National Drought Management Authority

MERU COUNTY

DROUGHT EARLY WARNING BULLETIN FOR FEBRUARY 2018

A Vision 2030 Flagship Project

FEBRUARY EW PHASE

Drought Situation & EW Phase Classification

Biophysical Indicators

- February was mainly dry across all livelihood zones with no off-season rains as would have been expected.
- There has been an accelerated decline in vegetation conditions across all livelihood zones with Vegetation Condition Index registering sustained decreases over January and February.
- Deterioration of pastures and browse conditions have also been noted especially in the Agro-pastoral livelihood zone.

Socio Economic Indicators (Impact Indicators)

Production indicators

- Livestock body conditions range from fair to poor in the Agro-pastoral livelihood and mostly fair in the Rain-fed cropping.
- Over 1,200 herds of camel from Isiolo County that migrated into Tigania East, Igembe Central last month are still present.
- Goats from Isiolo counties that had migrated into Igembe North and Igembe Central have moved into Tigania East. Cattle from Laikipia County have in-migrated into Buuri Sub-County and parts of Mt. Kenya forest. Tensions over pasture and water are high in these areas.
- Harvesting of maize concluded this month with 30 - 40 percent of LTA realized.

Access indicators

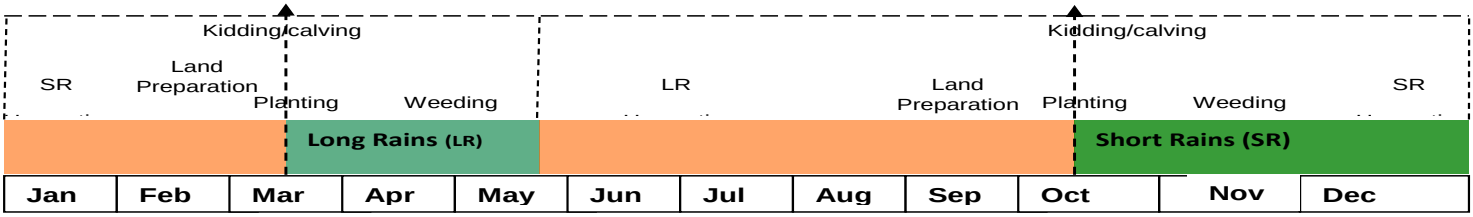
- Major water sources reduced to boreholes and rivers. Return distances for both livestock and households still above normal.
- Terms of trade declined marginally compared to last month

Utilization Indicators

- Proportion of children at risk of malnutrition increased compared to January.

Early Warning (EW) Phase Classification

Livelihood Zone	Phase	Trend
Mixed Farming	Normal	Worsening
Agro-pastoral	Alert	Worsening
Rain-fed Cropping	Alert	Worsening
Meru County (Meru North)	Alert	Worsening
Biophysical Indicators	**Value**	**Normal Range**
VCI-3Month (County)	28.4	>35
Igembe Central	12.85	>35
Igembe South	7.5	>35
Production indicators	**Value**	**Normal**
Crop Condition (Maize/legumes)	Maize harvesting / land clearing	Maize harvesting
Livestock Body Condition	Fair to Poor	Good
Milk Production	2.5	1 - 2 Litres
Livestock Migration Pattern	In-migration of camels/goats/cattle	No Migrations
Access Indicators	**Value**	**Normal**
Terms of Trade (Goat/cereal price ratio)	84.4 kg	148 kg
Return distance to water sources	12.7 km	<6.8 km
Utilization indicators	**Value**	**Normal**
Nutrition Status, MUAC (% at risk of malnutrition)	18.1	<20
Coping Strategy Index (CSI)	16.94	21.4



1.1 RAINFALL PERFORMANCE

- February remained largely dry across all livelihood zones except for light showers reported around the Nyambene ranges. A similar situation was also witnessed in January.
- The lack of off-season rains that are normally received in both January and February across all livelihood zones was not normal.

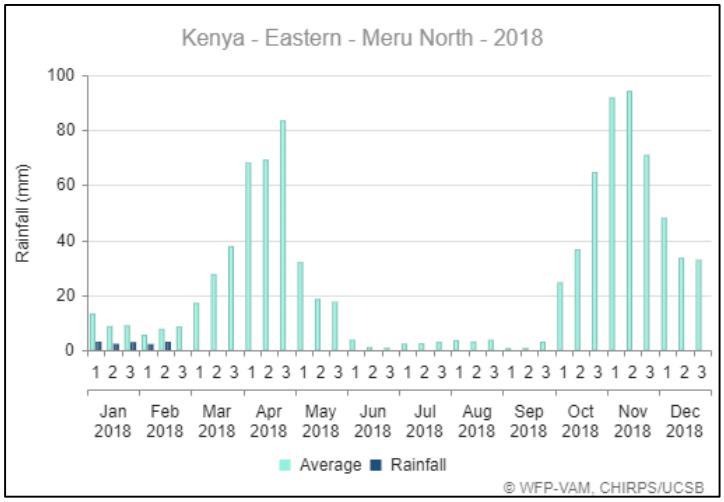


Figure 1: MERU North: Rainfall performance in February 2018

2. IMPACTS ON VEGETATION AND WATER

2.1 VEGETATION CONDITION

2.1 1 Vegetation Condition Index (VCI – 3 month)

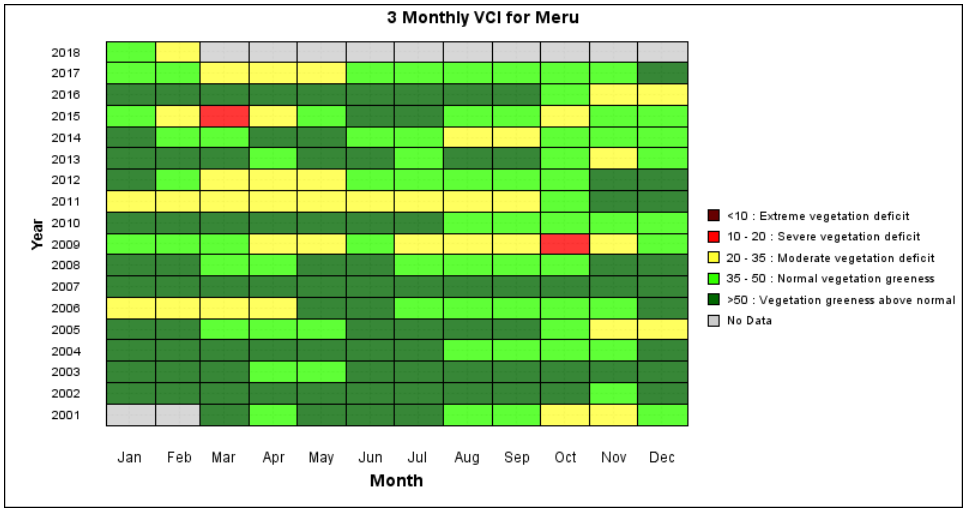


Figure 2a: VCI matrix for Meru County, 2001 – 2017

- A continuous dry spell over the months of January and February that has also been dominated by high land surface temperatures has led to significant deterioration of vegetation conditions across all livelihood zones. VCI (3-month) has been on a steady decline for the last two months having declined from 54.38 in December to 44.27 in January to 28.4 in February.
- Vegetation deficits were more pronounced in Igembe Central, Igembe South, Igembe North, Tigania East, and Tigania West.

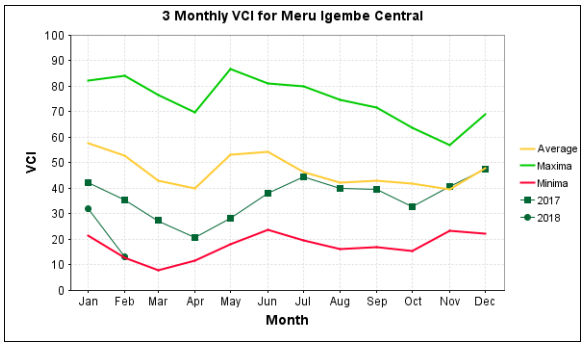


Figure 2b: VCI graph for Igembe Central, 2001 - 2018

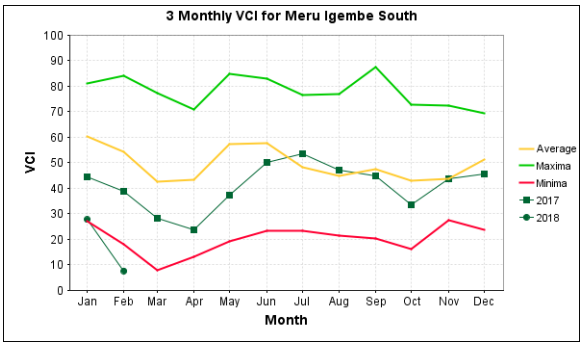


Figure 2b: VCI graph for Igembe South, 2017 - 2018

2.1.2 Pasture

- Current pasture conditions range from fair in the Rain-fed cropping livelihood zone to poor in the Agro-pastoral livelihood zone. This is in sharp contrast with the previous month where pastures ranged from good in the former to fair in the latter.
- Of the interviewed communities, 25 percent of them have reported pastures being of fair conditions compared to 67 percent the previous month. Those that reported pastures being of poor conditions this month were 75 percent compared to none the previous month.
- This rapid deterioration of pasture conditions (both quality and quantity) across all livelihood zones is not normal for this time of the year. Expected off season showers at the beginning of March as forecasted by the Kenya Meteorological department may reverse or slow down pasture deterioration until the onset of March-April-May rains later in the same month.

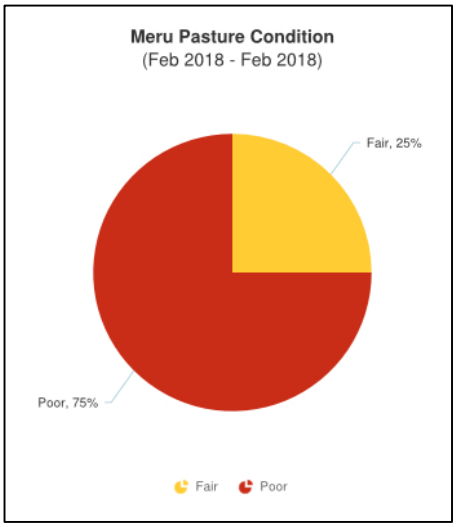


Figure 3: Pasture conditions

2.1.3 Browse

- Browse conditions have deteriorated further during this month compared to January. Browse conditions currently ranges from poor in most parts of the Agro-pastoral livelihood zone to fair in the Mixed farming livelihood zone. Seventy five percent of interviewed communities have reported browse being of fair conditions compared to forty four percent the previous month. Twenty five percent have reported browse as being of poor conditions compared to none last month.
- Current browse conditions are not normal for this month.

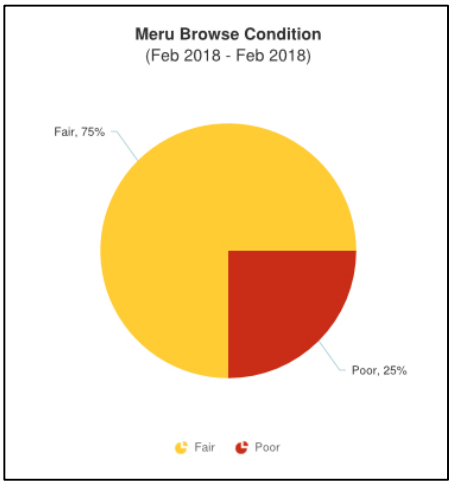


Figure 4: Browse conditions

2.2 WATER RESOURCE

2.2.1 Sources

- The main water sources available during the month have mainly been boreholes and rivers compared to springs, rivers, boreholes, pans and dams in January.
- Reduction in the numbers of available water sources indicates a worsening water situation across all livelihood zones which is not normal. Majority of pans, dams, and springs have dried up following poor recharge rates during the OND season last year.
- Although rivers have been among the major source this month, flows especially of seasonal rivers flowing into the Agro-pastoral livelihood zone have been minimal with majority of them drying up. As such, only 25 percent of interviewed communities relied on rivers compared to 31.3 percent in January.
- Boreholes have been the most dominant source for both households and livestock this month; particularly in the Agro-pastoral livelihood zone, with the respondents who relied on this source increasing to 75 percent compared to 43.8 percent in January.
- Commercial water vendors were also important sources especially in Igembe Central, Igembe North and parts of Tigania East and West Sub-Counties.

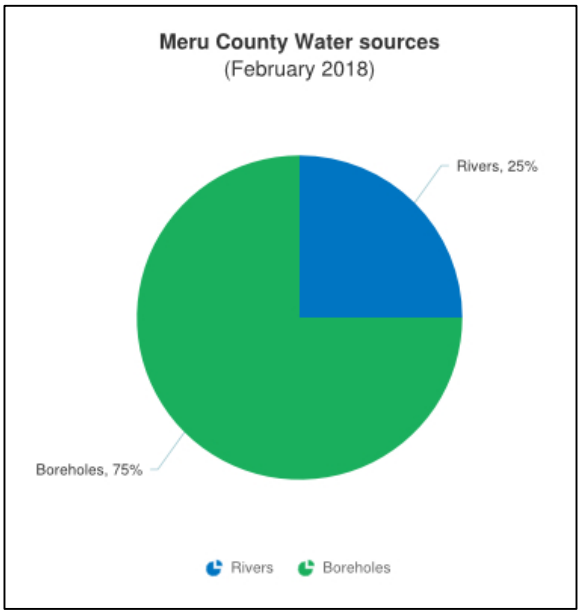


Figure 5: Major water sources

2.2.2 Household access and Utilization

- Household return distance from source have increased steadily over the last two months. Currently, the average return distance was 12.7 km having increased from 11.7 km in January. This increase has been attributed to drying up of sources especially seasonal rivers in the Agro-pastoral livelihood zone and lack of alternative sources closer to homesteads.

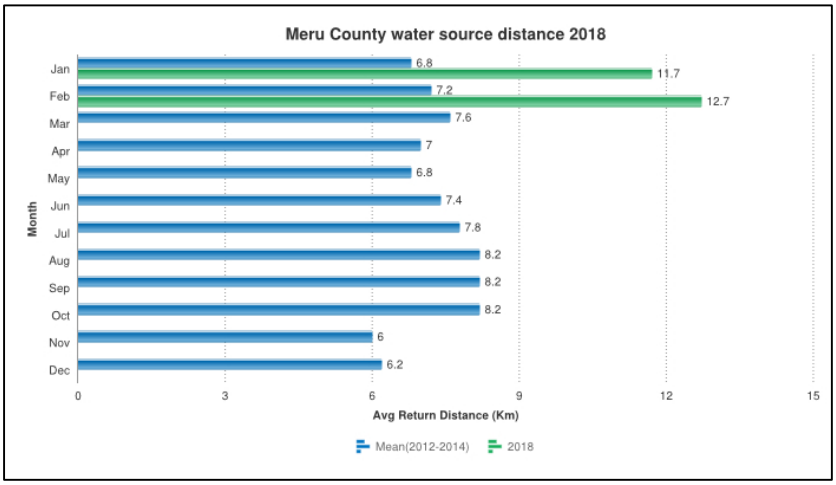


Figure 6: Household return distances to water sources.

- Cost of water remained fairly unchanged with a 20 litre jerry can costing Kshs 5 at source and Kshs 20 – 50 upon delivery depending on distance. This was the same as last month
- The upward trend is likely to prevail for the most part of March until the onset of MAM rains towards the end of the month.

2.2.3 Livestock access

- Average distances to watering points from grazing distances have increased from 13.7 km in January to 15.6 km this month. Dwindling pastures closer to watering points, drying of

important sources such as seasonal rivers, and breakdown of strategic boreholes have significantly contributed to the increase.

- Currently, watering points for livestock in the grazing areas of the Agro-pastoral livelihood zone have been reduced to Mwerondu, Kalimbene, Mariara, and Inono boreholes which are far apart. Kandebene and Ndumuru boreholes broke down earlier in the month.
- With pastures expected to decline further next month, distances are likely to remain abnormally high until the onset of the MAM rains.

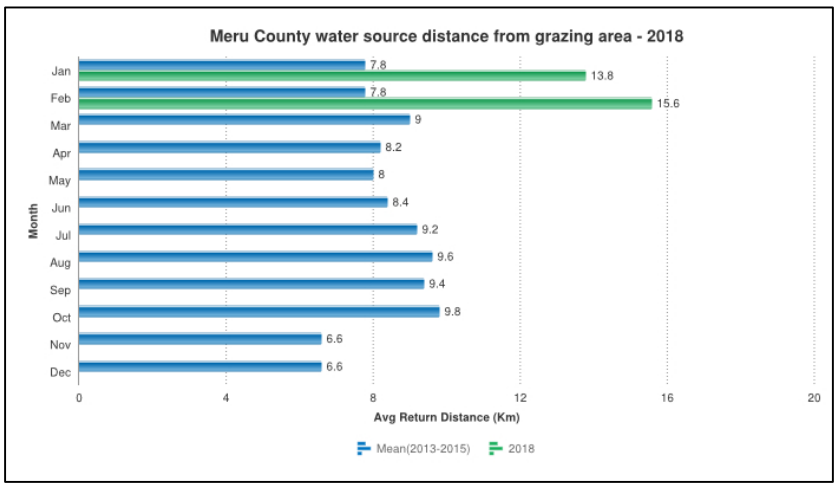


Figure 7: Livestock return watering distances from grazing areas

3.0 PRODUCTION INDICATORS

3.1 LIVESTOCK PRODUCTION

3.1.1 Livestock Body Condition

- Declining pasture conditions and long trekking distances to watering points negatively affected livestock body conditions during the month especially in the Agro-pastoral livelihood zone. In this zone, livestock are of fair to poor body conditions; a situation that is not normal for this month. Those in the Rain-fed cropping livelihood zone are largely of fair body conditions. Farmers in this zone are supplementing pastures with farm residues; mainly maize stovers.
- Body conditions of livestock in the Agro-pastoral livelihood are likely to deteriorate further next month.

3.1.2 Livestock Diseases

- Livestock diseases reported during the month were; Foot and Mouth Disease, Contagious Bovine Pleural-Pneumonia, goat and sheep pox. These diseases were mainly reported in the Agro-pastoral livelihood zone.
- Rabies and Newcastle disease was reported in all livelihood zones.

3.1.3 Milk Production

- There were minimal changes in amount of milk produced this month compared to January. On average, 2.5 litres of milk per household per day was obtained from cattle compared to 2.4 litres in January.
- With the current poor pastures and poor livestock body conditions especially in the Agro-pastoral livelihood zone, milk production is likely to remain relatively low next month.

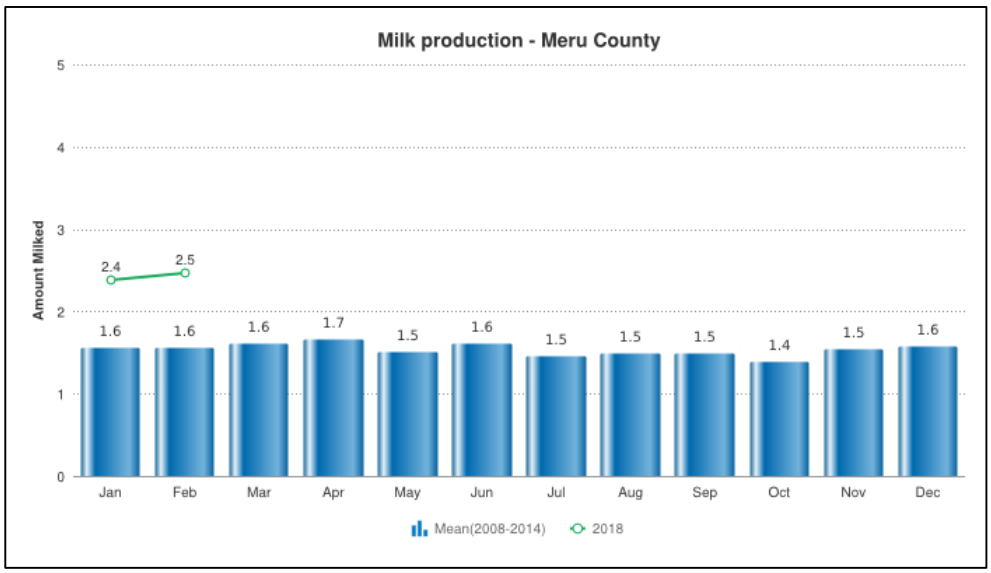


Figure 8: Milk production per household per day.

3.2 RAIN-FED CROP PRODUCTION

3.2.1 Stage and Condition of food Crops

- General food crop performance last season has been poor across all livelihood zones. Maize harvesting and clearance of farms for the next season were the major farm activities under rain-fed agriculture. An average of 30 – 40 percent of LTA for maize has been realised mostly in the

Rain-fed and Mixed Farming livelihood zones. Agro-pastoral realised 10 – 20 percent of the LTA.

- Current farm activities are normal for this time of the year.

4.0 MARKET PERFORMANCE

4.1 LIVESTOCK MARKETING

4.1.1 Cattle Prices

- Current average price of a mature 4-year old bull for the month of February was Kshs 18,833 compared to Kshs 14,833 in January. Current prices are 27 percent above those of January and 33.56 percent above the three year average for the month.
- Both lowest and highest prices were recorded in the Agro-pastoral livelihood zone. Kangeta market in Igembe Central Sub-county recorded least prices of Kshs 14,000 while Ngundune market in Tigania West Sub-county recorded highest prices at Kshs 25,000.
- With the current poor to fair body conditions, imports from Isiolo and Samburu counties by traders, and the prospect of good pastures once rains begin, cattle prices are likely to remain volatile over the next two months.

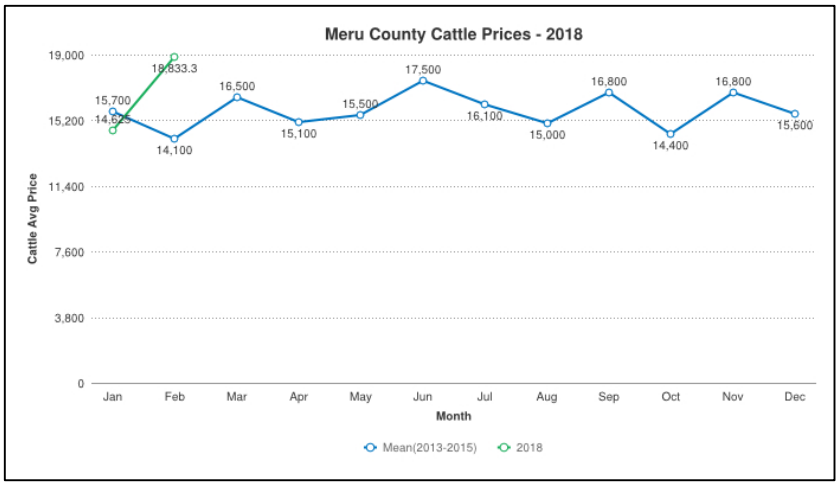


Figure 9: Average cattle market prices.

4.1.2 Goat Prices

- Goat prices remained largely unchanged this month in comparison to last month. The average price of a mature goat was Kshs 3,375 similar to January but were 20.42 percent below the three year average for the month.
- Increased supply in the markets by households following poor crop harvests and an increased demand for food and other household expenses are some of the contributing factors that have led to low goat prices over the last two months.
- Kangeta market recorded highest price of Kshs 4,000 while Ngundune market recorded an average price of Kshs 2,500; both in the Agro-pastoral livelihood zone.
- Prevailing prices are not expected to deviate much in the next two months.

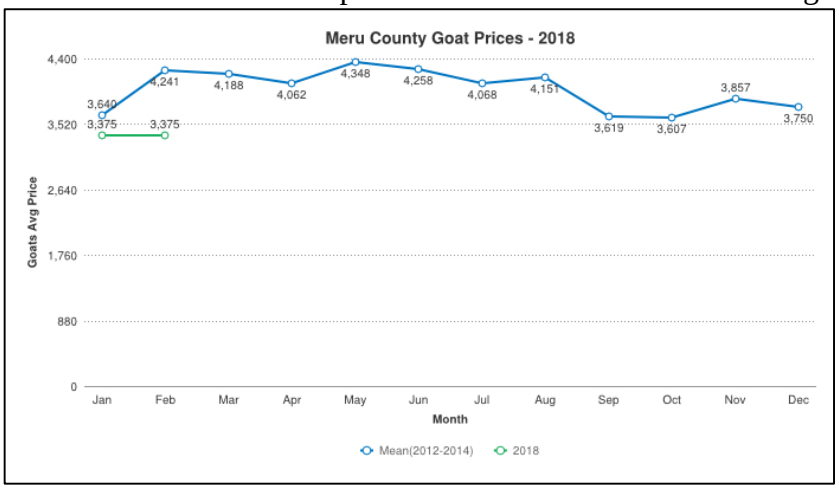


Figure 10: Average goat market prices.

4.2 CROP PRICES

4.2.1 Maize

- With the actual realisation of poor maize harvests, maize prices have increased with a kilogram of maize retailing at Kshs 41 compared to Kshs 39 last month. Current prices are Kshs 10 above the three year average for the month.
- Prices are expected to increase further once planting for the next season commences next month.

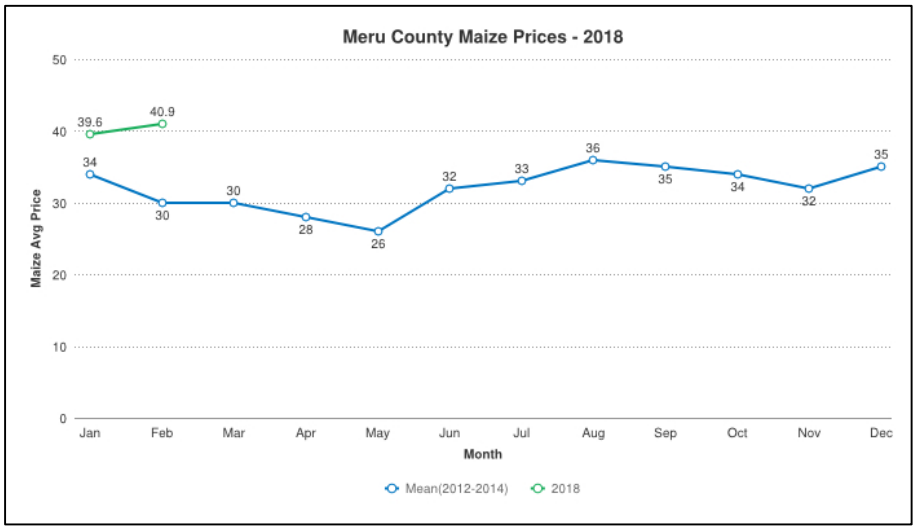


Figure 11: Average maize market prices.

4.2.3 Beans

- Prices of beans have increased significantly this month to an average of Kshs 74 per kilogram compared to Kshs 63 per kilogram in January and are 29 percent above the three year average for the month.
- Prices are expected to maintain an upward trend in the coming months as stocks from previous poor harvest diminish.

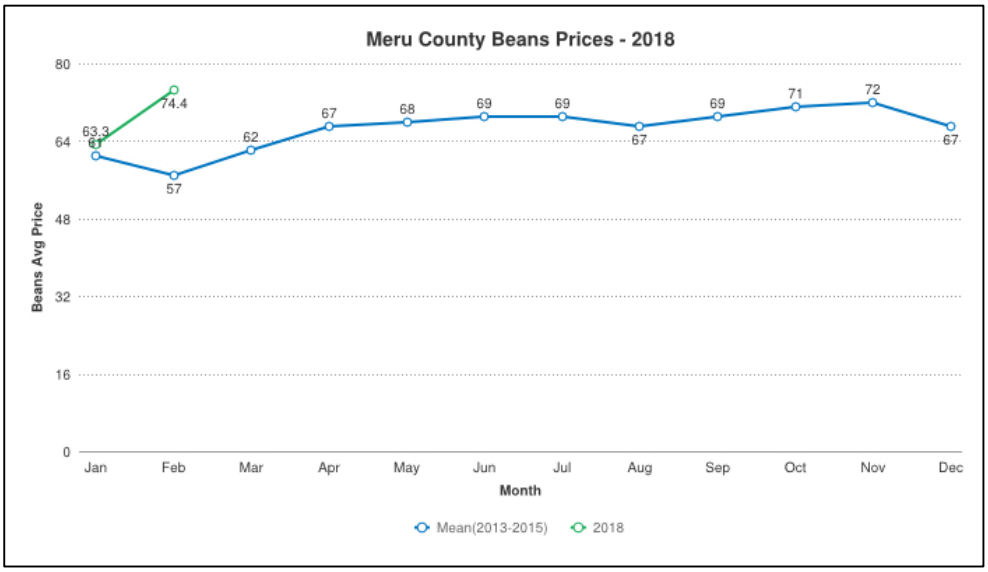


Figure 12: Average bean market prices

4.3 Terms of Trade (Goat/cereal price ratio)

- Terms of trade declined though marginally following a slight increase in maize prices this month while goat prices remained unchanged. The sale of a mature goat could afford 84.4 kilograms of maize compared to 85.3 in January.
- With maize prices expected to maintain an upward trend, there are high chances of depressed terms of trade in the coming months.

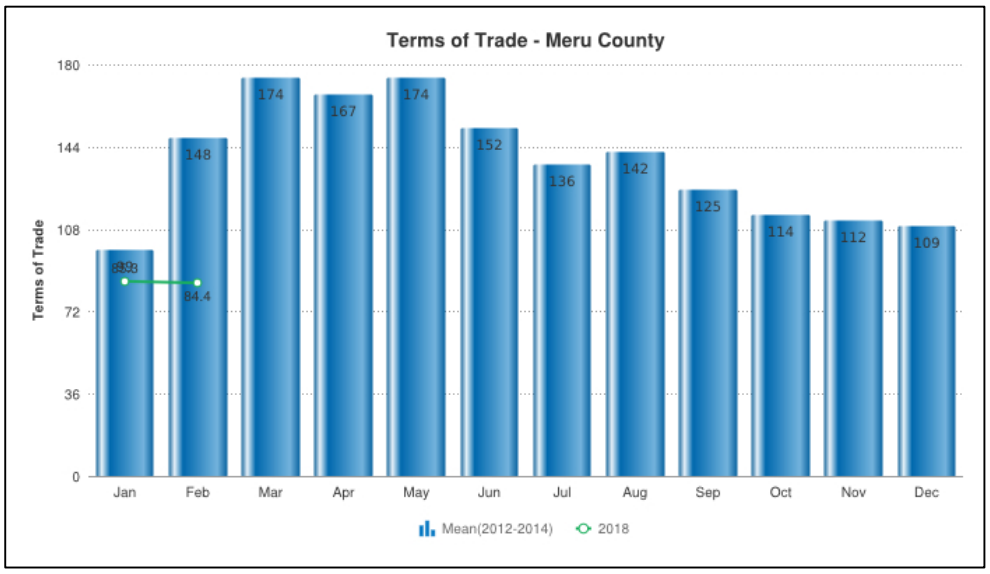


Figure 13: Terms of trade

5.0 FOOD CONSUMPTION AND NUTRITION STATUS

5.1 FOOD CONSUMPTION SCORE

- Food consumption scores for households were varied this month compared to January. Those with poor consumption scores increased to 14 percent compared to 2.75 percent last month. Those with borderline food consumption scores reduced to 30 percent compared to 38 percent last month while those with acceptable scores remained unchanged. This indicates that more households who had borderline consumption scores fell into poor category while none improved to acceptable category.
- Households with poor food consumption scores were mainly in the Agro-pastoral livelihood zone especially in Tigania West and Igembe Central.

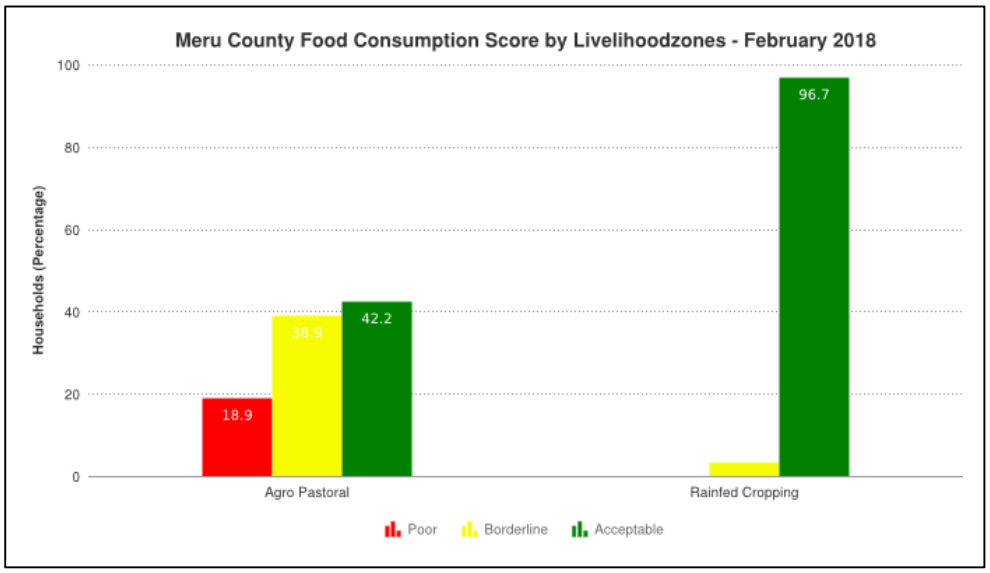


Figure 14: Food consumption scores per livelihood zone

5.2 HEALTH AND NUTRITION STATUS

5.2.1 Nutrition Status

- The proportion of children under the age of five years that are at risk of malnutrition increased to 18.1 percent this month compared to 14.6 percent last month. This increase can be closely tied to the increase in the number of households with poor food consumption scores; mostly in the Agro-pastoral livelihood zone **(see section 5.1)**. Despite the increase, current figures are 10 percent below the LTA for the month.

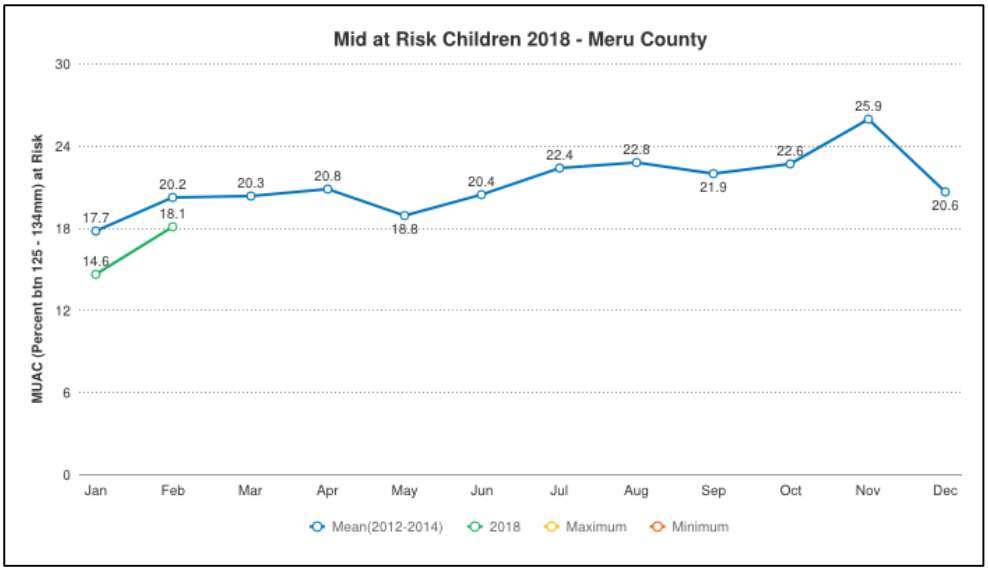


Figure 15: Percentage of children at risk of malnutrition

5.2.2 Health

- There were no human disease outbreaks noted this month

CURRENT INTERVENTION MEASURES (ACTION)

6.1 NON-FOOD INTERVENTIONS

- No none food aid interventions were noted this month

6.2 FOOD AID

- General school feeding in Rikiau primary school, Kandubai primary school, and Marioni primary school in Igembe Central Sub-county by CHALLIES (Diocese of Meru). This is scheduled to last for the remaining part of the school term.

7. EMERGING ISSUES

7.1 Insecurity/Conflict/Human Displacement

- More than 1200 herds of camel that in-migrated into the grazing areas of Igembe Central and Igembe North from Isiolo are still present. In addition, goats from mainly Isiolo County that had in-migrated into Igembe North and Igembe Central have now moved into the grazing areas of Tigania East. This in-migration has led to tensions with the host communities especially after the breaking down of Kandebene and Ndumuru boreholes.
- Livestock from Laikipia and Isiolo Counties have also in-migrated into Buuri Sub-county and the Mt. Kenya forest.
- More livestock in-migrations are expected into Meru County as pasture shortages worsen in the neighbouring counties.

8. RECOMMENDATIONS

- Expected increase in livestock in-migrations from neighbouring counties is likely to lead to conflicts over grazing areas, water, and with farmers as there prepare to plant next season's crop. It is important therefore to consider; community supported peace initiatives, water and grazing lands management, livestock vaccination, provision of livestock feed supplements, livestock offtake and security patrols. These activities will ensure peaceful co-existence during the drought period and minimise livestock loses.
- Fuel subsidies to operational boreholes and repair of broken down strategic boreholes; Kandebene and Ndumuru boreholes.
- Poor crop harvests have been witnessed over the last four cropping seasons. Majority of households have consumed seed stocks and are likely to be unable to plant the coming season. There is need therefore to supply drought recovery seeds to farmers especially those in the Agro-pastoral livelihood zone.

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 leas 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**
	> +1.5or 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 agriculturaldrought
	10 to 20	Severe agricultural drought
	<10	Extreme agriculturaldrought

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	Emerciated	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.