Central Bank of Kenya

Agriculture Sector Survey

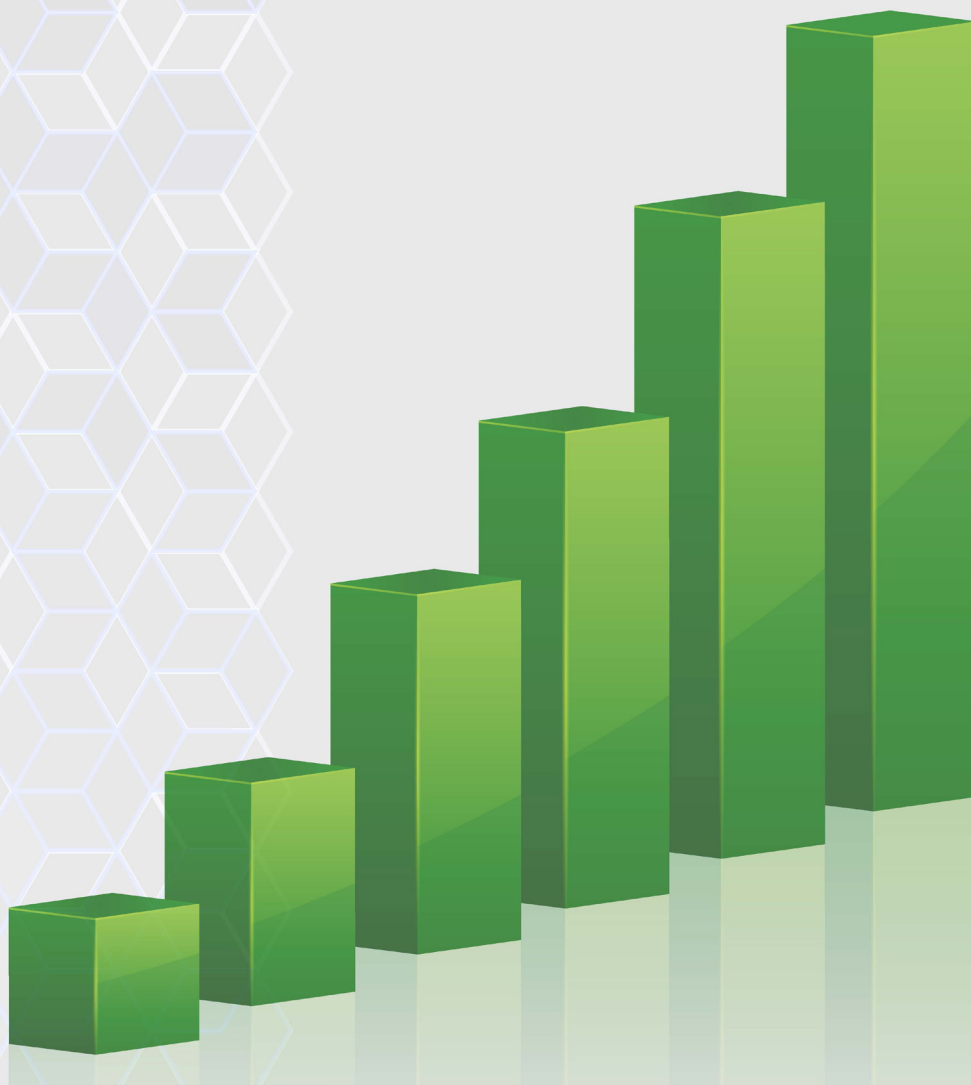January 2023

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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 employs over 40 percent of the total population and more than 70 percent of the rural populace. Given the critical role the sector plays in providing livelihoods and a food basket for the Kenyan economy, it is increasingly important to ensure that quality high frequency data is available to inform the food supply situation in the country, the prevailing prices and the challenges that may affect agricultural production. Towards this end, the Central Bank of Kenya (CBK) introduced the Survey of the Agriculture Sector 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 decisions.

The Economic Survey (2022) reported a deceleration in the growth of the agriculture sector from 5.2 percent in 2020 to a contraction of 0.1 percent in 2021 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. A similar trend was reported for beans, coffee, wheat, and tea. The reduced production was attributed to rising cost of farm inputs, leaf lust infestation and shift in land use from agriculture to real estate development. In the first, second and third quarters of 2022, the sector contracted further by 0.7 percent, 1.4 percent, and 0.6 percent, respectively. 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 January 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 an indication of the availability/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 their expectations;
iii. Use of farm inputs in agricultural production;
iv. Factors affecting agricultural production; and
v. Views on how to improve agricultural production.

The Survey was conducted between January 10 and 13, 2023 at a time when COVID-19 positivity rate was low, the economy fully reopened, uncertainties linked to the pandemic significantly reduced, and the ban on maize imports from Uganda and Tanzania lifted. This also comes at a time when there is easing of supply constraints associated with the war in Ukraine in the international market. The war in Ukraine initially impacted negatively on wheat prices globally, but the prices started falling after the lifting of the blockade on wheat exports from Ukraine. Additionally, local prices of cooking oil had stabilized in line with the decline in international palm oil prices.

2. METHODOLOGICAL FRAMEWORK

This January 2023 Survey of the Agriculture Sector assessed changes in both wholesale and retail markets, 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 and Nyeri.

The coverage and scope of the survey is expected to expand in future as more data become available. Researchers made physical visits to markets and farms where personalized interviews were conducted in major towns. The survey obtained 100 percent response rate as summarized in **Figure 1**. Retail markets took the biggest share in the survey of agriculture prices accounting for 44 percent of the sample.

Figure 1: Response Rate (Percent)

Farm 26%

Retail 44%

Wholesale 30%

■ Retail ■ Wholesale ■ Farm
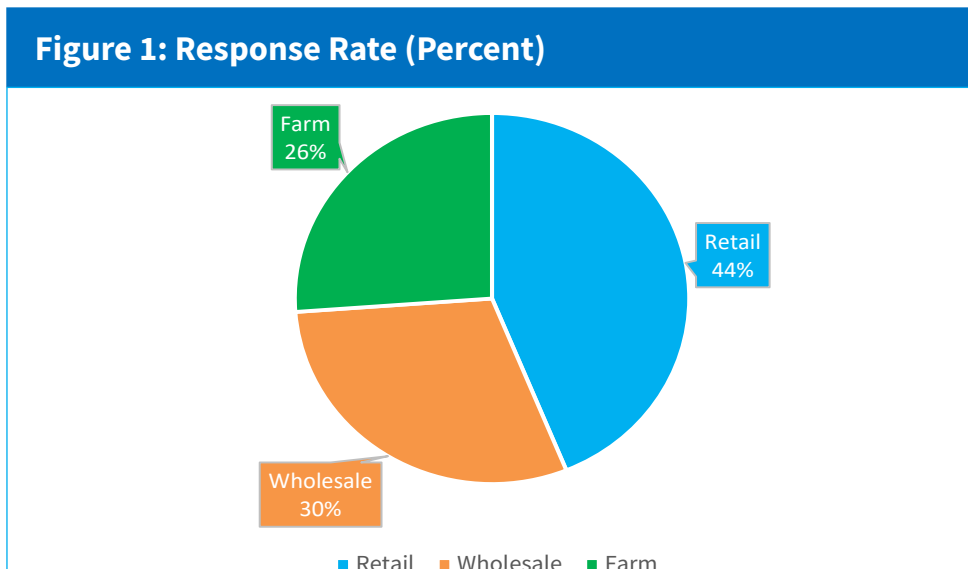
3. MAIN HIGHLIGHTS FROM THE SURVEY

This section highlights the key findings from the January 2023 Survey.

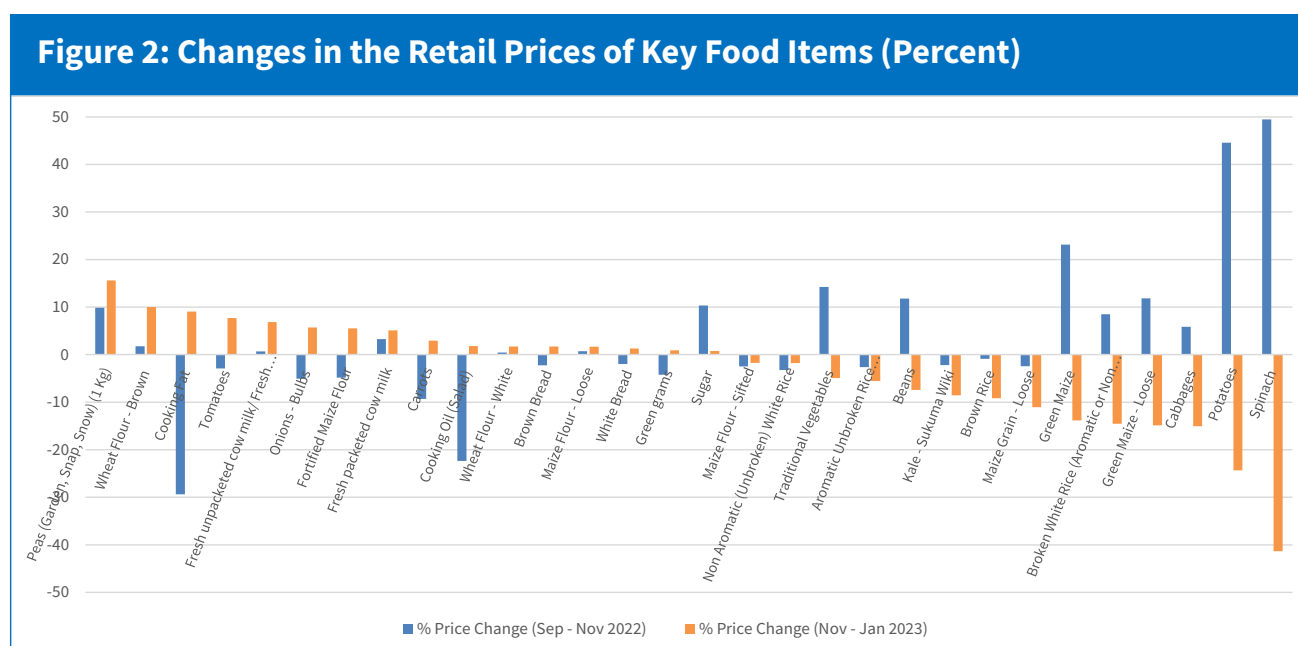Broadly, the following are the key highlights

i.) Prices of most food items expected to decline or remain unchanged in February 2023.

ii.) Supply of food items, mainly maize, rice and wheat expected to increase in the coming months supported by ongoing harvests and expected duty-free imports.

iii.) Transport costs, input prices and weather conditions continue to impact price levels in Retail and Wholesale markets.

iv.) Over 50 percent of the sampled farmers have registered for the government subsidized fertilizer for the next planting season.

3.1 Prices of Key Agricultural Commodities

The Survey sought to determine changes in prices of key agricultural commodities between November 2022 and January 2023. Mixed trends were observed in the Retail markets as shown in **Figure 2**.

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

■ % Price Change (Sep - Nov 2022)   ■ % Price Change (Nov - Jan 2023)

The analysis of retail prices between November 2022 and January 2023 revealed a sustained decline in prices of key agricultural commodities. In particular, the price of maize, beans, rice, and some vegetables declined even as the price of cooking oil stabilized. This was on account of improved weather conditions that supported the vegetable season, the increased supply of maize from the ongoing harvest season and the easing of supply chain constraints in the international markets. The prices of spinach, potatoes, sugar, peas, cabbages, and milk declined due to increased production following the short rains.

3.2 Expectations of Prices of Key Food Items

Grain and flour prices are expected to remain the same or decline in February 2023. A majority of the respondents (61 percent) expect retail prices of cereals and grains to either decline (22 percent) or remain unchanged (39 percent). The expected moderation of maize and wheat prices is on account of ongoing harvests in Kenya and Tanzania and the expected duty-free importation of maize and rice from February 2023. The ongoing harvest of rice in Mwea which started in December 2022 and expected to end in February 2023 will continue moderating the price of rice in the near term (**Figure 3**).


Figure 3: Retail Price Expectations for Cereals and Grains in February 2023
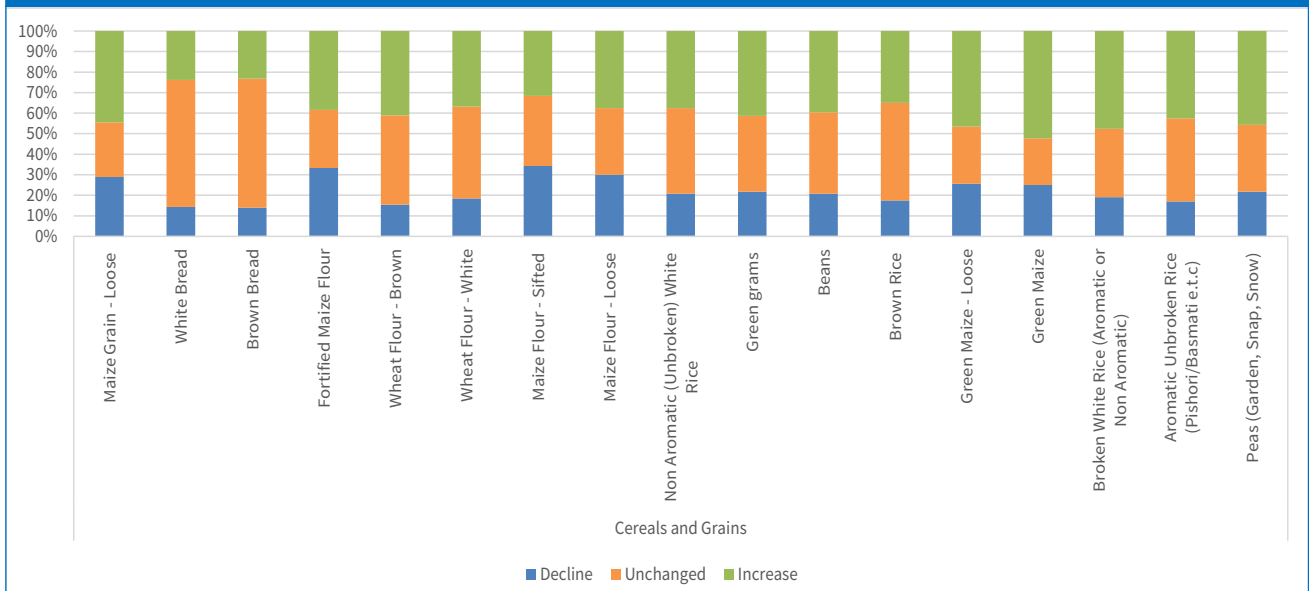
Prices of non-vegetable and vegetables (except tomatoes & traditional vegetables) are expected to remain the same or decline in February 2023 (**Figure 4**). Prices of some vegetable items are expected to decline following the recent short rains. The price of animal products is expected to decline or remain unchanged as more pasture for the livestock becomes available following the rains. The price of cooking oil is expected to continue stabilizing after several months decline in line with falling international palm oil prices.

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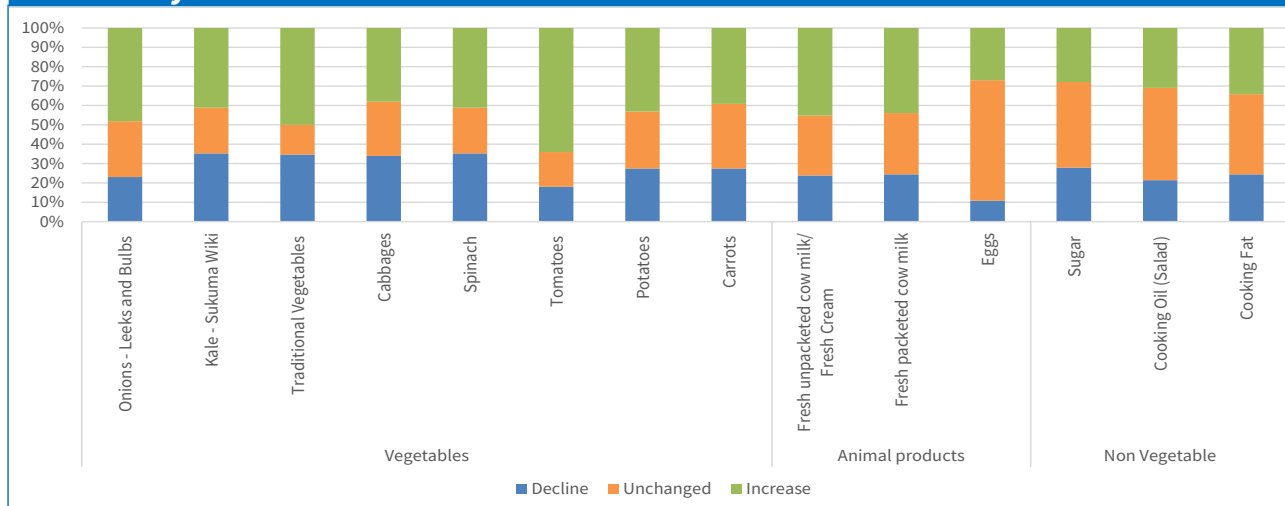

3.3 Factors affecting Retail and Wholesale Prices

The survey sought to establish the factors affecting traders in different markets across the country **(Figure 5)**. The two market segments were found to be characterized by similar factors. Similar to the November 2022 Survey, transport costs, input prices and weather conditions continued to impact market prices in January 2023. However, the impact of weather conditions was found to be more dominant in January 2023 compared to input costs. This could be rationalized by the coming to an end of the short rains season and the easing of supply chain constraints which have supported the reduction in input prices. The traders no longer consider COVID-19 and Russia/Ukraine war to be significant in impacting prices.

Figure 5: Factors affecting Retail Prices
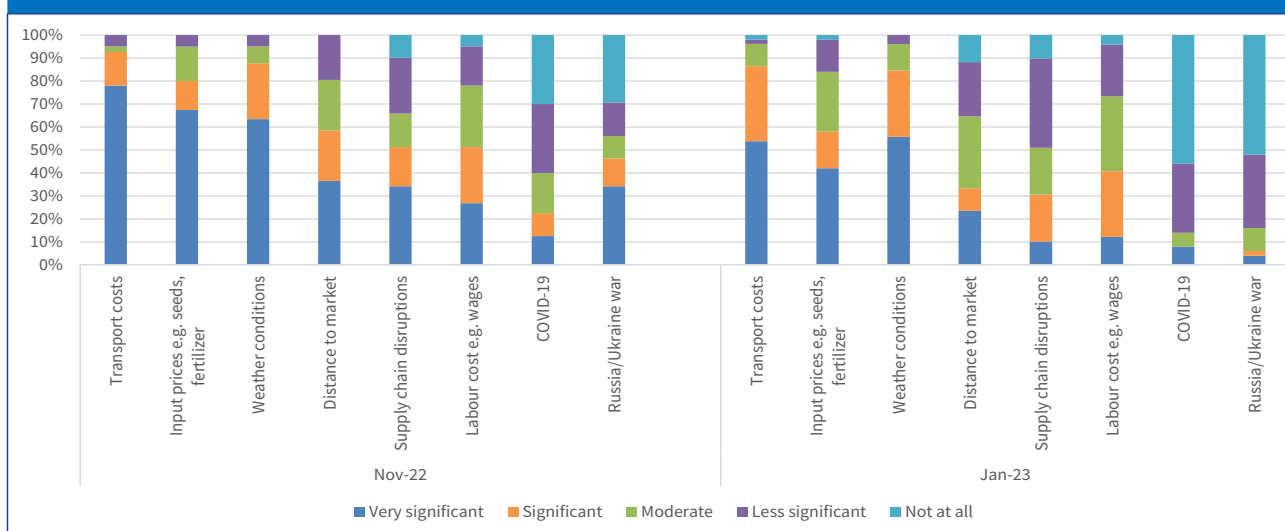
Analysis of output

This section investigates the performance of the agriculture sector based on the output. 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 as well as an examination of expectations in output and acreage, supply factors and views on how to improve agricultural production.

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. In this Survey, the farmer estimation approach was applied with farmers being requested to provide estimates of the total crop harvested in each month/season as well as the area under cultivation. Division of the actual output by area under cultivation gives the level of productivity (yields). 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 6.**

Figure 6: Yields per Acre (Percent)
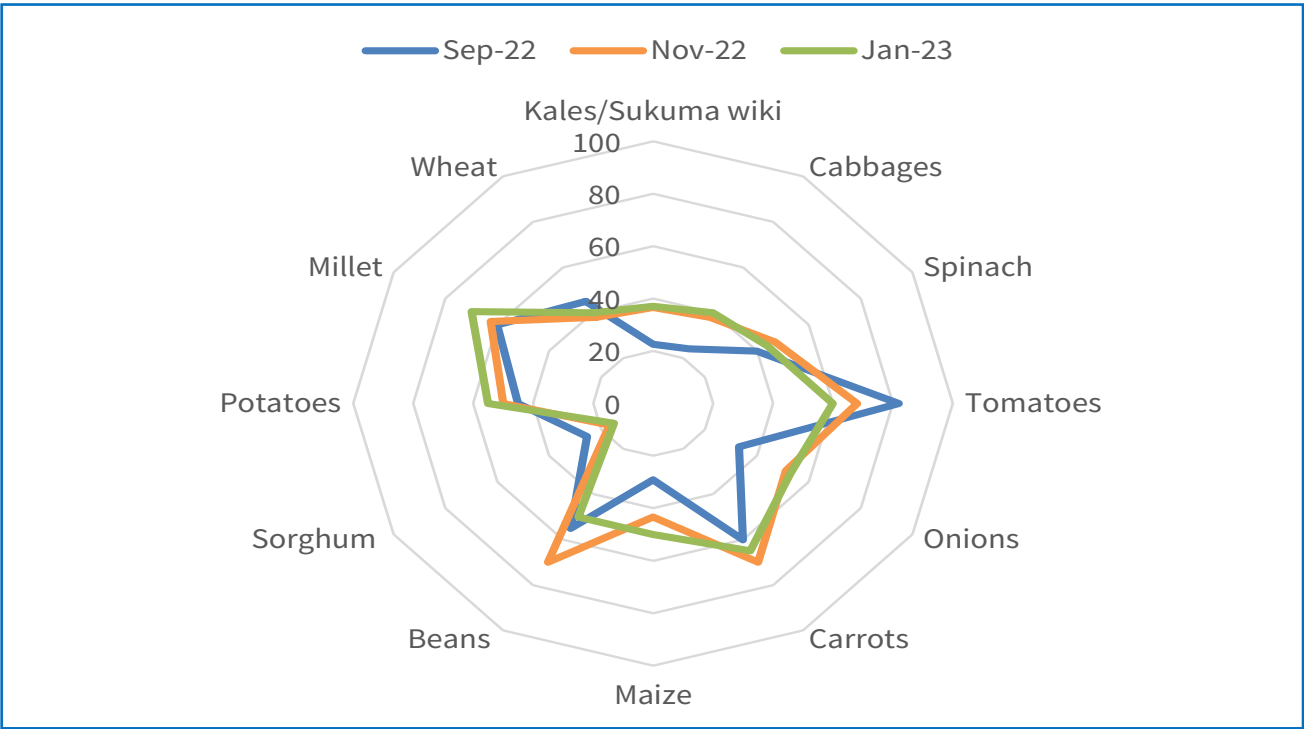
The Survey established that yields for all the sampled food crops fell below the potential in the season to January 2023. Tomatoes, carrots, and millet produced relatively higher yields per acre as compared to other agricultural commodities. The yields per acre however vary depending on the season, rising 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, agro-chemicals, farm implements and irrigation has potential to increase the level of output and reduce food insecurity for the masses whose mainstay is agriculture. The Survey established that while most farmers employ a combination of inputs to improve output, inorganic fertilizer and pesticides rank highest while herbicides rank lowest (**Figure 7)**.
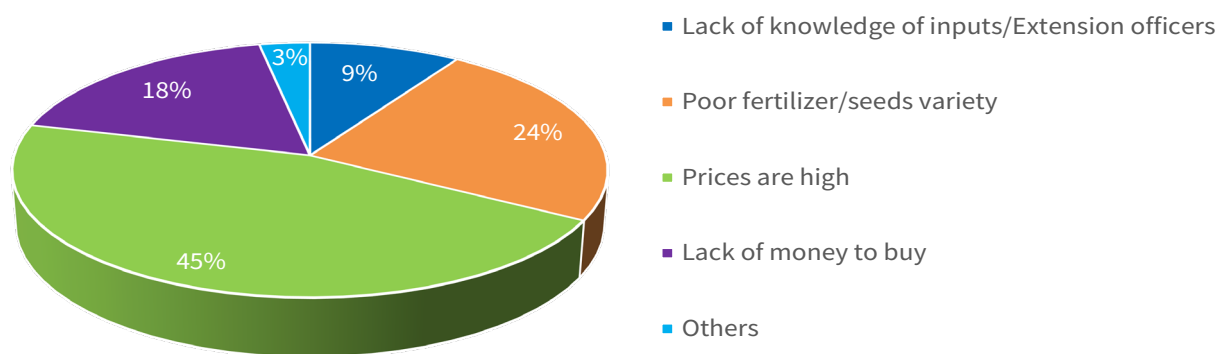
Figure 7: Significance of Farm Inputs in Agricultural Production

Legend: Most important, Important, Moderately important, Weakly important, Least important
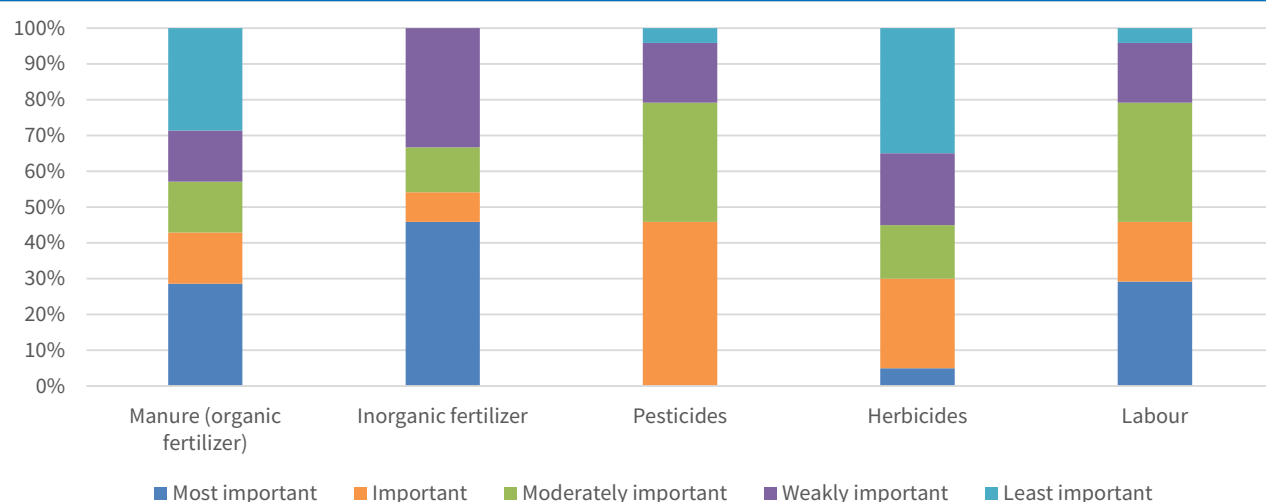
Despite the huge potential benefits associated with the optimal utilization of farm inputs, access to the inputs is beyond the reach of most farmers. This is explained in **Figure 8** where farmers cited high input costs of seeds and fertilizer; poor fertilizer/seeds variety; lack of money and limited knowledge of inputs/lack of extension officers as the main challenges contraining access to farm inputs.

Figure 8: Challenges limiting access to Farm Inputs

Pie chart values: 3%, 9%, 24%, 45%, 18%

Legend:
- Lack of knowledge of inputs/Extension officers
- Poor fertilizer/seeds variety
- Prices are high
- Lack of money to buy
- Others

Some farmers indicated that they resort to the use of informal inputs such as charcoal dust to decrease acidity in soils. Respondents indicated that uptake of farm inputs could be revamped through improvement of government's agricultural input subsidy schemes such as the recent one on fertilizer. Although farmers indicated that the last distribution of the subsidized government fertilizer was unequal, notable efforts to improve the distribution to more farmers was noted in the field with over 50 percent of the sampled farmers having registered. The "other" category in the list of challenges includes farmers who argued that even with fertilizer, there was little they could do without a sustainable water source given that 76 percent of the sampled farmers practise rainfed agriculture which is mostly unreliable due to fluctuating weather patterns. Lack of alternative water sources predisposes farmers to climate shocks thus making them vulnerable to harsh weather conditions.

3.6 Market Supply Expectations

The survey sought to establish the expectations about changes in output and acreage in February 2023 (**Figure 9 and 10**). The majority of those interviewed were quite optimistic with over 84 percent of farmers expecting the output of key food items to either increase or remain the same in the next harvest up from 78 percent and 81 percent in September and November 2022, respectively, on account of improved weather conditions and increased acreage per food crop.

Figure 9: Market Supply Expectations in February 2023
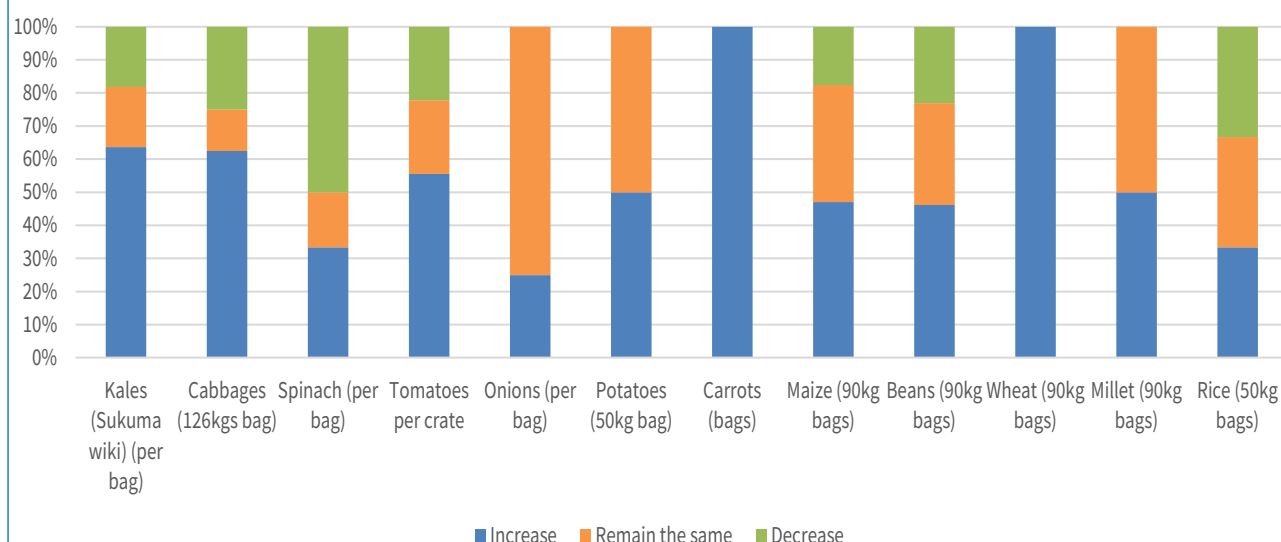
In particular, the volume of maize, rice and wheat supplied to the market which has been increasing since the beginning of the harvest season in regions such as Kitale, Narok, Uasin Gishu and Mwea is expected to rise further with the anticipated increase in duty free imports in February. The short rains reported in November and December boosted market supply of kales, cabbages, and other fast maturing crops and this is expected to continue. However, farmers indicated that the volume of spinach and traditional vegetables has started falling as the short rain season comes to an end.

Figure 10: Acreage Expectations in February 2023
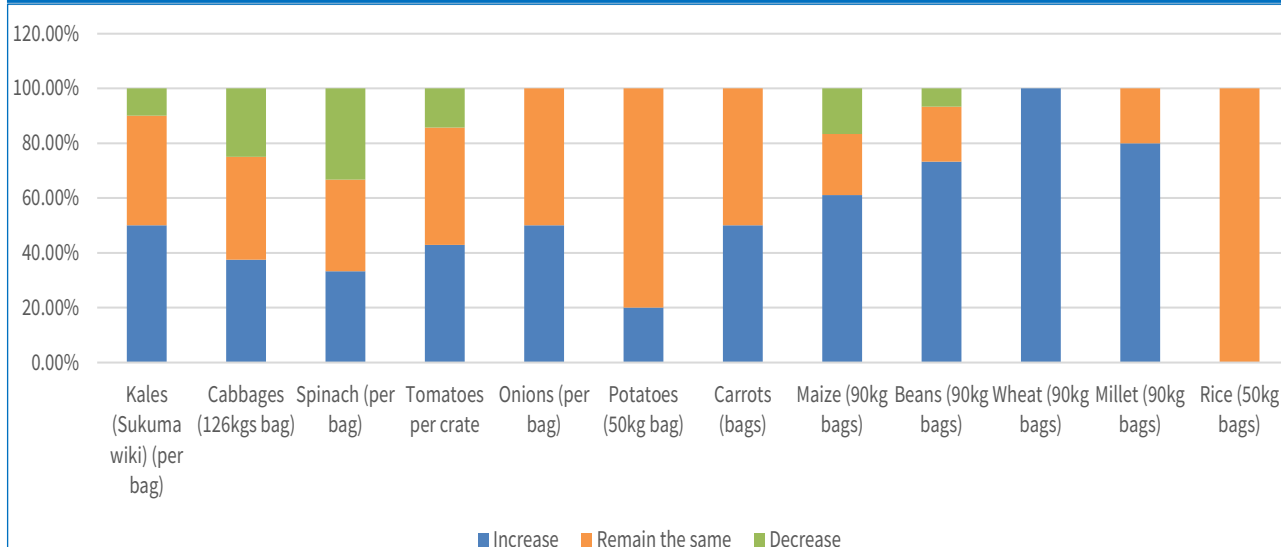
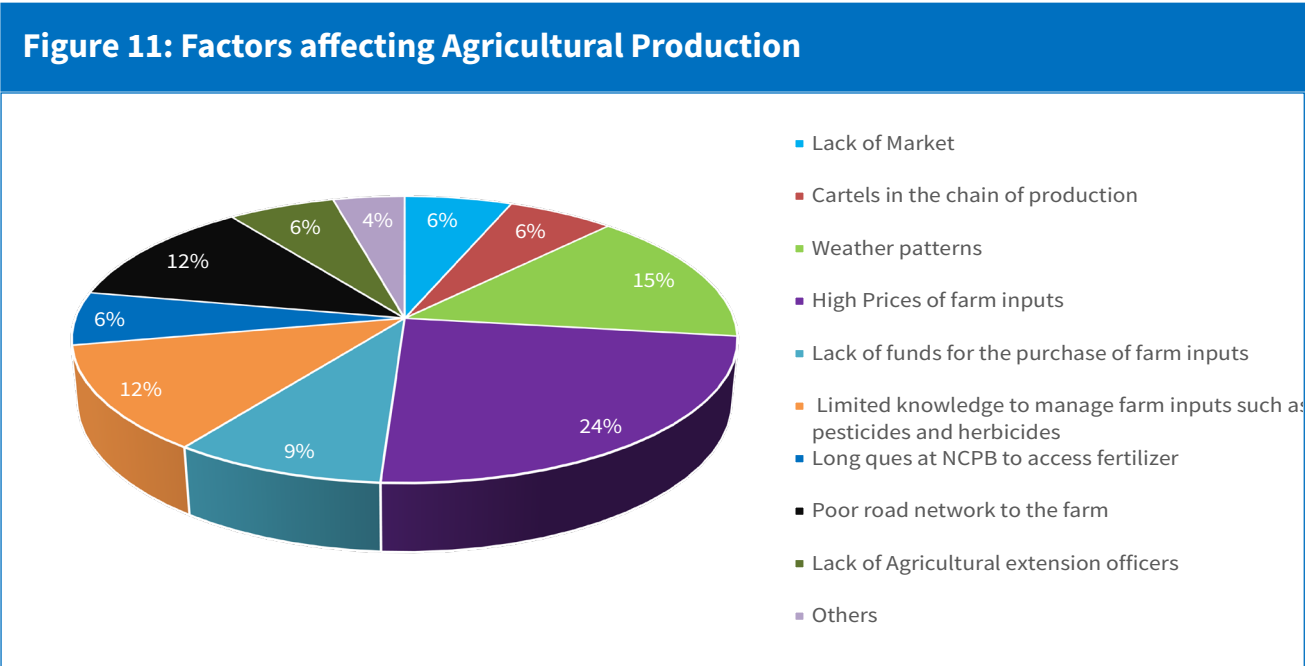Most farmers expect the area dedicated to agricultural production to increase significantly in the next season on account of reduced input prices and the expected long rains season. Tomato farmers also expect to allocate more land to its production contrary to the survey findings of November 2022 where farmers dedicated less acreage.

3.7 Factors affecting Agricultural Production

Several factors including economic, biological, environmental, and technology affect the sector. 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 the food prices. Most farmers cited high input costs (24 Percent) and weather patterns (15 Percent) as the main factors affecting agricultural production. The Ukraine/Russia war, Covid-19 and technology captured under others, had the least impact (**Figure 11**). Technology played a less significant role probably on account of low adoption of technology/ mechanization in farming.

Figure 11: Factors affecting Agricultural Production

Legend:
- Lack of Market
- Cartels in the chain of production
- Weather patterns
- High Prices of farm inputs
- Lack of funds for the purchase of farm inputs
- Limited knowledge to manage farm inputs such as pesticides and herbicides
- Long ques at NCPB to access fertilizer
- Poor road network to the farm
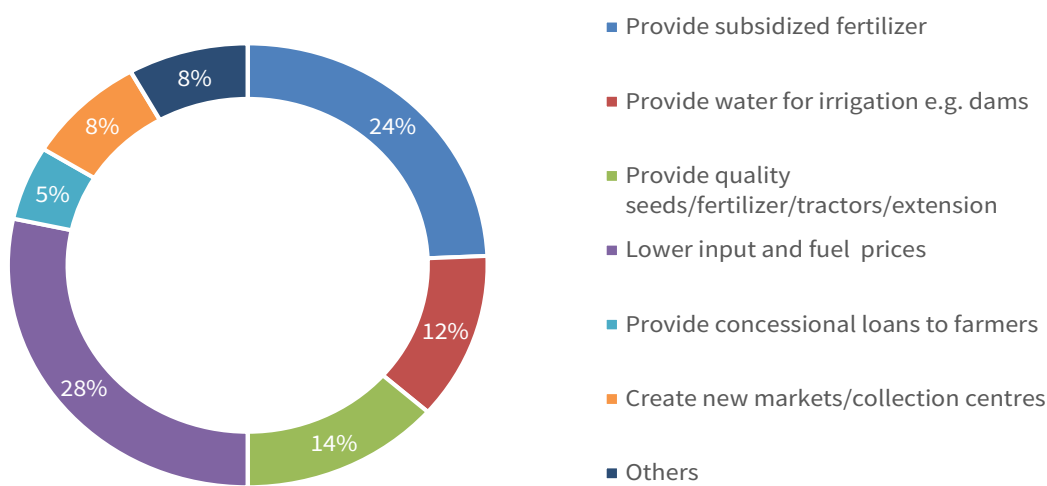- Lack of Agricultural extension officers
- Others

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 and fuel prices followed by increasing subsidized fertilizer (**Figure 12**). This could be enhanced through automation of the fertilizer distribution process alongside the adoption of a last mile approach to devolve fertilizer to the wards (Village level).

As for irrigation, farmers recommended sinking of boreholes and erection of the pivot center irrigation method which they consider to be more effective in watering their farms. This would help supplement the ongoing government programs on establishment of dams.

Figure 12: Views on how to improve Agricultural Production

- Provide subsidized fertilizer
- Provide water for irrigation e.g. dams
- Provide quality seeds/fertilizer/tractors/extension
- Lower input and fuel prices
- Provide concessional loans to farmers
- Create new markets/collection centres
- Others

5. CONCLUSION

The CBK conducted the fourth Survey of the agriculture sector from January 10 - 13, 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 and views on how to improve agricultural production. The Survey drew 130 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 and Nyeri) across the country.
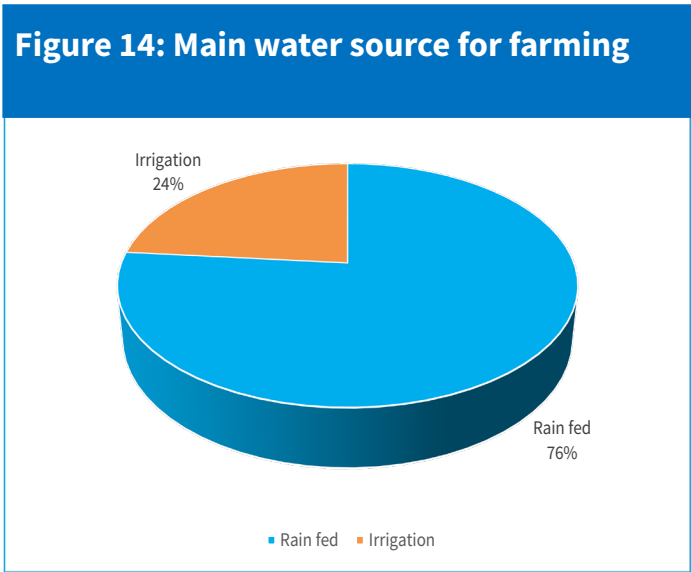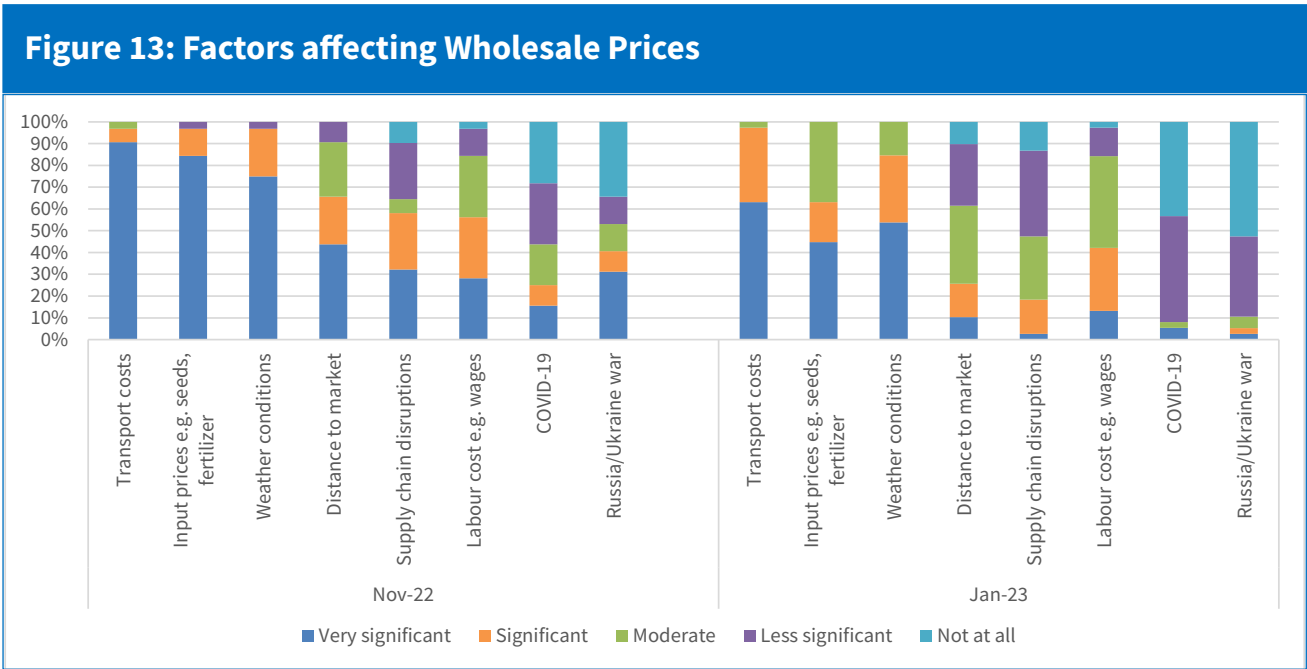
Key findings from the Survey were as follows:

- Prices of key agricultural commodities are expected to decline or remain unchanged in February 2023 due to ongoing harvest and the expected duty-free imports of maize, sugar, and rice.
- Supply of food is expected to improve due to ongoing harvests, improved weather, increased acreage, and importation of key food items.
- High transport costs, high input prices and adverse weather conditions continue to impact negatively on the retail, wholesale, and farm-gate prices.
- Over 50 percent of the sampled farmers registered for the subsidized fertilizer but recommended improvement of the distribution mechanism.

To enhance the agriculture sector and improve production, respondents recommended the following:

- Increase the volume and distribution mode of subsidized government fertilizer in addition to automation of the registration process.
- Provide water for irrigation e.g. sinking dams and boreholes

- Provide quality seeds/fertilizer/tractors/ extension services
- Lower input and fuel prices
- Provide concessional loans to farmers
- Create new markets/collection centers

The farmers commended the Government for the ongoing registration for the government subsidized fertilizer which will see them receive the second batch of the fertilizer and boost their production.

Figure 13: Factors affecting Wholesale Prices

Legend: Very significant, Significant, Moderate, Less significant, Not at all

X-axis (Nov-22): Transport costs, Input prices e.g. seeds, fertilizer, Weather conditions, Distance to market, Supply chain disruptions, Labour cost e.g. wages, COVID-19, Russia/Ukraine war

X-axis (Jan-23): Transport costs, Input prices e.g. seeds, fertilizer, Weather conditions, Distance to market, Supply chain disruptions, Labour cost e.g. wages, COVID-19, Russia/Ukraine war

Figure 14: Main water source for farming

Irrigation 24%

Rain fed 76%

Legend: Rain fed, Irrigation

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