

EXECUTIVE SUMMARY

The multi-sectoral 2020 short rains performance exercise was conducted between 18th and 29th January, 2021 by the Nyeri (Kieni) County Steering Group (CSG). The assessment covered the two main livelihoods in Kieni East and West Sub Counties of Marginal Mixed Farming (MMF) and Mixed Farming (MF) livelihood zones. A multi-sectoral approach in gathering primary data was done through checklist administration, transect drive, key informant interviews and focus group discussions.

The objective of the 2020 short rains assessment (SRA) was to develop an objective, evidence-based and transparent food security situation analysis in the County, based on the performance of the 2020 October-November-December (OND) short rains to facilitate decision making including possible response options based on the situation analysis. Registered rainfall performance to normal of 41 percent in October, 47.5 percent in November and 56 percent in December was reported.

On the availability pillar, the projected production for maize and potatoes were expected to drop by 40 percent of the Long-Term Average (LTA) while that of beans was to reduce by 60 percent of the LTA. Maize stocks held by households were lower by 43 percent compared to the LTA, occasioned by previous poor season's performance. Maize stocks held by traders were also below the LTA by 43 Percent due to movement restrictions as a result of Covid-19.

On access pillar, food prices were within normal ranges with a kilogram of maize selling between Kshs 42 and Kshs 45 in January 2021, comparable to the long-term average (LTA). Fair body conditions for cattle, goats and sheep in both (MMF) and (MF) were reported. Household milk production stood at three to four liters daily and comparable to normal. Average market sheep price is Kshs 5,000, 15 percent above the LTA of Kshs 4,335. Terms of trade ratio is favorable, as sale of a sheep is equivalent to 109 kilograms of maize, 10 percent above the LTA of 90 kilograms. Distances to water sources for households and domestic use remained low as most water sources were reliable and within reach.

On utilization pillar, the food Consumption Score points toward a deteriorating trend, from 54.8 percent acceptable and 45.2 percent borderline in December 2020 to 38.8 percent acceptable and 61.2 percent borderline in January 2021. The nutritional status for children below five years was stable in both livelihood zones. Integrated Phase Classification (IPC) for Kieni-Nyeri County MMF and MF is at Stressed (IPC Phase2).

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1.0 INTRODUCTION

1.1 County Background

Kieni East and West sub counties are located in the Northern part of Nyeri County. Nyeri County sits on the leeward side of Mt. Kenya borders Laikipia County to the North and Nyandarua County to the West (Aberdares Forest). Kieni East and West sub counties are largely semi-arid with an estimated land cover of 1,990.3 square kilometers of which 1,026 sq. kilometers is arable. The main economic activity for the region is crop production, horticultural farming and livestock rearing. Kieni has an approximate population of 198,901 persons according to the Kenya National Bureau of Statistics 2019. Marginal Mixed Farming (MMF) and Mixed Farming (MF) are the main livelihood zones and accounts for 43 percent and 34 percent respectively. The main source of income to the region includes sale of livestock, livestock products, food and cash crops accounting for 77 percent and 67 in MMF and MF livelihood zones respectively.

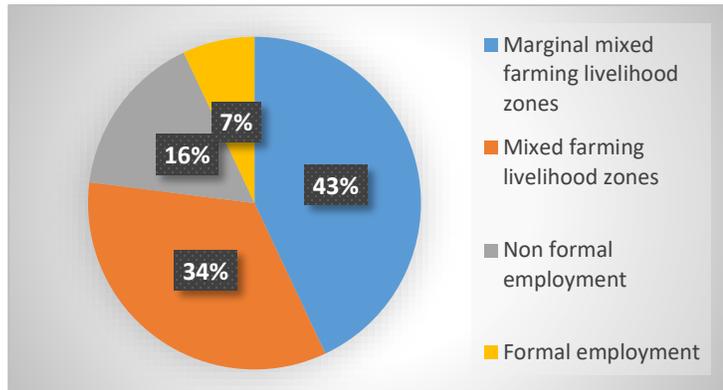


Figure 1: Livelihood distribution

Marginal Mixed Farming (MMF) and Mixed Farming (MF) are the main livelihood zones and accounts for 43 percent and 34 percent respectively. The main source of income to the region includes sale of livestock, livestock products, food and cash crops accounting for 77 percent and 67 in MMF and MF livelihood zones respectively.

1.2 Methodology and approach

The objective of the short rains' assessment is to develop an objective, evidence-based and transparent food security situation analysis. This report focuses on the performance of the 2020 October, November, December (OND) rains, reflecting on the cumulative effects of previous three seasons, and offers sound response options informed through an elaborate situational analysis of the findings. A multi-sectoral team consisting of Nyeri County Steering Group (CSG) technical team was assembled, who conducted the exercise between 18th and 29th January 2021. The team was drawn from departments of Water, Agriculture, Livestock production, Health and Nutrition, Education and NDMA. The team administered the sectoral checklist, provided technical reports and support. Secondary data from the Drought Early Warning System (DEWS) provided trends for various food security indicators. The Integrated Food Security Phase Classification (IPC) protocols were then used in informing the County food security status classification.

2.0 DRIVERS OF FOOD AND NUTRITION SECURITY IN THE COUNTY

2.1 Rainfall Performance

The 2020 OND short rains onset was late having occurred in the second dekad of October. Kieni East Sub County which is mainly Mixed Farming livelihood zone registered rainfall of between 76-90 percent of normal whereas the Marginal Mixed zones of Kieni West realized rainfall of between 91-125 percent of normal as shown in (figure 2). Distribution both spatial and temporal was good. Although cessation normally occurs by third dekad of December, extended off season rains into the month of January impacted positively on maize production, forage regeneration and recharge of water sources.

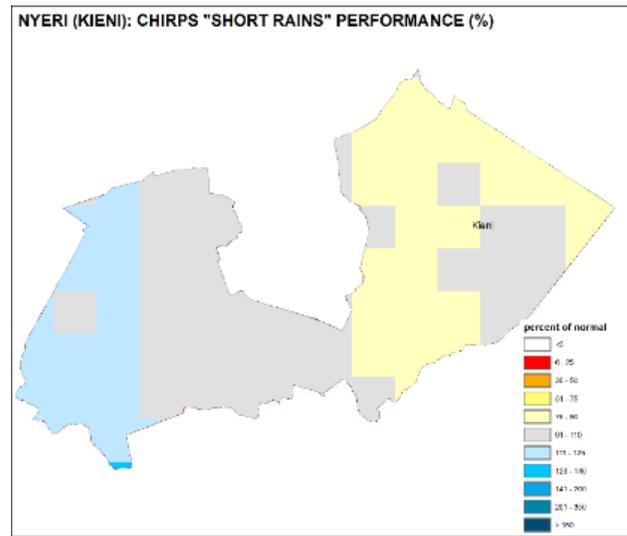


Figure 2: Rainfall performance

2.2 Insecurity/Conflict

Incidents of human-wildlife conflict were reported in Riiru area of Mweiga ward. A herd of about 300 cattle believed to originate from Laikipia County was spotted in Kieni East Sub County, Gakawa ward. Such movements are common in the region during drought related stress. More migrations are expected as the dry spell progresses leading to competition over declining resources thus triggering resource-based conflicts.

2.3 Other shocks and hazards

Frostbite and Blight in Irish potatoes and beans is a major threat to the region's food and livestock production sector. Frost attacks mainly occur during extended periods of dry spells, and occasioned by high variation in day and night time temperatures. Presently, about 10 percent and 20 percent of improved pastures and crop fields have been destroyed by frost attacks, a situation expected to further deteriorate if ongoing weather conditions persist.

3.0 IMPACTS OF DRIVERS ON FOOD AND NUTRITION SECURITY

3.1 Availability

3.1.1 Rain fed crops Production

Kieni is short rain dependent for rain-fed crop production. Further, a short rain season is critical in reducing the gap between the two predominant seasons through recharge of the food and nutrition security basket as it supports vegetable farming among other household piece meal harvests. Also, the short rains season facilitates recharge of water reservoirs that are used for supplemental irrigation. The 2020 short rains food production prospects improved significantly as season rainfall performance was good. The major crops grown in Kieni include Maize, beans and Irish potatoes. Maize is the major staple food for the region contributing 80 percent to food as coarse grain and flour. In the Mixed Farming livelihood, sale of green maize contributes 5 percent of income. Beans is the third most important foodstuff and contributes 60 percent to food and 40 percent to income. However, due to changing weather patterns and insignificant beans yields in the recent past, farmers have not been able to trade the produce for income. Irish potatoes are grown throughout the year under rain fed conditions for both food and income accounting for 60 percent income and 40 percent food.

Table 1: Rain fed crop production

Crop	Area planted during 2020 short rains season (HA)	Long Term Average (HA)	2020 Short rains season production (90 kg bags)	Long Term Average production during the short rains season (90 kg bags)
1.Maize	2,850	3,600	34,200	57,000
2.Beans	2,870	3,450	11,480	28,700
3.Potatoes	3,770	4,500	282,750	471,250

Achieved hectareage of the long term mean for crop production was 79 percent, 83 percent and 84 percent for maize, beans and potatoes respectively. As a result, projected yield for the season is expected to reduce to 60 percent, 40 percent and 60 percent of the long term mean for maize, beans and potatoes respectively as crop fields exhibit signs of water stress coupled with frost attacks that have left 20 percent of crop fields destroyed.

Irrigated Crop Production

Table 2: Irrigated crop production

Crop	Area planted during 2020 short rains season (Ha)	Long Term Average area planted during the short rains season (Ha)	2020 Short rains season production (90 kg bags) Projected/Actual	Long Term Average production during the short rains season (90 kg bags)
Cabbages	700	795	35,000	59,625
Onions	205	295	1,640	5,310
Carrots	175	220	4,375	16,500

Achieved hectareage of the long term mean for irrigated crops was 88 percent, 69 percent and 80 percent for cabbages, onions and carrots respectively. As a result, projected yield for the season is

expected to reduce to 59 percent, 31 percent and 27 percent of the long term mean for cabbages, onions and carrots respectively. Besides delayed season onset and early cessation, unavailability of casual labour and reduced casual engagement hours occasioned by COVID-19 containment measures, impacted negatively to the region irrigated crops projections.

Main Cereal Stocks

Table 3: Stocks held in the County

Commodity	Maize		Rice		Sorghum		Green gram		TOTAL	
	Current	LTA	Current	LTA	Current	LTA	Current	LTA	Current	LTA
Farmers	320	560	0	0					320	560
Traders	1900	3400	86	100	25	30	30	45	2041	3575
Millers	286	1100							286	1100
Food Assistance										
NCPB										

The Stocks held in the County by various actors stand at 57 percent for farmers and traders, and 26 percent for millers in relation to the long-term averages. Low stocks held arose from little or no harvests realized from the season crops, as well as reduction in outside injections.

3.1.2 Livestock Production

Livestock rearing plays a key role to household incomes and livelihoods to over 70 percent of Kieni residents. The main livestock species kept include; cattle, sheep, local poultry, goats (both meat and dairy), bee keeping and pigs at a small percentage. Proceeds from the sale of livestock and livestock products contribute to about 50 percent and 70 percent cash income in Mixed Farming and Marginal Mixed Farming livelihood zones respectively. Over 80 percent of the dairy cattle reared in Kieni are crosses of exotic and indigenous breeds and managed under semi-intensive production systems. Less than 5 percent of the farmers keep pure breeds through adoption of modern breeding technologies. Intensive farming systems have since been adopted in the Mixed Farming zones occasioned by diminishing land sizes and need for diversification so as to tap on other income sources.

Sheep rearing and indigenous poultry keeping are great contributors to household incomes, while dairy goat keeping has been key as both a source of income and milk. During the COVID-19 pandemic period, most households depended on the sale of small stock for cash, so as to meet their basic needs. Effects of COVID-19 to the sector include; compromise on quality of feed concentrates as millers were unable to access and acquire key raw materials due to movement restrictions. Other areas affected were on livestock vaccination programmes, group training, farm visits amongst other extension services which were either halted or postponed.

Forage condition

Pasture condition was fair across the livelihood zones which is normal at this time of the year. Signs of deterioration were evident owing to the hot and windy conditions being experienced presently. However, both natural and improved pasture lands performed fairly during the first half of the season, but a declining shift was noted following an early cessation. Presence of an invasive weed (*Notonea petrea*) continues to aggressively colonize the natural pasture habitat of the Marginal Mixed Farming zones.

Available pastures are expected to last through a month in both livelihood zones which is within normal at this time of the year.

Currently, there are no hindrances to pasture and browse access across the two livelihood zones. Prices of hay and other fodder materials remained relatively fair and affordable to most farmers since the long rains were adequate. Most improved pasture lands were left as standing hay due to the high cost of baling versus market price at 80:130 compared to normal of 80:180 shillings.

Browse condition was good across livelihood zones and slightly above normal at this time of the year. Available browse could sustain the browsers for the next one and a half months. Alternative feed sources include Napier grass, fodder maize and Brachiaria. Legumes feeds like Lucerne and Desmodium are also grown on a small scale due to high cost of seeds and challenges in establishment.

There was a significant drop on road side grazing synonymous with hired herders, besides inadequate use of feed supplements to the majority of the farmers who were financially constrained attributed to income losses during the COVID-19 period. Amongst farmers who introduced feed concentrates, complained of poor yields due to existence of substandard concentrates in the market.

Currently, fodder conservation in the form of hay and silage of Napier grass and fodder maize is ongoing. Unfortunately, the practice is common amongst elite farmers who can afford baling services from private service providers and government institutions like Wambugu ATC and Agriculture Mechanization Services (AMS) Centre. The two institutions are offering these services at subsidized rates. Approximately, 100 hay stores are in place in both sub counties, 70 percent at farm level and the rest with stockiest. About 50,000 bales of hay are stocked in different stores across Kieni and selling at an average price of Kshs s. 180 per bale.

In practice, most farmers conserve with intentions of consuming the same during times of scarcity. However, prevailing weather conditions and regeneration rate of cut pastures have often triggered consumption of the conserved feed material before the intended period by about 50 percent.

Some of the factors limiting utilization of conserved pastures/hay include spoilage due to poor storage and surplus in the market.

Table 4: Pasture and Browse condition

Livelihood zone	Pasture					Browse				
	condition		How long to last (Months)		Factors Limiting access	Condition		How long to last (Months)		Factors Limiting access
	Current	Normal	Current	Normal		Current	Normal	Current	Normal	
MF	fair	fair	1	1	None	Good	Fair	1 ½	1	None
MMF	Fair	Poor	1	½ - 1	None	Good	Fair	1 ½	1	None

Livestock body condition

The current body condition for all the three livestock species (Cattle, Sheep and goats) is fair to good across both livelihood zones. It is expected that body condition will remain stable for at least one month. However, reported conditions might worsen by February with projected deterioration

in pasture and browse conditions which is likely to impact negatively on food security prospects at household level.

Table 5: Livestock body condition

Livelihood zone	Cattle		Sheep		Goat	
	Current	Normally	Current	Normally	Current	Normally
MF	Good	Fair	Good	Fair	Good	Fair
Agro-pastoral	Fair	Poor	Fair	Poor	Good	Fair

Tropical livestock unit

Normal TLUs were reported in the medium income households of the Mixed Farming Livelihood Zone at 2.5 and 3.5 in the Marginal Mixed Farming Livelihood Zone. Poultry remains an important enterprise particularly to households in the Marginal Mixed Farming Livelihood Zone where 10-20 local birds are kept for income and nutritional security at the households. Shrinking households' income options and loss of constructive engagements arising from the COVID-19 containment measures, triggered an unprecedented surge in sale of small stocks for food commodities. However, return to normalcy was observed as households and marketers adopt and familiarize with the ministry of health protocols on COVID-19. TLUs are expected to remain unchanged if production dynamics remain unchanged.

Table 6: Tropical Livestock Units (TLU) by Household Income groups

Livelihood zone	Poor income households		Medium income households	
	Current	Normal	Current	Normal
MF	0.5	0.5	2.5	2.5
MMF	1.0	1.1	3.5	3.5

Birth rate

Calving, kidding and lambing rates have been normal. However, the intervals may get longer as we progress into the year, as quality and quantity of forage decline and so is livestock fertility.

Milk Production, consumption and prices

a) Milk production and availability

Milk production in the Marginal Mixed Farming Livelihood Zone was 3 litres as compared to a normal of 2.5 litres. In the Mixed Farming Livelihood Zone, milk production was at 4 litres against a normal of 3 at this time of the year. The rise in milk production in both livelihood zones can be attributed to the relatively stable livestock body condition for the season under review.

Processors, dairy cooperatives and self-help groups are offering between Kshs s. 29-31 in the Mixed Farming Livelihood Zone and Kshs s. 30-32 in the Marginal Mixed Farming Livelihood Zone for milk collections from farmers as compared to a normal of Kshs s. 28 and 29 respectively. In return, consumers are buying locally sold raw milk for Kshs s 40-50. Amidst the COVID-19

pandemic, milk production, consumption and availability have somehow stabilized with no significant difference from similar periods in past seasons.

b) Milk consumption

Milk consumption improved significantly at 1.2 litres in the Mixed Farming zone and 1.0 litre in the Marginal Mixed Farming zone up from a litre and half a litre normally in MF and MMF respectively. Presence of more family members at home during the COVID-19 “Stay at Home” call, resulting in increased volumes consumed at household level. It is expected that reported consumption will reduce with school’s resumption among other economic engagements.

Table 7: Milk production, consumption and prices

Livelihood zone	Milk Production (Litres)/Household		Milk consumption (Litres) per Household		Prices (Kshs s)/Litre	
	Current	LTA	Current	LTA	Current	LTA
Marginal mix Farming	3	2 ½	1	½	32	29
Mix farming	4	3	1 1/5	1	30	28

Migration

A herd of about 300 heads of cattle was spotted in Kieni East and suspected to be originating from Laikipia County in search of pastures. The Department of Meteorology has issued an alert of a drier than usual conditions in the ASAL Counties in the next three months. This is an indicator that more herds from neighboring counties might end up in Nyeri for pastures and water. Reported immigration thus far, has not affected household access to adequate livestock products. This is so because available pastures and water are adequate and it will take some time before competition over resources reaches critical levels.

The current migration routes are normal. Roadside grazing has also reduced as most farmers result in grazing around their homestead for fear of the COVID-19 pandemic and adherence to MOH protocols of reduced people to people interactions. Also, pooled grazing has equally been minimized.

Livestock Diseases and Mortalities

Suspected cases of Foot and Mouth Disease (FMD) were reported in Gakawa ward, Kieni East. Investigations to confirm the same are currently underway. Anaplasmosis, mastitis and East Coast Fever (ECF) have remained endemic in all the wards, although areas neighboring the Mt. Kenya Forest and the Aberdares were more susceptible. Newcastle Disease (NCD) in fowls was also prevalent across both livelihood zones. The Directorate of Veterinary services undertook vaccination against Lumpy Skin Disease (LSD) and Black Quarter during the months of November and December with about 11,860 animals (cattle, Sheep and goats) getting vaccinated across all wards. In addition, 2,766 dogs were vaccinated against rabies. However, outbreak of the COVID-19 and the restrictions on public interaction slowed down vaccination programs besides reduction of exercise targets as fewer staff were involved in the exercise due to vehicles capacity / social

distancing limitations. There were no unusual livestock deaths reported across the two livelihood zones reported.

Water for Livestock

Rivers, dams, water pans and streams were the main watering sources for livestock across both livelihood zones. The return distance to watering points is on the rise as water levels in most water holding structures begin to reduce in spite of normal season rains. High evaporation rate occasioned by rising temperatures and exacerbated by windy conditions is the main contributing factor. Return distance will further increase as we get into the months of February and March if ongoing off-season rains cease. This may impact negatively on production and overall food security. Currently, the return trekking distances are 0.5-2 Km in the Mixed Farming livelihoods compared to a normal of 1-3 Km. In the Marginal Mixed farming zones distances stood at 1-3 Kms as compared to a normal of 1-4 Kms. Available water is expected to last for 2 months in both livelihood zones compared to half a month normally. Currently, there are no factors limiting access to water across both livelihood zones. Most of the animals continue to access water from the available sources within household level as most households continue to invest in water holding structures like water ponds and roof water harvesting. Increased usage of water in the fight against COVID-19, has not in any way affected water access or watering frequency for livestock.

Table 8:Water for Livestock

Livelihood zone	Return average distances (km)		Expected duration to last (months)		Watering frequency (Cattle)	
	Current	Normal	Current	Normal	Current	Normal
Mix Farming	0.5- 2	1-3	2	1	Daily	Daily
Marginal Mix Farming	1-3	1-4	2	2	Daily	Daily

Impact on availability

The short rainy season is the main crop production season in Kieni. Milk production was good, body conditions impressive and fetched better prices for both livestock and livestock products. As a result, households' terms of trade improved as commodity prices normalized in relation to improving livestock incomes.

3.2 Access

3.2.1 Market operations

Kieni has no designated livestock markets. However, marketing functions even at the farm gate remained largely uninterrupted. Livestock trading within the Sub County was between butchers and middlemen buying animals directly from households or from neighboring counties for slaughter purposes. Trade in indigenous chicken for outside hotels, roadside eateries and big shopping centers which had earlier been disrupted by COVID-19 outbreak is on a recovery path. The number of livestock purchased and slaughtered was also picking up as most households started to stabilize from the financial shocks brought about by the outbreak of COVID-19. Prices of poultry and other small stock at farm gate had since stabilized. Sales of small stocks by households was for food stuffs and basic necessities. Market disruptions were not experienced during the period despite food commodity availability dropping to 80 percent for maize and 60 percent for beans in Mixed Farming livelihoods zones, and 40 percent maize and 50 percent beans in Marginal Mixed Farming livelihood zones. On the other hand, 80 percent and 60 percent of maize and beans

consumed in Mixed Farming zones were sourced from the markets as well as 90 percent maize and 80 percent beans consumed in Marginal Mixed livelihood zones. Since the rainy season has ceased, there is a high likelihood that over 90 percent of food items consumed at the household level will be sourced from the markets.

3.2.2 Maize prices

The average December 2020 market price of maize in the County was Kshs s 44 per, which was comparable to the LTA prices. No major variation in prices was observed between the Mixed Farming and Marginal Mixed Farming zones. Maize prices remained stable during the year, as there were adequate supplies of the same from other counties. For the period under review, prices stood at Kshs s 44, Kshs s 39 and Kshs s 44 in October, November and December as compared to Kshs s 42, Kshs s 41 and Kshs s 44 long term averages respectively. Household had minimal yields from the long rainy season harvest. However, during the month of January, a kilo of maize retailed between Kshs 42 and Kshs 50 depending on market access and availability.

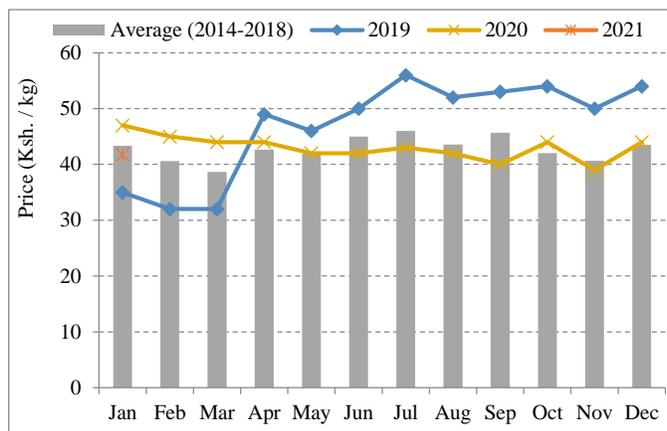


Figure 3: Trends of Maize prices

3.2.4 Sheep prices

The average market price for a medium-sized sheep stood at Kshs s. 5,000 fifteen percent higher to the LTA price of Kshs s. 4,335 in December 2020. Despite being of good body conditions and health in January 2021, prices slightly dropped by nine percent to sell at Kshs s 4,571. Prices of the same have been relatively stable throughout the year 2020 as the market forces that mainly dictate livestock prices were largely impacted by the COVID-19 containment measures that saw closure of outlets besides limiting on non-essential convergence. During the period under review prices registered an upward trend increasing from Kshs s 4,292, Kshs s 4,654 and Kshs s 5,000 in October, November and December 2020 accounting for 7 percent, 13 percent and 15 percent higher to the long-term averages.

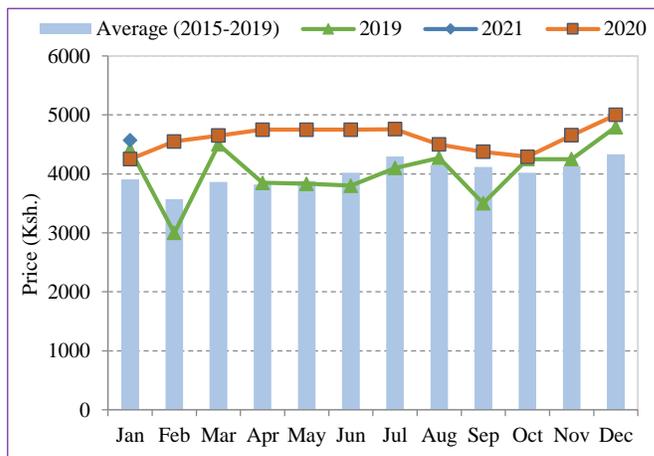


Figure 4: Sheep Prices

3.2.2 Terms of Trade

During the month of December 2020, households could purchase 114 Kgs of maize from a sale of a single medium-sized sheep down from 119 Kgs in November. December Terms of Trade (ToT) was 14 percent more when compared to 100 Kgs of maize normally as indicated in Figure 5. Currently, terms of trade ratio registered a 4 percent decrease to 109 Kgs in January 2021 as a result of rising commodity prices. Besides, with ongoing off-season rains, earliest crops harvest is expected as from February 2021. Commodity prices are expected to further increase in the coming three months. The influx of migrating animals from neighboring counties for grazing purposes is likely to push livestock prices downward further reducing the household TOT ratio.

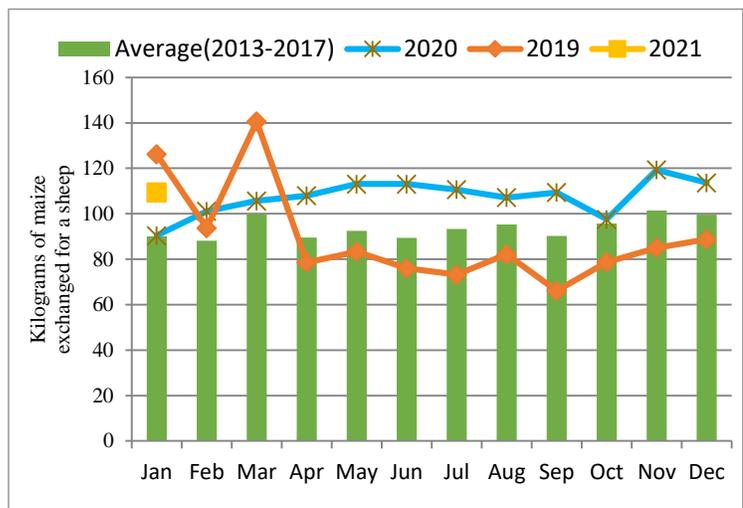


Figure 5: Terms of Trade

3.2.3 Income sources

The main sources of income in Marginal Mixed Farming livelihood zones are sale of livestock and livestock products at 77 percent, farm produce at 15 percent and casual labour at 8 percent. Casual labour and farm produce marketing have been altered by reduced interactions as a result of the COVID-19 containment measures.

3.2.4 Water access and availability

The main water sources for domestic water use in both livelihood zones are rivers, pans/dams and boreholes, in addition to a pipeline system which has a penetration and coverage of about 70 percent of the Kieni households. In spite of the impressive pipeline coverage, water supply through the pipeline system only reaches a portion of their coverage area mainly at the tail end of most water projects. Intensified rationing programs in addition to lacking in adequate storage facilities to about 60 percent of the water projects being a major contributing factor. The current sources are the usual ones at this time of the year. However, low flows on the local rivers is evident due to unregulated abstractions upstream. Also, 17 out of 30 boreholes and five out of 18 pans/ dams are un-operational. Non-operational boreholes are either due to high electricity bills, faulty pumps and Gen-set whereas a few others are yet to be equipped. They include; Judea borehole whose yield is uneconomically

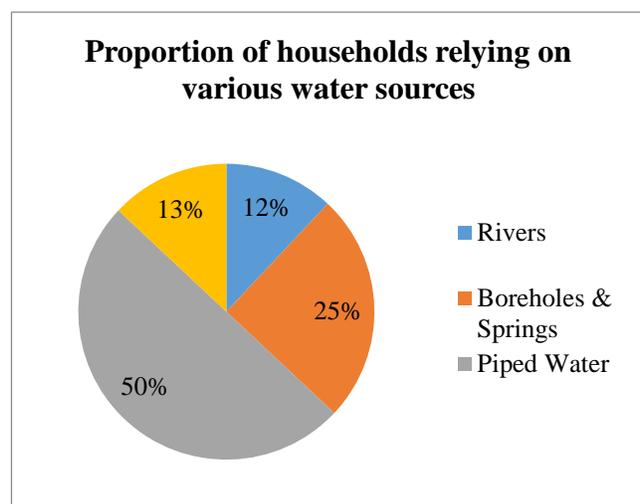


Figure 6: Water access and availability

low, Kamangura, Ruirii primary, Treffos Kiburuti, Mathina, Muthuini, Kanyiriri, Gaturiri, Kimahuri, Nganothayu and Maturanguru, Lagati Ebenezer, Upper Kamuhiuria, Kirinyaga Nyange, Thung'ari B, Naromoru township & Ngonde Gatei. Non-operational water pans are due to siltation, encroachment or have breached. Recharge of various ground water sources was good during the OND season majority of which achieved 80 percent of their full capacity and can last up to four months compared to two months normally. Areas exclusively on water vending are Mweiga and Endarasha town villages, Lachuta (Kang'a) village and Kiawara town. Other areas hard hit by water scarcity included Kamwanya in Kiawara and Kinyaiti due to illegal and unregulated river abstraction upstream for irrigation purposes.

Household distance to water sources

Return distances to water sources in the Mixed Farming Livelihood zone was one kilometer and 1-2Km in the Marginal Mixed farming zone which is normal during this period of the year. Households across the two livelihood zones were able to collect water within the normal duration of five minutes.

Table 9: Distance to water sources, cost of water and water consumption

Livelihood Zone	Distance to water for domestic use (km)		Cost of water (Kshs s per 20L)		Waiting time at water source (minutes)		Average HH (Liter /person/day)	
	Normal	Current	Normal	Current	Normal	Current	Normal	Current
MMF	2	0-1	20	10	2-3	1	30 – 40	40-50
MF	1	0-1	20	10	1-2	1	35 – 40	40 – 50

Cost of water

The average cost of a 20 litres jerry can of water is Kshs 5-10. However, most households rely on piped water system for supplies and pay a monthly maintenance charge of Kshs 200-300. About 10 percent of households in informal settlements within urban centers are served by vendors who charge Kshs .10 per 20-liter jerry can which is normal at this time of the year.

Water consumption

The average water consumption remains stable in the Mixed Farming Livelihood Zone at 35-40 liters per person per day (Lppd) while average consumption in the Marginal Mixed farming livelihood zone is 30 lppd, which is normal at this time of the year.

3.2.5 Food Consumption

NDMA data points toward a deteriorating food consumption score, from 54.8 percent acceptable and 45.2 percent borderline in December 2020 to 38.8 percent acceptable and 61.2 percent borderline in January 2021 as shown in figure 9 below. Deteriorating household FCS could have been triggered by drained household stocks from early maturing crops mainly legumes, and a drop of on-farm casual engagements. Further, Covid-19 containment measures impacted negatively to majority of households' who largely depended on the markets for food supplies.

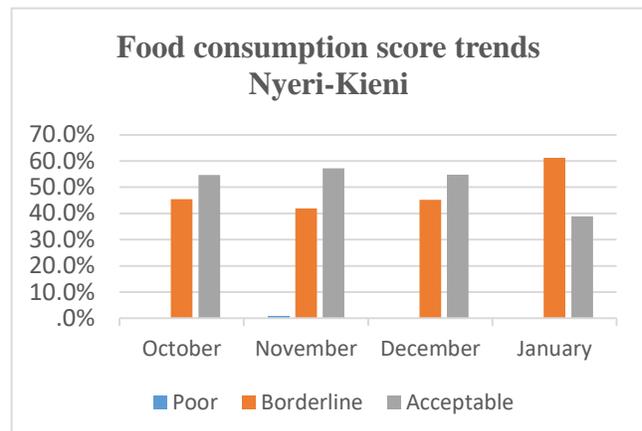


Figure 7: Food Consumption Score

3.2.6 Coping strategy

The County mean reduced coping strategy index (rCSI) for January 2021 is 6.5 up from 5.1 in December with about 69.4 percent and 1.2 percent of the population employed stressed and crisis coping strategies in January, up from 51.3 percent stressed coping in December. Rising rCSI is indicative of households adoption of some food consumption related coping strategies including and not limited to reduced reliance on less preferred or pocket friendly food items, reduction in number of meals taken in a day etc. Higher rCSI values were evident in Marginal Mixed Livelihood zones of 12.1 as compared to rCSI value of 4.3 in Mixed Farming Livelihood zones. Recorded rCSI value is indicative of stress (IPC Phase 2) for the region.

Table 10: Coping strategy index

Livelihood zone	December 2020	January 2021
MMF	6.4	12.1
MF	3.9	4.3

3.3 Utilization

3.3.1 Morbidity and mortality patterns

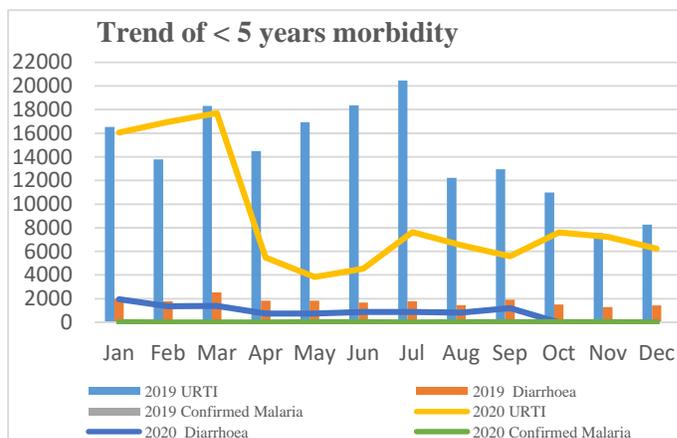


Figure 8: Morbidity Trends for under fives

The leading diseases during the period under review were upper respiratory tract infections (URTI), diarrhea and malaria for both under-fives and the general population. Diseases of the skin were also prevalent. However, prevalence of the same in December 2020 was on a downward trend by 44 percent URTI, 45 percent diarrhea and 77 percent malaria for the general population, when compared to the same period in 2019. Similarly, under five prevalence for the same period dropped by 24 percent for URTI, and nil cases for diarrhea and

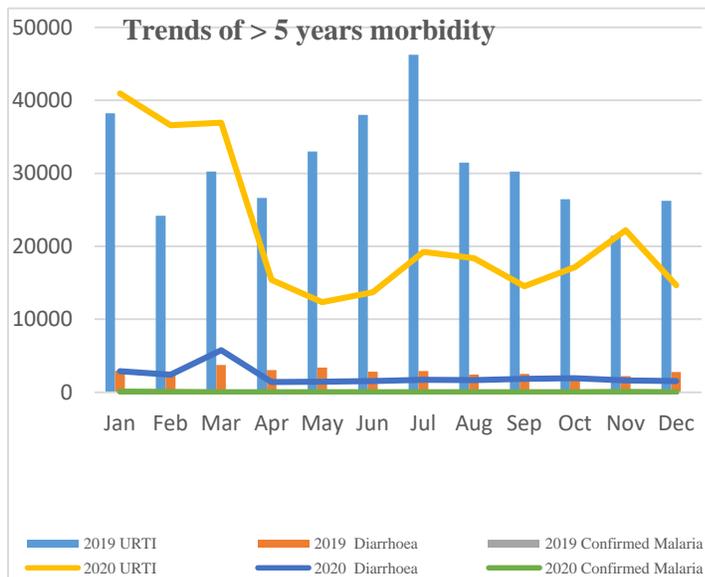


Figure 9: Morbidity trends for general population

malaria when compared to the same period in 2019 (Figures 8 and 9). The observed decrease in the leading disease prevalence was as a result of changing health seeking behavior by the general public for fear of contracting COVID-19, besides improved hygiene standards as advanced under the COVID-19 containment measures on regular hand washing, use of sanitizers and putting on masks while in public places. Continued advocacy for sound hygienic practices in containing the spread of COVID-19 pandemic had a ripple effect of reduced water borne related pandemics and mortalities. Cumulatively, as from July to December 2020, a total of 1,247 diarrhoea cases were reported in Kieni East and West against 1,669 cases

reported from January to June, a reduction of 422 cases. Meaning, if hygiene is entrenched as a way of life at the community level, then fewer and fewer cases get reported.

3.3.2 Immunization and Vitamin A supplementation

The immunization coverage between January and December 2020 was 89.9 percent, when compared to 76.3 percent for a similar period in 2019. 84 percent of children below 1 year were fully immunized from July-December 2020 as compared to 88 percent in 2019. OPV1 and OPV3 immunization coverage was 91.5 percent and 87.7 percent respectively, compared to 80.5 percent and 71.3 percent in a similar period of 2019 respectively. However, effects of COVID-19 slightly disrupted community health seeking protocols and behavior. However, immunization coverage was above the national target of 80 percent.

Learning institutions remained closed following the COVID-19 pandemic containment measures on schools, however, the health department reached out for vitamin A supplementation at the households through the Public Health Officers (PHO's) and the Community Health Volunteers (CHV's). Vitamin A coverage for Kieni East and West surpassed the national threshold of 98 percent mark. However, a number of children, the majority of whom had moved out of the usual catchment area could not be reached.

3.3.3 Nutrition status and dietary diversity

MUAC < 135 mm for under five deviated from known trajectory since July 2020. Observed shift was occasioned by a change in data collection methods with adoption of the Family MUAC system administered by mothers following the outbreak of COVID -19 pandemic. Also, indefinite closure of schools led to a number of families moving to rural areas, where they lacked programmed follow-up by the ministry of health and school meals for ECDE. During the period of monitoring, children at risk of malnutrition registered an upward trend of 1.4 percent in October, 1.8 percent in November and 1.9 percent in December. In January 2021, MUAC dropped by 5 percent to 1.8 percent. In spite of observed anomalies in the MUAC trend for Kieni, reported percentages were far below global thresholds of 10 percent and therefore within acceptable levels. Better nutrition and favorable OND rainfall performance contributed favorably to lowering MUAC<135mm levels. Also, through community interviews, it was apparent that the majority of the households were consuming 3-4 meals daily across the livelihood zones as food commodities and milk products were readily available.

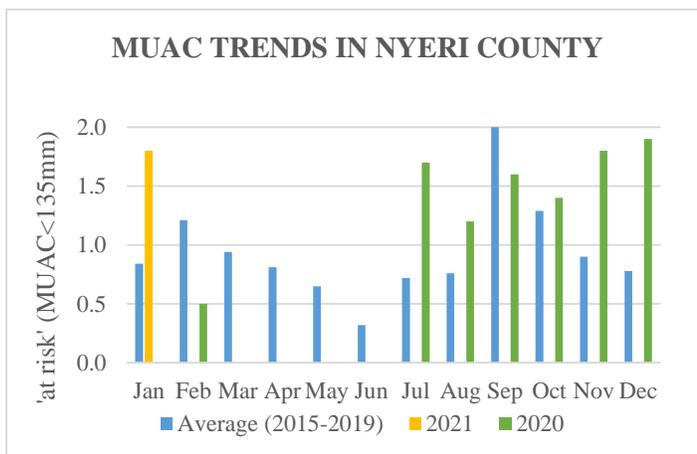


Figure 8: MUAC trends

3.3.4 Health and nutrition sector in COVID-19 context

Normalcy is yet to return on administration of health services and community health seeking behavior as a number of programs remained suspended including outreach services, routine screening by CHV for blood sugar and blood pressure, growth monitoring services and Malezi bora services. As a result, cases earlier identified through such screenings and timely referrals as a result, go unnoticed thus reversing earlier made gains.

However, effort has been made through the PHO, CHV and nutritionist teams that are tasked with identifying needy cases under their jurisdiction and make prompt referrals for professional management.

3.3.5 Public intervention, risk communication and community level action.

The County in collaboration with the Ministry of Health and Ministry of Education continued to implement a number of COVID-19 related interventions including; fumigation of schools and public places, issuance of masks, sanitizers and water tanks for hand washing.

The Department of public health was up scaling enforcement of public health guidelines in social places which included inspection on food and non-food premises e.g. supermarket, hotels, banks, bus parks and eating houses among other areas of concerns, in adherence with COVID-19 MOH protocols i.e. availability of hand washing stations fully equipped with soap and water and strategically positioned outside every premises, screening of customers using thermo guns, proper wearing of face masks, and social distancing. In addition, MOH protocols were also being strictly enforced by Public Health Officials in all public gatherings including burials, weddings, among other public gatherings.

3.3.6 Coordination and leadership in COVID-19 pandemic preparedness and response

Provision of weekly protective attire i.e., PPEs, masks and sanitizers to the frontline health workers is ongoing for adequate protection of staff attending to suspected cases. This is to ensure reduced exposure of the frontline workers to this pandemic.

On the other hand, Community Health Volunteers (CHV's) were continuously visiting the households for their routine health education, screening and referral of cases requiring urgent medical attention. In addition, they have been critical in enlightening the community on COVID-19 protocols at that level.

The Deputy County Commissioners (DCC) chairs the COVID-19 multi-agency task force whose mandates include; review of the COVID-19 trends in the Sub Counties and advice accordingly. The task force also distributes food donations to the most needy and vulnerable families from the effects of the COVID-19 pandemic.

3.3.7 Sanitation and Hygiene

Latrine coverage in the region stands at 99.5 percent and attributed to a more aware public on proper hygiene and good waste disposal practices. However, few pockets of Kieni West Sub-County i.e .Kiahuko in Lamuria sub location and Ruai in Karimenu sub location faced acute water shortage during the period under review, impeding on COVID-19 containment measures. As a result, people in the affected areas had to walk for longer distances to fetch water from pans and streams for basic household chores from neighboring localities.

3.4 Trend of key food security indicators

Table 11: Comparison between the current Food Security indicators with LRA 2020

INDICATOR	LRA 2020		SRA 2020	
Livestock body conditions	Good		Fair	
Milk production	MF: 5-6 litres /HH/day MMF: 4-5 litres /HH/day		MF: 4 litres /HH/day MMF: 3 litres /HH/day	
CSI	4.67		4.92	
Distance from source(km)	MF: M 1-2 Km Mixed farming: <1Km		MMF: <0.8 Km Mixed farming: <0.5Km	
Consumption (Litres per person per day)	MMF: 30 Lppd Mixed farming: 30-40 Lppd		MMF: 30 litres Mixed farming: 35-40 litres	
Sheep Prices	Average County price: Kshs. 4,750		Average County price: Kshs. 4,654	
Maize prices/Kilogram	Average County price: Kshs. 43/kg		Average County price: Kshs. 39	
Terms of Trade (TOT)	Average County ToT: 110 Kgs		Average County ToT: 109	
Food consumption score (FCS)	Acceptable	62%	Acceptable	38.8%
	Borderline	38%	Borderline	61.2%
	Poor	0	Poor	0%

3.5 Education

3.5.1 Enrolment

There was an increase in enrollment in term II 2021 second term enrollment for both boys and girls increased by 6.2 percent and 14.3 percent at the ECD level; and 5.5 percent and 4.1 percent at primary level respectively. Increase in the enrollment of both genders in ECD and primary school level was as a result of unprecedented closure of privately run learning institutions who bore the brunt of the negative impact of COVID 19 pandemic containment measures. As a result, there were numerous intra and inter counties and sub counties transfers. However, at the secondary level, the contrary was observed with boys enrolment dropping by 4.7 percent while that of girls also dropping by 4.4 percent. Besides the unprecedented dropouts that were triggered by early pregnancies, a number of learners and parents adopted a wait and see attitude since a number of schools continued to register low turnouts and only responded as the enrollment approached 100 percent. Enrolment for boys and girls leveled in ECDs while boys' enrollment in Primary schools was higher to that of girls by 7 percent. However, in secondary schools, girls' enrollment was higher by 10 percent to that of boys (Table 12).

Table 12: Enrolment

Enrollment	Term I - 2020			Term II - 2020		
	№ Boys	№ Girls	Total	№ Boys	№ Girls	Total
ECD	2438	2225	4663	2636	2636	5272
Primary	13654	12906	26560	15265	14180	29445
Secondary	8198	9045	17243	7664	8517	16235

3.5.2 Effects of COVID-19 in schools

As the COVID -19 containment measures remained in force, the majority of the learners remained at home. However, in October 2020, form 4, standard eight and grade four learners were allowed to resume but in strict adherence to COVID -19 containment measures issued by the ministry of health. Out of the remaining learners who continued to stay at home, only 10 percent in ECDE, 40 percent in primary school and 65 percent in secondary school continued accessing learning materials through digital means. The rest were engaged in various economic, household and social activities as and when assigned by parents and guardians. E-learning was largely inhibited by a knowledge gap on the part of users, connectivity challenges besides lacking compatible gadgets by majority of learners, parents and guardians.

During the prolonged school closure due to COVID-19 pandemic none of the learning institutions in Kieni was converted to an isolation or quarantine center. Therefore, by the time of reopening, learning institutions had minimal or no infrastructural damages resulting from their use as quarantine centers. As learners resumed for term II and term III respectively, school management was required to adhere to critical and necessary COVID-19 containment measures before learners resumed including establishment of more hand washing facilities, acquisition of thermos guns, acquisition of sanitizers and provision of additional desks in 30 primary and 34 secondary schools. In addition, all learners were required to put on face masks at all times while in schools.

3.5.3 Effects of the Short rains to schools

Only three flooding incidents were reported at Munyu, Mapema and Katheri primary schools during the OND rainy season. However, the situation has since normalized with cessation of the short rains.

3.5.4 School feeding

The government sponsored Home Grown Schools Meal Program (HGSMP) covers 52 of the 106 public primary schools in Kieni East and West sub counties. However, since resumption of learning activities, government support towards the same is yet to be finalized and therefore feeding programs to the 52 schools that benefited from these programs is yet to resume. Meaning at present, none of the 29,019 learners (15,050 boys and 13,969 girls) in primary schools were benefiting from the HGSMP.

3.5.5 Inter sectoral links

Most of the schools in the sub counties have adequate water supply and sanitation facilities including hand washing facilities.

4.0 FOOD SECURITY PROGNOSIS

4.1 Prognosis Assumptions

According to the Kenya Meteorological Department (KMD) a drier than usual season is expected in most parts of Kenya. Coming from a depressed OND rainfall season that was poorly distributed both in time and space, Kieni is likely to experience longer than usual dry spells. Data from various rainfall stations indicate below average performance for January 2021 a situation expected to be replicated into February and March. As a result, frost attacks are likely to be more frequent, destroying pasture fields and crop fields. The department of Agriculture has projected a drop in season yields by 21 percent maize, 17 percent beans and 16 percent potatoes. Irrigated crops are also projected to reduce by 41 percent cabbages, 69 percent onions and 73 percent carrots and in addition reduction in households' income from sale of farm produce. Low yields will lead to high commodity prices. Further, with immigrant herds beginning to stream into Nyeri County in search of pastures, available resources will not only get depleted faster than normal, but also will lead to a drop in livestock prices and resource-based conflicts. High commodity prices coupled with low livestock prices will result in reduced purchasing power to most households.

4.2 Food security outlook

Kieni is likely to experience generally sunny and dry conditions for the months of February and March 2021. However, a few high ground areas might experience occasional showers insignificant to support crop production or pasture regeneration. As a result, the majority of Kieni residence will be dependent on markets for food and feed supplies for domestic and livestock use. Over dependence on markets will trigger a price hike for both commodity prices and feed prices further straining their incomes and asset capital.

4.2.1 Outlook for February, March, April

The food security situation is likely to deteriorate in the next 3 months of February, March and April as insignificant or no harvests is anticipated during the month of February. Price hikes for commodity prices including that of maize, beans and Irish potatoes is likely to increase occasioned by limited supplies at a time when markets will be the main sources of food and feed supply to a higher population. It is further projected that with reduced households' purchasing power, adoption in food consumption related coping mechanisms will be enhanced including reduction in daily meals uptakes and rations. The region is at present enjoying good and adequate natural and cultivated fodder that can only last through February. This might lead to enhanced milk production triggering a downward price adjustment by collectors and processors. The nutrition status of the children under five is expected to remain relatively stable across the livelihood zones with no significant change in mortality rates for both children under five and the general population. Currently, households are deploying minimal coping strategies to bridge any food gaps that may arise. In addition, the threat of desert locust invasion to the county is real and to the county's food security prospects having been spotted in neighboring Meru County. Invasion by desert locust to the county will disorient food security prospects as reported to the worse. Food security situation is therefore likely to be stressed (IPC Phase 2) for both Marginal Mixed Farming livelihood zones and the Mixed Farming livelihood zone.

4.2.2 Outlook for May, June and July

The Long rainy season is expected by late April. It is projected that MAM rains will not only be depressed but cessation will come earlier than usual. Majority of the households will have exhausted their food and feed stocks and most of their feed and food supplies will be sourced from markets. Commodity prices will likely get out of reach to most commoners. Production in terms

of acreage will be reduced due to low households' incomes, needed in opening up more fields for planting. Households will result in deploying extreme consumption related coping strategies. Resource based conflict will escalate between locals and immigrant herders as they compete for dwindling pasture fields and watering points, a common occurrence during such stressful times.

5.0 CONCLUSION AND INTERVENTIONS

5.1 Conclusions

5.1.1 Phase classification

Mixed Farming livelihood zones and Marginal Mixed Farming livelihood zones are classified under Stressed food insecurity (IPC phase II).

5.1.2 Summary of the findings

The performance of the OND rains was within normal ranges in Kieni. Spatial distribution was even while temporal distribution was fair. Off season showers extended into the month of January. Production projection from main crops was below average and so was the area cultivated and put under crop production. Despite normal markets functioning, the current situation is expected to prevail. Low stocks were reported by households, traders and millers occasioned by COVID-19 containment measures on movement and interactions. Livestock productivity was good as pastures were adequate and watering points accessible.

Terms of trade were impressive to majority of the households and so was the FCS with 100 percent acceptable score to both livelihood zones. The nutritional status for children below five years was stable in both livelihood zones.

5.1.3 Ward Ranking

Table 12 Ward Ranking

No	Ward	Food security rank (1-very good, 2-Good, 3-Fair, 4-Poor)	Reason
1.	Mugunda	4	<ul style="list-style-type: none"> • Crop failure -90% • seasonal streams drying up • 20% invasion of natural pastures by invasive weed • Poor pasture condition • Fair to poor livestock body condition • Water sources 40% to capacity
2.	Gatarakwa	4	<ul style="list-style-type: none"> • Crop failure-80%. • 10% invasion of natural pastures by invasive weed • Fair to Poor pasture condition • Fair livestock body condition • Water sources 40% to capacity
3.	Gakawa	4	<ul style="list-style-type: none"> • 5% invasion of natural pastures by invasive weed • Fair to poor pasture condition • Fair livestock body condition • Presence of small herds of immigrating livestock • Outbreak of FMD • Water sources below baseline
4.	Mwiyogo/Endarasha	3	<ul style="list-style-type: none"> • 3% invasion of natural pastures by invasive weed

			<ul style="list-style-type: none"> Fair pasture condition Fair livestock body condition
5.	Mweiga	3	<ul style="list-style-type: none"> Crop failure – 70% 2% invasion of natural pastures by invasive weed Fair pasture condition Fair livestock body condition Cases of human wildlife conflicts
6.	Thegu	3	<ul style="list-style-type: none"> 3% invasion of natural pastures by invasive weed Fair pasture condition Good to Fair livestock body condition Water sources below normal
7.	Naromoru/kiamatha	2	<ul style="list-style-type: none"> 2% invasion of natural pastures by invasive weed Fair pasture condition Fair livestock body condition
8.	Kabaru	2	<ul style="list-style-type: none"> Good to Fair pasture condition Good to Fair livestock body condition

5.2 Ongoing Interventions

Sub County	Intervention	Ward	No. of beneficiaries	Implem enters	Impacts on food security	Cost (Kshs)	Time Frames
LIVESTOCK-							
Kieni East & west	30 farmer groups supported with improved local poultry chicks (200 chicks per group)	All 8 wards	700 households	KCSAP & DALD/ County govt	Improved nutrition, increased incomes and in increased egg and meat production	1.4m	1 year
Kieni East & West	Vaccination of cattle, sheep & goats	All 8 wards	11860 animals against LSD, FMD and BQ 2766 dogs against rabies	County Govt of Nyeri	Improve on animal Health Reduce mortalities	0.7 Million	½ Yrs.
Kieni East & West	5 farmer groups supported with French and Kenya Alpine dairy goat breeding stock	Thegu, Mugunda and Gatarakwa wards	150 households	KCSAP	Improved nutrition, increased incomes and in increased milk production	0.8m	1 year

Kieni East & West	9 farmer groups supported with Dorper sheep for breeding (192)	Thegu, Mugunda and Gatarakwa wards	200 households	KCSAP	Enhanced household incomes from sale of sheep and manure	1.3m	1 year
Kieni East & West	Subsidized A.I – an estimated 900 animals were inseminated	All 8 wards	All dairy farmers	County government of Nyeri	Improved livestock breeds thus enhanced milk production for more incomes,	0.3m	Continuous
WATER							
Kieni west	Kiria dam	Gatarakwa	250HH	KCSAP	Irrigation	33M	6 months
Kieni West	Simbara Amboni phase II	Mweiga	960HH	IFAD	Irrigation	10M	6 Months
Kieni West	Kanyiriri B/Hole	Endarasha/Mwiyogo	100HH	CGN	Irrigation & Domestic	7M	12 Months
Kieni East	Installation of Solar Panels	Kabaru	600HH	CGN	Increased food production	2M	6 Months
Kieni East	Naromoru/Kiamathaga	Drilling of B/H	750HH	GOVERNMENT OF NYERI	Increased food production	1.2M	6 Months
Kieni East	Naromoru/Kiamathaga	Construction of water pans	1300HH	GOK (SIVAP)	Improved Food Production	100M	18 Months
Kieni East	Thegu	Solar Installation	750HH	CGN	Increased food production	50000	6 Months
Kieni East	Gakawa	Installation of Solar Panels	1500HH	CGN	Increased food Production	5M	6 Months
EDUCATION							
Kieni East and West			Operation back to school with inter-ministerial approach.	Targeting learners who have not reported back to school.	MOE Ministry of Interior and Coordination of National Government. Parents.		One month

AGRICULTURE							
Kieni East	Water Harvesting for irrigation	Naromoru Kiamathaga Luisoi, Thegu	1200	GOK, CoGN	Increased availability	150M	March 2021
Kieni West	Water harvesting	Gatarakwa and Mugunda	500	GOK, CoGN	Increased production		June 2022
HEALTH							
Kieni East and West	Vitamin A supplementation	All wards	All children between 6months – 5 years	Health UNICEF			Every 6 months

5.3 Recommendations

Implementation status of Recommended Interventions from previous assessment (2020 LRA)

Intervention description/type	Location	No of beneficiaries		Cost in Kshs	Implementers /actors	Remarks <input checked="" type="checkbox"/> Implementation status (ongoing, completed, not completed) <input checked="" type="checkbox"/> % completion status
		Male	Female			
Enhance on disease surveillance and upscale on vaccination	All 8 wards	11860	heads of cattle vaccinated against a target of 5000	1.5m		Over 100%

Recommended interventions

Sub County	Intervention	Ward	No. of beneficiaries	Proposed Implementers	Required Resources	Available Resources	Time Frame
AGRICULTURE SECTOR							
Kieni East and West	Seed subsidy	8	2000	County Government of Nyeri (CGN), GOK	funds	Staff and farms	March-Sept 2022
Kieni East and West	Irrigation water provision	8	6000	County Government of Nyeri (CGN), GOK	funds	Staff and farms	March-Sept 2022
Kieni East and West	Surveillance of DL	8		County Government of Nyeri (CGN), GOK	Funds	-	March October 2021

LIVESTOCK SECTOR							
Kieni West	Support 6 farmer groups with improved poultry breeding stock and beekeeping equipment	Endarasha Mwiyo ward	200 households targeted	Farmers, Climate Smart Agriculture-FAO	Personnel, One month old chicks from KALRO Naivasha	Personnel Transport	1 year
Kieni East	Support more farmer groups with improved poultry breeding stock	Gakawa and Naromoru / Kiamathaga wards	200 households targeted in the 2 wards	Farmers, County Govt of Nyeri	Personnel, One month old chicks from KALRO Naivasha	Personnel Transport	
Kieni East and West	Capacity build on herd management	All 8 wards	2500	Farmers, County Govt of Nyeri	Personnel, Transport, subsistence	Personnel	1Yr
Kieni East & West	Up-scaling of fodder production and conservation	All 8 wards	400 households	Farmers, SIVAP County Govt of Nyeri	Personnel, seeds, Fertilizers, land, transport, subsistence	Land, Personnel	1 Yr
Kieni East & West	Enhance on disease surveillance and upscale on vaccination	All 8 wards	10000 heads of cattle targeted	Farmers, County Govt of Nyeri	Personnel, Transport, subsistence, vaccines and sera. consumables	Personnel, Transport	Continuou s
HEALTH							
Kieni East and West	Nutrition Education	Gatarakwa and Mugunda	250 households in Kiahuko and Ruai villages	Health Partners e.g., World Vision	Human resource; PHOs Nutritionists and CHVs; Financial; Transport and lunches Stationary	Human resource	1 month
EDUCATION							
KE/W		All schools to receive additional desks	Learners in 75 primary and 25 secondary schools	-MOE	Funds		KE/W
KE/W		Activate the School Meals Program in all ECDE centers and primary schools.	34,549 learners	MOE, County government of Nyeri.	Funds	Human labour Utensils Wood fuel.	KE/W
WATER							
Kieni West	Disilting of Karuthing'itu Dam	Muguda	100HH	NDMA	Funds	None	3 Months

Kieni West	Solarisation of TREFFOS-KIBURUTI B/H	Gatarakwa	210HH	NDMA	Solar powering system & tank	Borehole & Pump	3 Months
Kieni West	Solarisation of Muthuini B/H	Endarasha/Mwiyogo	180HH	NDMA	Solar powering system	Borehole, Pump & Tank	3 Months
Kieni East	Equipping of B/Hs	Kabaru	500HH	CGN	Pump		6 Months
Kieni East	Equipping of B/Hs	Thegu	800HH	CGN	Pump (0.6M)		6 Months
Kieni East	Desilting of Wamburu Dam	Thegu	3000HH	CGN/DONORS	32M		6 Months
Kieni East	Equipping of B/Hs	Gakawa	1200HH	CGN	Pump (0.8M)		6 Months
Kieni East	Equipping of B/Hs	Naromoru/Kiamathaga	600HH	CGN	Solar & pump (3M)		6 Months