



**Central Bank of Kenya**

# **Agriculture Sector Survey**

May 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 agricultural production. 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 to provide additional information to support monetary policy decision making process.

The Economic Survey (2023) reported a deceleration in the growth of the agriculture sector from 4.6 percent in 2020 to a contraction of 0.4 percent in 2021 and a further contraction of 1.6 percent in 2022, on account of unfavorable weather conditions that led to a reduction in both crops 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. The reduced production was attributed to drought, rising cost of farm inputs, leaf rust infestation and shift in land use from agriculture to real estate development. 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, 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 May 2023 Agriculture Sector Survey aimed at obtaining indicative information on the recent trends in prices and output of agricultural commodities in various markets and farms across the country. The Survey also provided indications of the availability

and supply of key food commodities in the country. The focus areas of the survey included:

- i. Tracking prices of key agricultural commodities and their expectations;
- ii. Assessment of agricultural output, acreage, and near term expectations;
- iii. Use of farm inputs in agricultural production;
- iv. Factors affecting agricultural production, marketing and sale of farm produce;
- v. Views on how to improve agricultural production.

The Survey was conducted between May 9 and 12, 2023 during the long rains season and amidst easing of supply chain constraints in the international market.

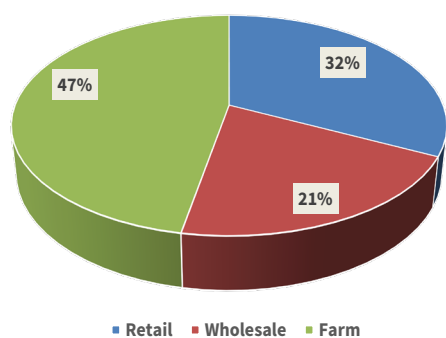
## 2. METHODOLOGICAL FRAMEWORK

The May 2023 Agriculture sector 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 select major towns and agriculture areas 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.

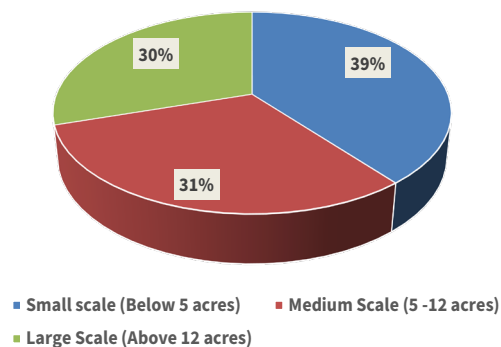
The scope of the Survey was expanded to cover the recently introduced government subsidy on fertilizer. The coverage and scope are expected to continue expanding in future as more data become available.

Researchers made physical visits to markets and farms where face to face interviews were conducted. The survey obtained 100 percent response rate (**Figure 1**). Farms accounted for 47 percent of the responses, 39 percent being small scale. Quantitative and qualitative techniques were employed in the data analysis and findings reported using tables and charts.

**Figure 1(a): Types of respondents**



**Figure 1(b): Size of farms of respondents**



### 3. MAIN HIGHLIGHTS FROM THE SURVEY

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

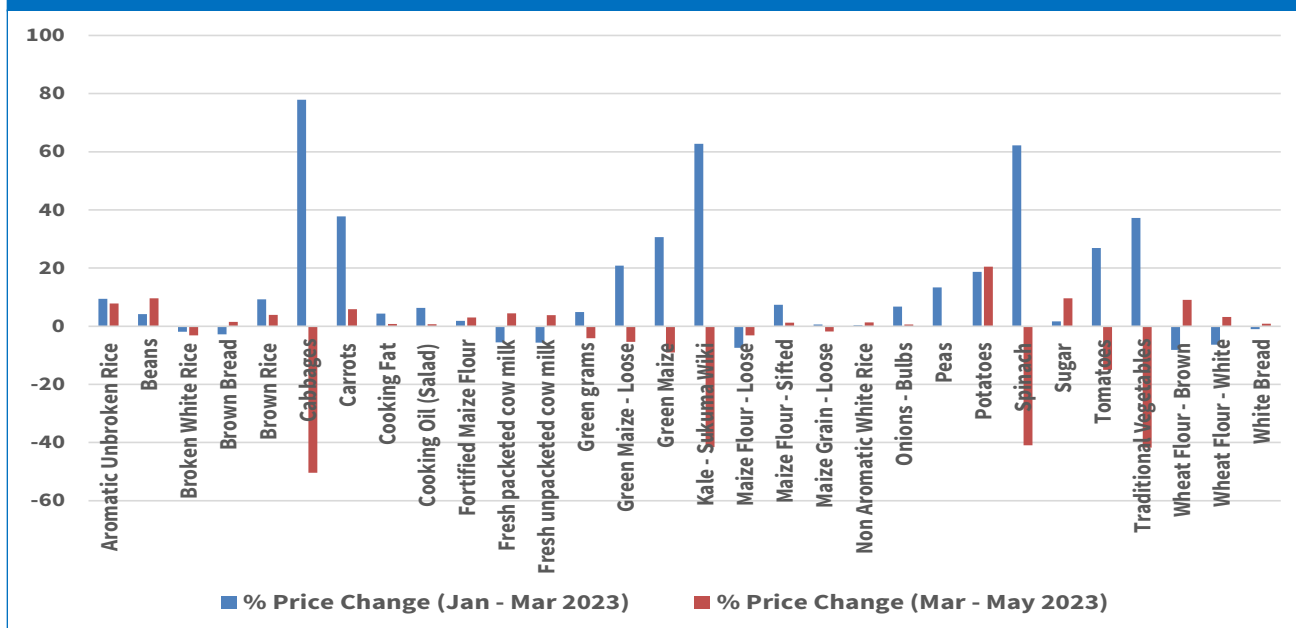
- i.) Retail prices of vegetables declined significantly in May 2023 and are expected to decline further with the ongoing rains.
- ii.) Supply of key food items, mainly vegetables is expected to increase in the coming months supported by the long rains.
- iii.) Weather conditions, transport costs, and input prices continue to impact retail and wholesale market prices while limited demand and price distortion by middlemen were found to affect the market of farm produce.
- iv.) Access to government subsidized fertilizer among the sampled farmers increased to 43 percent in May 2023 compared to 29 percent in early March 2023

- v.) Respondents expect inflation to decline and GDP growth to increase.
- vi.) Respondents expressed the need for extension services to farmers to provide professional advice on best farming practices, soil analysis and areas of improvements.
- vii.) Regarding irrigation, farmers recommended sinking of boreholes and more dams to water their farms.

#### 3.1 Prices of Key Agricultural Commodities

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

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



The analysis of retail prices between March and May 2023 revealed a decrease in prices of some key agricultural commodities. Vegetable prices decreased in May following the continuation of the long rains that began in March. Tomato farmers in Gilgil and Naivasha markets, for example, revealed that supplies from the main source markets in Subukia had increased significantly leading to a significant reduction in prices. The price of maize remained stable in May 2023. However, the price of some rice varieties, beans, potatoes, sugar and wheat remained elevated, an indication that they are yet to recover from the effects of the prolonged dry weather reported last year. Although farmers reported increased pasture following the long rains, both packeted and unpacked milk prices increased marginally in May on account of increased price of animal feeds and high transport costs. The March 17 gazette notice where the government allowed animal feed manufacturers to import 500,000 tonnes of yellow maize duty-free before August 2023 has also helped stabilize the prices.

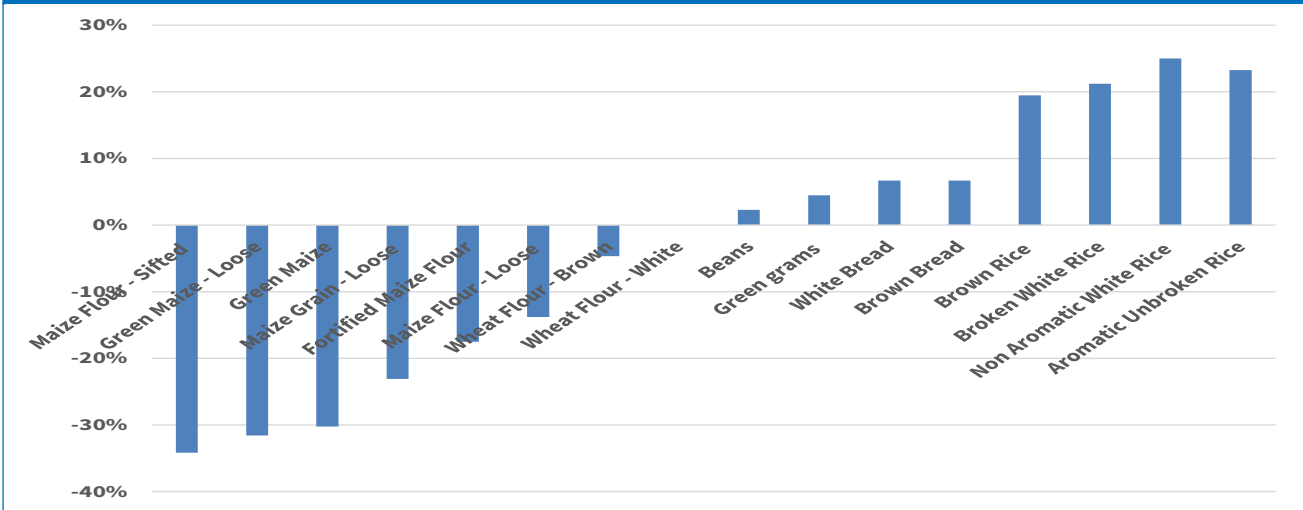
The price of sugar increased significantly in the past month due to limited supplies from the sugar belt which reported reduced cane deliveries and crop substitution. The price of rice has not benefited much from the recent harvest in Mwea due to low output

arising from the protracted dry weather conditions in 2022, changing consumer preferences and increased competition from cheaper rice imports which have forced farmers to reduce the acreage. Other rice producing zones such as Ahero were affected by floods.

### 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 June 2023. This is illustrated using the balance of opinion approach which represents the sum of positive probabilities less the negative probabilities divided by the total responses (**Figure 3**). Most of the respondents (75 percent) expect retail prices of cereals and grains to either decline (26 percent) or remain unchanged (48 percent). Retail prices of animal products, non-vegetables and some vegetable food items are also expected to remain unchanged or decline in June 2023. The expected moderation of maize and wheat prices is on account of the long rains, the expected duty-free importation of key food items and the decline in international food prices. Farmers expect the price of rice to remain elevated given the reduction in its acreage.

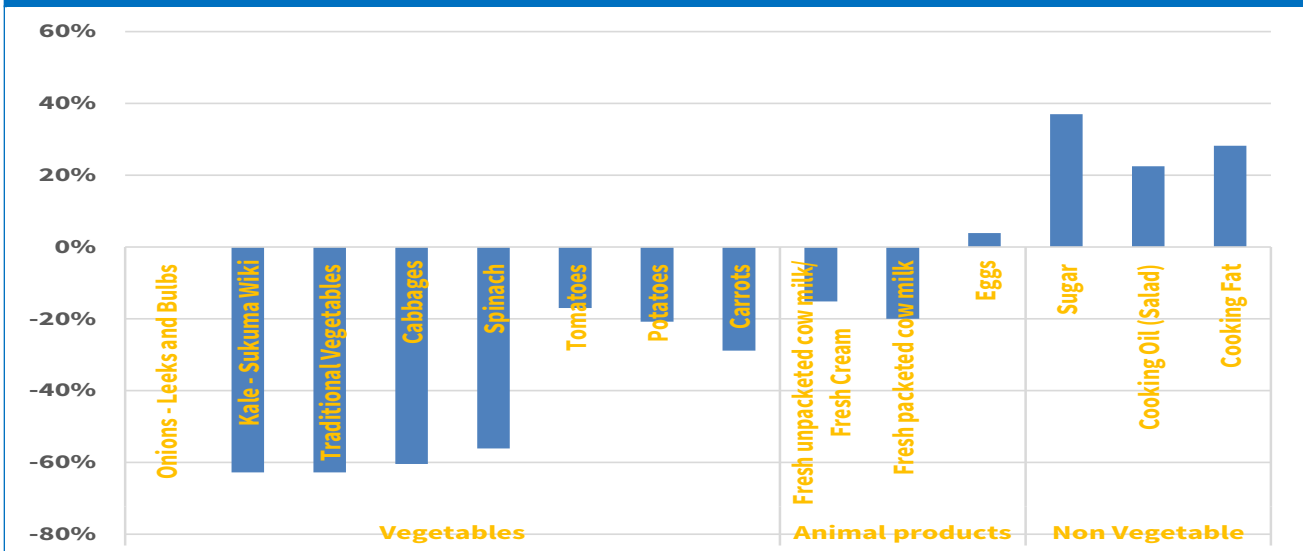
**Figure 3: Retail Price Expectations for Cereals and Grains in June 2023**



The price of animal products particularly milk could decline as more pasture becomes available thus cutting down on the purchase of animal feeds. The price of vegetable items is expected to reduce further in June following increased supply of the fast-maturing crops from the long

rains season. However, egg prices may go up since poultry rely heavily on processed feeds. The price of sugar remains elevated and could rise further owing to reduced cane deliveries and high importation cost (Figure 4).

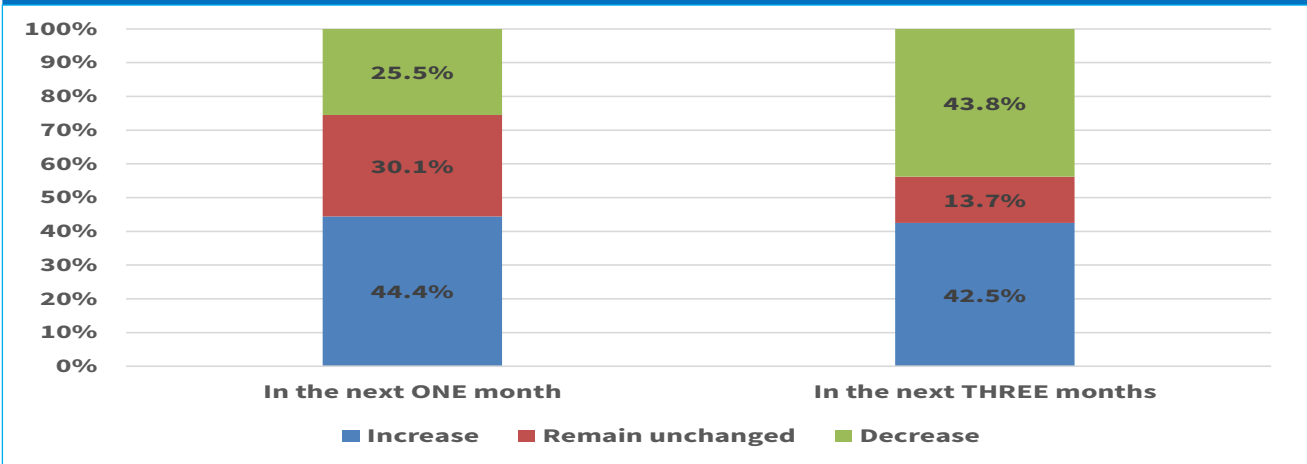
**Figure 4: Retail Price Expectations for Vegetables, Non-Vegetables and Animal Products in June 2023**



The survey also explored the perception of respondents on the prices of goods they regularly buy (Figure 5). The survey established that most of the sampled respondents (55.6 percent) expect the prices to either decline (25.5

percent) or remain unchanged (30.1 percent) in the next one month, largely due to the long rains. More people (57.5 percent) expect the prices to decline or remain unchanged in the next three months as more food items become available.

**Figure 5: Consumer Price Expectations**

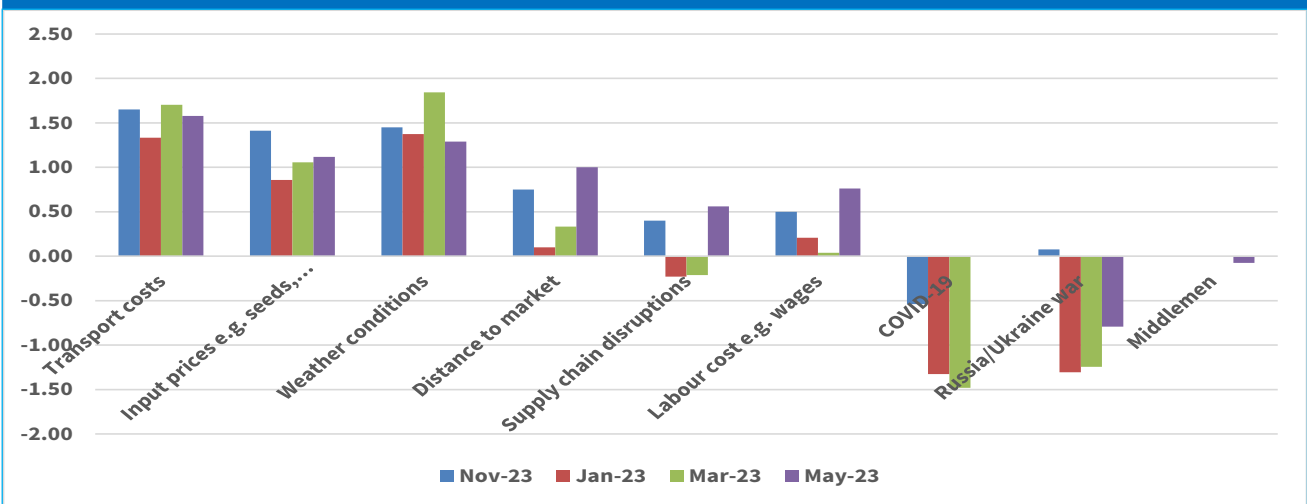


### 3.3 Factors affecting Retail and Wholesale Prices

The survey sought to establish the factors affecting prices of goods sold by market traders across the country. Using the balance of opinion approach, the survey established that similar to the January and March 2023 Surveys, both retail and wholesale prices (Figure 6 and 17) were impacted by transport costs, input prices and weather conditions in May 2023 with transport

costs having the biggest impact, following the removal of fuel subsidy. Middlemen play a less significant role in the retail and wholesale markets. Distance to markets, supply chain disruptions and labour were found to have a significant impact on price setting. The impact of the Russia/Ukraine war was subdued, possibly already captured through transport and inputs costs.

**Figure 6: Factors affecting Retail Prices**

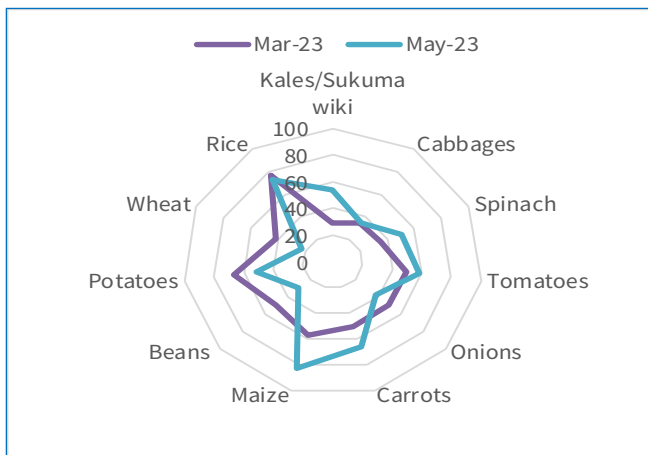




## Analysis of output

This section investigates the performance of the agriculture sector using output and acreage. This is done by first analyzing 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 and views on how to improve agricultural production.

**Figure 7: Yields per Acre (Percent)**



## 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

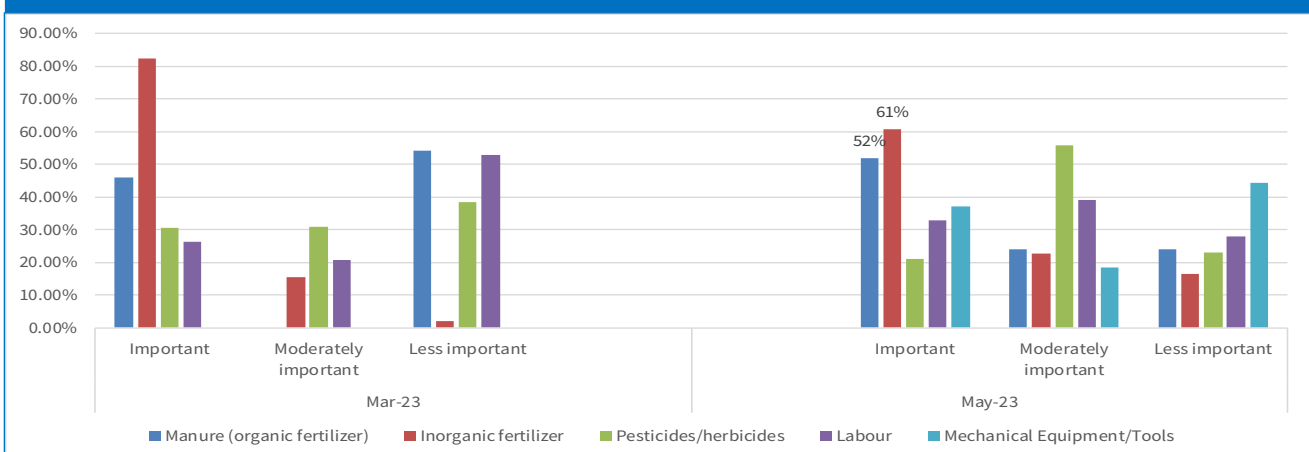
## 3.4 Productivity of Select Food Crops

Calculating the productivity per crop helps in establishing the variance between the actual level of output from its potential. The farmer estimation approach was applied with farmers being requested to provide estimates of the total crop harvested recently or the previous season as well as the area under cultivation. Dividing the actual output by the area under cultivation gives an estimate of the level of productivity (yields) of select food crops in the previous or recent harvest. Conventionally, 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 average yields per acre for selected food crops in the current planting cycle is provided in **Figure 7**.

Although the Survey shows that yields for all the sampled food crops fell below potential in the season to May 2023, vegetable crops reported higher yields in May 2023 as compared to March 2023. However, rice, wheat, potatoes, beans and onions reported lower yields than what the farmers reported in March 2023. The yields per acre vary depending on the season, rising during the peak season.

masses whose mainstay is agriculture. Similar to the March 2023 survey, the May 2023 survey established that while most farmers employ a combination of inputs to improve output, use of inorganic fertilizer ranked highest followed by organic fertilizer (manure) (**Figure 8**).

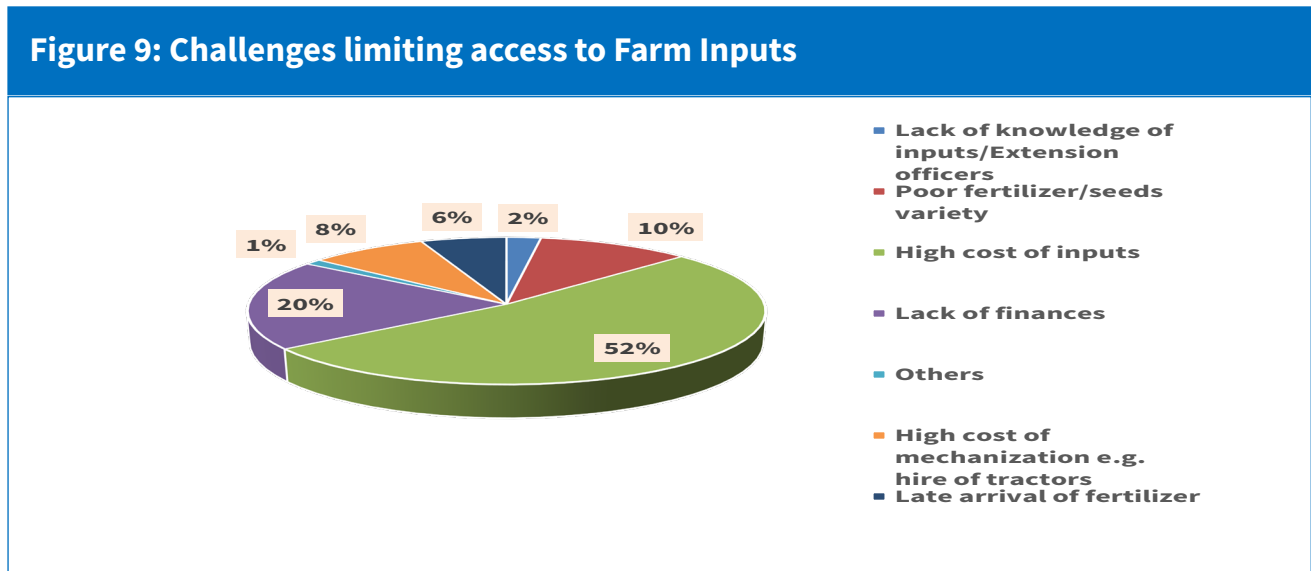
**Figure 8: Significance of Farm Inputs in Agricultural Production**



### 3.5.1 Challenges associated with access to farm inputs

Despite the huge benefits associated with the optimal combination of farm inputs, access to farm inputs remains elusive to most farmers. Regarding the challenges constraining access to farm inputs, majority of the sampled farmers cited high costs of inputs like seeds and fertilizer

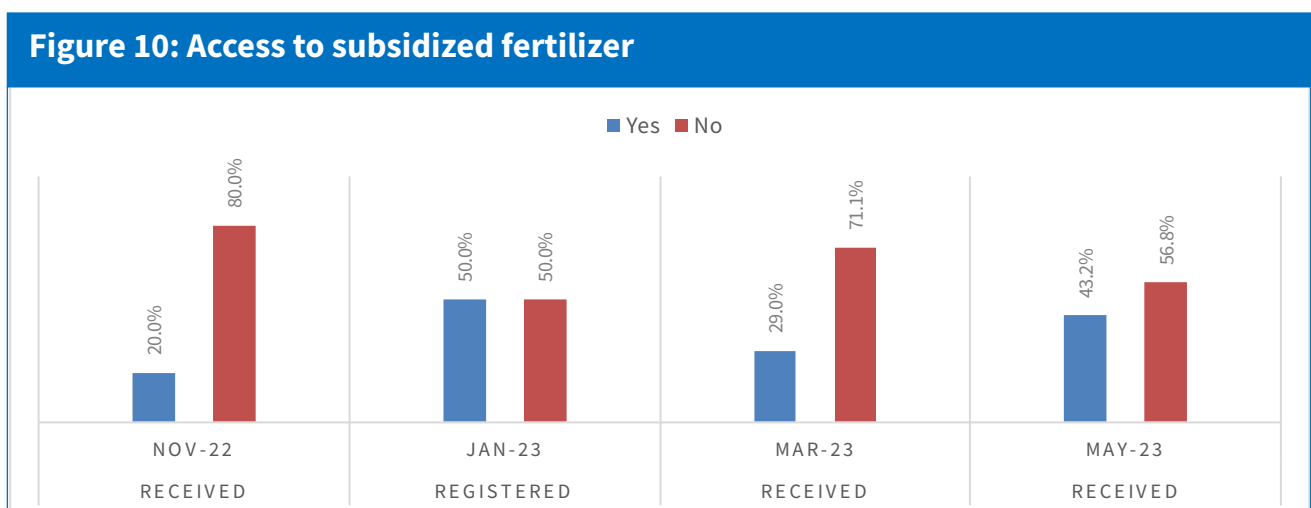
(52 percent); lack of finances (20 percent); poor fertilizer/seeds variety (10 percent) due to counterfeits; and high cost of mechanization (8 percent)(**Figure 9**). Farmers also cited late arrival of subsidized fertilizer and lack of knowledge of fertilizers/extension services among other challenges.



### 3.5.2 Access to Government subsidized fertilizer

The survey established that 43 percent of the sampled farmers had received the government subsidized fertilizer by early May 2023 compared to 29 percent who had received by early March 2023. The respondents indicated that the registration and distribution of the subsidized fertilizer had improved significantly since the notifications on the registration and availability of the subsidized fertilizer are sent via cell phones (**Figure 10**). However, some of the

farmers particularly in the South Rift raised concerns about the Ministry of Agriculture (MoA) use of climatic conditions in the North Rift as a criterion to issue the subsidized planting and top-dressing fertilizer, arguing that the seasons vary by region. Others noted that the utilization of the subsidized fertilizer is at times limited by lack of a sustainable water source given the dependence on rain water. Lack of alternative water sources predisposes farmers to climate shocks thus making them vulnerable to harsh weather conditions.

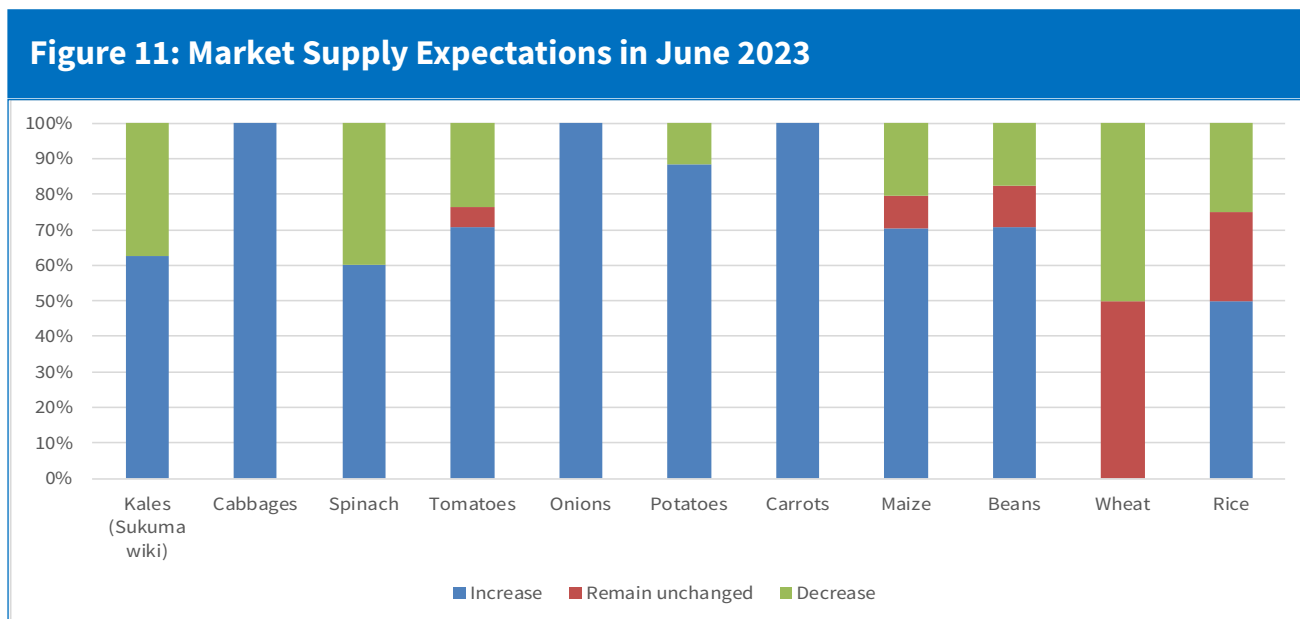


Non-recipients cited a lag between the date of receipt of the notification and redemption of the subsidized fertilizer, wrong timing, long queues, long distances, corruption, not being contacted despite registration, being asked to produce title deeds, and getting information late.

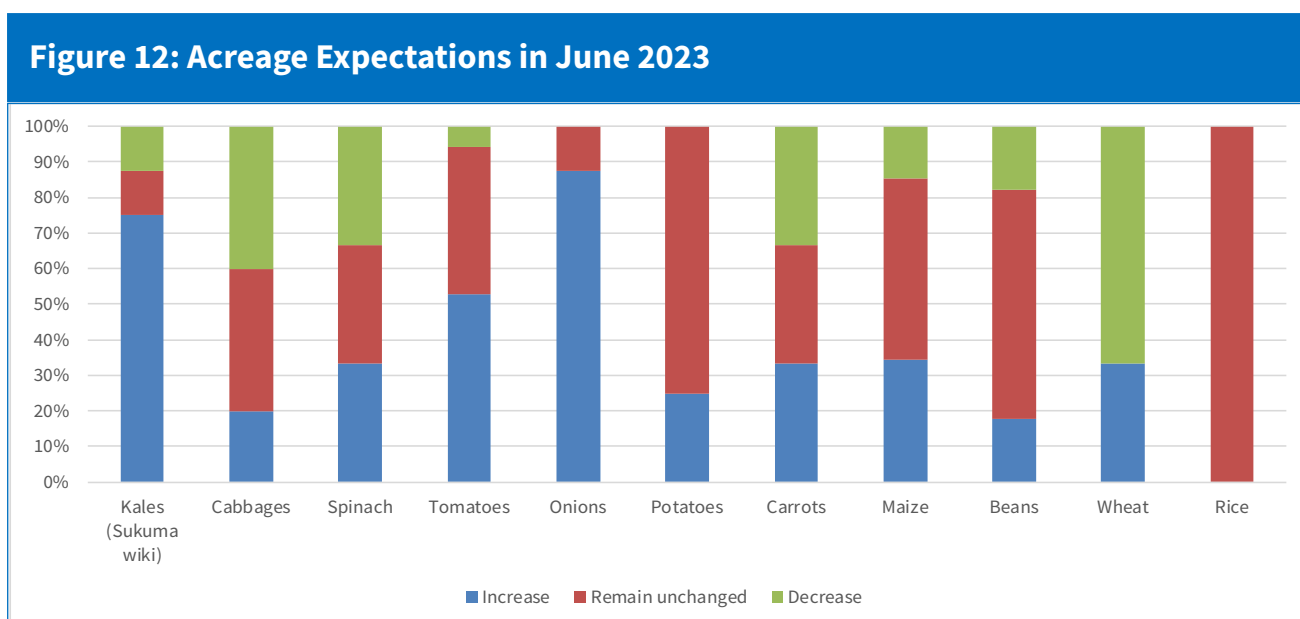
### 3.6 Market Supply Expectations

The survey sought to establish the expectations about changes in supply in June 2023 (**Figure**

**11 and 12**). The majority of those interviewed were quite optimistic with 79.5 percent of farmers expecting the supply of key food items to either increase (70.2 percent) or remain the same (9.3 percent) in the next harvest which is slightly higher than the 60 percent reported in March 2023.



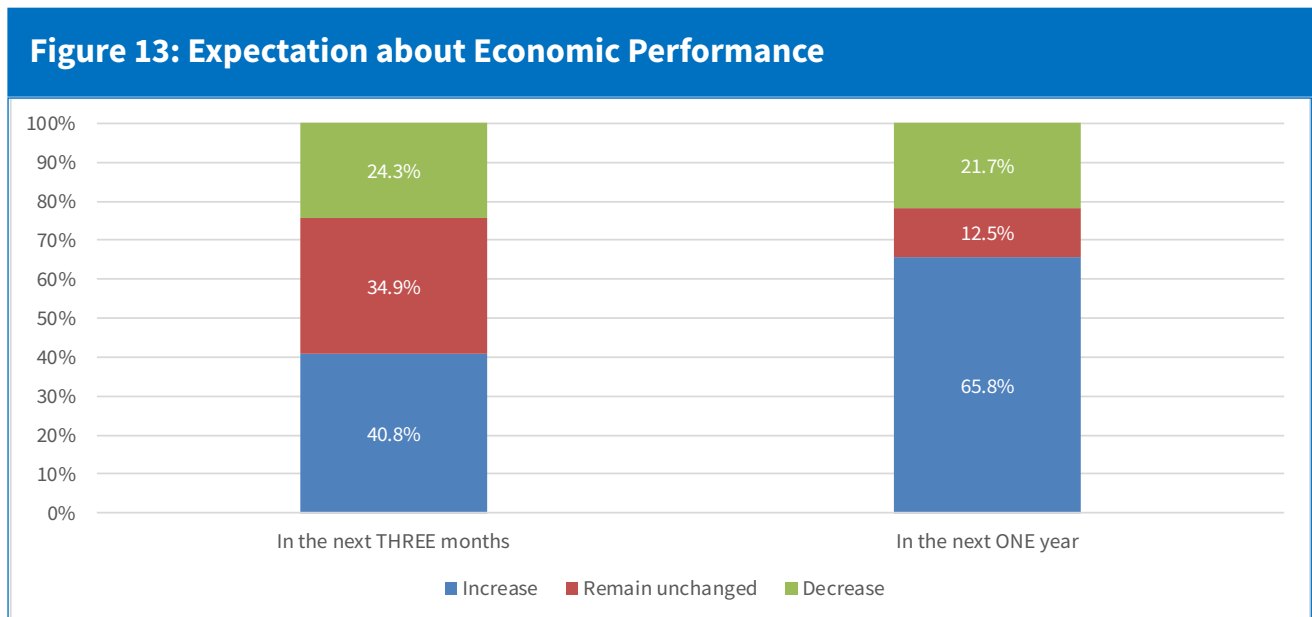
The expected increase in the supply of most vegetable items is on account of the ongoing long rains. Farmers, however, expressed concerns about the potential spoilage of tomatoes should heavy rains persist. Expectations about the supply of wheat and rice are premised on the previous harvest performance which was impacted negatively by the protracted dry weather conditions.



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.

The sampled respondents were also asked about their expectations of the overall economic

performance (**Figure 13**). The respondents were upbeat about the performance of the economy both in the short and the medium term, mainly due to the expected increase in agricultural production given its linkages with other sectors of the economy. In particular, the respondents expressed optimism that the actions by the government would start bearing fruit leading to increased production, reduced cost of living and improved livelihoods.

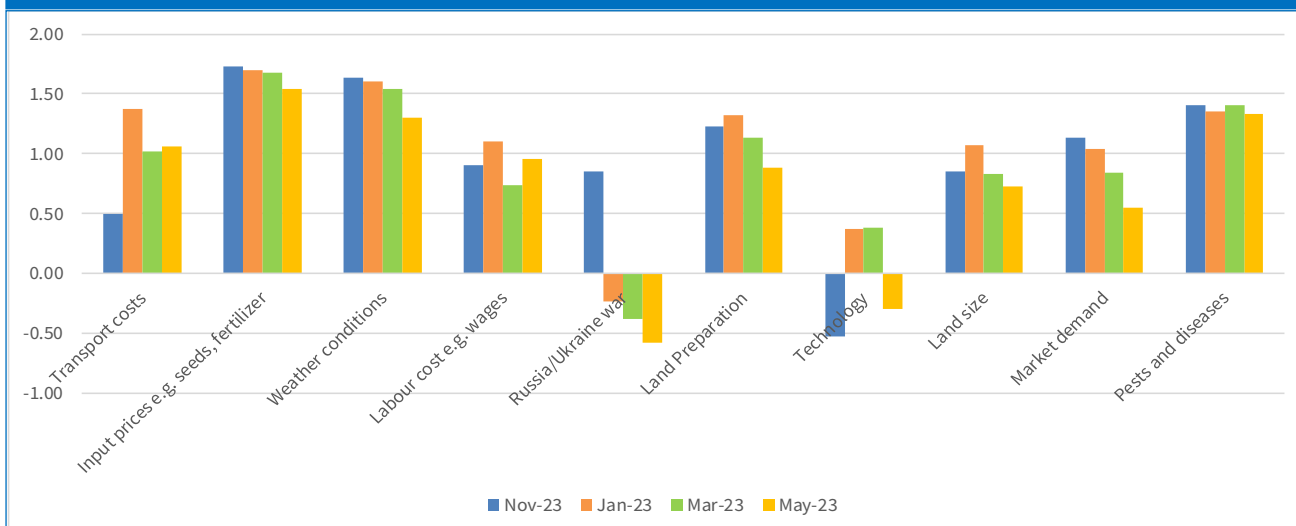


### 3.7 Factors Affecting Agricultural production

Several factors including economic, biological, environmental, and technology affect agricultural production and market supplies. A good understanding of the dynamics in the agriculture sector is critical in unlocking its potential to enhance food security through increased yields and to stabilize the food prices. Most farmers cited transport costs, input prices, infestation by pests and diseases and adverse weather patterns as the main factors impacting

agricultural production in the last four surveys. Despite this, the survey shows that the weather conditions in May 2023 were favourable and therefore had the least impact compared to the reported weather patterns in the previous surveys. The role of the war in Ukraine has dissipated. Furthermore, 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**).

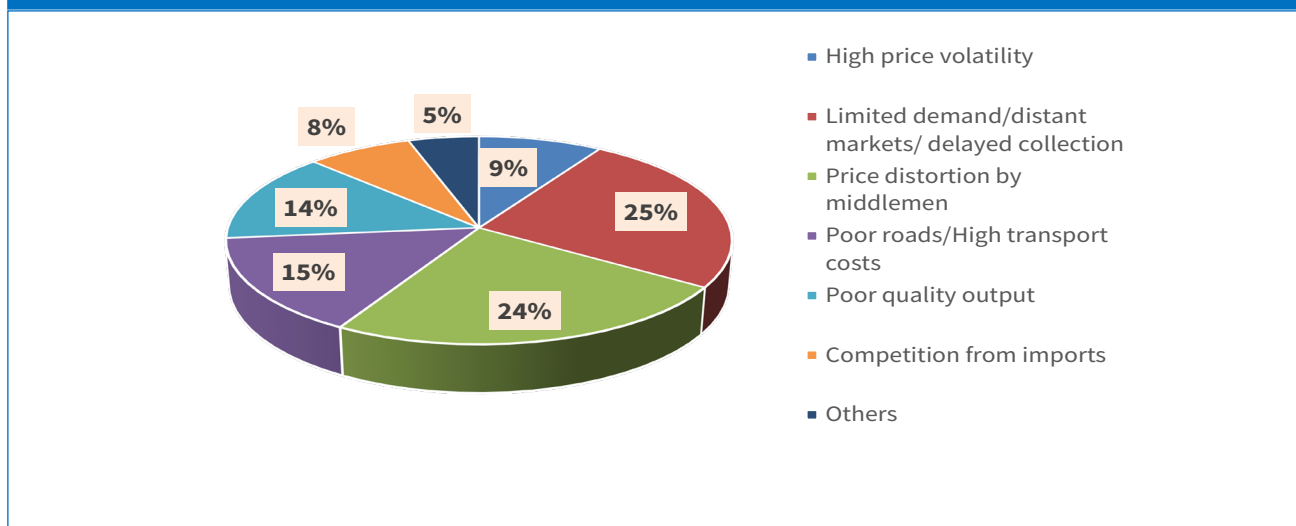
**Figure 14: Factors affecting Agricultural Production**



Regarding the factors affecting marketing of farm produce, farmers cited limited demand, distant markets, and delayed collection of harvest (25 percent) while 24 percent mentioned price distortions by middlemen. Poor road network and high cost of transporting goods to the market was

cited by 15 percent of the sampled farmers. The high transport cost renders the goods less competitive since buyers load the transport cost incurred when setting the farmgate price. Other factors mentioned include poor quality of output, high price volatility and competition from imports (Figure 15).

**Figure 15: Factors affecting Marketing/Sale of Farm Produce**

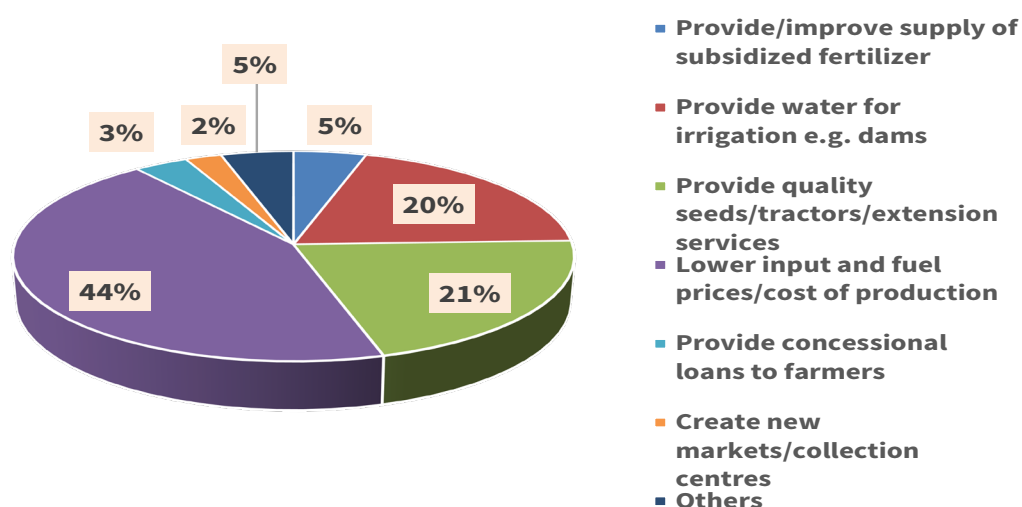


## 4. VIEWS ON HOW TO IMPROVE THE AGRICULTURE SECTOR

The Survey sought views from farmers on how to improve agricultural production. Most farmers recommended lowering of input prices/cost of production and lowering of fuel prices followed by provision of quality seeds, tractor and extension services. The farmers also recommended the provision of water for irrigation through construction of dams and sinking of boreholes to supplement

rained farming. Additionally, farmers recommended improvement in the provision of subsidized fertilizer, concessional loans to farmers, creation of new markets/collection centers of farm produce among others (**Figure 16**). One large scale farmer in Naivasha recommended further research on possible sugar substitutes such as the stevia plant.

**Figure 16: Views on how to improve Agricultural Production**



## 5. CONCLUSION

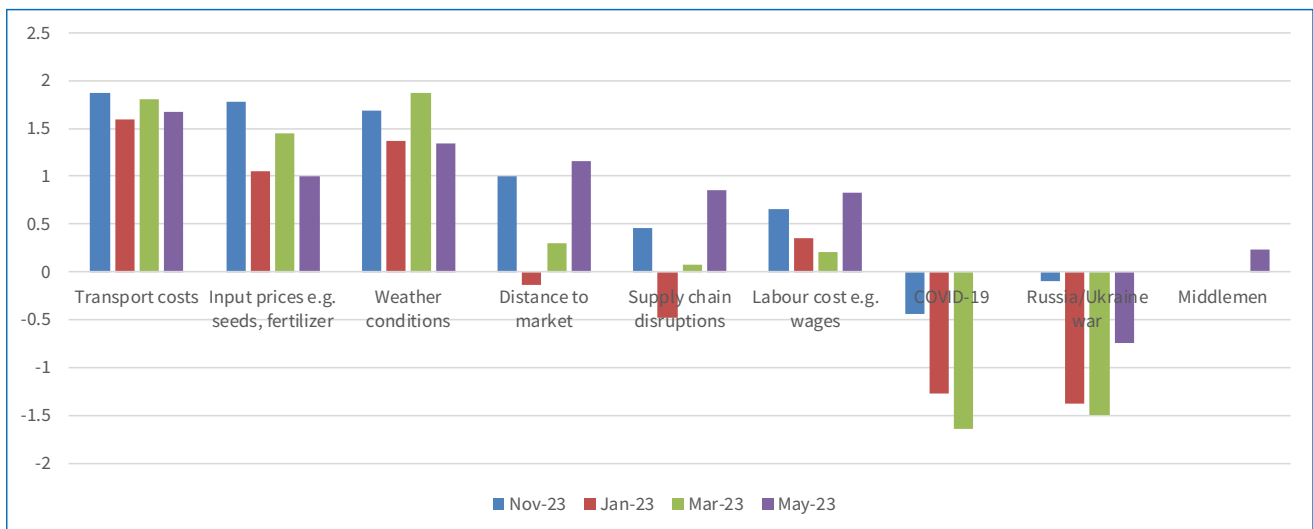
The CBK conducted the sixth Agriculture Sector Survey from May 9 - 12, 2023 to obtain indicative information on the recent trends in prices and the sector's output of key agricultural commodities in various markets and farms across the country. In particular, the Survey focused on prices of key agricultural commodities, agricultural output, acreage and output expectations, factors affecting agricultural production, marketing and sale of farm produce and views on how to improve agricultural production. The Survey drew 204 respondents from: wholesale traders, retailers, and farmers in select towns (Nairobi and the neighbouring counties including Kiambu, Kajicho 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:

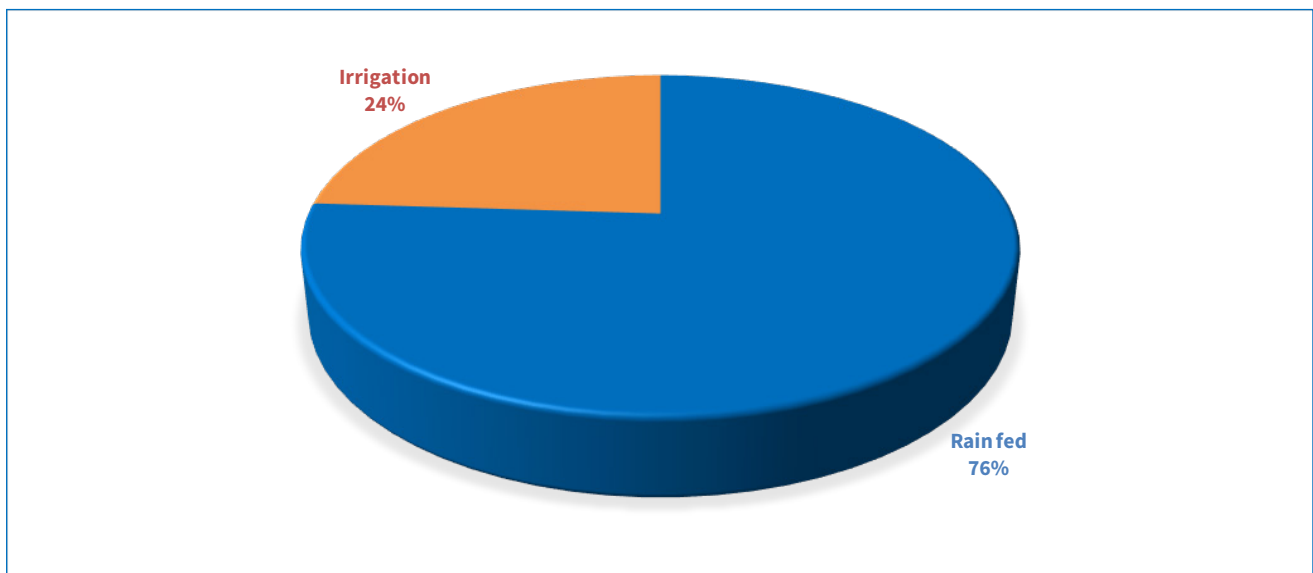
- i.) Retail prices of vegetables have declined significantly and are expected to decline further.
- ii.) Supply of key food items, mainly vegetables is expected to increase supported by recent harvests and the long rains.
- iii.) Weather conditions, transport costs, and input prices continue to impact retail and wholesale market prices.
- iv.) Access to government subsidized fertilizer increased to 43 percent in May 2023 compared to 29 percent in early March 2023.
- v.) Respondents expect prices of consumer goods to decline and economic performance to improve.

## ANNEXES

**Figure 17: Factors affecting Wholesale Prices**



**Figure 18: Main water source for farming**









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