

**National Drought Management Authority  
THARAKA NITHI COUNTY (THARAKA)  
DROUGHT EARLY WARNING BULLETIN FOR DECEMBER 2017**



A Vision 2030 Flagship Project



**DECEMBER 2017 EW Phase**



**Early Warning Phase Classification**

Livelihood Zone	EW PHASE	TRENDS
Mixed Farming	Alert	Improving
Marginal Mixed Farming	Alert	Improving
Rainfed cropping	Alert	Improving
County	Alert	Improving
<b>Biophysical Indicators</b>	<b>Value</b>	<b>Normal Ranges</b>
VCI-3month (Tharaka)	32.55	>35
Water Sources	Fair	Normal
<b>Production Indicators</b>	<b>Value</b>	<b>Normal Ranges</b>
Livestock Migration Pattern	Migration	No Migration
Livestock Body Conditions	Fair to Good	Good
Milk Production	1.4Litres	>1.35 Litre
Livestock deaths (from drought)	No death	No death
<b>Access Indicators</b>	<b>Value</b>	<b>Normal</b>
Terms of Trade	88.073	<86
Milk Consumption	1.10 Litres	>1.07Litre
Water for Households	Good	Good
<b>Utilization indicators</b>	<b>Value</b>	<b>Range/Value</b>
MUAC	6.0	<8.2
Coping Strategy Index (CSI)	11.67	<52
Food Consumption (Marginal Mixed Farming)	91.8 Percent Acceptable	>80 Percent Acceptable

**Drought Situation & EW Phase Classification**

**Biophysical Indicators**

- An amount of 6mm of rain was received in one recording station in the County for the month of December. The rains received were below normal as compared to the long term average of 133mm for December.
- The Vegetation Condition Index (VCI3M) increased from 28.97 to 32.55 indicating a moderate deficit in vegetation December.
- The water status level was normal in the county during the month of December.

**Socio Economic Indicators (Impact Indicators)**

**Production Indicators**

- The condition of pasture and browse were fair and improving compared to that of the previous Month. Livestock body condition for both cattle and goats were also fair and improving due to improved pasture and browse compared to the previous months.
- Farming activities reported in the month of December were mostly harvesting.

**Access Indicators**

- There was an increase in livestock prices due to increased feeds. Maize prices and millet prices decreased due to the ongoing harvest.
- Milk production and consumption per household level increased from that of the previous months.

**Utilization Indicators**

- Percentage of children at risk of malnutrition decreased from 7.4% in November to 6.0 % in December.

<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>Kidding (Sept)</li> <li>Increased HH Food Stocks</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

**Seasonal Calendar**

## BIOPHYSICAL INDICATORS

### 1.0 MEASURING DROUGHT HAZARD

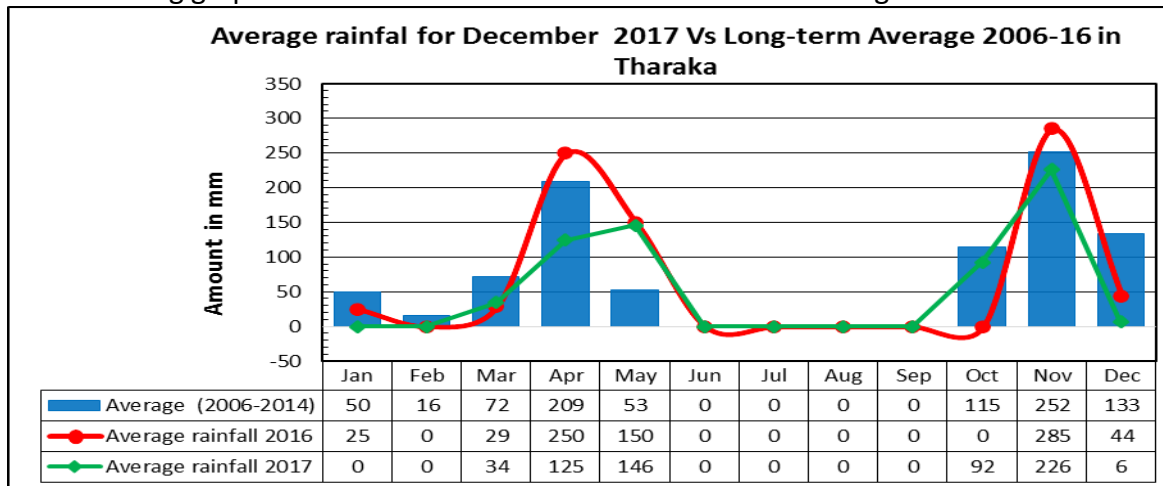
#### 1.1 METEOROLOGICAL DROUGHT

##### 1.1.1 Actual Rainfall

- Rainfall onset was on the second week of October while cessation was at the last week of November. An average of 6 mm of Rain was received in the county for the month of December.
- With reference to the long-term average, rainfall performance for December of 6mm was lower than the long term average of 133 mm for December.

##### 1.1.2 Rainfall Station data

- The following graph shows the actual rainfall received in mm during the month of November.

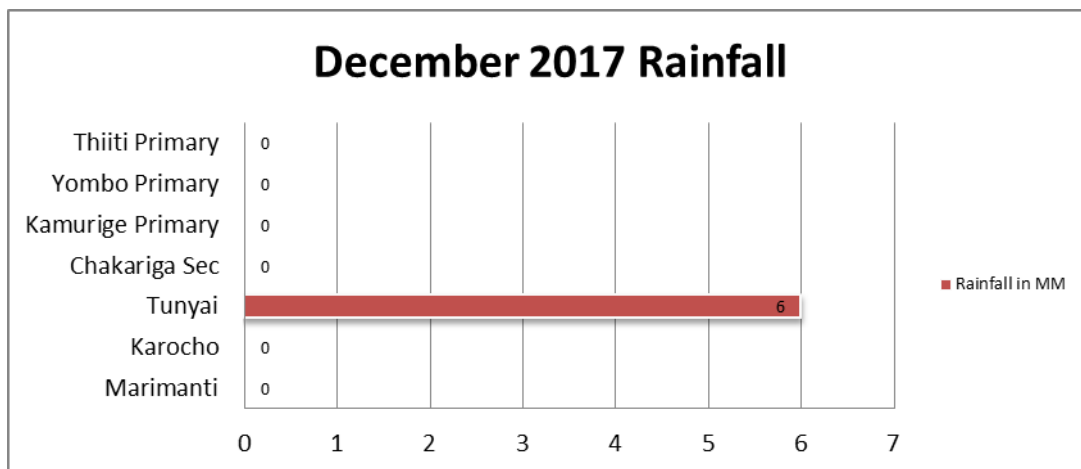


##### 1.1.3 Spatial and Temporal Distribution

- The spatial distribution of rainfall across the County was poor and uneven with rainfall being received in only 1 out of the 7 recording stations across all the three livelihood zones.
- Tunyai in the Mixed Farming Livelihood zone received 6 mm of rain for 1 day while no rain was received in the other stations.

##### 1.1.5 Rainfall per stations

The graph below illustrates the rainfall amount received per the 7 rainfall recording stations.



## 1.2 AGRICULTURAL DROUGHT

### 1.2.1 Vegetation Condition Index (VCI)

- The vegetation condition of Tharaka Nithi for the month of December was below normal compared to the long term average for the month of December.
- The December VCI for Tharaka was 32.55 compared to the Normal threshold index of 35 for December. This portrayed a moderate vegetation deficit compared to the long term average for December.

The matrix below shows the vegetation condition for the month of December 2017 classified based on VCI thresholds.

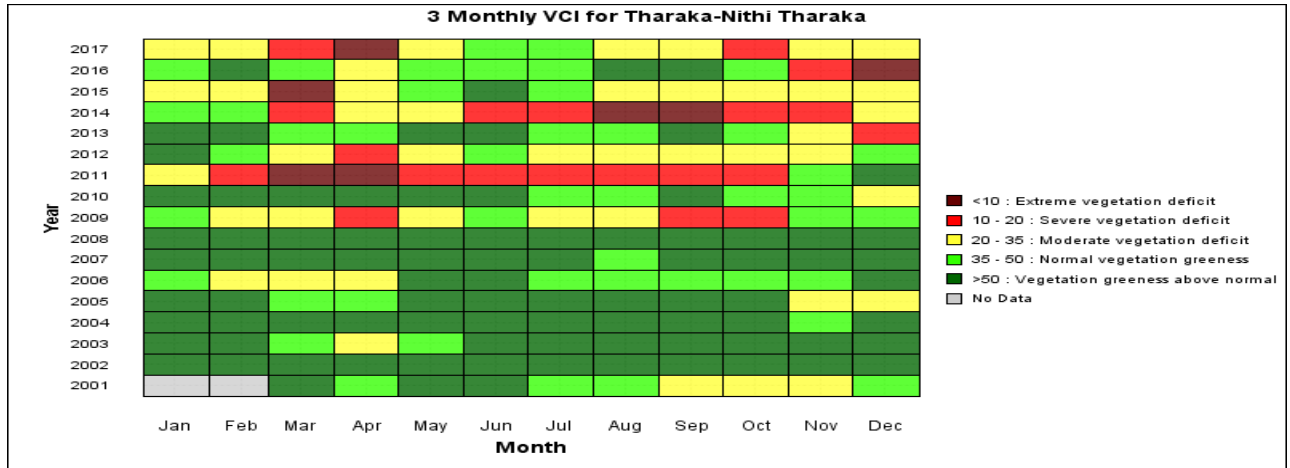


Figure 1 : VCI Matrix for Tharaka Nithi (Tharaka)

The chart below illustrates the VCI trend for Tharaka Nithi from January to December 2017.

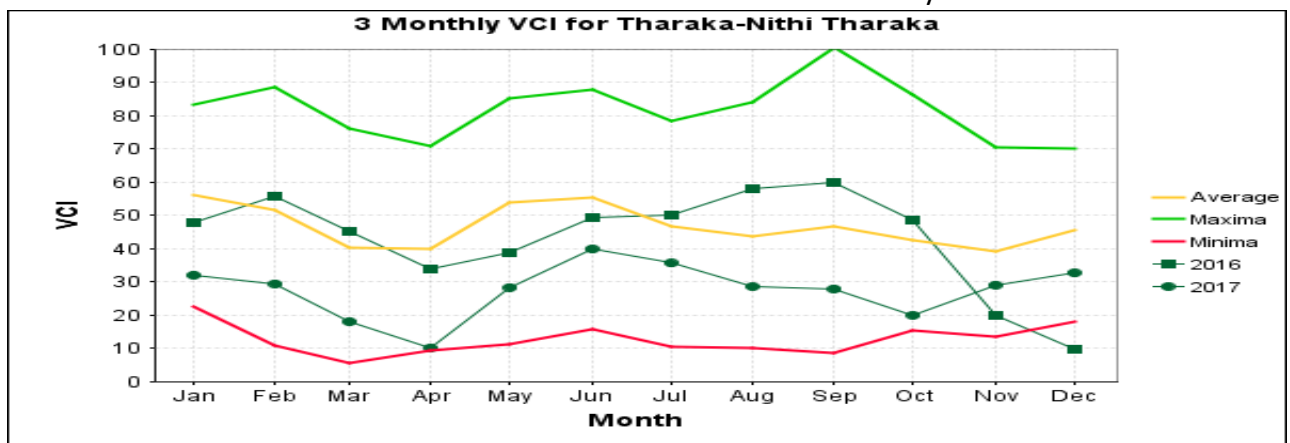


Figure 2: VCI Chart for Tharaka Nithi (Tharaka)

### 1.2.2 NATURAL VEGETATION AND PASTURE CONDITION

Field Observations (Pasture and Browse Conditions)

#### Pasture Condition

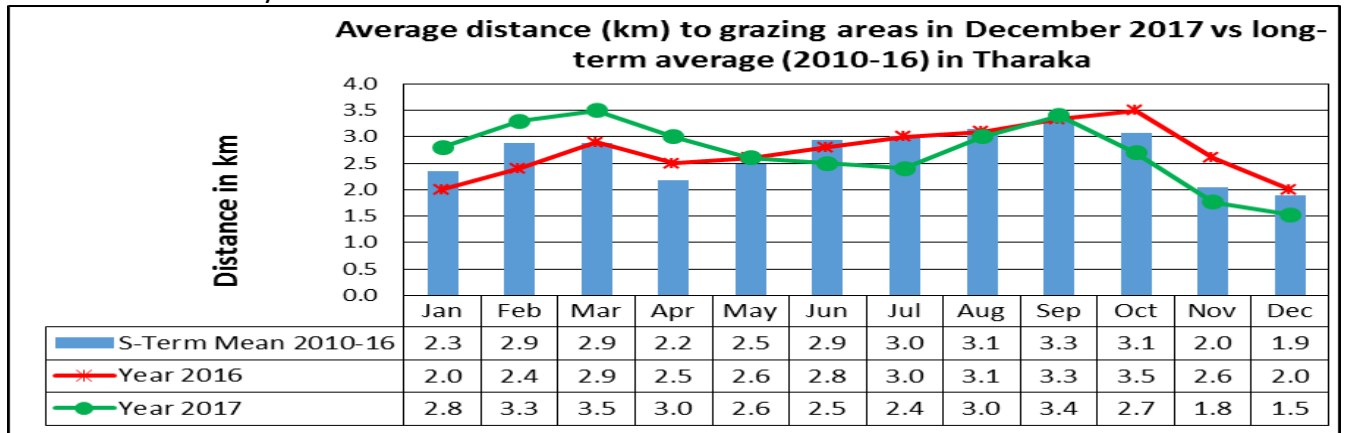
- Pasture condition in terms of quantity and quality was fair in December and it has continued to improve. The pasture condition was below normal compared to the long term average for the month of December but it improved compared to that of the previous month.
- Pasture condition was fair in most grazing fields across all the livelihood zones in the County.
- No migration was noted in the month of December since most grazing fields were having pasture.

#### Browse Condition

- Browse condition in terms of quantity and quality was fair and the condition continued to improve.
- The browse condition was normal compared to the long term average.

### 1.2.3 Distance to Grazing Areas

- The average distance to grazing areas decreased from 1.8Km recorded in November to 1.5Km in December. This was attributed to improvement of pasture and browse. The longest return distance to grazing areas was recorded in the Marginal Mixed Farming at 2.1 Km, Mixed Farming livelihood zones at 2 Km while in Rain fed Cropping it was 0.5 Km.
- The distance to grazing areas was 21.05 percent lower than the long term average of 1.9 km for this time of the year.

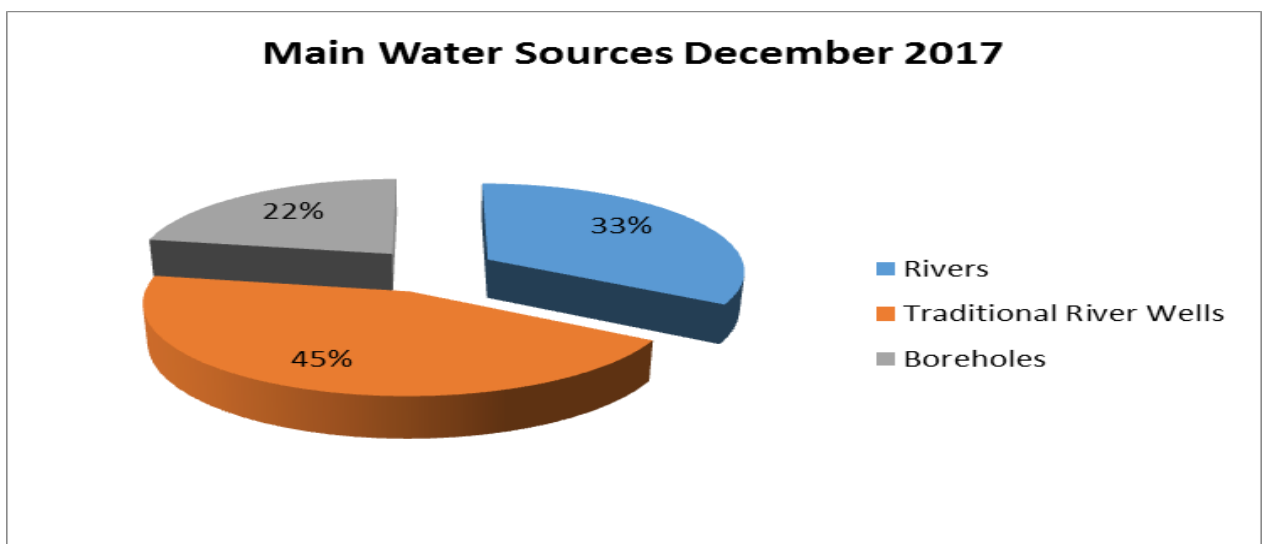


## HYDROLOGICAL DROUGHT

### 1.3 Water Sources and Availability

#### 1.3.1 Main Sources of Water

- The major sources of water for livestock and domestic use in Tharaka County were Traditional river wells, Rivers and Boreholes. Traditional River wells accounted for 45%, Rivers 33%, while Boreholes accounted for 22%.
- The state of water sources was ranked at index 5 in reference to the scale below implying the water availability was adequate in the month of December. The chart below shows percentage water sources as described above.



INDEX	STATE OF WATER	DESCRIPTION
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1	EMERGENCY SITUATION	All main water sources have dried up; only few boreholes still yielding significant amounts
2	STRONGLY INADEQUATE	Surface water sources have dried up while the underground water sources are yielding very little amounts of water. Breakages of boreholes contribute to worsen the situation. Acute water shortage in many areas within the livelihood
3	INADEQUATE	Surface water sources have dried up while the underground water sources are yielding modest amounts of water. Concentration of livestock around few water points contribute to spread communicable diseases and to degradation of rangeland
4	DECLINING	The water availability is below normal for the period, but showing declining trends.
5	NORMAL	The water availability is normal for the period
6	GOOD	The water availability is above normal for the period

## SOCIO-ECONOMIC INDICATORS

### 2.0 PRODUCTION INDICATORS

#### 2.1 Livestock Production

##### 2.1.2 Livestock Body Condition

- Livestock body condition for both cattle and shoats was fair across all the livelihood zones. This was attributed to improved state of pasture and browse.

BODY CONDITIONS	SCORE	WARNING STAGE
Emaciated, little muscle left	1	Emergency
Very thin no fat, bones visible	2	
Thin fore ribs visible	3	Alert Worsening/Alarm
Borderline fore-ribs not visible. 12 <sup>th</sup> & 13 <sup>th</sup> ribs visible	4	Alert
Moderate. Neither fat nor thin	5	Normal/Alert
Good smooth appearance	6	
Very Good Smooth with fat over back and tail head	7	Normal
Fat, Blocky. Bone over back not visible	8	
Very Fat Tail buried in fat	9	

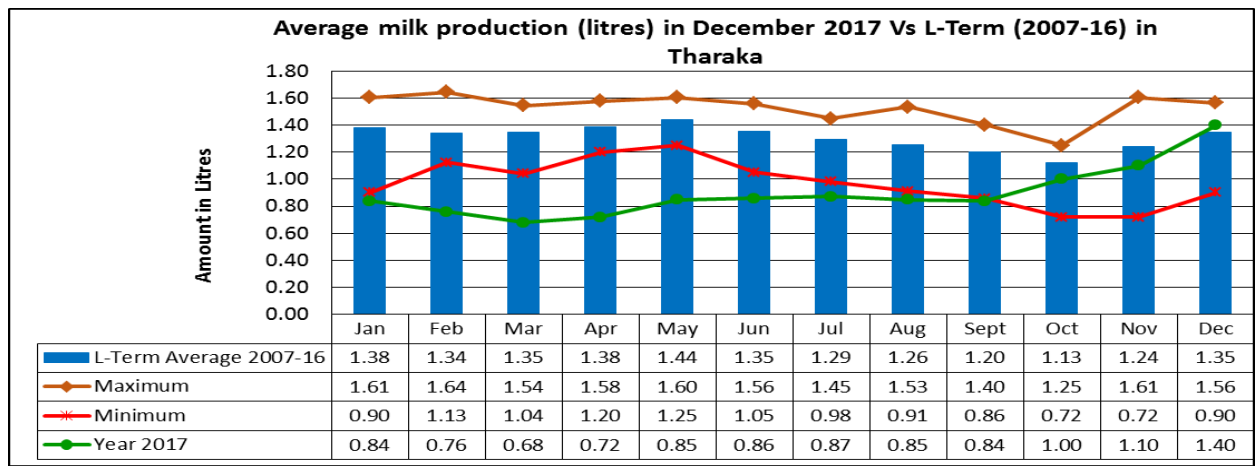
- For most livestock, current body condition can be rated at index 6 as per the threshold scale above

##### 2.1.3 Livestock Diseases and Migration

- No cases of livestock migration were reported in the county. Livestock diseases associated with drought decreased significantly.
- Other diseases reported during the period under review were Contagious Caprine Pleuropneumonia (CCPP), Trypanosomiasis, and Heart Water diseases, which are endemic across all livelihood zones.

##### 2.1.4 Milk Production

- Milk production increased from an average production of 1.10 litres per household in November to 1.4 litres per household in December.
- The highest milk production was recorded in the Marginal Mixed Farming livelihood zone at 2.0 litres while Mixed Farming livelihood and Rain fed livelihood zone had 1.3 litres and 1.2 litres per household each.



- Milk production per household was 3.7 percent higher than the 10-year average of 1.35 litre. This was attributed to improved pasture and browse in December.

## 2.2 Crop Production

### 2.2.1. Timeliness and Status of Crops

- Farming activities for the month under review was mainly harvesting of beans, cowpeas, pigeon peas and green grams. Cereal crops which were planted late are likely to record reduced yields. Such crops include sorghum, millet and maize. Reduced yield is attributed to early cessation of rains which was experienced at the end of November.
- Some areas which are likely to have total crop failures include: Irunduni, Ntoroni, Gaciongo, and parts of Kanjoro, Gakauni, parts of Shauri yako (Makutano), Kiamiramba, Nkiruni, Gatagani, Gaceuni, Kamacabi and Kamagayiu in Tharaka North. In Tharaka south, areas with total crop failure include: Ithaanga in Karocho and Rukenya in Ntugi location
- Crops planted during the short Rain season were: green grams, sorghum, millet, maize, cowpeas and pigeon peas.

### 2.2.2. Pests and Diseases

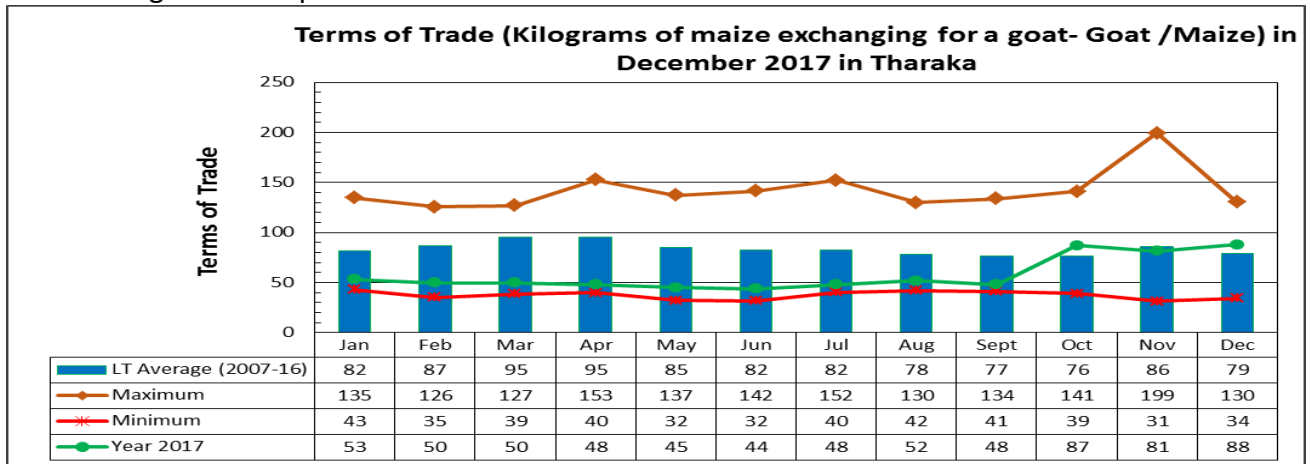
- There were reports of infestation of fall worms in Rain Fed areas of Nkondi and in most parts of the Mixed Farming Livelihood Zones. Most of the crops affected are green grams, Maize, millet and sorghum.
- Despite the good rains received, this pests are a major threat to food security hence need to support farmers with Agro- Chemicals in order to prevent pre- harvest losses.

### 3.0 ACCESS INDICATORS

#### 3.1 Livestock Prices

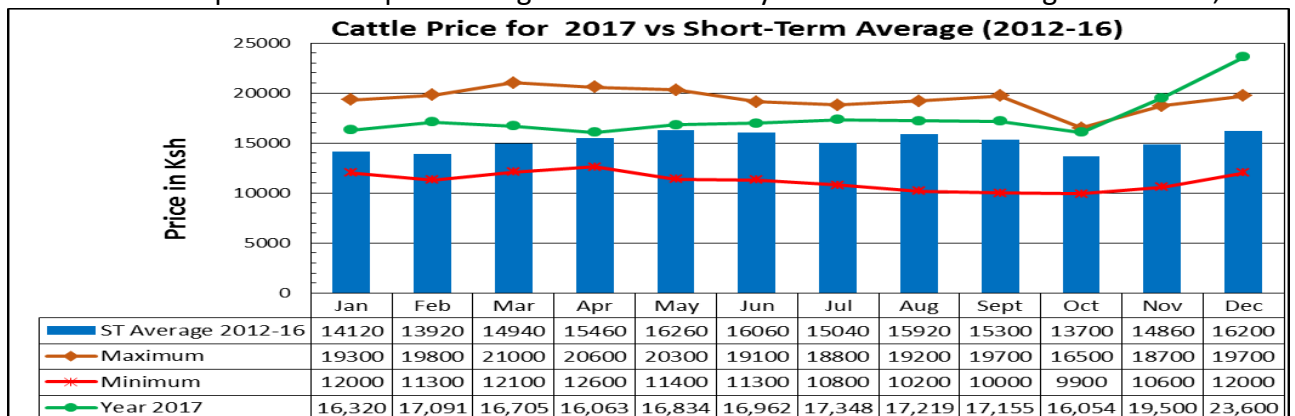
##### 3.1.1 Terms of Trade

- The Terms of Trade increased from 81 in the previous month to 88.073 in December due to an increase in goat price a decrease in maize price.
- The highest ratio was recorded in the Mixed Farming zone at 130; followed by Rain fed cropping Zone at 101 while Marginal Mixed Farming Livelihood had a ToT of 91.
- The ToT for the period under review was 11.39 percent higher than the long-term average value of 79 during the same period.



##### 3.1.2 Cattle Prices

- The average cattle price increased from Ksh. 19,500 recorded in the previous month to Ksh. 23,600 in the month of December. Cattle prices increased both at the farm gate and market levels, a factor that was attributed to the improved body condition following the regeneration of pasture across most of the grazing fields in all the livelihood zones.
- The Rain fed Cropping had the highest average price of Ksh 27,000, Mixed Farming livelihood zone had the price of Ksh 22,026 while that for the Marginal Mixed Farming Zone was Kshs 20,200.
- The current price was 46 percent higher than the five-year short-term average of Kshs 16,200.

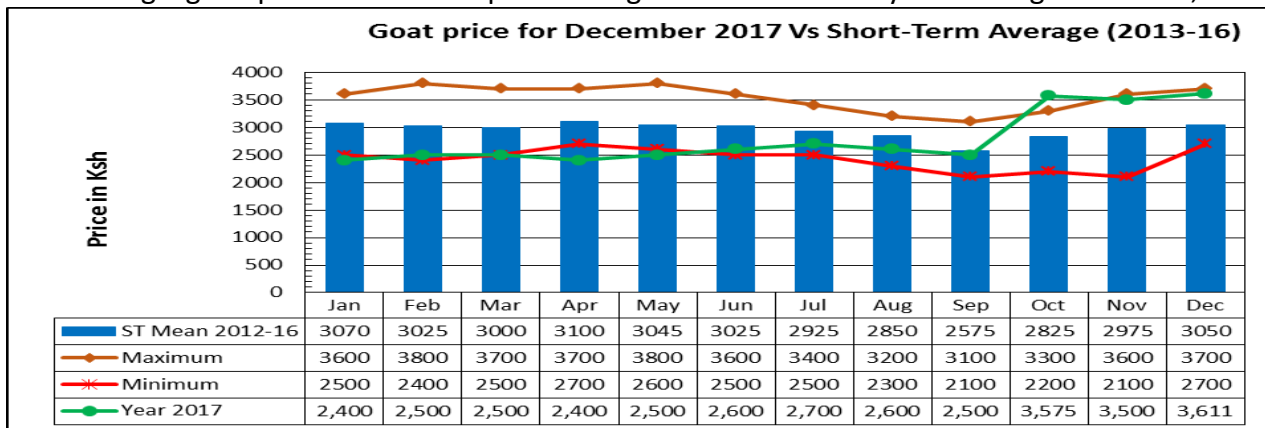


##### Goat Prices

- The average goat price increased from Ksh. 3,500 in November to Ksh. 3,611 in the month of December. The increase in price was attributed to improved pasture.
- The Mixed Farming livelihood zone had the highest price of Ksh. 4,940, Rain fed Cropping livelihood zone goat price was Ksh 4,550 while Marginal Mixed Farming recorded an average goat's price of Ksh. 3,640.



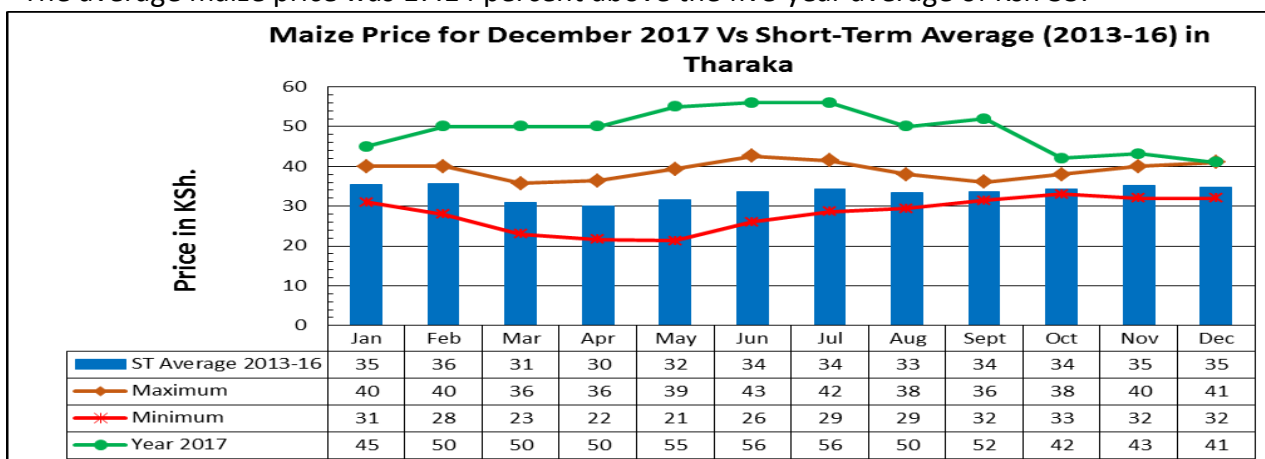
- The average goat price was 18.39 percent higher than the five-year average of Ksh 3,050.



## Price of Cereals and Other Food Products

### 3.2 Maize Prices

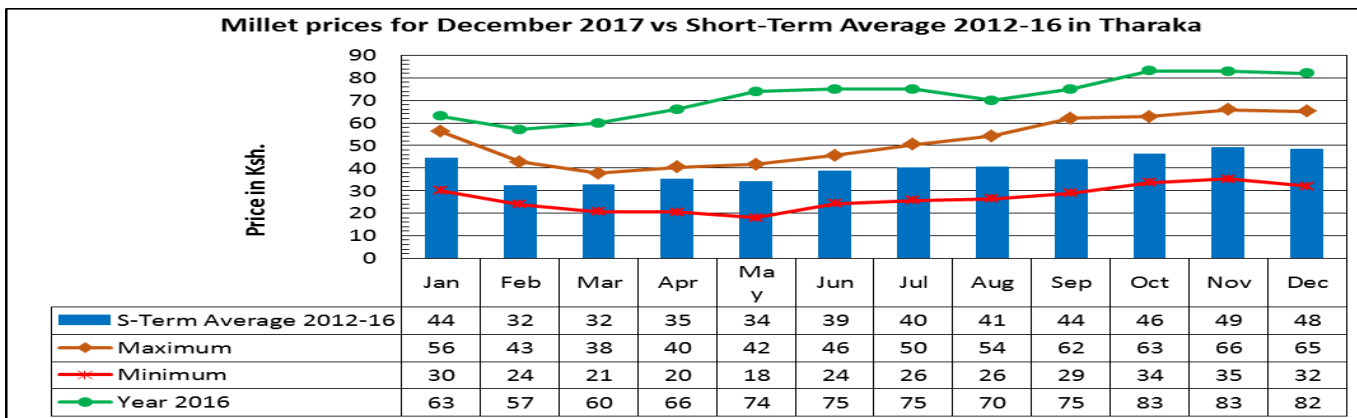
- The average market price of a kilogram of maize decreased from Ksh.43 in November to Kshs. 41 per Kg in December. This was attributed to increased supplies of maize from the ongoing harvests leading to decreased maize prices.
- The highest maize price was recorded in Rain Fed Cropping Zone at Kshs 45 per Kilogram, followed by Marginal Mixed Farming Zone at Kshs 40 per Kilogram while Mixed Farming Zone recorded the lowest price of Kshs 38 per Kilogram.
- The average maize price was 17.14 percent above the five-year average of Ksh 35.



### 3.3 Millet Price at Market Level

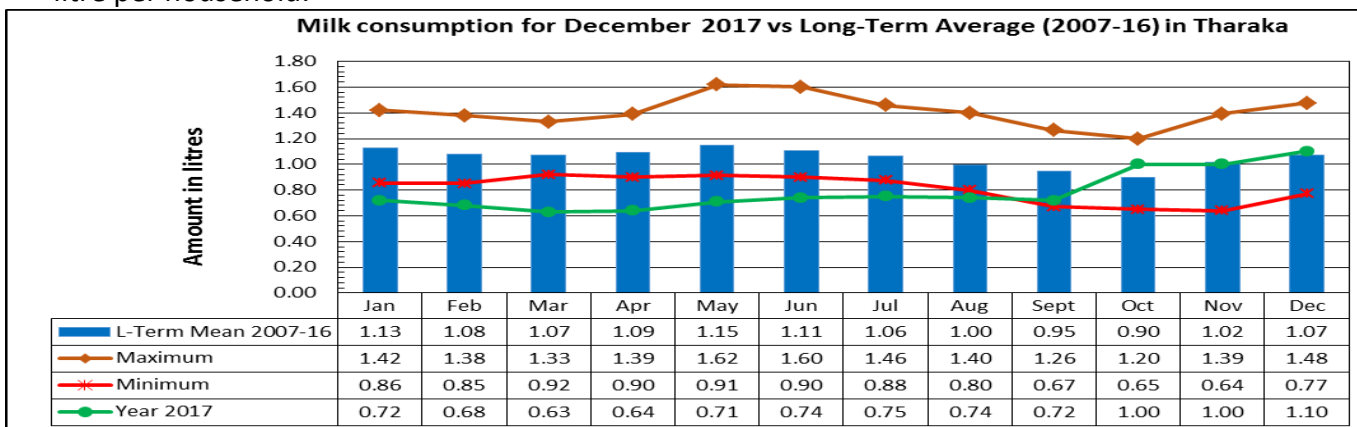
- The average market price of millet decreased from Kshs. 83 per Kg in November to Kshs 82 per Kg in December due to the commencement of the harvesting which increased their supply hence reducing the price.
- The highest market prices were recorded in Marginal Mixed Farming Livelihood Zone at Kshs 84/Kg, Followed by Mixed Farming livelihood Zone at Kshs 81/Kg while Rain Fed livelihood Zone recorded the price of Kshs 80/Kg.
- The millet price was 71 percent above the short-term average of Kshs.48 per Kg.



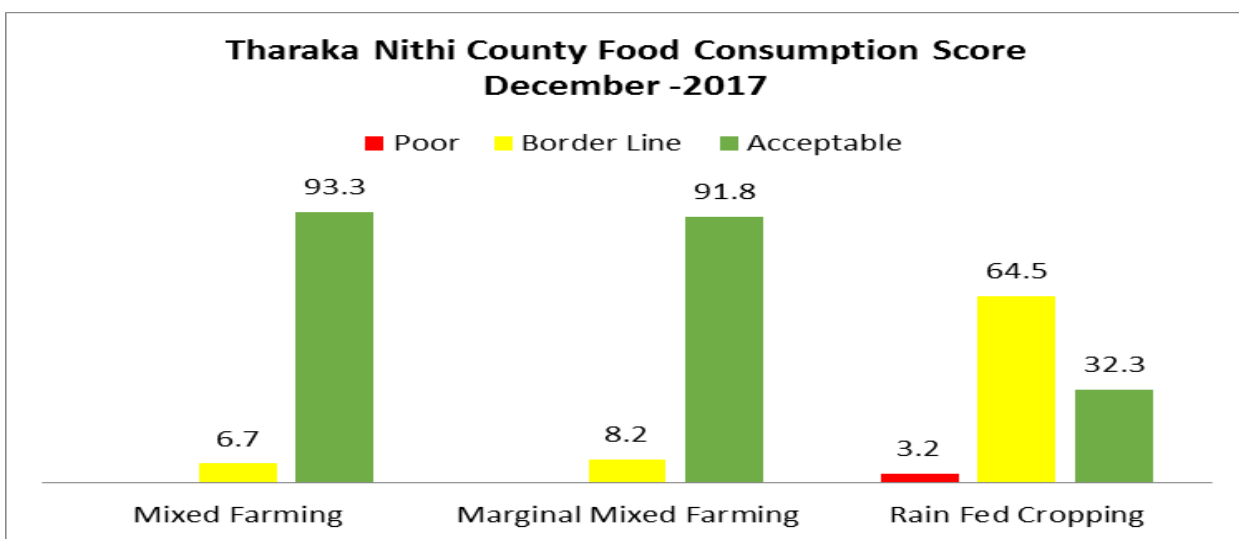


### 3.4 Milk Consumption

- The average milk consumption per household increased from 1.0 litre per household in November to 1.10 litres per household in December. The highest milk consumption was recorded in the Marginal Mixed Farming at 1.2 litres while households in Rain fed and Mixed Farming livelihood zones consumed 1.10 litres and 1.0 of a litre respectively.
- The average milk consumed was 2.0 percent lower than the 10-year long-term average of 1.07 litre per household.



#### 3.4.1 Food Consumption Score



- An average of about 27.533 percent of the households were food insecure with poor and borderline food consumption scores, attributed to low stock and low purchasing power at

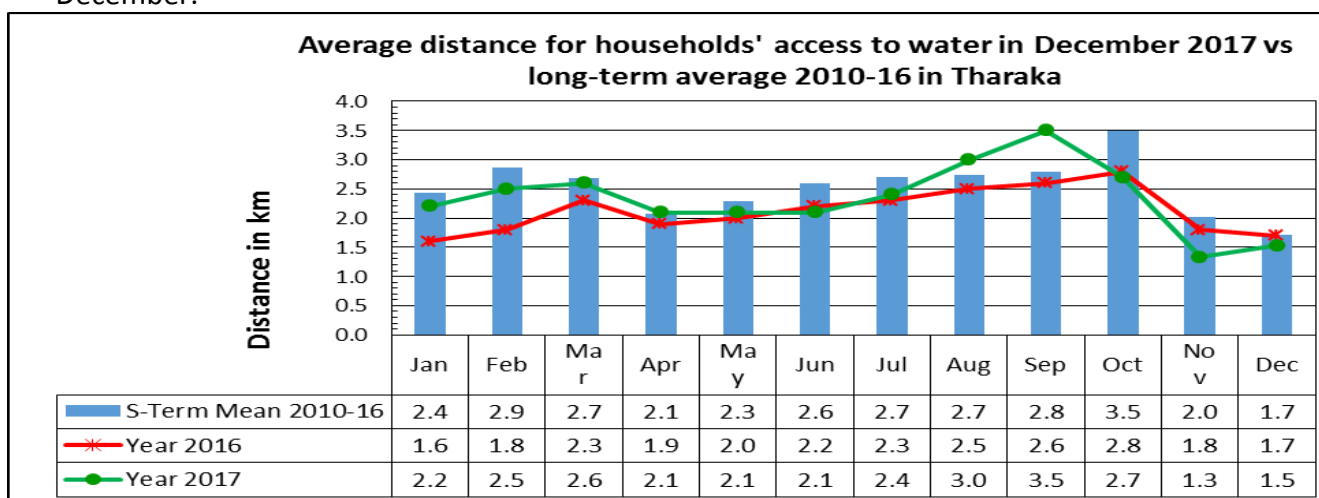
house hold levels resulting to a decline in food access during the month of December. The majority of Food Stressed Households were in the Rain Fed Livelihood Zones.

Period	Acceptable (%)	Borderline (%)	Poor (%)
February, 2017	31	53	16
March, 2017	30	52	18
April, 2017	27	53	20
May, 2017	26	52	23
June,2017	28	52.5	19
July,2017	30	65	15
August	26	56	18
September	26	52.33	21.666
October	70.8	26.8	2.3
November	72.23	23.9	3.9
December	72.47	26.47	1.067

- The poor food consumption score implies household are not consuming staples and vegetables every day and rarely consuming protein rich food, borderline imply household consuming staple, vegetable every day accompanied by oil and pulse a few times in a week while the acceptable imply households consuming staples, vegetables every day, and frequently accompanied by pulses.

### 3.5 Availability of Water for Household

- Average Household water distance increased from 1.3 km in November to 1.5 Km in the month of December. The increase in water distance was due to the reduction in the rainfall amount which led to the increased distance to water sources.
- The Marginal Mixed Farming livelihood recorded an average distance of 2.1 Km, Mixed Farming livelihood zone 2.0 Km while Rain Fed Cropping zone 0.5 Km.
- The distance of household access to water was lower than the long-term average of 1.7 Km for December.



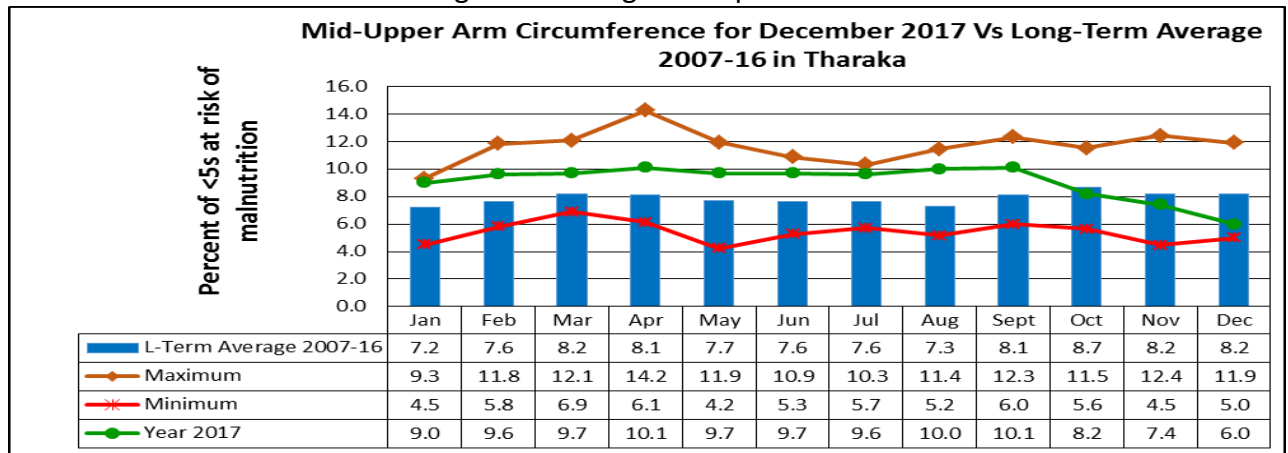
## 4.0 UTILISATION INDICATORS

### 4.1 Health and Nutrition Status

#### 4.1.1 MUAC

- The proportion of children between 6 to 59 months at risk of malnutrition whose MUAC measurement was below 135 mm decreased from 7.4 percent in November to 6.0 percent in December. This decrease in MUAC percentage is attributed to improvement in Food security of house hold compared to the previous month of November due to the commencement of the harvesting.
- The highest proportion of children at risk of malnutrition was recorded in the Marginal Mixed Farming and Mixed Farming livelihood zones.

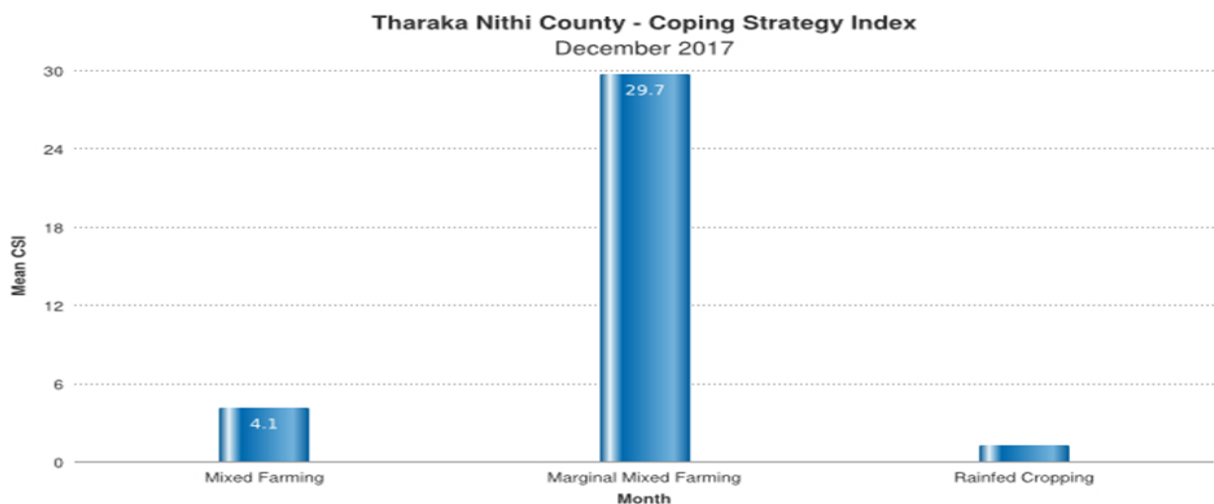
- The proportion of children at risk of malnutrition whose MUAC percentage measurement was below 135mm was below the long-term average of 8.2percent.



#### 4.1.2 Health

- The prevalence of most common diseases for the general population in Tharaka Nithi County include diseases of the respiratory system, malaria, skin disease, urinary tract infections and rheumatism while those mainly affecting children under five years include: diseases of the respiratory system, pneumonia, malaria, intestinal worms and skin diseases.
- The number of cases of diseases reported reduced due to improved food security at household level during this festive season.

#### 4.2 Coping Strategy Index



- The Coping Strategy Index (CSI) decreased from 11.7 in November to 11.67 in December which indicated a slight reduction in household stress due to lack of food or money to buy food during the month of December. This could be attributed to the commencement of harvesting.
- The highest CSI was recorded in the Marginal Mixed Farming zone at 29.7, followed by Mixed Farming Livelihood Zone at 4.1 while Rain Fed Cropping had the lowest CSI of 1.2.
- The most commonly employed coping strategy mechanisms during the month of December included: - Reliance on less preferred and or less expensive food, reduction of the number of meals and reduction in portion or size of meals.
- Some households employed livelihood based coping strategies such as sale of some household assets, spending of savings as well as borrowing of short term loans.

#### 5.0 Food Security Prognosis

- Cessation of the short rains was on the 3<sup>rd</sup> week of November. The temporal and spatial distribution of the rains in December was poor with few areas receiving showers.
- Some cereal crops which were planted early were in the harvesting stage in Mixed and Rain Fed Cropping Livelihood Zones of Karocho, Tunyai and parts of Mukothima, however, these were just a few numbers of farms. Pulses were being harvested in most farms across all livelihood zones.
- Due to early Cessation of rains, some areas which will have total crop failures include : Irunduni, Ntoroni, Gaciongo, parts of Kanjoro, Gakauni, parts of Shauri yako (Makutano), Kiamiramba, Nkiruni, Gatagani, Gaceuni, Kamacabi and Kamagayiu in Tharaka North. In Tharaka south, areas with total crop failure include: Ithaanga in Karocho and Rukenya in Ntugi location.
- Status of water sources was normal with household and Livestock watering distance being within the normal range.
- Browse and pasture condition continued to improve further resulting to shorter grazing distance, improved milk production; improved livestock body condition and better Livestock prices.
- Internal livestock Migration reduced along the park due to pasture and browse improvement resulting to reduced competition for pasture and less conflicts.
- Levels of Global Acute Malnutrition reduced across most of the livelihood Zones due to improvement in household food security from the harvested food commodities.
- Commencement of the harvesting has led to increased food stocks at household level, low commodity prices hence improved household food security. This will continue till the end of the harvesting period. Crop failure in the above mentioned areas is expected to affect food security on the long run.
- Terms of Trade was still favourable to Livestock farmers compared to crop farmers due to higher livestock prices compared to the long term average.
- Households in the County are likely to improve from the stressed phase (IPC Phase 2) across all livelihood zones during this harvesting period.

## **6.0 EMERGING ISSUES**

### **6.1 Insecurity**

- Resource based conflicts have reduced significantly during the month of December. This was due to improved pasture and browse reducing pressure and competition on the grazing fields.
- Theft and small crimes also decreased due to increase in casual labour related to Agriculture as harvesting has commenced.

## **7.0 CURRENT INTERVENTIONS AND RECOMMENDATIONS**

### **7.1 Non-Food Interventions**

- Keiranthi Dam Project funded by NDMA in Kathanga Chini at a total amount of Kshs 10,000,000 is in its final stage of completion.
- Establishment of 5 farm ponds by NDMA to promote small scale irrigation subsistence Farming through the Food for Asset Project in Kanjoro, Thwathanju, Kamariro and Ntuge.
- Distribution of 300Kg of livestock grass seeds by NDMA through the Food for Asset Project to 20 farm groups.
- Capacity Building of farmers on rain water harvesting structures and construction of terraces and soil bans by NDMA through the Food for Asset Project.
- Eighty bags of livestock range cubes (pellets) were provided by the ministry of livestock in October and are at Marimanti livestock department buildings still awaiting distribution.

### **7.2 Recommendations**

- Upscale establishment of Farm ponds to promote rain water harvesting for small scale subsistence irrigation farming by NDMA through the Food for Asset (FFA) Project.
- Promote the establishment and management of livestock fodder.
- Upscale Intra and inter county livestock vaccination, deworming, vector control and treatment of the sick animals during this drought alert period.
- Provision of water treatment chemicals at household level and at piped water reservoirs to minimise the risk of water related diseases.