March.
- Nonetheless, as livestock body conditions are expected to improve gradually from next month, a gradual increase in milk production is also likely to follow.

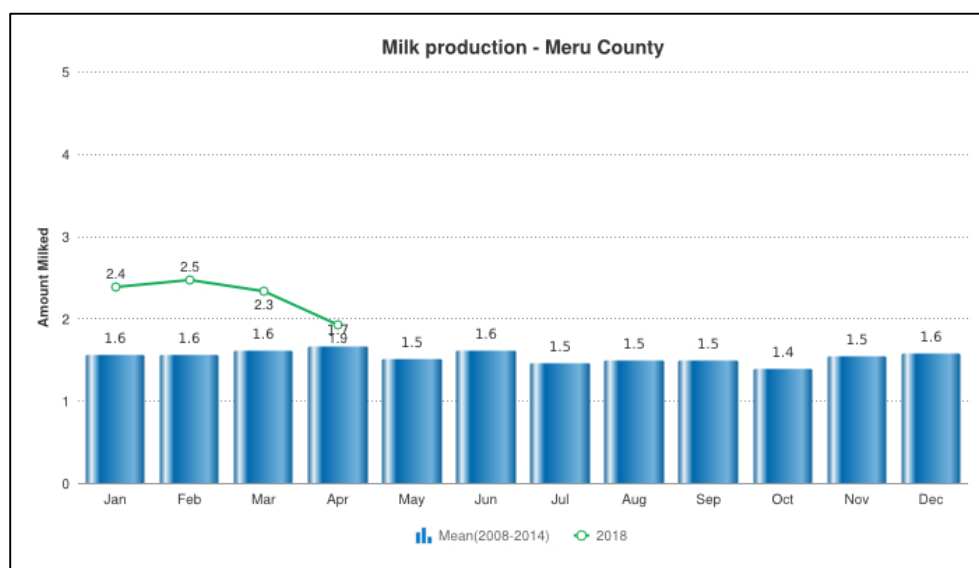


Figure 8: Milk production per household per day.

3.2 RAIN-FED CROP PRODUCTION

3.2.1 Stage and Condition of Food Crops

- Generally, crops are of good vegetative state across all livelihood zones especially in the well-drained soils and fairly level farmlands. Impacts of the heavy rains received this season have been two-fold; while they have led to good vegetative growth in maize and sorghum, they have also led to poor performance in legumes especially beans and green grams due to waterlogging and poor soil aeration.
- Major farm activities carried out during the month included weeding, field pest, and disease control.

- Bean crop is currently at late flowering to early podding stages across all livelihood zones and a near normal to normal harvest is expected. However, production may decline if rainfall trends witnessed in April cross over into May.
- Maize crop is at knee to waist height across all livelihood zones and of good vegetative conditions. In spite of the current good conditions, fall armyworm infestation poses a serious threat to the crop in all livelihood zones. A survey carried out by the Department of Agriculture during the first week of April revealed that 5 – 8 percent of maize crop was infested by fall armyworm (FAW). At this time when maize crop was at 3 – 4 leaf stage, the infestation was in its early stages. FAW infestation was noted in Igembe North, Igembe Central, Igembe South, Imenti Central, Imenti North, Imenti South, Tigania West and Tigania Central. In spite of close monitoring, surveillance, and public sensitization by the department, the rate of infestation has increased considerably and is more pronounced than the October-November-December cropping season. At the end of April, the infestation rate has exceeded 20 percent of all cropped areas and this is likely to lower expected production at the end of the cropping season.
- Flash floods witnessed in April washed away several farms on steep slopes and flooded several others that were on flat poorly drained areas. No replanting was carried out in these areas.

4.0 MARKET PERFORMANCE

4.1 LIVESTOCK MARKETING

4.1.1 Cattle Prices

- There was a marginal decrease in cattle prices in April. The average price of a mature 4-year old bull decreased to Kshs 19,153 from Kshs 19,426 in the month of March. This marginal decrease was mainly influenced by market forces.
- Ngundune livestock market in the agro-pastoral livelihood zone reported highest prices of Kshs 28,000 while the least prices were reported in Mutuati market (also in the agro-pastoral livelihood zone) at Kshs 16,000.
- Overall, prices are expected to remain relatively high as livestock owners hold on to their stocks to increase their numbers and body conditions.

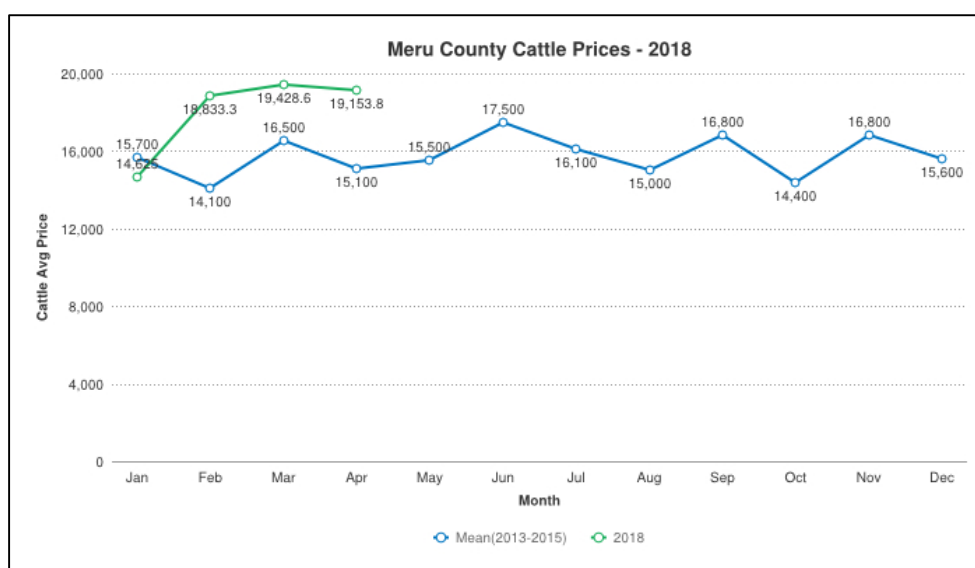


Figure 9: Average cattle market prices.

4.1.2 Goat Prices

- Goat prices have maintained a steady rise since February as owners have preferred to hold on to their stocks to increase their numbers and improve body conditions. Prices during the month of April averaged at Kshs 4,062 compared to Kshs 3,728 in March and Kshs 3,375 in February.
- Kangeta livestock market in the agro-pastoral livelihood zone recorded highest prices of Kshs 5,000 while Mikinduri market in rain-fed cropping livelihood zone recorded least prices at Kshs 3,200.

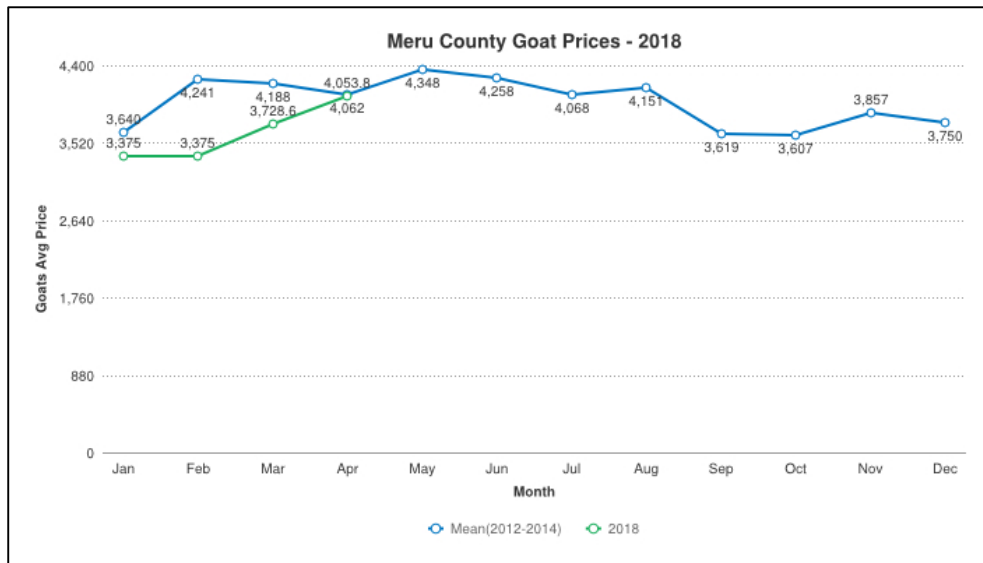


Figure 10: Average goat market prices.

4.2 CROP PRICES

4.2.1 Maize

- Increased maize imports by traders over the month of March and April have lowered overall maize grain prices. The average cost of a kilogram of maize grain was Kshs 37.5 in April compared to Kshs 39 in March. Despite the decline, current prices are still above the long-term average for the month.
- Prices are still expected to remain unusually high over the next three months.

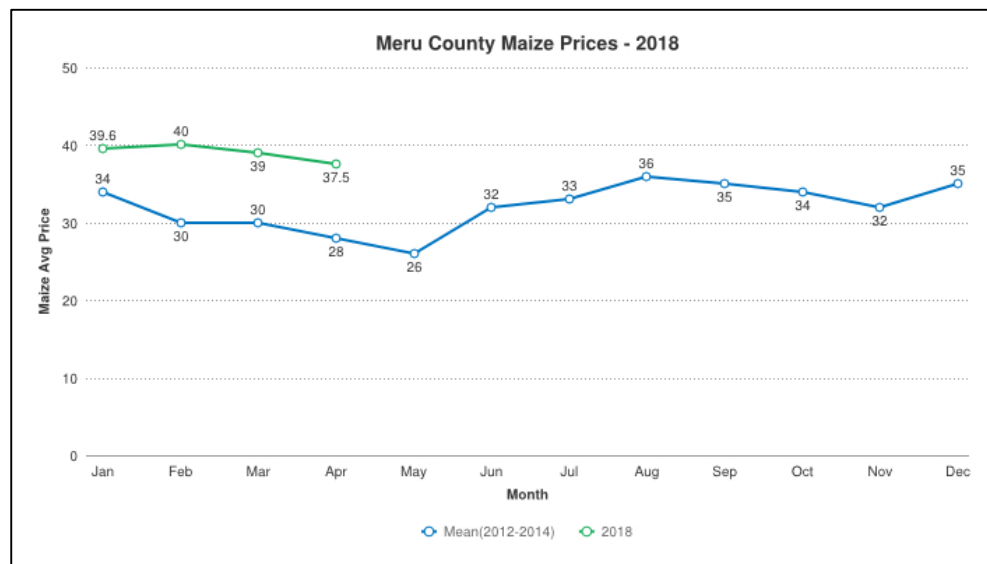


Figure 11: Average maize market prices.

4.2.3 Beans

- The average price of a kilogram of beans declined further to Kshs 61 in April compared to Kshs 65 in March. This decline has been brought about by increased imports from outside the County by traders.
- With the next harvest expected in June/July, prices are likely to remain volatile over the period.

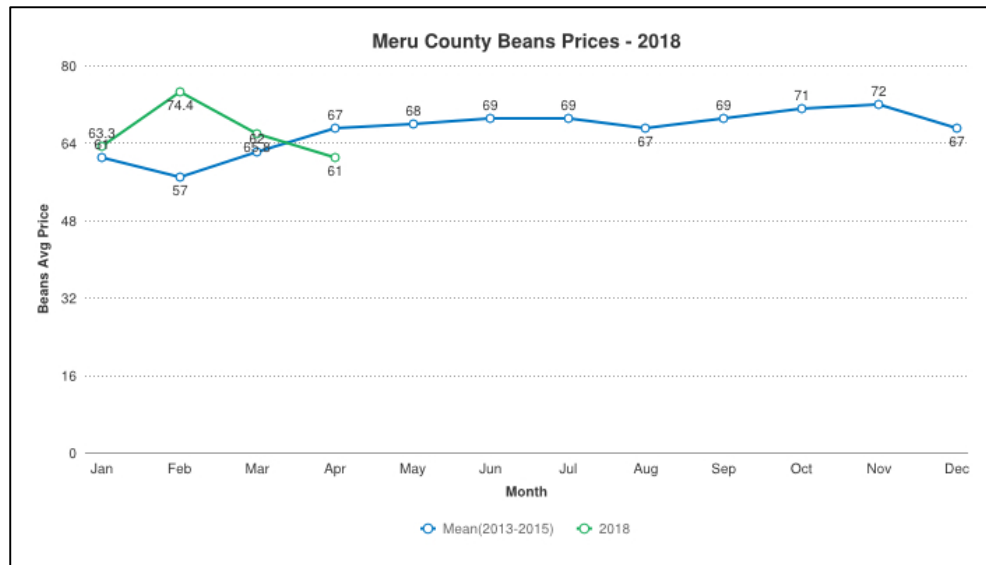


Figure 12: Average bean market prices

4.3 Terms of Trade (Goat/cereal price ratio)

- An increase in goat prices coupled by decreased maize prices led to favorable terms of trade in April compared to March. The sale of one goat in April could afford a household 108 kgs of maize grain compared to 95.6 kgs in March.
- With the expected increase in goat prices and a decrease in maize prices over the coming months, terms of trade are likely to also remain favorable.

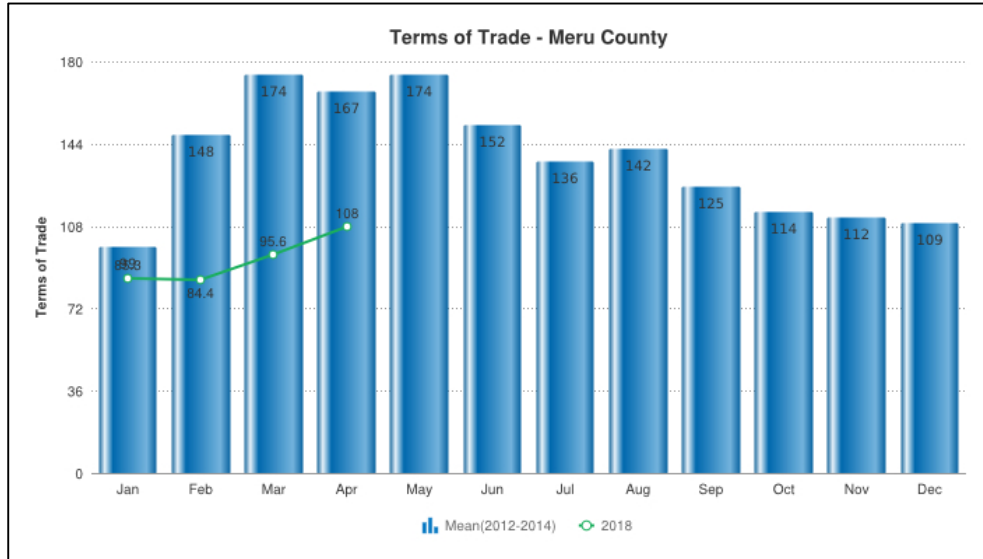


Figure 13: Terms of trade

5.0 FOOD CONSUMPTION AND NUTRITION STATUS

5.1 FOOD CONSUMPTION SCORE

- Household food consumption was varied this month with improvements noted in the agro-pastoral livelihood zone and slight deterioration noted in the rain-fed cropping livelihood zone. In the former, proportion of households with poor food consumption scores decreased to 12.2 percent compared to 34.6 percent in March, while those with borderline consumption scores increased to 61.1 percent this month from 43.2 percent last month.
- In the rain-fed cropping zone, households with acceptable scores decreased to 96.6 percent in April compared to 100 percent in March while those with borderline increased to 3.4 percent compared to none last month.
- Tigania West and Igembe North Sub-counties recorded the highest number of households with poor food consumption scores while Tigania East and Igembe Central recorded the highest number of households with acceptable food consumption scores.

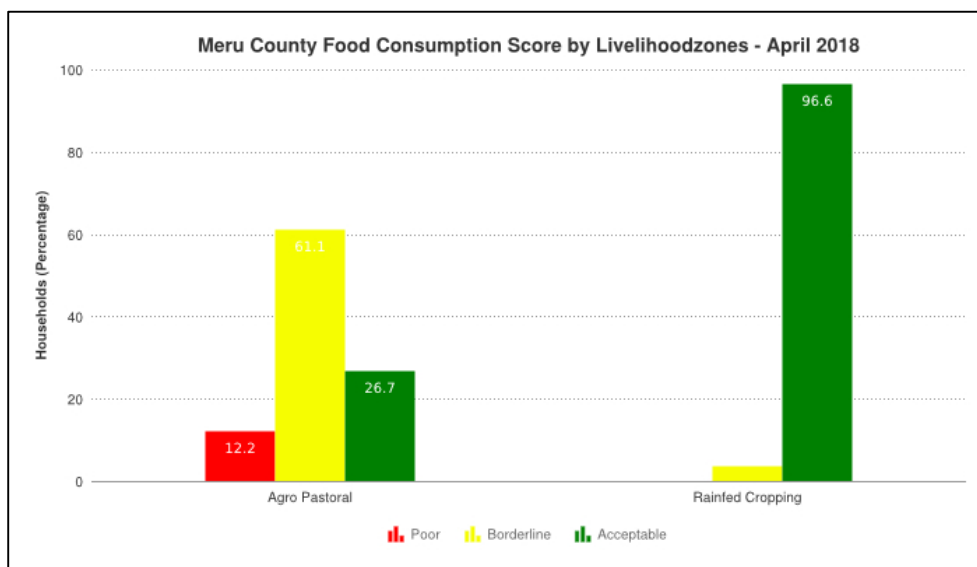


Figure 14: Food consumption scores per livelihood zone

5.2 HEALTH AND NUTRITION STATUS

5.2.1 Nutrition Status

- Improvements in household food consumption in April also translated to improved child nutrition in most households. Children under the age of five years who were at risk of malnutrition reduced to 12.6 percent of the sampled children compared to 14.9 in March.
- This declining trend is likely to continue over the coming months as food becomes more available.

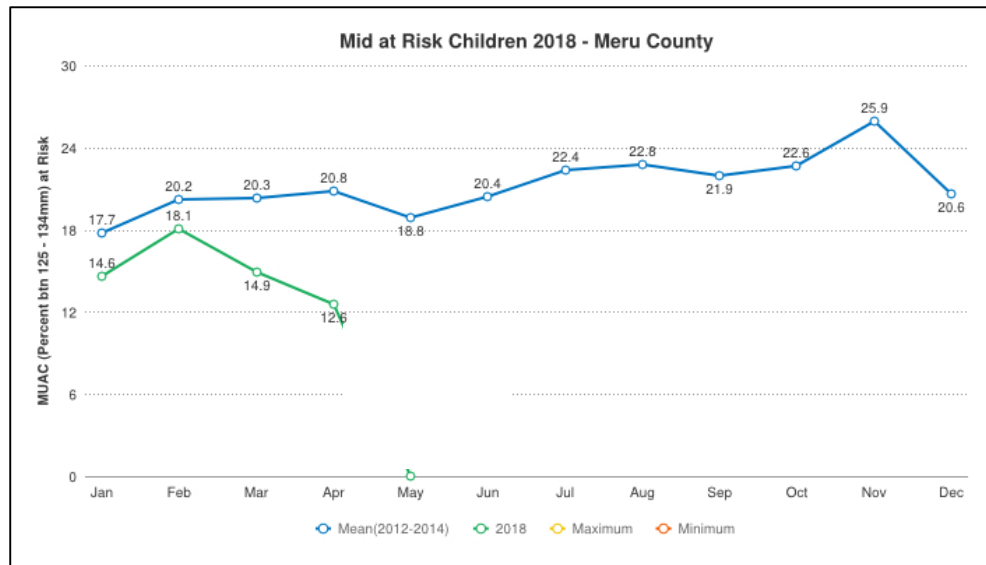


Figure 15: Percentage of children at risk of malnutrition

5.2.2 Health

- There were no human disease outbreaks noted this month

CURRENT INTERVENTION MEASURES (ACTION)

6.1 NON-FOOD INTERVENTIONS

- Anthrax vaccination campaign by the Meru County veterinary department in Igembe Central.

6.2 FOOD AID

- GOK relief food distributed to the general population of Igembe South. The following items were received and distributed:

	Food Item	Unit	Quantity
1.	Beans	90 Kg bag	250
2.	Rice	50 Kg bag	500
3.	Cooking Oil	24 X 500gm Carton	80
4.	Fortified food	Bale	10

7. EMERGING ISSUES

7.1 Insecurity/Conflict/Human Displacement

- Over 70 percent of livestock that had in-migrated into the grazing areas of the agro-pastoral livelihood zone from Laikipia and Isiolo Counties migrated back during the first two weeks of April.
- Cattle rustling was also reported during the month similar to last month. 70 heads of cattle, 19 goats, and 8 donkeys were stolen at Gakongorone in Igembe Central on 22nd April and have not since been recovered. Incidences of insecurity have forced local herders to amalgamate their livestock together in strategic areas within the wet/normal grazing areas.

8. RECOMMENDATIONS

- There is need to rehabilitate broken down boreholes especially Kandebene and Ndumuru to minimise pressure of the few that are currently functioning.

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 bio physical and production indicators are back to normal range.