



Central Bank of Kenya

Monetary Policy Committee Agriculture Sector Survey

July 2023



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1. BACKGROUND

The agriculture sector continues to play a critical role in Kenya, accounting for 20 percent of Gross Domestic Product (GDP) and 27 percent indirectly through its linkages with other sectors. The sector also accounts for over 40 percent of the total employment and more than 70 percent of employment for the rural populace. Given the critical role the sector plays in providing livelihoods and food for the Kenyan economy, it is increasingly important to ensure that quality high frequency data is available to inform the food security situation in the country, the prevailing prices and their expectations and the challenges that may affect access to farm inputs, agricultural production and marketing of farm produce. Towards this end, the Central Bank of Kenya (CBK) introduced the Agriculture Sector Survey in July 2022 to complement the CEOs and Market Perceptions Surveys. This Survey is aimed at generating high frequency agriculture sector data on indicative prices of select key food items and output to provide additional information to inform monetary policy decision making process. Understanding the trends in the prices of agricultural commodities and the sector's output is critical, given the significant weight of food in the CPI basket, the variability in production trends across time and the important role of agriculture in the economy. Moreover, given the high reliance on rain-fed farming, farmers are increasingly vulnerable to drought and unpredictable weather patterns due to climate change.

The Economic Survey (2023) reported a deceleration in the growth of the agriculture sector from -0.4 percent in 2021 to a further contraction of 1.6 percent in 2022, following prolonged drought conditions that led to a reduction in both crop and livestock performance. Maize production decreased from 42.1 million bags in 2020 to 36.7 million bags in 2021 and 34.3 million bags in 2022. A similar trend was reported for beans, coffee, wheat, and tea. However, in 2023 Q1, the agriculture sector rebounded to a 5.8 percent growth on account of favourable weather conditions. Maize production is currently projected to increase from 34.3 million bags in 2022 to 47.8 million bags in 2023 based on the Ministry of Agriculture June 2023 projections.

The July 2023 Agriculture Sector Survey aimed at obtaining indicative information on the recent trends in prices and output of agricultural commodities in various selected markets and farms. The Survey also provided indications of the availability/supply of key food commodities in the respective regions

surveyed. The focus areas of the survey included:

- i. Prices of key agricultural commodities and their expectations.
- ii. Assessment of agricultural output, acreage, and their expectations.
- iii. Access and use of farm inputs for agricultural production.
- iv. Factors affecting agricultural production, marketing/sale of farm produce.
- v. Access to credit facilities by farmers; and
- vi. Views on how to improve agricultural production.

The Survey was conducted between July 11 and 15, 2023 after the long rains season and amidst easing of supply constraints in the international market. The results revealed a significant decline in the prices of key food items following improved weather conditions. Additionally, the survey revealed an increase in the uptake of the government subsidized fertilizer which stood at 49 percent of the sampled farmers. Transport costs, input prices and weather conditions continued to impact both output and prices of key food items the most, while price-related issues and competition from imports had the biggest impact on marketing/sale of farm produce. The war in Ukraine and mechanization in agriculture were found to have a minimal impact on agricultural production.

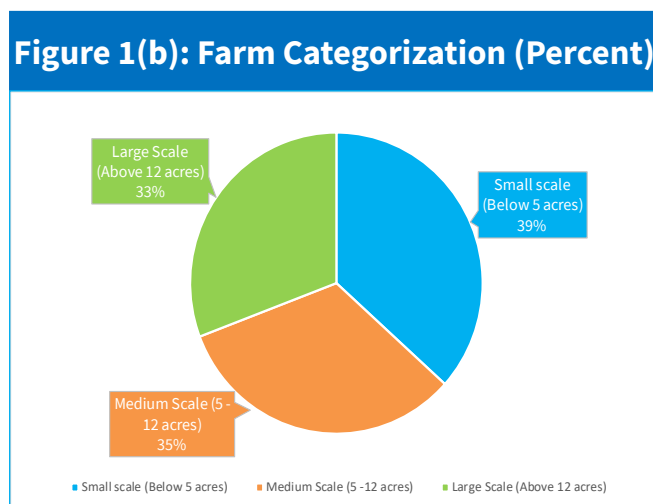
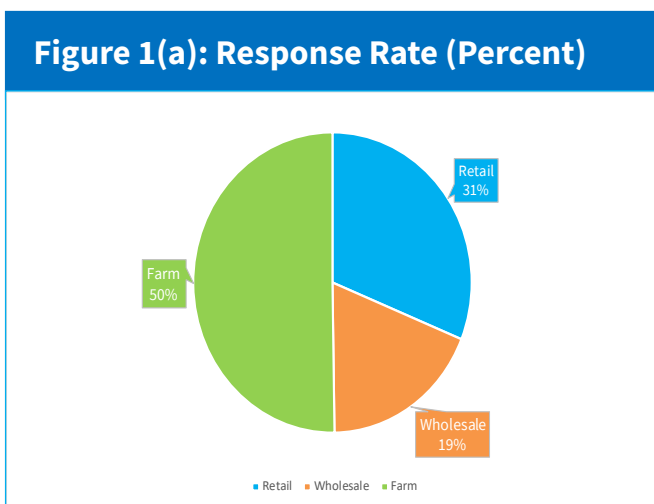
2. METHODOLOGICAL FRAMEWORK

The July 2023 Survey assessed changes in both wholesale and retail market prices, expectations about changes in prices and output, and factors that affect the sector. The Survey drew respondents from wholesale, and retail markets, and farms in major towns across the country. These included: Nairobi, Nairobi Metropolitan area, Naivasha, Gilgil, Nakuru, Narok, Bomet, Nyandarua, Nyahururu, Kisumu, Mombasa, Kisii, Eldoret, Kitale, Meru, Mwea, Machakos, Isebania, Nyeri, Molo, Kericho, Isiolo, Oloitoktok, Namanga and Makueni.

Both quantitative and qualitative approaches are used to analyze the data with the Balance of Opinion (BOO) approach applied to convert qualitative responses into quantifiable values. The BOO is computed by summing up positive probabilities less the negative probabilities divided by the total responses.

The farmer estimation approach was applied to determine agricultural productivity (yields). The approach entails requesting farmers to provide estimates of the total crop harvested in each month/season as well as the area under cultivation. The actual output is then divided by the area under cultivation to produce the level of productivity (yields) of select food crops at a particular period. Yields for seasonal crops are computed at the end of the cropping season during harvest while for

continuous crops, the computation is done regularly to accommodate both wet and dry seasons from which an average yield per acre can be computed more accurately. The coverage and scope of the survey has continued to expand as more data becomes available. Researchers made physical visits to markets and farms where personalized interviews were conducted. The survey obtained 100 percent response rate (**Figure 1**).



Farms accounted for 50 percent of the responses, with 39 percent of them being small scale farms. Quantitative and qualitative techniques were employed in the data analysis and findings reported using tables and charts.

3. MAIN HIGHLIGHTS FROM THE SURVEY

This section highlights the key findings from the July 2023 Survey. Broadly, the following are the key highlights and recommendations:

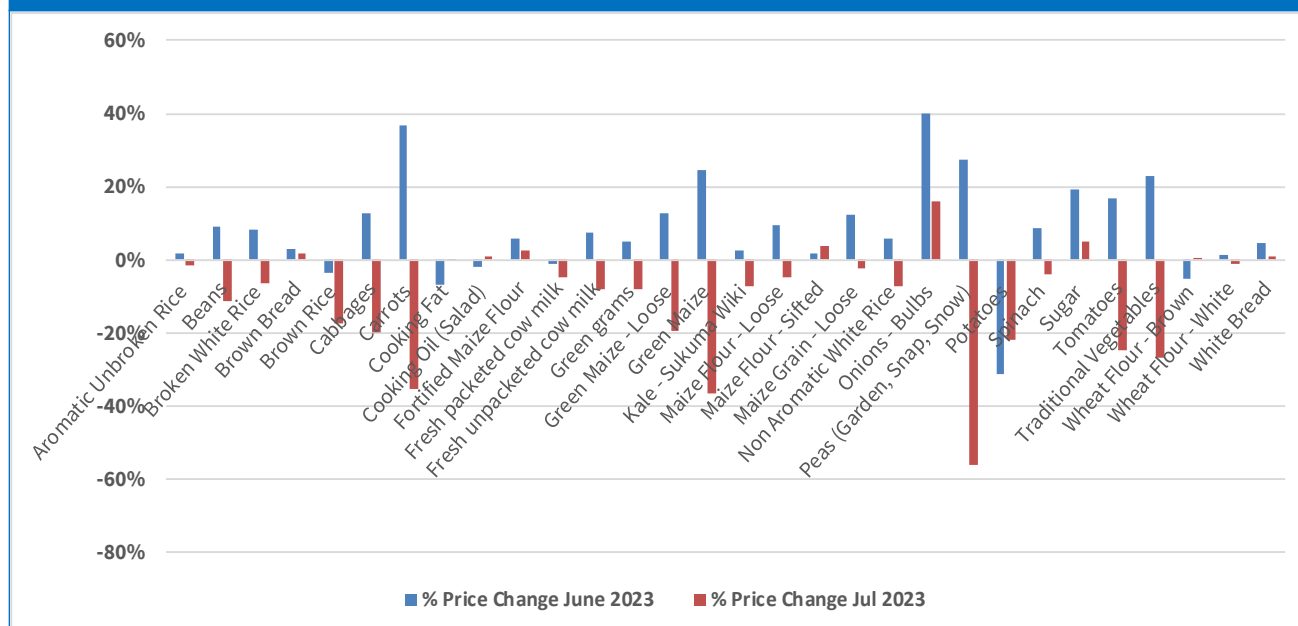
- i.) Retail prices of key food items except sugar, onions and certain maize products generally declined in July 2023.
- ii.) Supply of key food items is expected to increase in the coming months with the onset of harvests in some regions of the country and favourable weather.
- iii.) Weather conditions, transport and input costs continue to impact both output and price of key food items.
- iv.) Access to government subsidized fertilizer among sampled farmers stood at 49 percent in July 2023 compared to 43 percent and 29 percent reported in May and March 2023, respectively.
- v.) Banks, friends/family and the Hustler Fund were the main sources of credit for farmers; funds

- vi.) Optimism regarding the possibility of higher economic growth was subdued.
- vii.) Most farmers recommended lowering of input costs which has been impacted heavily by rising fuel costs, provision of quality seeds and fertilizer, tractor and extension services.
- viii.) The farmers also recommended the harvesting of rainwater and provision of water for irrigation through construction of dams.

3.1 Prices of Key Agricultural Commodities

The Survey sought to establish the month-on-month percentage changes in prices of key agricultural commodities between May and July 2023. Mixed trends were observed in the retail markets (**Figure 2**).

Figure 2: Changes in Retail Prices of Key Food Items (percent)



The Survey revealed a decrease in the retail prices of some key agricultural commodities between May and July 2023. Vegetable prices decreased in July following the bumper harvest which was supported by the long rains. Tomato farmers for example revealed that supplies from the main source markets in Ndaragwa, Kirinyaga and other local farms had increased significantly leading to a significant reduction in prices. The price of maize reduced in July 2023 as harvests from the lower Eastern, South Rift and Western commenced. However, the price of some fortified maize flour, sifted maize flour, onions and sugar remained elevated on account of shortage in supply due to reduced production.

Both packeted and unpacketed milk prices declined in July 2023 on account of increased pasture which led to a reduction in the purchase of animal feeds. The March 17 gazette notice where the government allowed animal feed manufacturers to import 500,000 tonnes of duty-free yellow maize before August 6, 2023 also helped stabilize the prices.

The price of sugar remained sticky in July 2023 due to limited supplies from the sugar belt which reported reduced cane deliveries. The Survey established that sugarcane farmers were harvesting sugarcane prematurely after 10 months instead of waiting for 18 months due to rising demand from millers who also use it to produce other products such as jaggery, ethanol, among others. Some of the challenges identified by sugarcane farmers included limited

support from government bodies like Kenya Sugar Board and privatization, limited access to credit facilities, lack of fertilizer subsidies targeting farmers, lack of transport to deliver sugarcane to millers and poor road network which forces farmers to wait for several days before collection, exploitation by middlemen and millers and lack of extension services to sugarcane farmers on best farming practices.

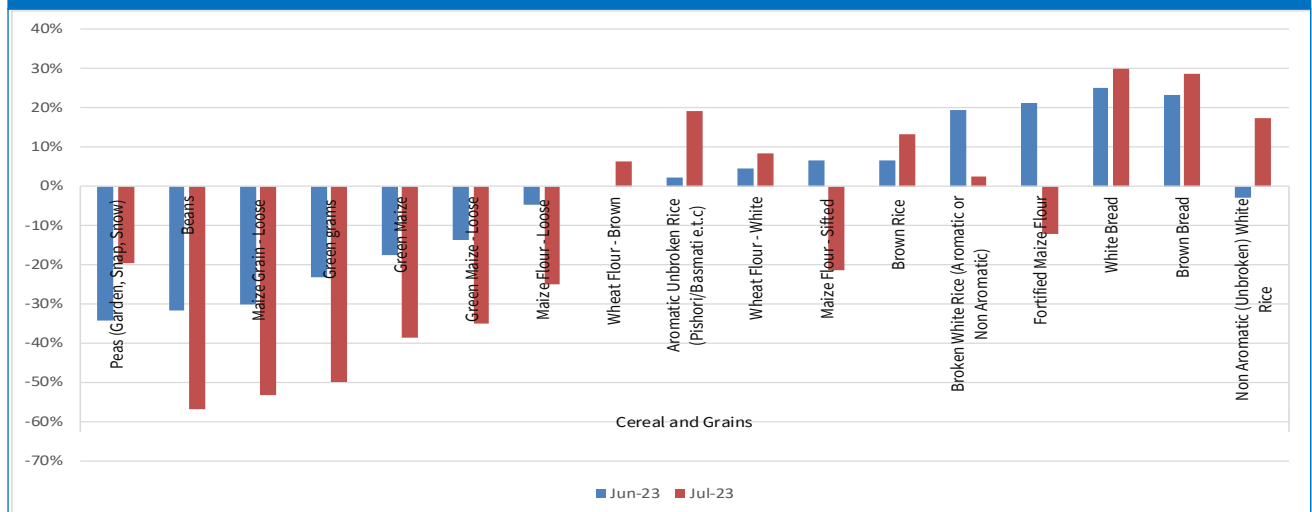
Regarding the spike in the price of onions, the Survey established that the increase was on account of the reduced local production since in some parts of the country, onions were affected by the long rains leading to spoilage while some farmers practiced crop substitution. The farmers also cited reduced importation of onions from Tanzania which is the main supplier due to low production. Tanzanian onions are of a higher quality since they are relatively drier and have longer shelf life.

3.2 Expectations of Prices of Key Food Items

Retail prices of cereals, grains and their end products are expected to either decline or remain unchanged in August 2023. A balance of opinion analysis (**Figure 3**) shows that respondents expect retail prices of cereals and grains to decline. Additionally, respondents expect a decline in the prices of beans, maize and green grams in August following the onset of the harvest from the lower Eastern, Western and South Rift regions. However, the prices of rice and

wheat products remain sticky due to reduced production and high cost of imports. Some farmers cited rust infection in wheat as the reason behind the reduced output.

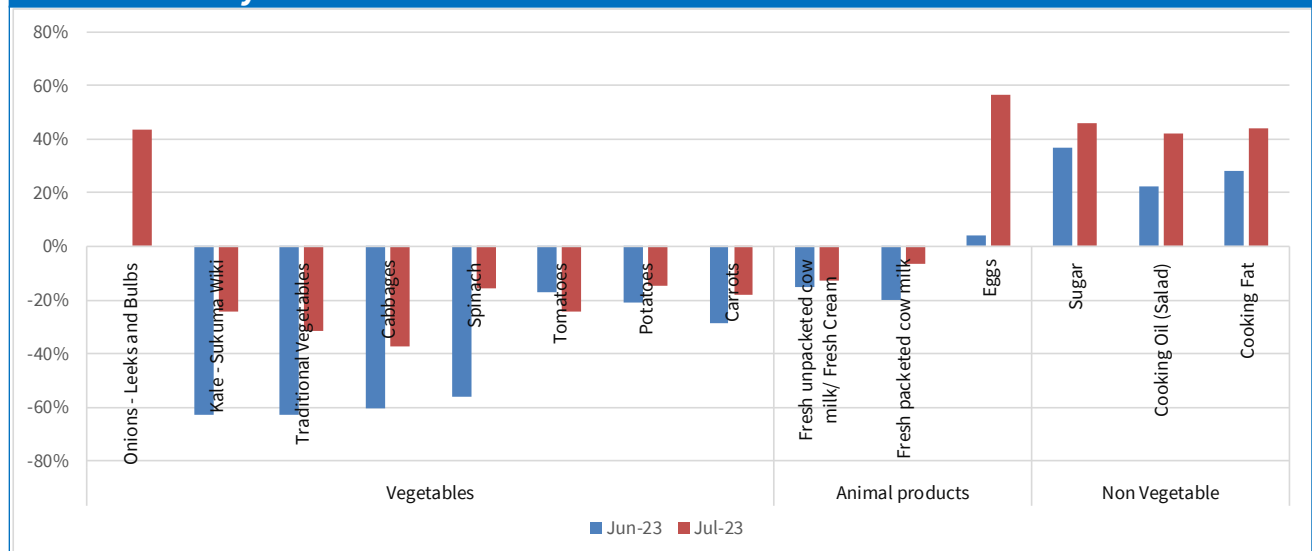
Figure 3: Retail Price Expectations for Cereals and Grains in July 2023 (Percent)



The expected decline in the price of animal products is on account of more pasture becoming available following the long rains season. However, egg prices are expected to rise with reduced supply during the cold season (Figure 4). The price of vegetable items is expected to reduce further in August though at a

decreasing rate following increased supply of the fast-maturing crops from the long rains season. The prices of cooking oil/fat and sugar remain elevated and could rise further owing to the high importation cost and reduced cane deliveries, respectively.

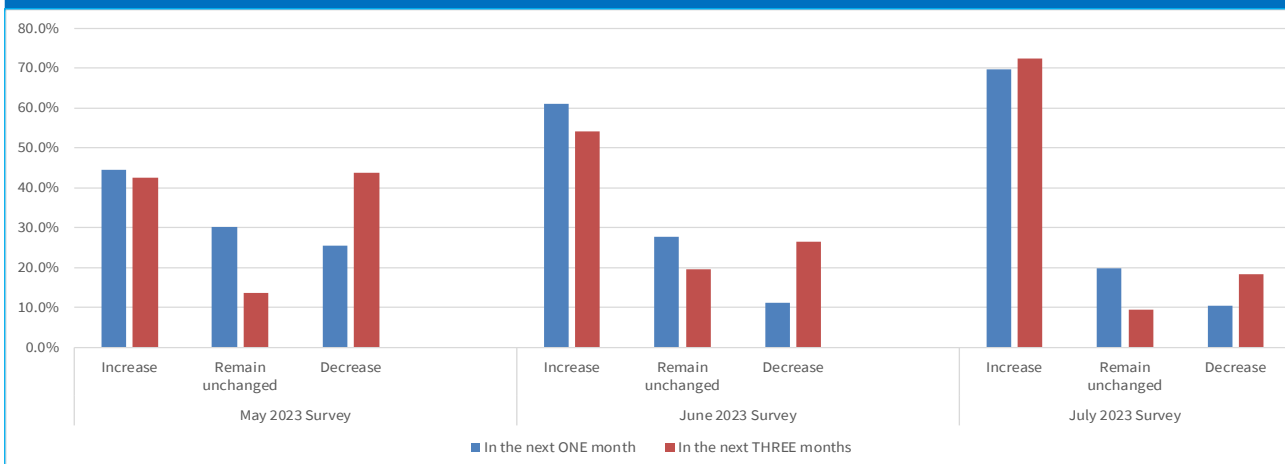
Figure 4: Retail Price Expectations for Vegetables, Non-Vegetables and Animal Products in July 2023



The Survey also sought respondent's views on expectations about price changes of goods that they regularly (consumer goods) buy (Figure 5). The Survey established that most of the respondents (69.6 percent) expect the prices to increase in the next one month compared to 61.1 percent and 55.6

percent in June and May, respectively. This is largely due to the implementation of the Finance Act 2023. More people (72.4 percent) expect the prices to increase further in the next three months compared to 54.2 percent and 57.5 percent in June and May respectively.

Figure 5: Consumer Price Expectations (Percent)

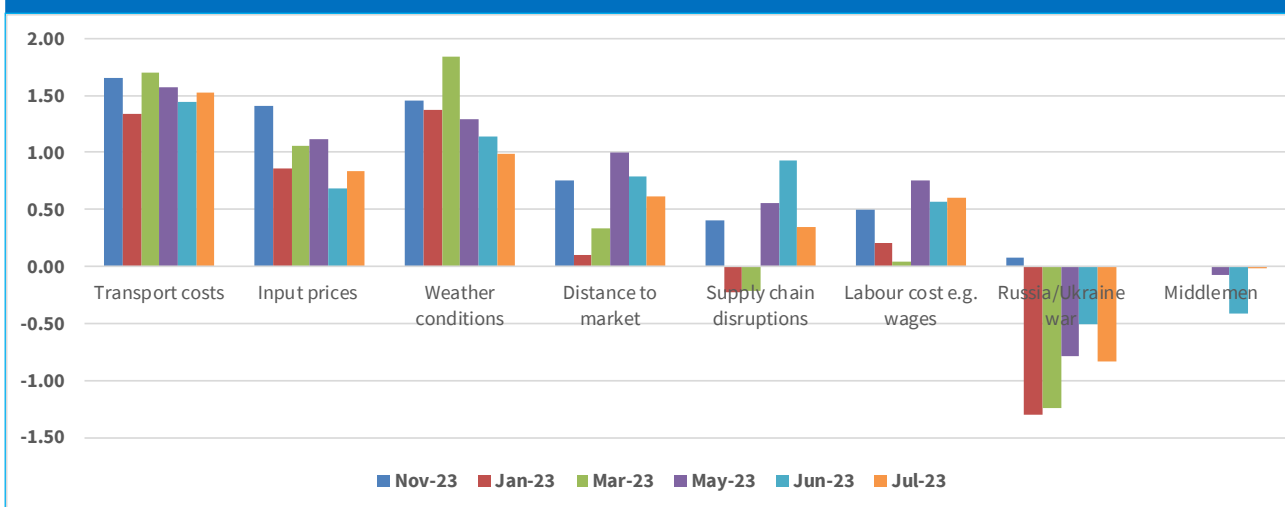


3.3 Factors affecting Retail and Wholesale Prices

The survey sought to establish the factors affecting prices of select food items across the country (Figure 6). Using the balance of opinion approach, the survey established that similar to the March and May 2023 Surveys, the July retail and wholesale (Figure 14) prices were impacted by transport costs, input

costs and weather conditions with transport having the biggest impact, following the implementation of the VAT on fuel. Middlemen played a less significant role. Distance to markets, supply chain disruptions and labour costs also had a significant impact on price setting. The impact of the Russia/Ukraine war remains minimal, possibly already captured through transport and inputs costs.

Figure 6: Factors affecting Retail Prices



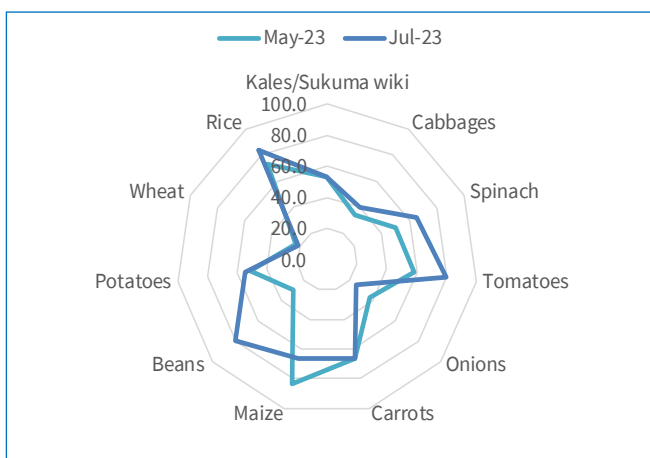
Analysis of output

This section investigates the performance of the agriculture sector among small, medium and large scale farmers in Kenya. The first part analyzes the productivity of the sector using the yields per acre for various agricultural commodities. The yields are derived by dividing the total output per crop with the area under cultivation as measured in acres/hectares. This is followed by an analysis of the combination of inputs applied by farmers in production, examination of expectations in output and acreage, supply factors, access to credit facilities and views on how to improve agricultural production.

3.4 Productivity of Select Food Crops

Calculating the productivity per crop is useful in establishing the variance between the actual level of output from its potential. To establish the level of productivity in July 2023, the farmer estimation approach was applied where farmers provided estimates of the total crop harvested (actual output) in each month/season and the area under cultivation. To obtain the yields per acre, the actual output was divided by the area under cultivation. This was then compared with the optimal yields per acre and represented using a radar (Figure 7).

Figure 7: Yields per Acre (Percent)



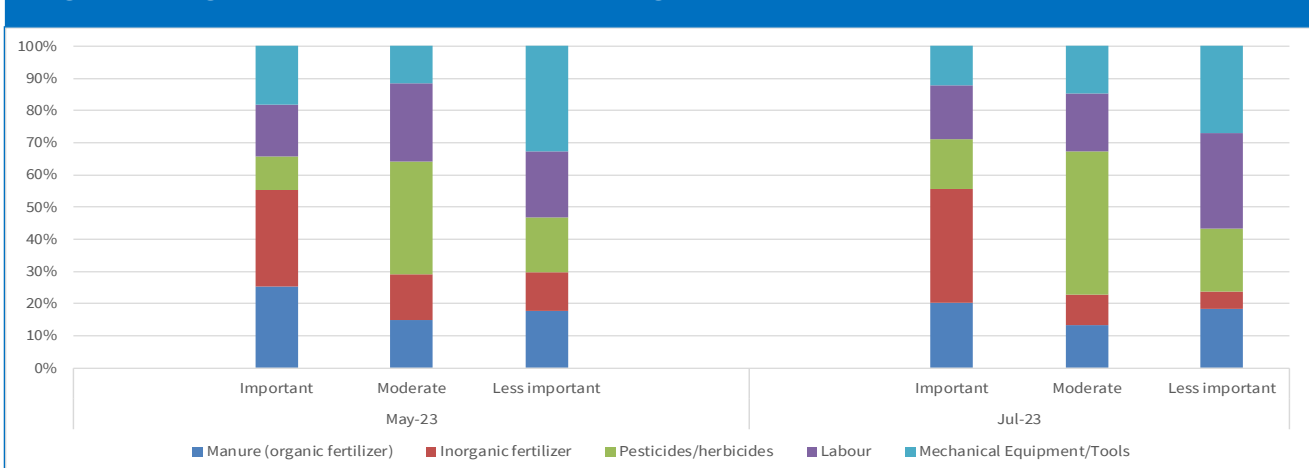
Although the Survey shows that yields for all the sampled food crops fell below potential (100 percent) in the season to July 2023, most food crops reported higher yields as compared to May 2023. However, onions reported lower yields compared to what the farmers reported in May 2023. The yields per acre vary depending on the season, rising during the peak season. Optimal combination of farm inputs in agricultural production is critical in enhancing farm yields especially for the Kenyan economy whose mainstay is agriculture.

3.5 Use of Farm inputs in Agricultural Production

Use of farm inputs that embody modern technology such as improved seeds, inorganic fertilizers, agrochemicals, farm implements, and irrigation has potential to increase the level of output and reduce

food insecurity for the masses whose mainstay is agriculture. Similar to the May 2023 survey, the July 2023 Survey established that while most farmers employ a combination of inputs to improve output, use of inorganic fertilizer was more widespread followed by the use of organic fertilizer or manure (Figure 8).

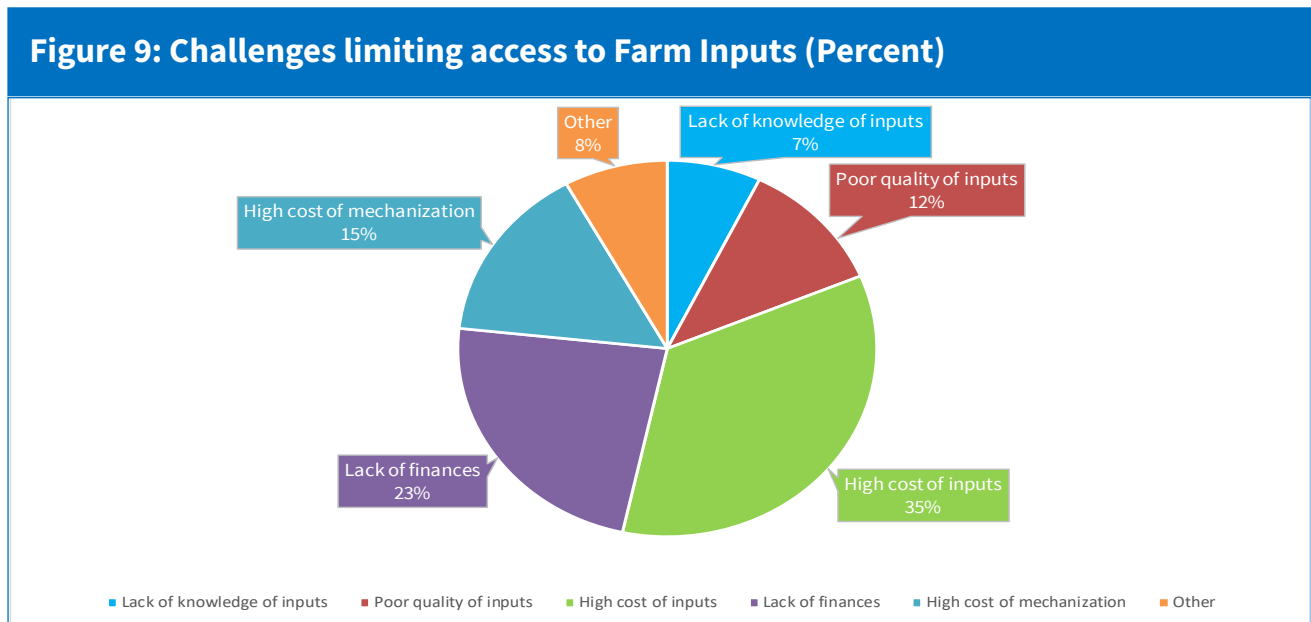
Figure 8: Significance of Farm Inputs in Agricultural Production



3.5.1 Challenges associated with access to farm inputs

Despite the huge benefits associated with the optimal combination of farm inputs, access to affordable and quality farm inputs remains elusive to most farmers. Most farmers cited high cost of inputs e.g. seeds and fertilizer (34.7 percent); lack of

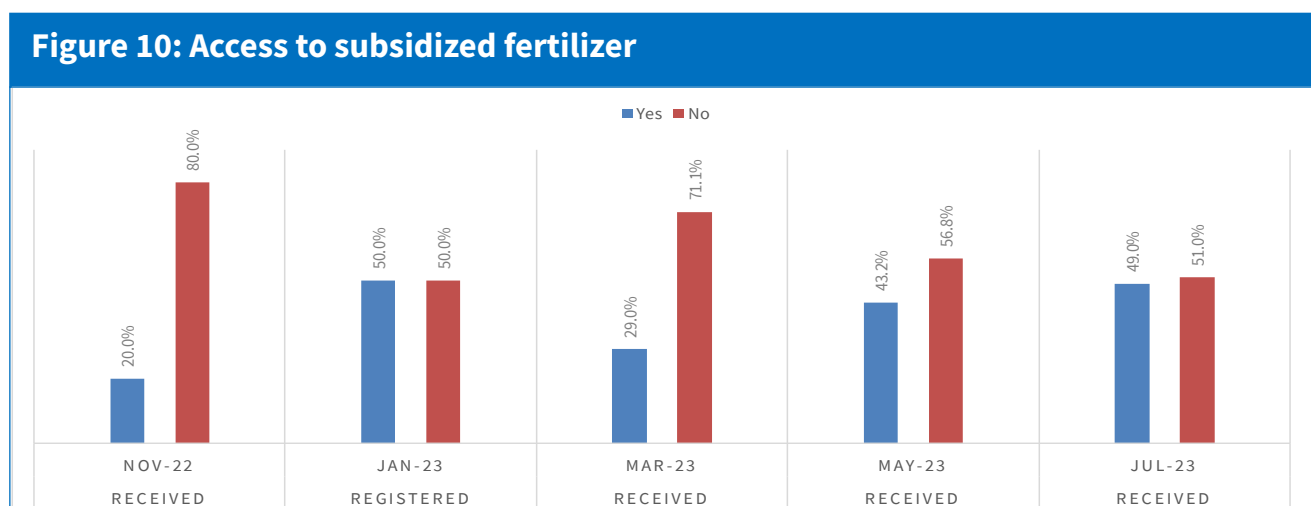
finances (23.3 percent); high cost of mechanization (15.3 percent); poor quality of inputs e.g. fertilizer/ seeds variety (11.5 percent) due to counterfeits; and limited knowledge of inputs (7.3 percent) (Figure 9) as the main constraining factors.



3.5.2 Access to Government subsidized fertilizer

The Survey established that 49 percent of the sampled farmers had received the government subsidized fertilizer by early July 2023 compared to 43 percent and 29 percent who received in May and March 2023, respectively. The respondents affirmed the improvements in the registration and distribution of the subsidized fertilizer and acknowledged that automation has simplified the process (Figure 10). Nevertheless, some farmers raised concerns on the

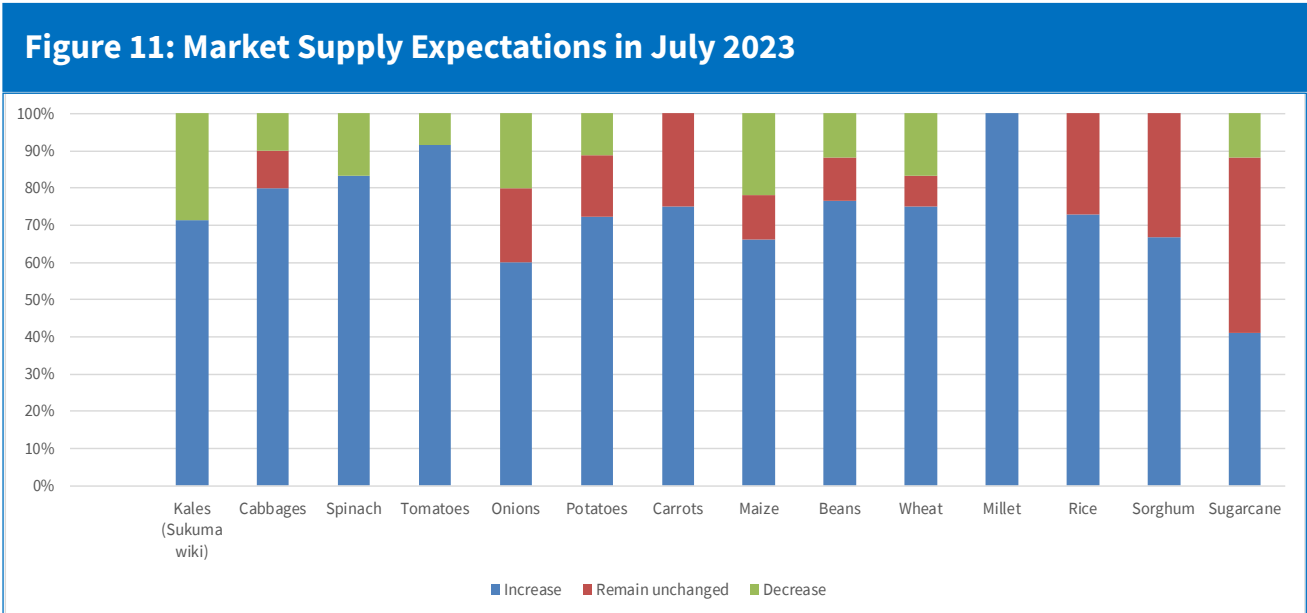
Ministry of Agriculture (MoA) using the North Rift season as the benchmark for issuing the subsidized planting and top-dressing fertilizer, arguing that the regions are not homogenous and there could be timing differences in planting and harvesting. Others noted that the utilization of the subsidized fertilizer is at times limited by lack of a sustainable water source given the dependence on rainwater. Lack of alternative water sources predisposes farmers to climate shocks thus making them vulnerable to harsh weather conditions.



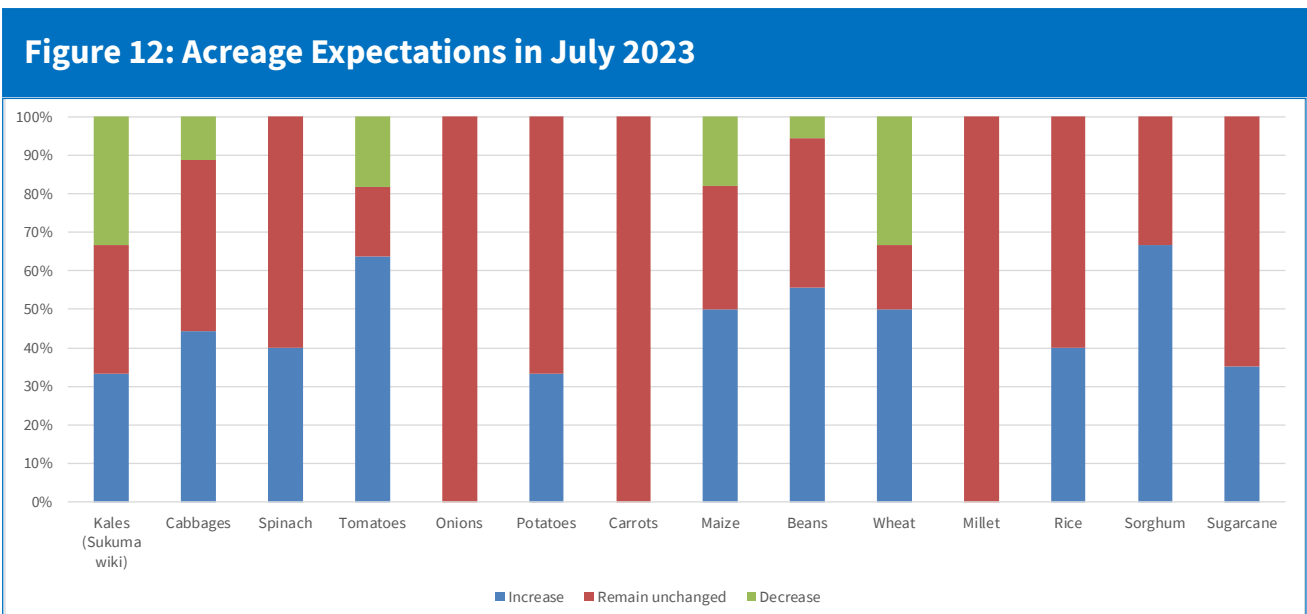
Non-recipients cited a lag between the date of receipt of the notification and redemption of the subsidized fertilizer, lack of finances to redeem the voucher, wrong timing, long queues, long distances, corruption, not being contacted despite registration, title deed, and obtaining information late.

3.6 Market Supply Expectations

The survey sought to establish the expectations about changes in output and acreage in July 2023 (Figure 11 and 12). The majority of those interviewed were quite optimistic with 88.8 percent of farmers expecting the supply of key food items to either increase (73.7 percent) or remain the same (15.1 percent) in the next harvest which is slightly higher than the 79.5 percent reported in May 2023.



The expected increase in the supply of most vegetable food items is on account of the harvest as well as the quality of the recently issued fertilizer. Farmers however expressed concerns about the reduced supply of onions following the spoilage during the long rains. Expectations about the supply of sugar remains subdued owing to limited cane deliveries occasioned by premature harvests in the previous season and a dip in production.

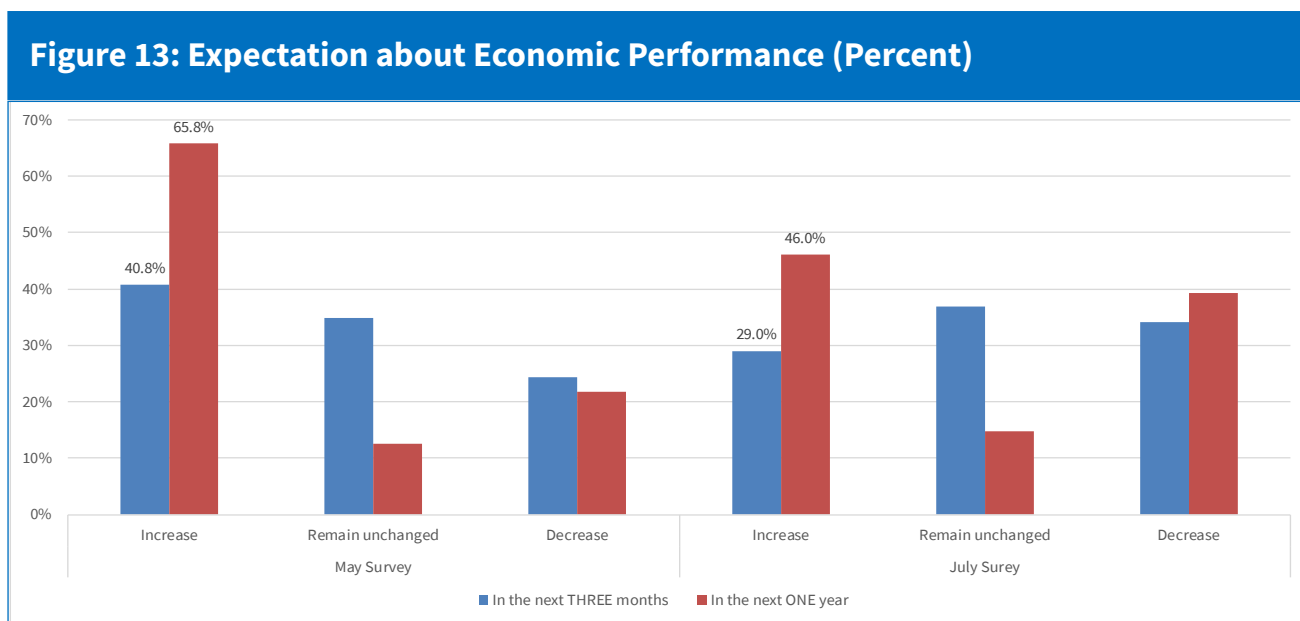


Most farmers expect the area dedicated to agricultural production to increase following the long rains and the good prices being fetched in the market. Farmers argued that they increase acreage for crops depending on the prevailing economic conditions and outlook and the expected rate of return from the specific crop.

3.7 Expectations about overall economic performance

The sampled respondents were also interrogated on their expectations about the overall economic

performance (**Figure 13**). Expectations about the performance of the economy were muted both in the short and the medium term, mainly due to high energy costs and taxes which respondents argued would erode their purchasing power. In particular, the respondents cited the newly enacted 2023 Finance Act which, despite anticipated reliefs on certain items, could impose an extra burden on consumers.

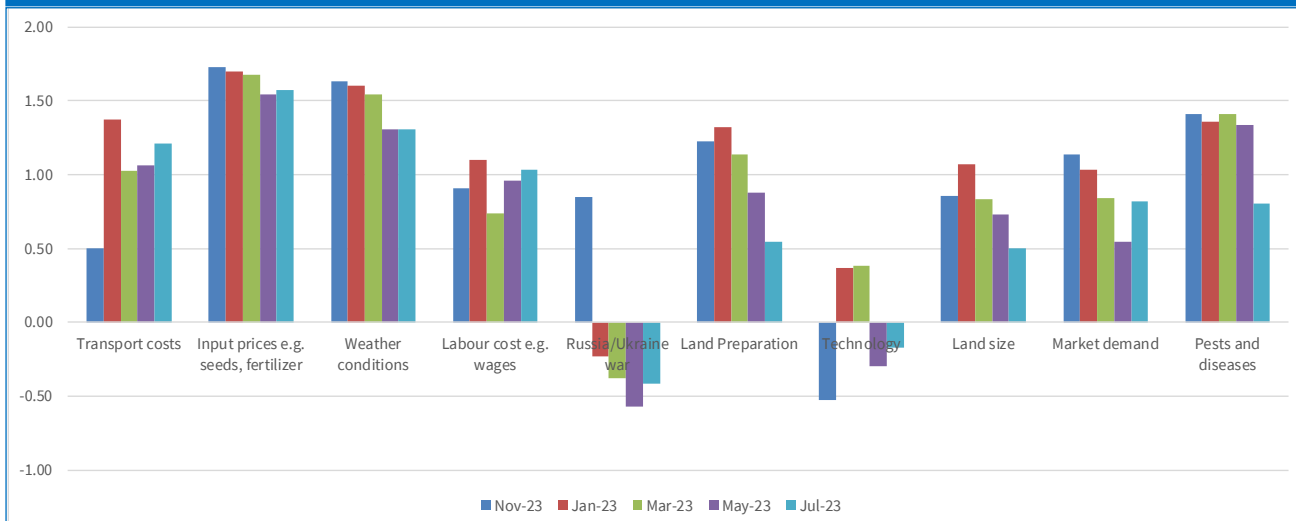


3.8 Factors Affecting Agricultural production

Several factors including economic, biological, environmental, and technology affect market supplies. A good understanding of the dynamics in agriculture sector is critical in unlocking its potential to enhance food security through increased yields and to stabilize food prices. Transport costs, input prices, infestation by pests and diseases and adverse weather patterns continued to impact agricultural production the highest in the last five Surveys.

Nevertheless, the July 2023 Survey shows that the weather conditions were favourable and therefore had the least impact compared to the reports in previous Surveys. The war in Ukraine and technology played a limited role signaling low mechanization and technology adoption in agriculture. Most farmers indicated that they mainly rely on machines such as tractors and ploughs during land preparation before switching to human labour (**Figure 14**).

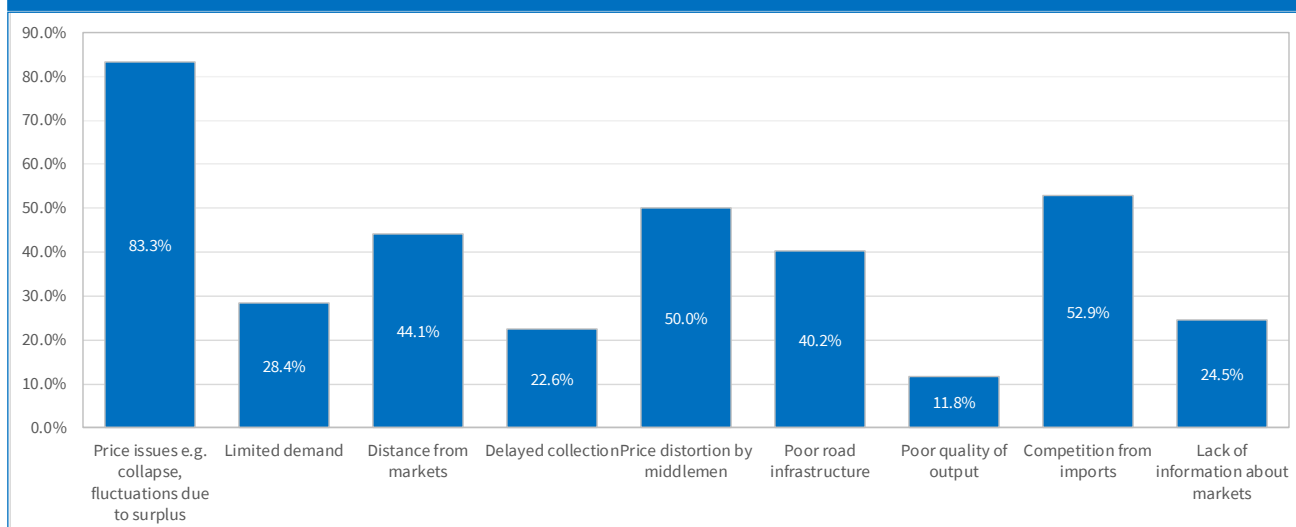
Figure 14: Factors affecting Agricultural Production



Regarding the factors affecting marketing/sale of farm produce, farmers cited fluctuation in prices or collapse in prices due to flooding of local produce (83.3 percent), competition from imports (52.9 percent) and price distortion by middlemen (50.0 percent) as the main challenges faced during

marketing/sale of farm produce. Distance from markets, poor road network, limited demand and information asymmetry also pose a challenge. The high transport cost renders the goods less competitive since buyers' load the transport cost incurred when setting the farmgate price (Figure 15).

Figure 15: Factors affecting Marketing/Sale of Farm Produce

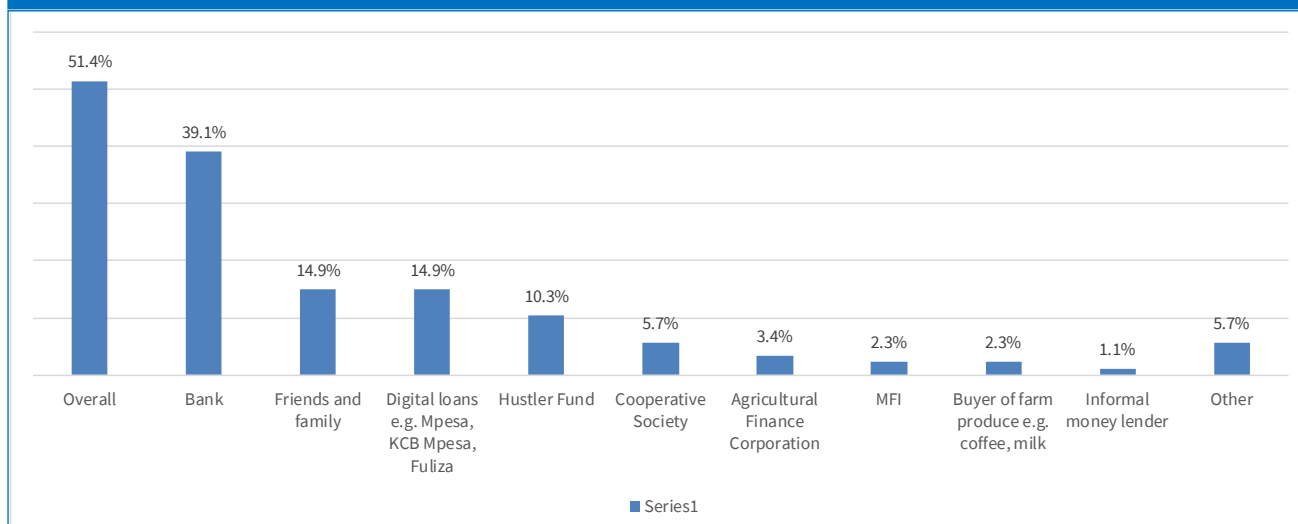


3.9 Access to Credit facilities in Agriculture

Access to credit by farmers is critical in enhancing food security through improved farming activities. Credit facilitates access to requisite farm inputs such as seeds and fertilizer. It also facilitates the payment

of workers, purchase/lease of land and adoption of appropriate technology in agriculture. Credit uptake among the sampled farmers is presented in Figure 16.

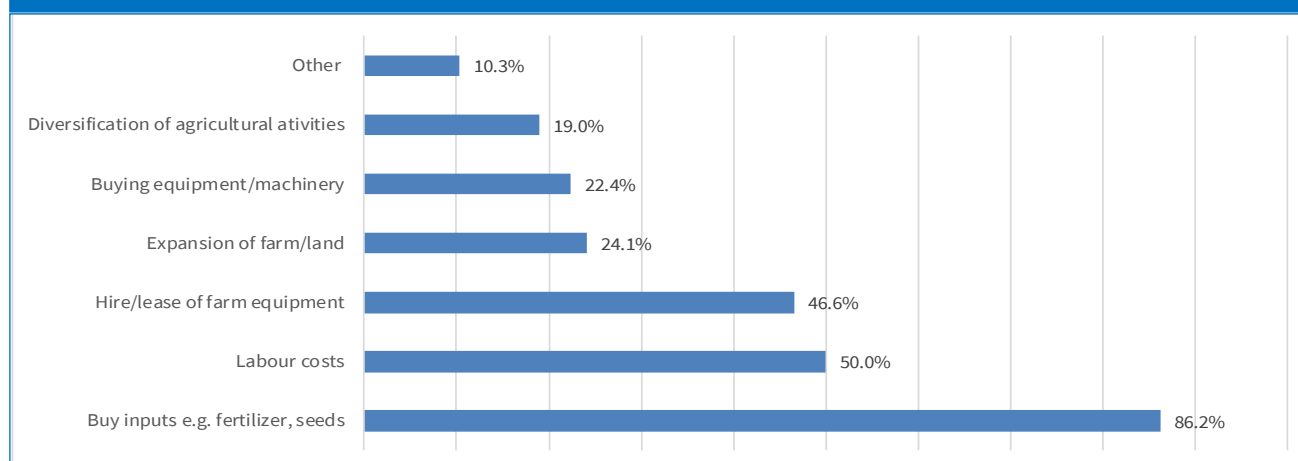
Figure 16: Proportion of the respondents who borrowed to finance farming by source



The Survey established at least 51.4 percent of the sampled farmers had borrowed money in the last 12 months to finance their farming activities. Majority (39.1 percent) borrowed from commercial banks while 14.9 percent borrowed from friends and family as well as digital loans such as Mpesa, KCB Mpesa, Mshwari among others. The Hustler Fund which was introduced in 2022 to provide cheaper credit

to individuals and businesses at the bottom of the pyramid accounted for 10.3 percent responses pointing to the great potential the Fund has to finance small scale farmers in settling day-to-day expenses such as payment of workers and purchase of inputs. Borrowed funds are channeled to a variety uses as summarized in **Figure 17**.

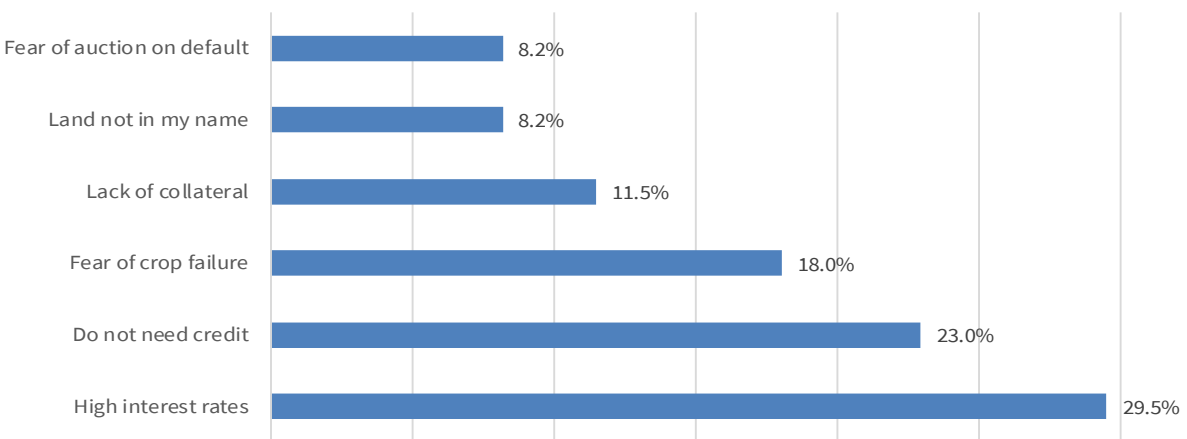
Figure 17: Purpose of agricultural loans



A majority of the sampled farmers (86.2 percent) borrowed to purchase farm inputs followed by labour costs (50 percent) and hire/lease of farm equipment (46.6percent) respectively. This clearly shows that the farmers are in need of operating capital to run the day to day farming activities. The proportion of

the farmers who borrowed to expand their farms, buy equipment and machinery as well as diversify their farming activities was relatively low. This could be rationalized by the huge amount of money required for capital investments in agriculture. The barriers to agriculture finance are summarized in **Figure 18**.

Figure 18: Barriers to credit among farmers



Most of the sampled farmers cited high interest rates (29.5 percent) as the main reason why they had not borrowed to finance their farming activities. This was followed by 23.0 percent who indicated that they did not need credit while 18 percent feared crop failure, a likely scenario in case of insufficient rainfall, drought or flooding. Some farmers also feared auctioning of their property (8.2 percent) in the event they default on the loans. Another reason was

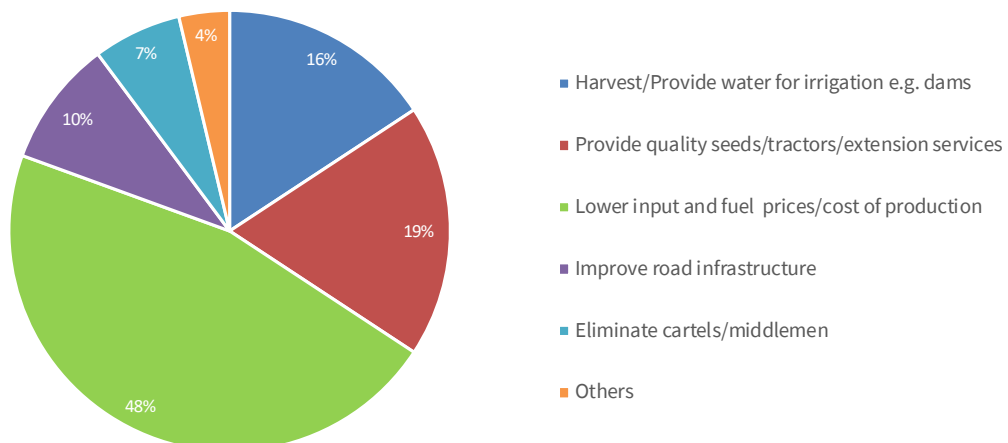
related to asset ownership where 8.2 percent indicated that the land was not in their name while 11.5 percent lacked collateral which is key when borrowing for agriculture. Most lenders ordinarily require a farmer to present a title deed registered in their name for them to access credit. This could explain why most of the borrowers either borrowed digital loans, loans from friends and family or Hustler Fund which do not require collateral.

4. VIEWS ON HOW TO IMPROVE THE AGRICULTURE SECTOR

The Survey sought views from farmers on how to improve agricultural production. Most farmers recommended lowering of input prices/cost of production (48 percent), provision of quality seeds, tractor and extension services (19 percent), and harvesting of rainwater alongside the provision of

irrigation water through sinking of boreholes and dams (16 percent) to supplement rainfed farming. Farmers also recommended improvement of the road infrastructure to facilitate the transport of farm produce to the markets, and elimination of middlemen, among others (**Figure 19**)

Figure 19: Views on how to improve Agricultural Production



5. CONCLUSION

The CBK conducted the sixth Agriculture Sector Survey from July 11 - 15, 2023 to obtain indicative information on the recent trends in prices and the sector's output of key agricultural commodities in various markets and farms across the country. In particular, the Survey focused on prices of key agricultural commodities, agricultural output, acreage and output expectations, factors affecting agricultural production, marketing and sale of farm produce, access to credit facilities and views on how to improve agricultural production. The Survey drew 215 respondents from: wholesale traders, retailers, and farmers in select towns (Nairobi and the neighbouring counties including Kiambu, Kajiado and Machakos, Naivasha area, Nakuru, Narok, Bomet, Kisumu, Mombasa, Kisii, Eldoret, Kitale, Nyandarua, Nyahururu, Mwea, Machakos, Isebania, Meru, Nyeri, Isiolo, Oloitoktok, Namanga, Makueni and Molo) across the country. Key findings from the Survey were as follows:

- Retail prices of most vegetable and non-vegetables declined significantly and are expected to decline further. However, the price of sugar and onions remain elevated.
- Supply of key food items expected to increase in the coming months as the harvest from Eastern, South Rift and Western start reaching the markets
- Weather conditions, transport and input costs continue to be the key factors impacting both output and price of key food items.
- Access to government subsidized fertilizer among farmers stood at 49 percent in July 2023 relative to 43 percent and 29 percent reported in May and March 2023, respectively.
- Banks, digital loans, friends/family and the Hustler Fund were the main sources of credit for farmers, with the funds mainly used to finance, farm inputs, labor and equipment hire

In terms of recommendations, most farmers recommended the following:

- Lowering of input costs which has been impacted heavily by rising fuel costs
- Provision of quality seeds and fertilizer, tractors and extension services.
- Harvesting of rainwater and provision of water for irrigation through construction of dams.
- Extension of credit facilities to farmers

ANNEXES

Figure 17: Factors affecting Wholesale Prices

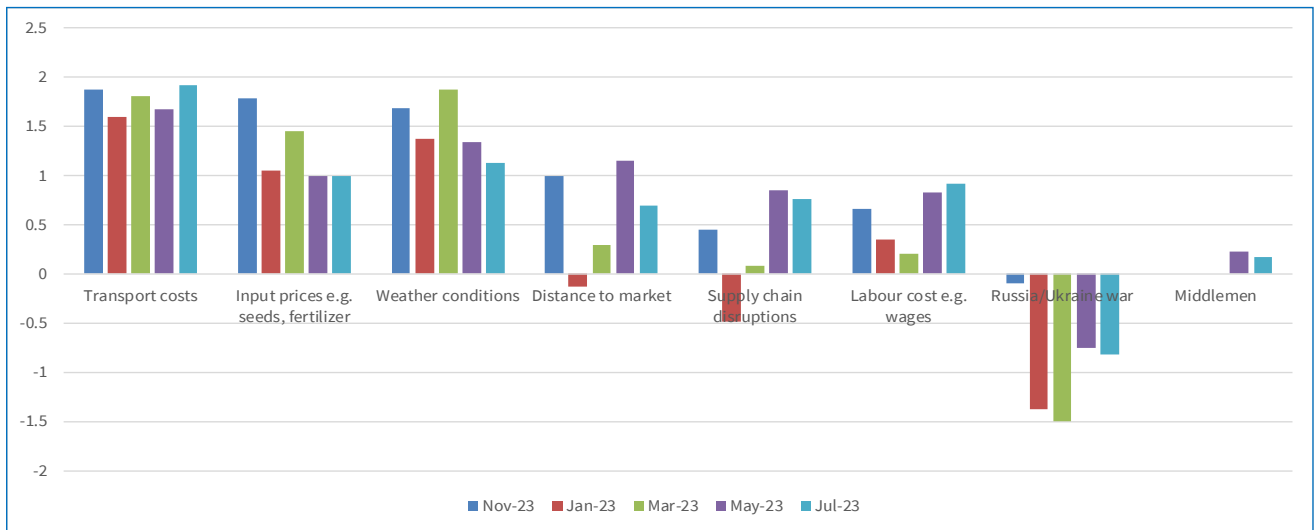
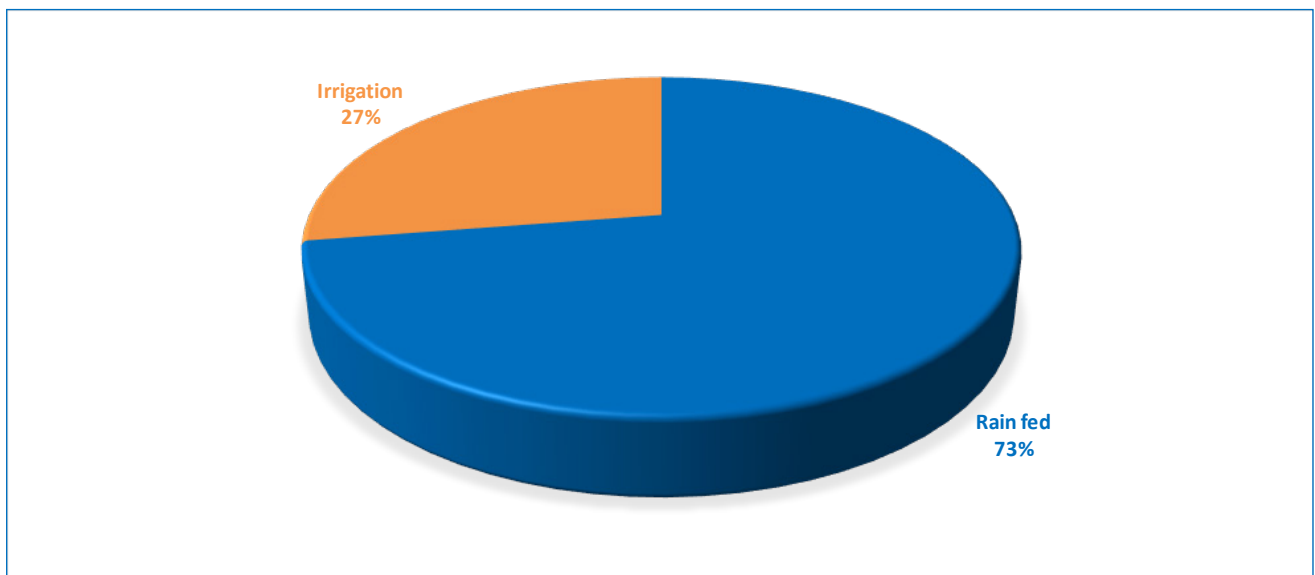


Figure 18: Main water source for farming





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