Central Bank of Kenya

Agriculture Sector Survey

March 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 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 0.2 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 rust infestation and shift in land use from agriculture to real estate development. In the first three quarters of 2022, the sector contracted further by 0.9 percent. 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 March 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/ 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
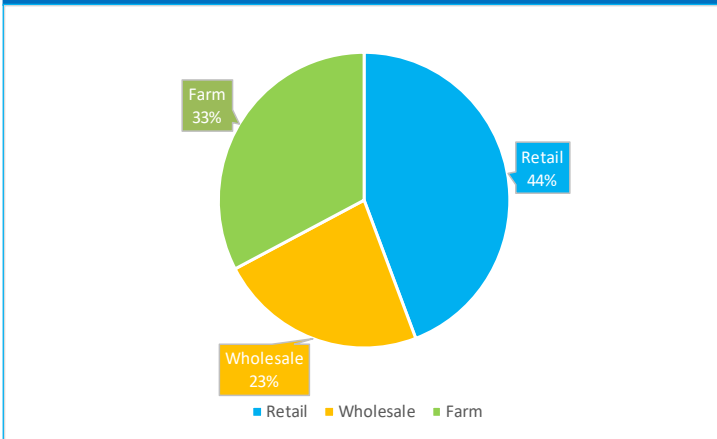v.   Views on how to improve agricultural production.

The Survey was conducted between March 6 and 10, 2023 just before the start of the long rains season and amidst easing of supply constraints 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 stabilized in line with the decline in international palm oil prices.

2. METHODOLOGICAL FRAMEWORK

The March 2023 Agriculture sector survey 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, Nyeri, Molo, Oloitoktok, Namanga and Makueni.

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)**. Retail markets took the biggest share in the survey of agriculture prices accounting for 44 percent of the sampled population.

Figure 1: Response Rate (Percent)

Farm 33%
Retail 44%
Wholesale 23%

■ Retail ■ Wholesale ■ Farm

3. MAIN HIGHLIGHTS FROM THE SURVEY

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

i.) Retail prices of some vegetables were expected to increase but prices of non-vegetables (including cereals, grain products and cooking oil) and animal products were expected to decline or remain unchanged in April 2023.

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

iii.) Weather conditions, transport costs, and input prices continue to negatively impact retail and wholesale markets.

iv.) Twenty nine percent of the sampled farmers had already received the government subsidized fertilizer by early March 2023 relative to 20 percent in November 2022.

v.) Respondents suggested that the extension officers should visit farms to provide professional advice. This would ensure that the seeds and fertilizer availed to farmers fit the environmental conditions for best yields.

vi.) Regarding 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.

3.1 Prices of Key Agricultural Commodities

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

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

■ % Price Change (Nov - Jan 2023) ■ % Price Change (Jan - Mar 2023)
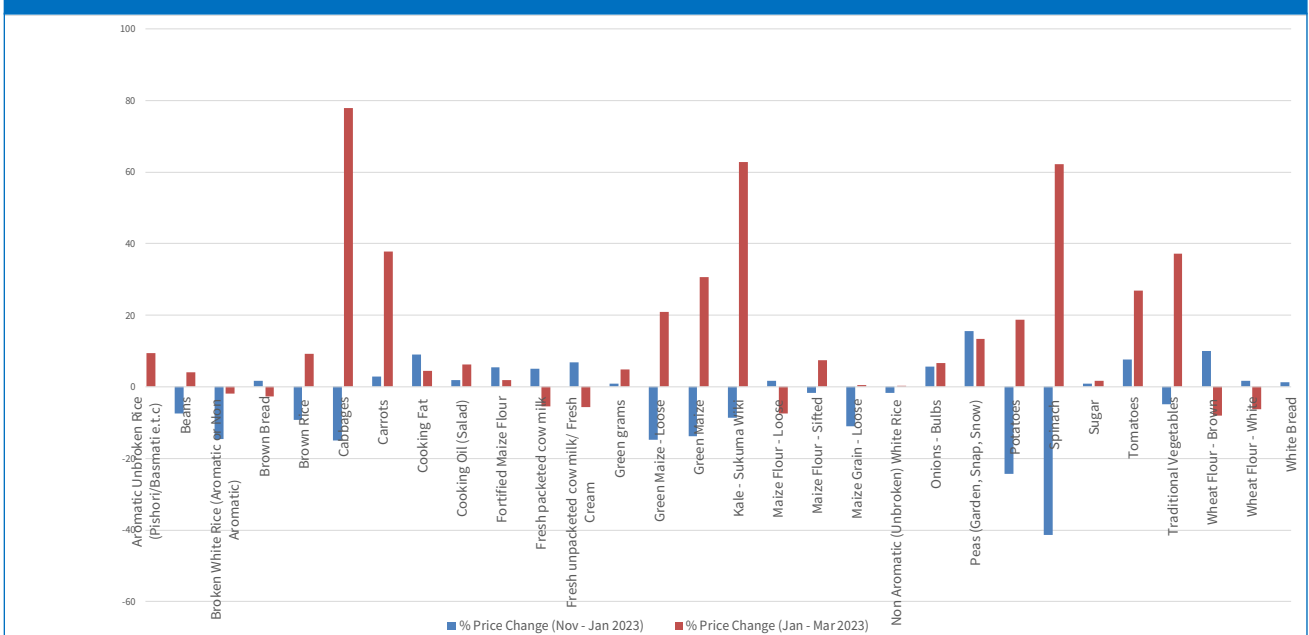
The analysis of retail prices between January and March 2023 revealed an increase in prices of most agricultural commodities. Vegetable prices increased in March following the prolonged dry weather conditions and high transport costs associated with distant purchase outlets. Tomato farmers in Gilgil and Naivasha markets for example revealed that supplies from the main source markets in Subukia had dried up and they had to travel to Kirinyaga which was costlier. The prices of wheat, loose maize and milk however moderated in March 2023 relative to January 2023 following the recent harvests and the previous short rains that increased pasture as well as the easing of supply chain constraints in international markets. The price of milk was expected to decline with expected improved supply if the ongoing long rains are sustained. This would also be boosted by the March 17 gazette notice where the government allowed animal feed manufacturers to import 500,000 tonnes of yellow maize duty-free before August 6, 2023.

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 April 2023. Despite the moderation of retail prices of maize and wheat, uncertainty about the duty-free imports of grains persists. Most of the respondents (63 percent) expect retail prices of cereals and grains to either decline (16 percent) or remain unchanged (47 percent).

The expected moderation of maize and wheat prices is on account of recent harvests in Kenya and Tanzania. Retail prices of animal products, non-vegetables and some vegetable food items are expected to remain unchanged or decline in April 2023. The just concluded harvest of rice in Mwea will also moderate the price of rice in the near term (**Figure 3**).
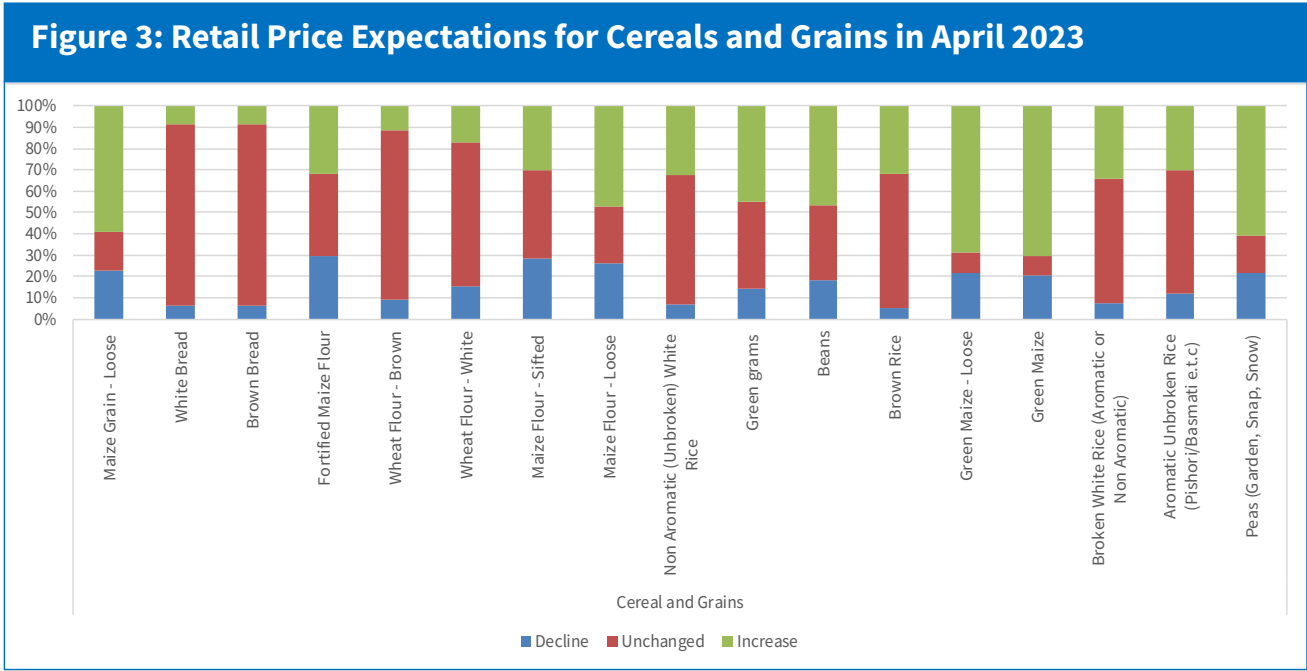
Figure 3: Retail Price Expectations for Cereals and Grains in April 2023

Retail prices of animal products, non-vegetables and some vegetable food items are expected to remain unchanged or decline in April 2023 **(Figure 4)**. The expected change in the price of animal products is on account of more pasture becoming available following the onset of the long rains season.

The prices of cooking oil and sugar are expected to stabilize in line with the falling international palm oil prices, expected duty free imports and the easing of supply chain constraints in international markets. Prices of vegetable items are expected to remain elevated in April except for kales and traditional vegetables whose supply is expected to be boosted by long rains given their fast maturity.

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

Legend: ■ Decline ■ Unchanged ■ Increase
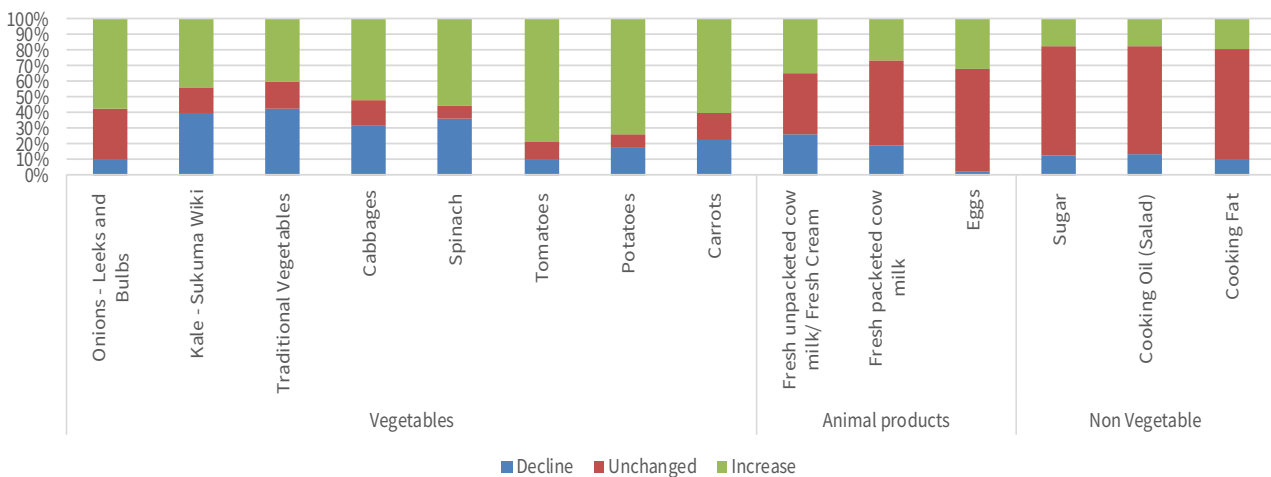
3.3 Factors affecting Retail and Wholesale Prices

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 and January 2023 Survey, transport costs, input prices and weather conditions continued to impact market prices in March 2023 with weather conditions having the biggest impact, following the prolonged dry weather conditions. The impact of the Russia/Ukraine war was subdued, possibly already captured through transport and inputs costs.

**Figure 5: Factors affecting Retail Prices**

Legend: ■ Very significant ■ Significant ■ Moderate ■ Less significant ■ Not at all
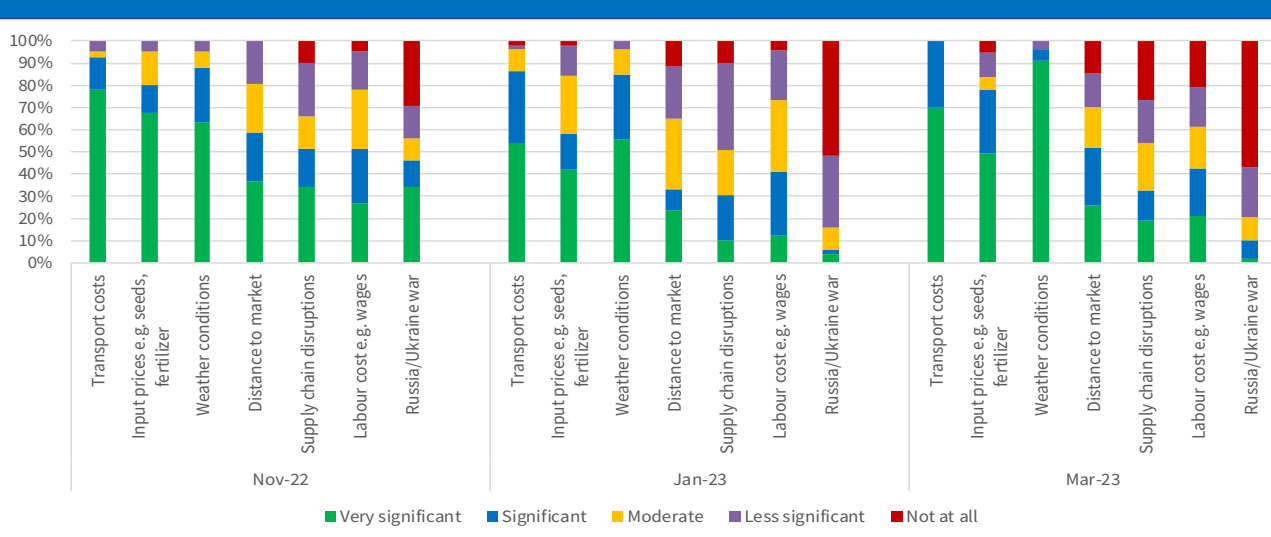
Analysis of output

This section investigates the performance of agriculture sector based on 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. Dividing 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)
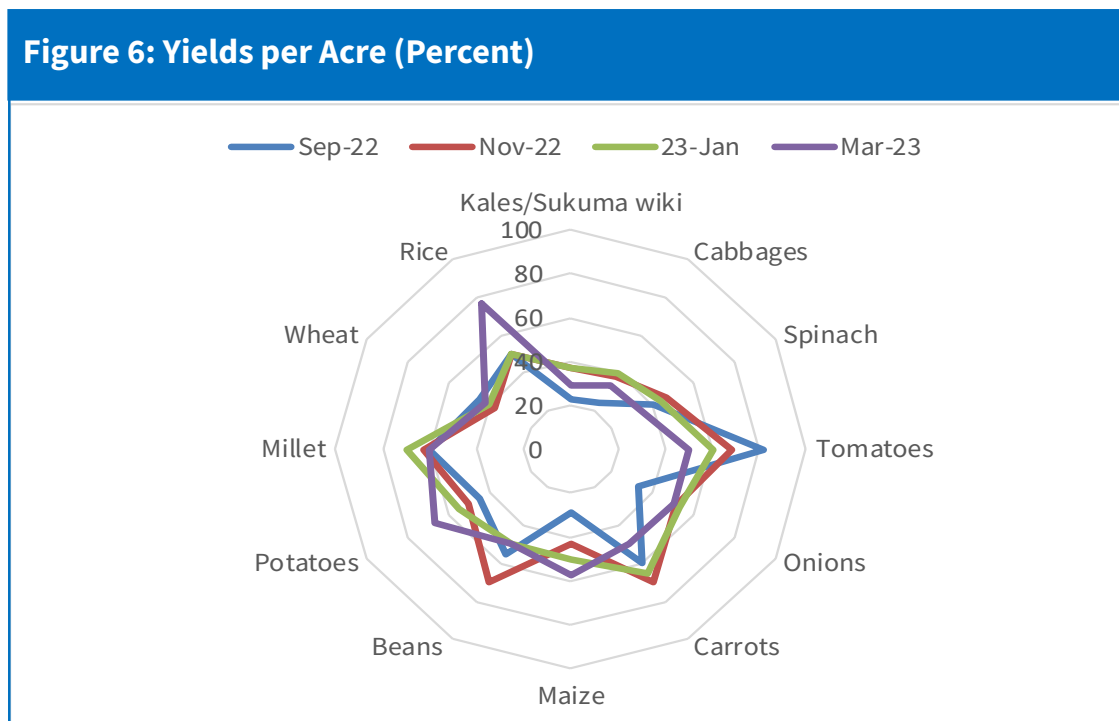
The Survey established that yields for all the sampled food crops fell below potential in the season to March 2023. Rice, potatoes, maize and wheat produced relatively higher yields per acre in the March 2023 Survey as compared to January 2023. The yields per acre vary depending on the season, rising 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. The 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) and pesticides/herbicides, in that order **(Figure 7)**.
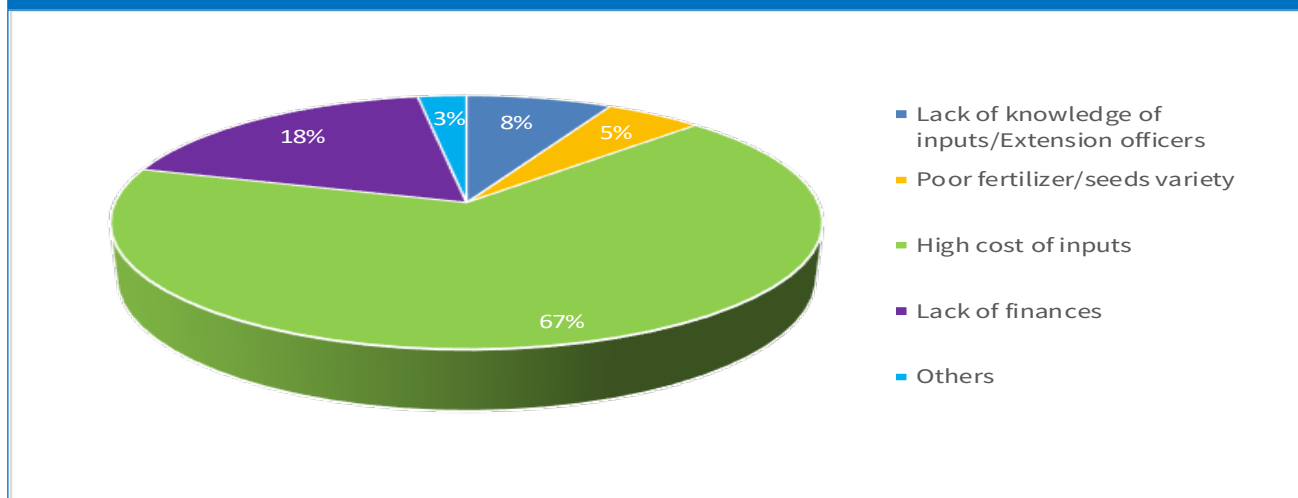
Figure 7: Significance of Farm Inputs in Agricultural Production

Figure 8: Challenges limiting access to Farm Inputs
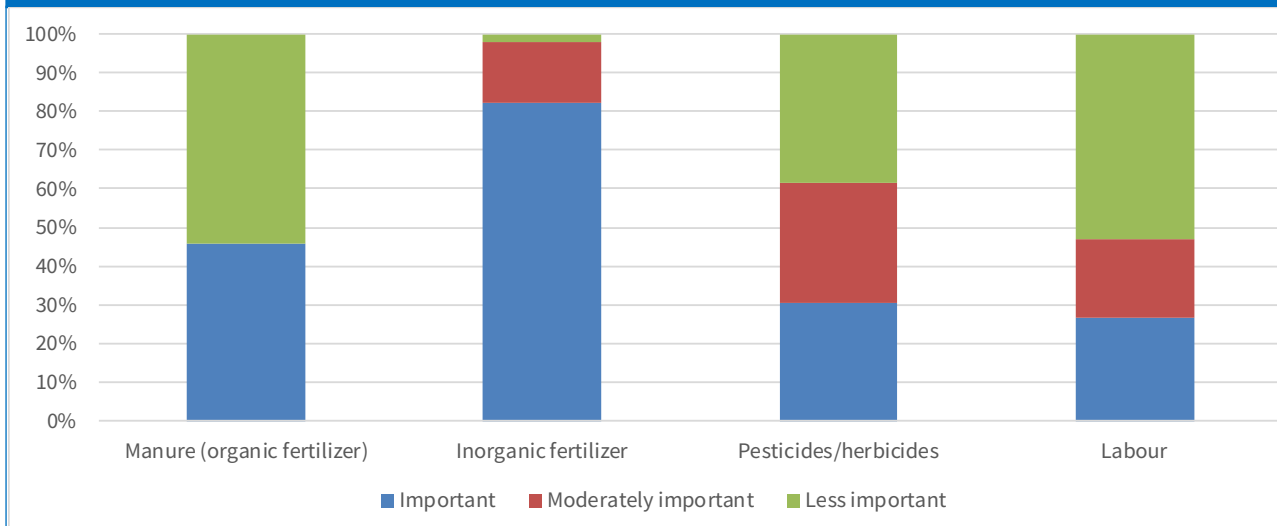
Despite the huge potential benefits associated with the optimal combination of farm inputs, access to farm inputs remains elusive to most farmers. The sampled farmers cited high cost of seeds and fertilizer; lack of finances; limited knowledge of inputs, lack of extension officers and poor fertilizer/ seeds variety as the main challenges constraining access to farm inputs **(Figure 8)**.

Concerns about the effectiveness of some pesticides, fertilizers and seeds were raised by farmers who argued that in some instances they have received substandard inputs which leave them with huge losses at the end of the harvest season. To mitigate against this, some farmers resort to 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.

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 they practiced 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.

3.5.1 Access to Government subsidized fertilizer

The survey established that 29 percent of the sampled farmers had received the government subsidized fertilizer by early March 2023 compared to 20 percent who received in early November 2022.

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 9)**.


Figure 9: Access to subsidized fertilizer
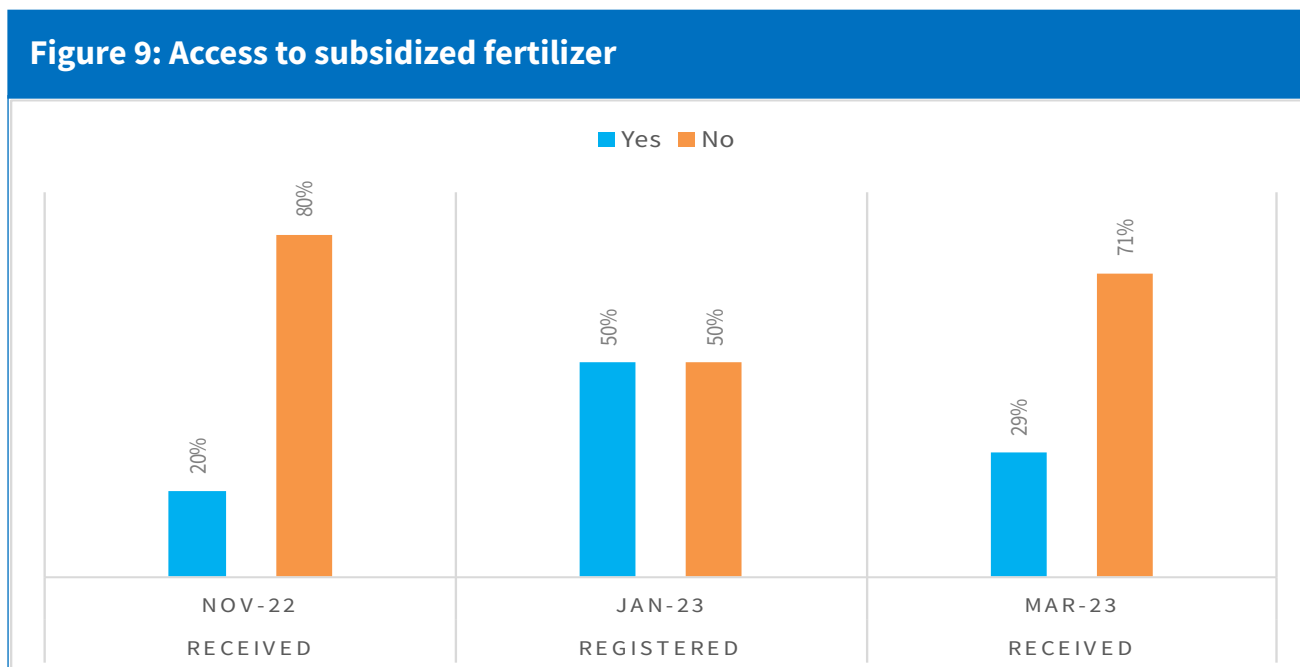
Access to the subsidized fertilizer is expected to rise since the distribution is still ongoing . Farmers yet to receive the subsidized fertilizer cited a lag between the date of receipt of the notification and redemption of the voucher. Some of those not registered cited poor quality of the fertilizer, limited stocks, delayed delivery and lack of money.

3.6 Market Supply Expectations

The survey sought to establish the expectations about changes in output and acreage in April 2023 **(Figure 10 and 11)**. The majority of those interviewed were quite optimistic with over 60 percent of farmers expecting the output of key food items to either increase or remain the same in the next harvest although this was slightly lower than the 84 percent, 78 percent and 81 percent reported in January, September and November 2022, respectively. The slight decrease is on account of the dry weather conditions experienced between January and March 2023. The Kenya Meteorological Department (KMD) March 1, 2023 Report, projects that the anticipated long rains season may be lower than the long term average.

Figure 10: Market Supply Expectations in April 2023
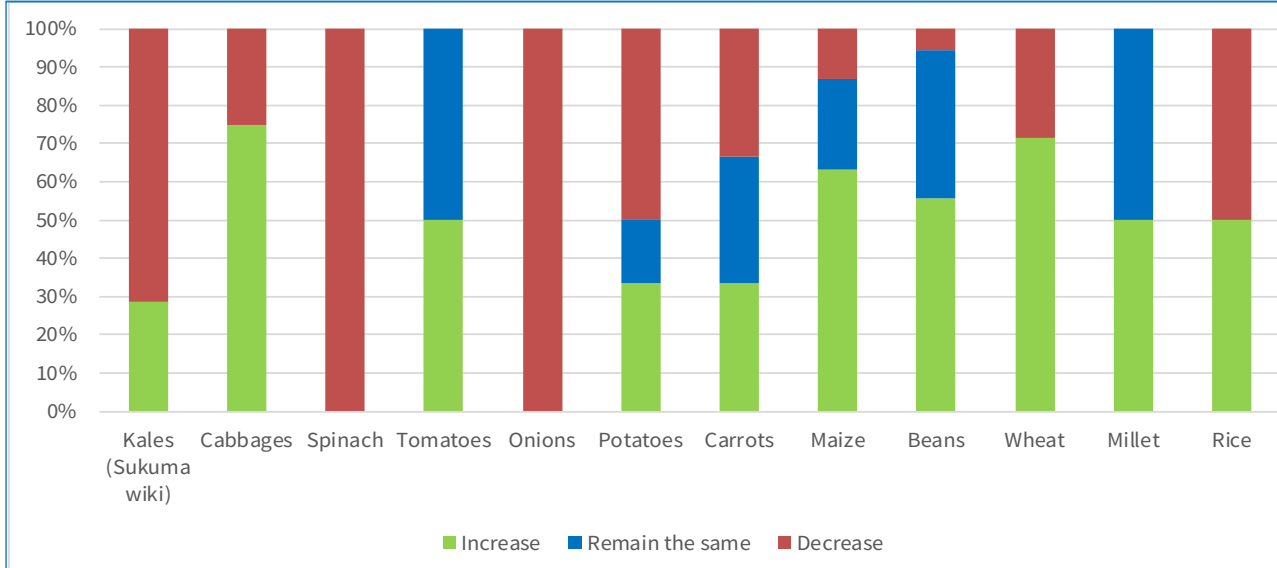
The supply of most non vegetable food items is expected to either increase or remain unchanged in the next harvest. In particular, the supply of maize, rice and wheat is expected to rise with the anticipated increase in duty free imports from March 2023. In 2023, Kenya is expected to import 10 million bags of maize from Zambia through a contract farming framework (KRA, 2023). The dry weather conditions experienced from January to March 2023 affected the market supply of spinach, kales and onions although the negative expectation could be a temporary phenomenon and could be reversed by the long rains which have started in most parts of the country. The farmers also appeared to appreciate the issuance of the NPK fertilizer which they consider to be better than the DAP fertilizer issued last year given its low acidity levels.

## Figure 11: Acreage Expectations in April 2023
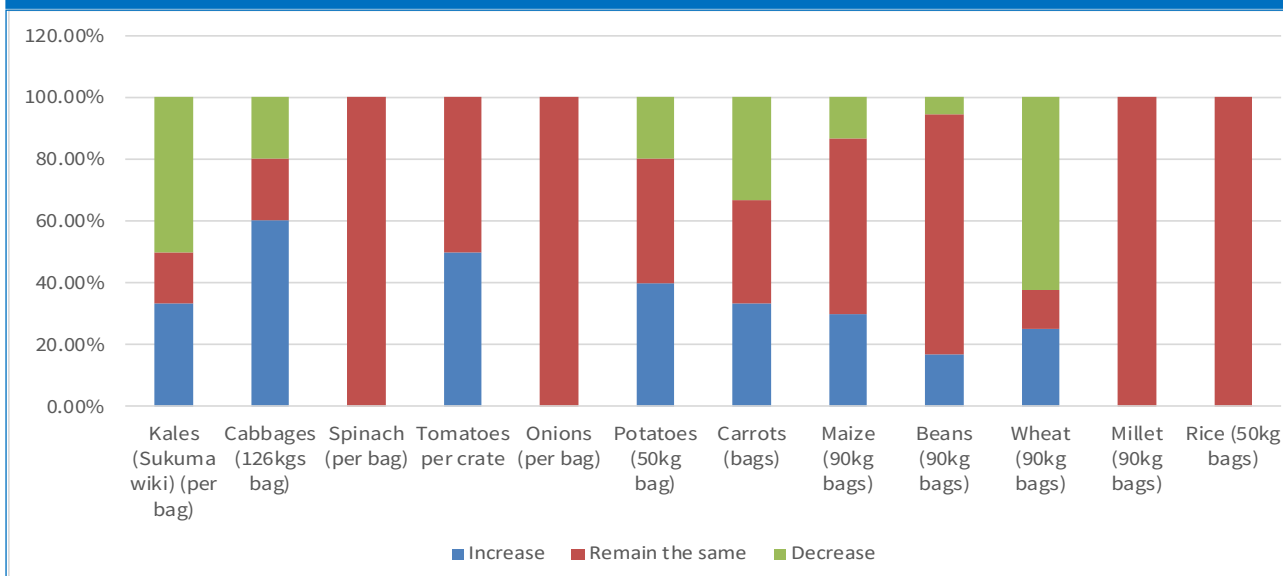
Despite the challenges associated with the dry weather conditions between January and March 2023, the area dedicated to agricultural production in the next season for most food crops either increased or remained unchanged. This is on account of the start of the long rains season and the good prices being fetched in the market.

3.7 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 the food prices. Most farmers cited weather patterns (14.8 percent), pests and diseases (14.5 percent) and input costs (14.0 percent) as the main factors affecting market supplies. The Ukraine/ Russia war had the least impact **(Figure 12)**. Technology was not considered to be so significant probably due to the nature of Kenya's agriculture sector which is highly labour intensive with limited technological advancement.

Figure 12: Factors affecting Agricultural Production
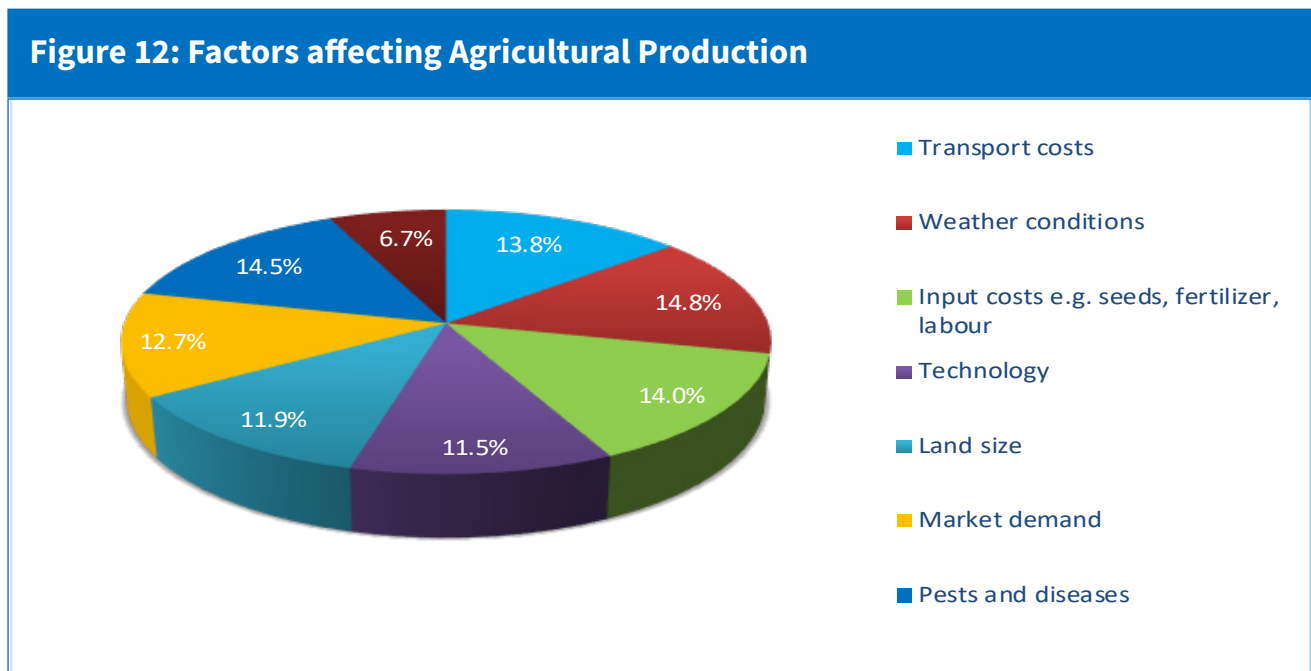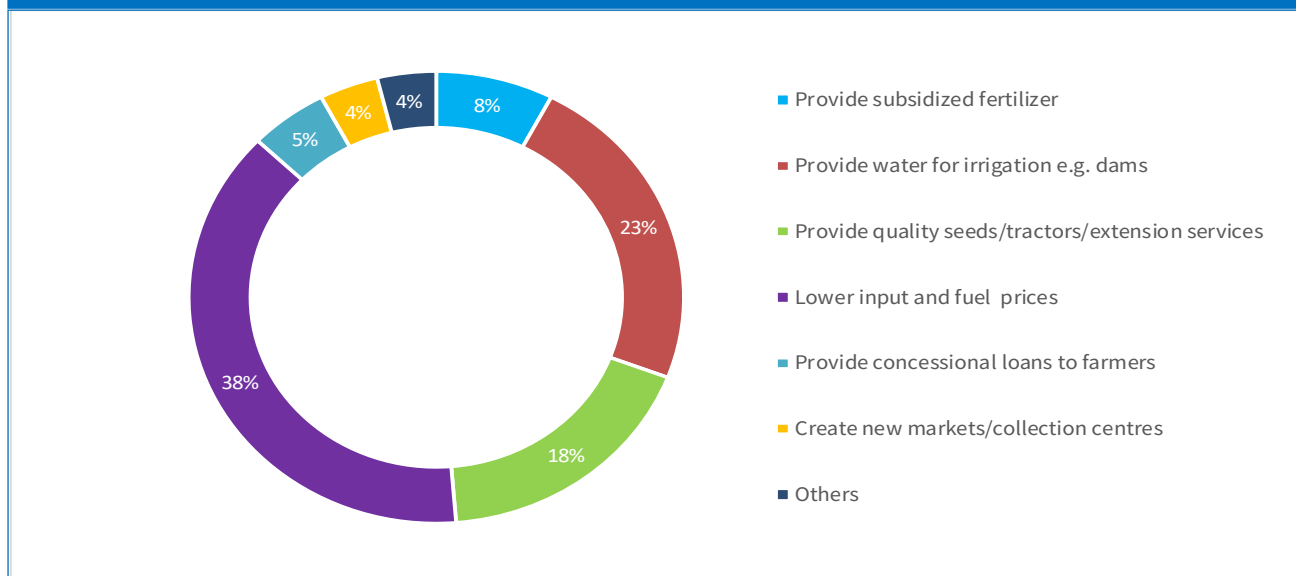

4. VIEWS ON HOW TO IMPROVE THE AGRICULTURE SECTOR

The Survey sought views from farmers on how to improve agricultural production. Most farmers recommended lowering of cost of inputs and stabilizing of fuel prices followed by increasing water for irrigation to supplement farmers over reliance on rainfall. The farmers also recommended timely provision of quality seeds/fertilizer/tractors and extension services **(Figure 13)**. The respondents revealed that contrary to the past, they have not witnessed extension officers visiting farms to provide professional advice and hence recommended that the function should not be office based. This would ensure that the seeds and fertilizer availed to farmers fit the environmental conditions and boosts yields.

Regarding 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. In addition, the government should devise ways of harvesting rainwater for use during the dry season. Other reasons cited included; review of land policy on land subdivision, restricted importation of commodities which are available locally, and reduction of levies on county borders to reduce cost of ferrying goods from other counties.

Figure 13: Views on how to improve Agricultural Production

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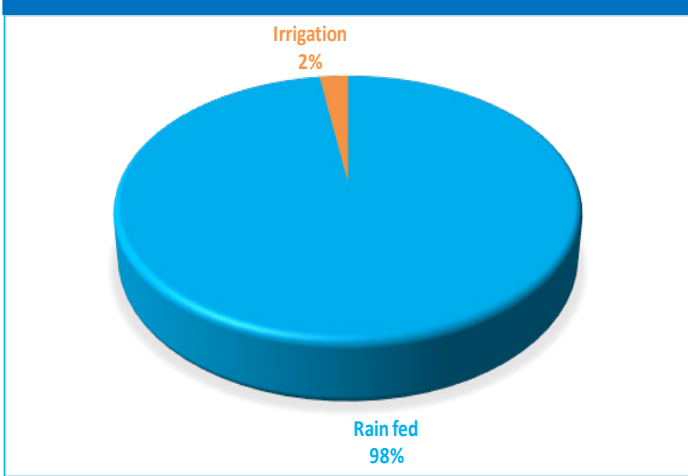- Others

5. CONCLUSION

The CBK conducted the fifth Agriculture sector survey from March 6 - 10, 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 150 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, Oloitoktok, Namanga, Makueni and Molo) across the country. Key findings from the Survey were as follows:

- Retail prices of some vegetables are expected to increase but prices of non-vegetables and animal products are expected to decline or remain unchanged.
- Retail prices of key food items, notably, cereals, grain products and cooking oil have stabilized in March 2023.
- Supply of food items, mainly maize, rice and wheat are expected to increase in the coming months supported by recent harvests, the long rains season and the arrival of the delayed duty-free imports.
- Weather conditions, transport costs, and input prices are the main factors driving prices in the Retail and Wholesale markets.
- Twenty nine percent of the sampled farmers had already received the government subsidized fertilizer in March 2023 relative to 20 percent who received in November 2022.

Figure 14: Factors affecting Wholesale Prices
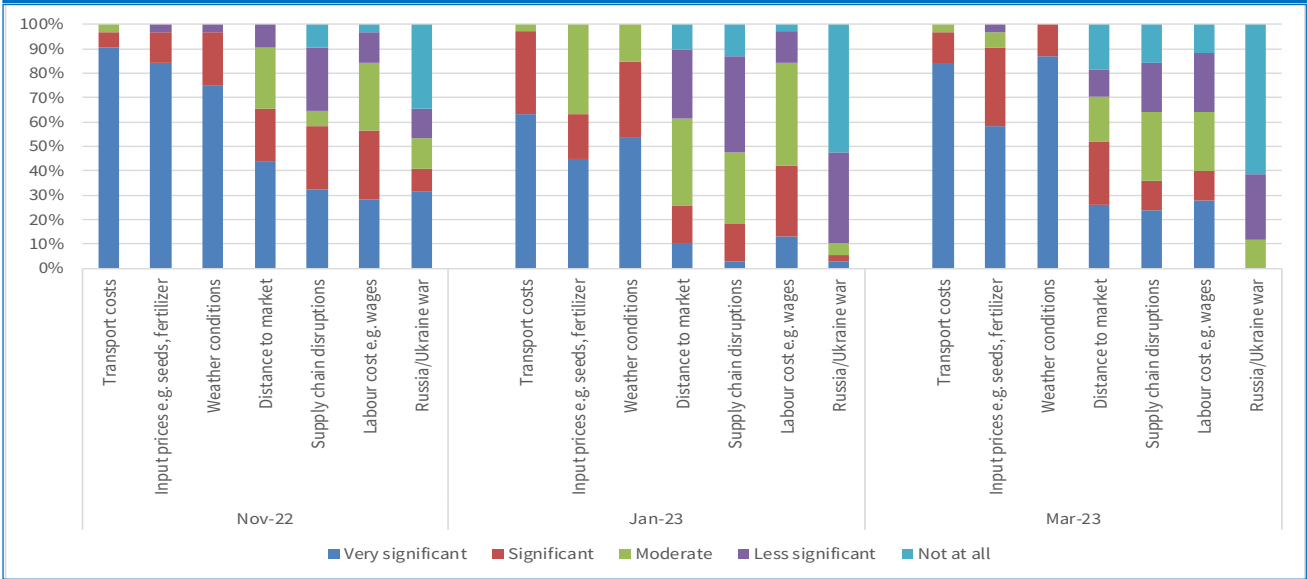
Figure 15: Main water source for farming

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