



# AGRI-FOOD SYSTEM AND GROWTH TRANSFORMATION: DIAGNOSIS FOR DELTA AND KANO STATES

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A collaborative study by the International Food Policy Research Institute (IFPRI), the Nigerian Institute of Social and Economic Research (NISER), and the National Bureau of Statistics (NBS).

JULY, 2024



# PRESENTATION OUTLINE

**01.** INTRODUCTION

**02.** STUDY OBJECTIVES

**03.** METHODOLOGY

**04.** RESULTS AND DISCUSSION

**05.** CONCLUSION

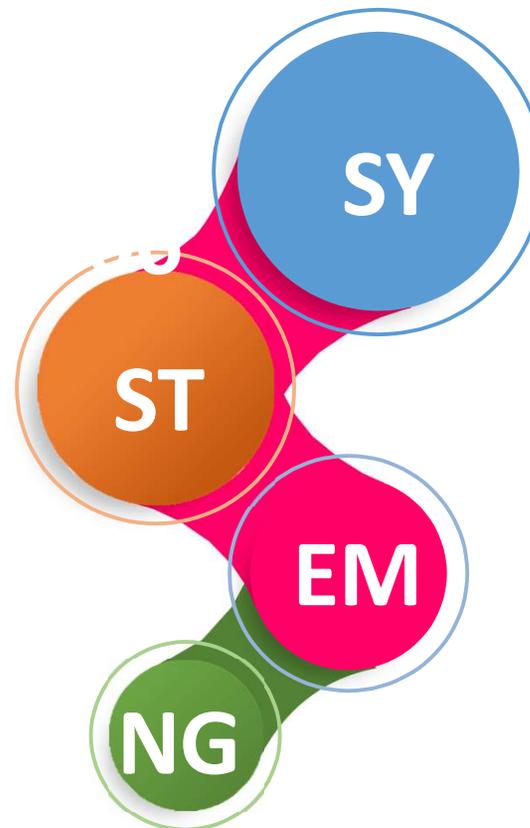
**06.** RECOMMENDATIONS



# DELTA AGRI-FOOD SYSTEM AND GROWTH TRANSFORMATION

PRESENTED BY

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## BACKGROUND

- Agricultural production in Delta State is practiced on small farm holdings, cultivating both food and industrial crops.(Maize, rice, cassava, yam, Oil palm and rubber)
- The state possesses significant forest reserves covering 78,500 hectares with only 3% under forest plantation (NBS,2016)
- Dozens of crops are currently grown in Delta State, covering approximately 55% of its land area (DPC,2020).
- About 75% of the state's population depends on agriculture for their livelihoods.
  - 36.8% of the males and 29.5% of the females in Delta State were engaged in full-time agriculture.
  - Part time:19.86% of men and 13.8% of the women were involved in the sector (Ojei et al, 2018)
- Agriculture accounted for 9.98% of GDP in the state in 2019 and increased to 13.22% in 2020.



## BACKGROUND CONTD.

- The soil fertility status in the State has been seriously impacted by oil exploration.
- Agricultural activities in Delta state are also affected by climate change
- Public spending on agriculture is generally not satisfactory in Delta State
  - 0.03% in 2012, 0.75% in 2019 and 1.23% in 2022(of total budget).
- Agricultural productivity is low and is driven largely by the traditional model of agricultural growth (UN and Delta State, 2014).
- To address issues limiting agricultural growth, the State government has implemented a raft of agricultural programmes.
- Most rural infrastructures in the State are in a deplorable state which affects farming activities (Ebewore, 2021)

## OVERALL OBJECTIVE

To assess Delta State's agriculture and food system for sustainable growth and food security

## STUDY OBJECTIVES

The specific objectives are to:

- Assess the structure of agri-food system in Delta State over the past decade;
- Identify the drivers of agricultural growth and the key contributors to this growth;
- Explore the sources and constraints to future agricultural growth and food security;
- Analyze the alignment of government investment plans and policy reforms with the major challenges facing the agri-food system; and
- Propose recommendations for aligning agricultural policies and investments with food security agenda.

# METHODOLOGY

## *Scope of the Study*

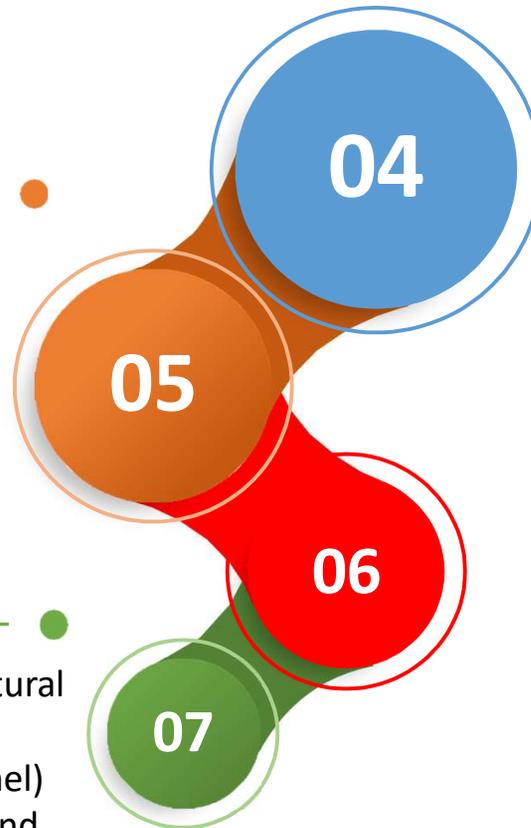
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Delta State is the focus of the study, covering the period 2012 to 2022

## *Data Source*

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Delta State Ministry of Agriculture and Natural Resources, Delta State Budget Documents General Household Survey Panel (GHS-Panel) (2012/2013, 2015/2016 and 2018/2019) and relevant literature.



## *Data Extracted*

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Socioeconomic factors, environmental variables, technological factors, productivity metrics, farm characteristics, institutional factors, agricultural practices etc.

## *Analytical Techniques*

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Descriptive statistics (tables, charts, frequencies, percentages, measures of central tendency etc) and regression analysis

# RESULTS AND DISCUSSION

1

## **CURRENT STRUCTURE**

Agri-Food System And Growth Transformation

2

## **DRIVERS OF AGRICULTURAL GROWTH**

Productivity and Food Security Factors

3

## **GOVERNMENT POLICIES AND GROWTH**

Policies, Investment and Growth

4

## **CLIMATE CHANGE POLICY**

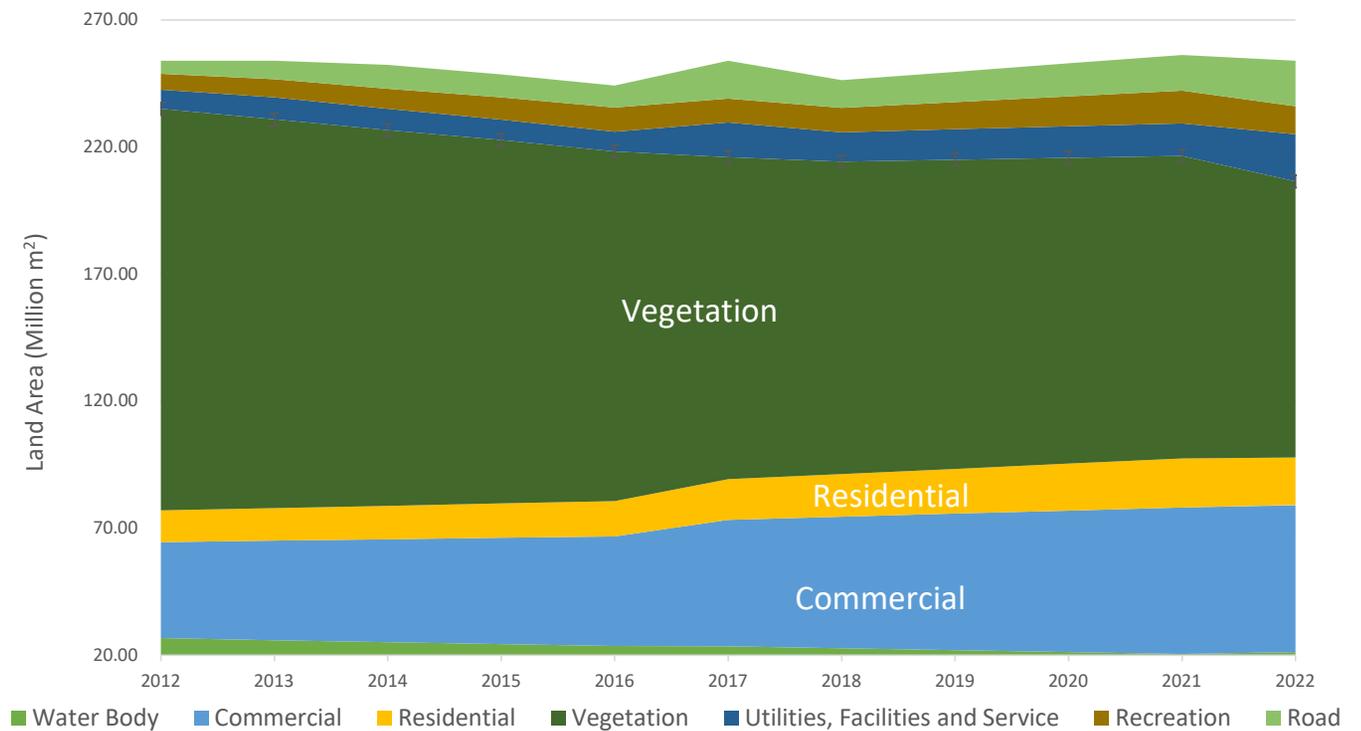
Agricultural Growth and Climate Change



# Current Structure of Agri-Food System & Growth Transformation in Delta State

- The vegetative area in Delta State is gradually eroding.
- More land is allocated to commercial and residential uses

Fig. 1: Trend of Land Area in Delta State, 2012-2022



Source: Land Area map of the State, 2012-2022 (cited in Chukwun (2023))

# Subsectors and Crop-Specific Shares to Value-Added in Agriculture

Fig. 2: Share of Agricultural Subsectors in Agricultural Value Added

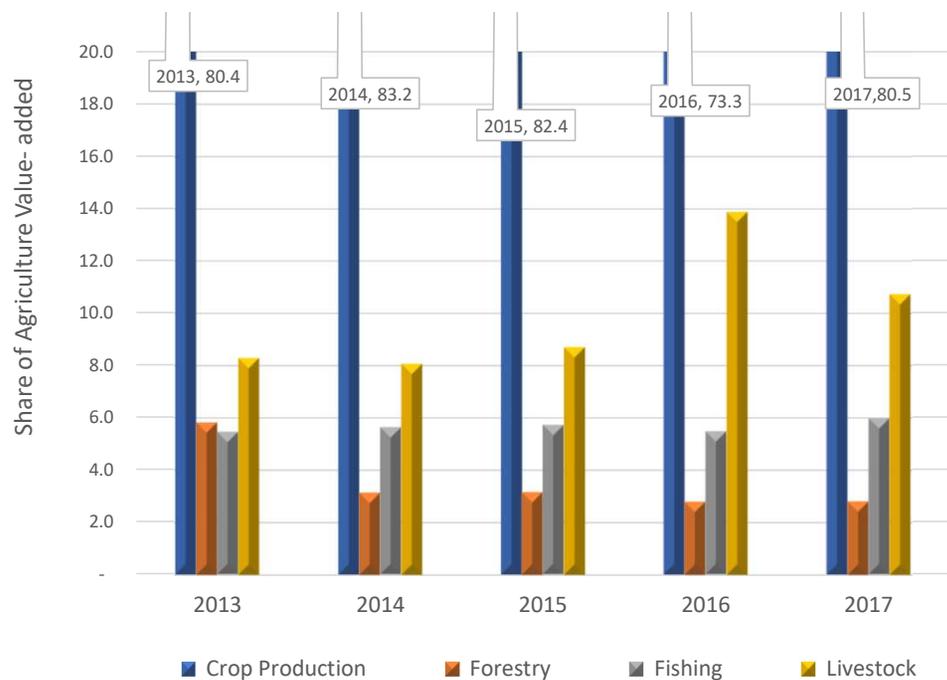


Table 1: Shares of selected crops in the value added for crop agriculture

Crops	2017	2019	2020
Maize	4.55	4.831	5.260
Rice	0.06	0.086	0.087
Cassava	8.99	10.773	11.036
Yam	3.82	5.075	- 10

Source: The Delta State Ministry of Agriculture and Natural Resources and Delta State Budget Documents

# Assessment of the Productivity of Crops

Figure 3: Trends in the productivity of crops in Delta, 2000-2022

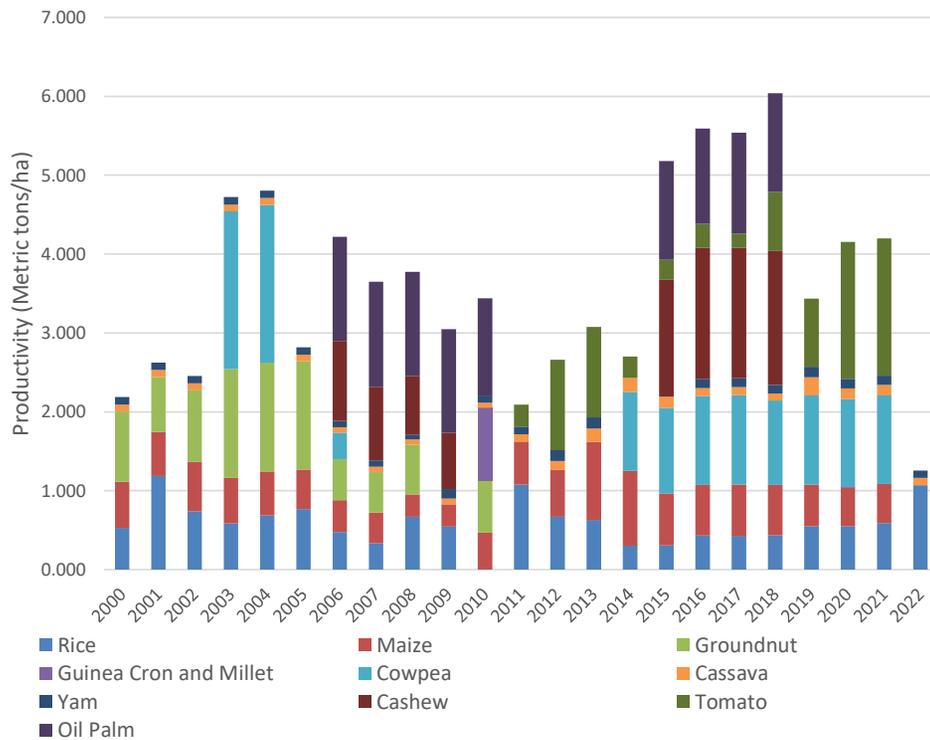
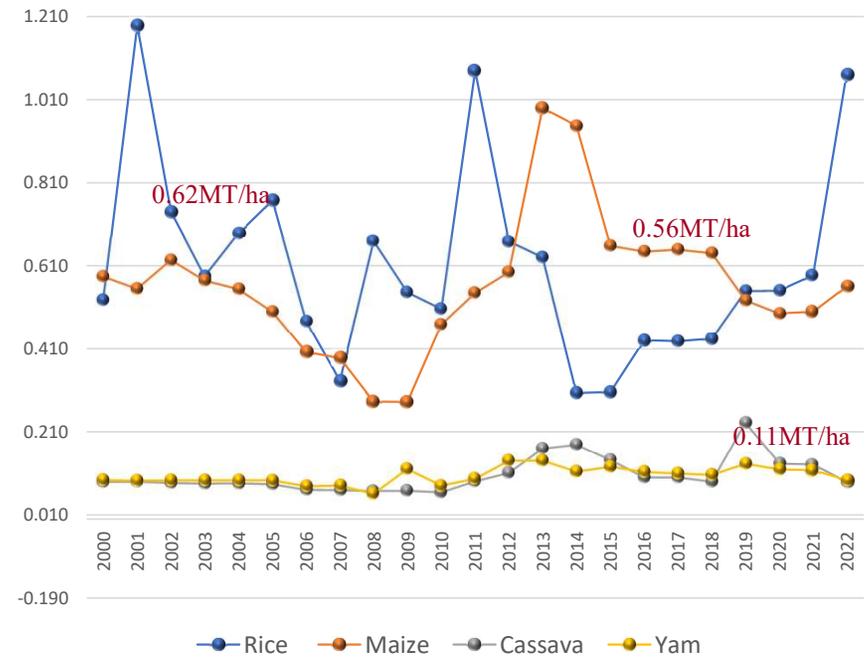


Figure 4: Trends in Productivity of Selected Crops, 2000-2022



Source: The Delta State Ministry of Agriculture and Natural Resources and Delta State Budget Documents

# Assessment of Livestock and Poultry Production in Delta State

Figure 7: Trend in Livestock and Poultry production in Delta State

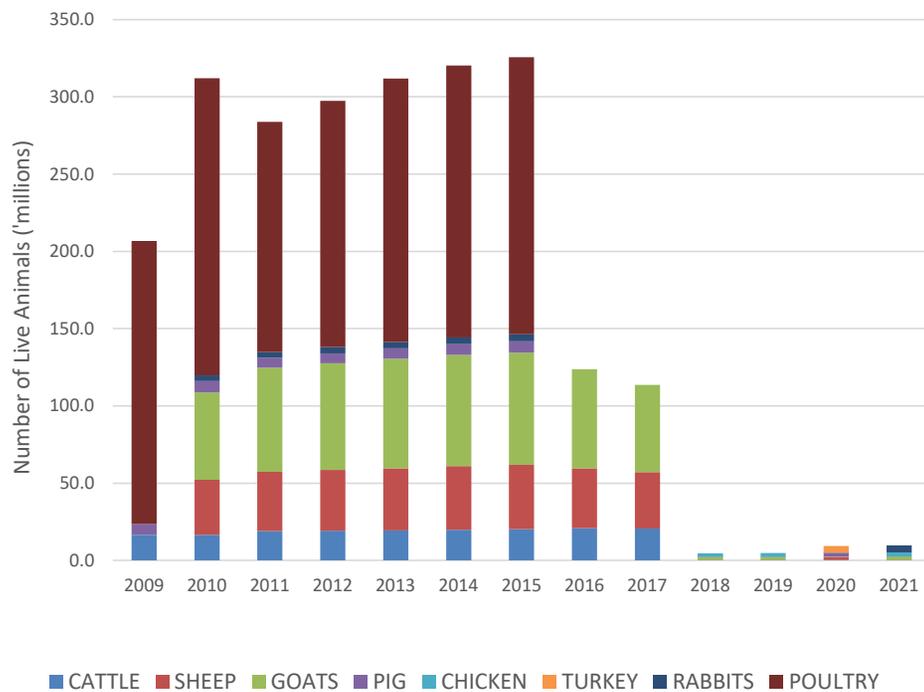


Table 2: Growth in Livestock and Poultry Production in Delta State, 2009-2021

Year	Cattle (%)	Sheep (%)	Goat (%)	Pig (%)	Rabbit (%)	Poultry (%)
2009-2010	0.87			4.00		5.00
2010-2011	14.86	8.04	19.05	-15.92	4.00	-22.58
2011-2012	0.87	2.50	2.50	4.00	4.00	6.96
2012-2013	0.87	2.50	2.50	4.00	4.00	6.97
2013-2014	1.96	2.39	1.78	2.90	5.28	3.23
2014-2015	2.18	0.84	0.79	5.38	5.23	1.94
2015-2016	3.28	-7.06	-11.50			
2016-2017	-1.30	-5.45	-12.12			
2017-2018	-99.86	-99.39	-96.38			
2018-2019	0.87	2.50	2.50	4.00		
2019-2020	0.87	2.50	2.50	4.00		
2020-2021	1.75	5.06	5.06	8.16		

Source: The Delta State Ministry of Agriculture and Natural Resources and Delta State Budget Documents

# Assessment of Fisheries Production in Delta State

Figure 8: Trend in Fishery Production in Delta State

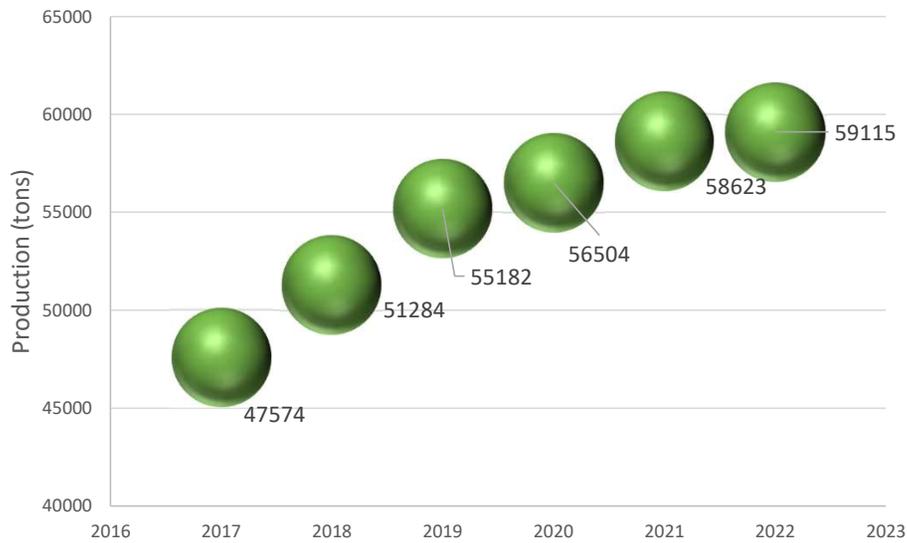
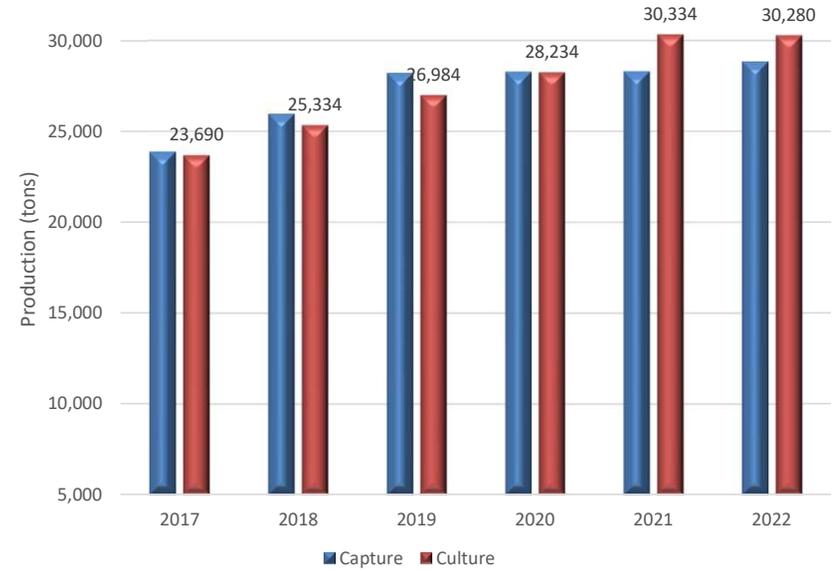


Figure 9: Fish Productions in Tons



Source: The Delta State Ministry of Agriculture and Natural Resources and Delta State Budget Documents

# DRIVERS OF AGRICULTURAL GROWTH

## Nature Dependence

**Agricultural** growth and food security continue to be undermined by low levels of production; Reliance on rain-fed agriculture; low soil fertility; limited irrigation; Climate change poses serious threat to agricultural productivity

## Adoption of Technology

**Agricultural** technologies like farm mechanization offer benefits such as improved productivity through time savings, reduced waste of farm produce, labour reduction, and increased income. However limited use, scarcity & high cost

## Agricultural Extension Services

**Extension** services assist farmers in implementing good agricultural practices which in turn improves their productivity but extension contact with farmers is low.

## Financial Access

**Limited** access to financial services, and insufficient financial literacy hinder improvement in the agricultural sector and the state's economic development such as the well-being of its citizens.

# DRIVERS OF AGRICULTURAL GROWTH CONTD.

## Rural Infrastructure

An inefficient rural road network coupled with a lack of access to the market results in high cost of production, postharvest losses, and poor farm produce sale.

## Soil Fertility

In Delta State, declining soil fertility limits crop yields which is increasingly becoming a widespread problem in the State

## Farm Size

Due to low adoption of technology, growth in agricultural productivity is mainly driven by land expansion. In Delta State, there has been a decline in farm size for cultivated crops over the years

## Use of Agrochemicals

**There is** a dynamic pattern in the use of agrochemicals among farmers in Delta State, reflecting changes in agricultural practices, economic factors, and possibly evolving environmental conditions.

# Drivers of Agricultural Growth Contd.

Fig. 10: Trends of farm size for crop production in Delta State

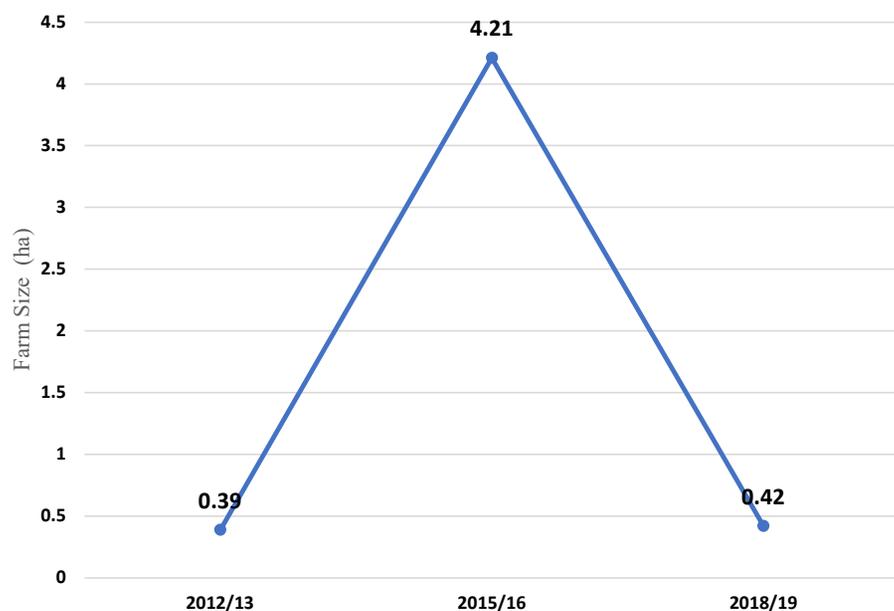
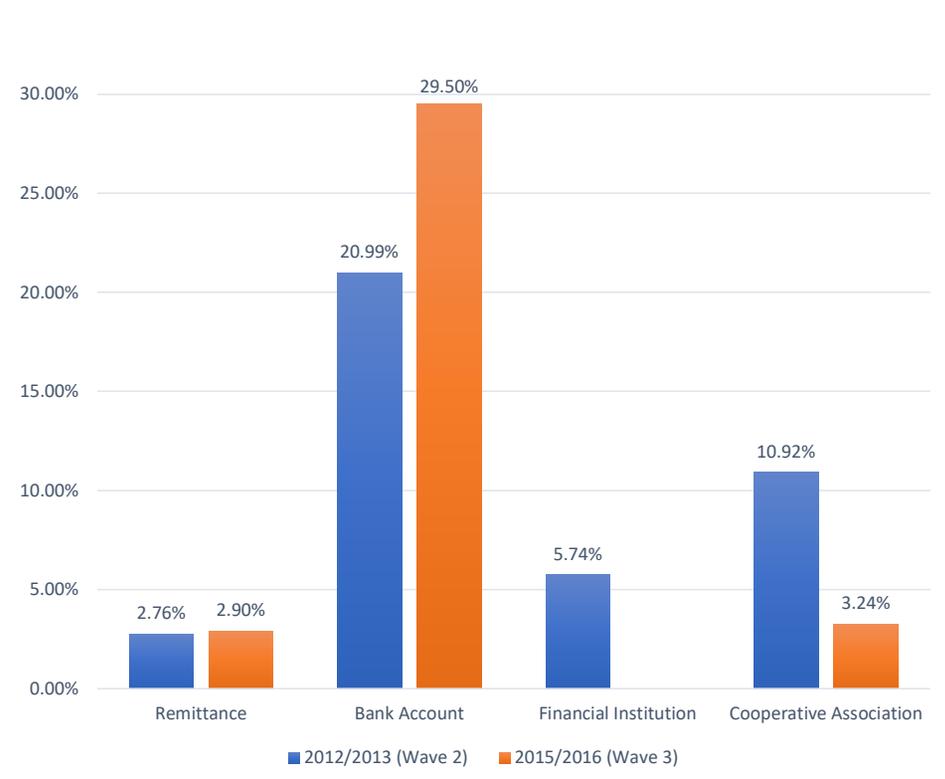
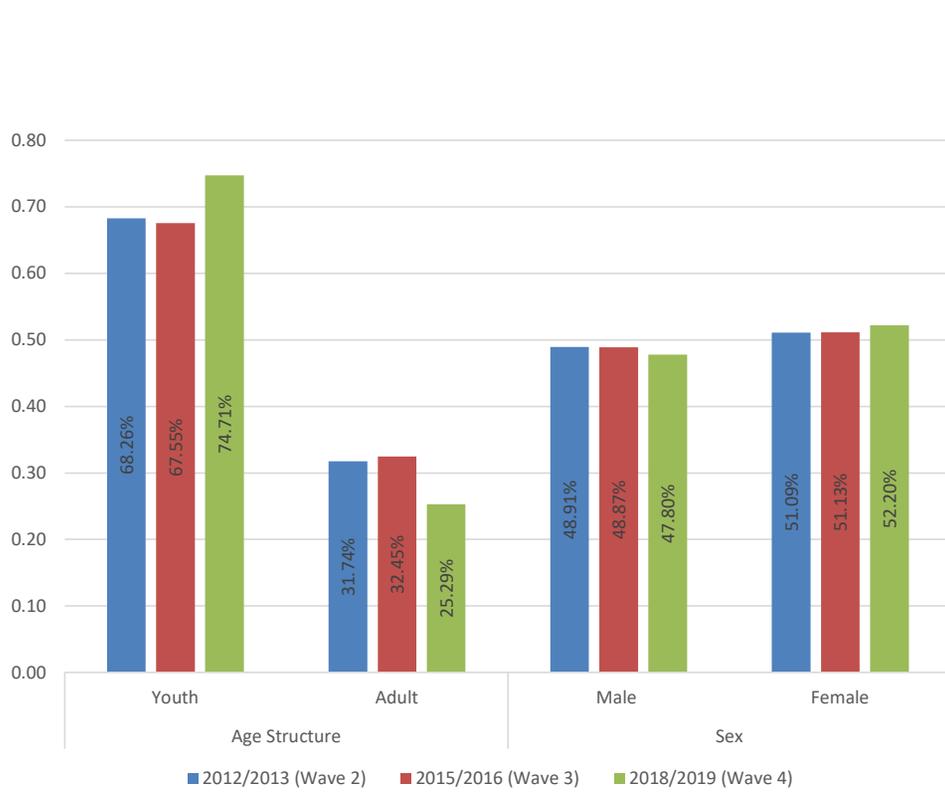


Table 3: Use of Agrochemicals for Some Major Crops in Delta State

Agrochemicals	2012/13 (%)	2015/16 (%)	2018/19 (%)
<b>Pesticide (Litres)</b>			
Yes	8.24	16.22	0.74
No	91.76	83.78	99.26
	Mean=0.6±0.5	Mean=6.7±8.4	Mean=4
<b>Herbicide (Litres)</b>			
Yes	24.71	39.19	52.94
No	75.29	60.81	47.06
	Mean=9.4±8.6	Mean=7.4±7.5	Mean=4.7±3.2
<b>Fertilizer use (kg)</b>			
Yes	36.90	31.08	2.21
No	63.10	68.92	97.79
	Mean=109.4±7	Mean=165±106.5	Mean=100±50
	1.6		
<b>Fertilizer type</b>			
NPK	3.23	65.00	66.67
Urea	96.77	35.00	33.33

Source: GHS Data Waves 2-4

# Human and Institutional Factors Influencing Agricultural Product



Source: GHS Data Waves 2-4

**Table 4: Econometric Estimation of the Drivers of Agricultural Product**

Farm output	Coefficient	Standard error	P-value
Farm size (ha)	0.016	0.167	0.922
Fertilizer quantity (kg)	0.574**	0.288	0.049
Labour use	0.570***	0.177	0.002
Extension service	-0.552	1.416	0.697
Poor health status	-0.929***	0.321	0.004
Constant	9.362***	2.828	0.001
No of Observation=135		R-squared=0.192	
F-test=6.127		Prob>F=0.000	



# Government Policies, Investments and Productivity Growth

Table 5: Approved Public Expenditure of the Agriculture Sector in Delta State (₦'000)

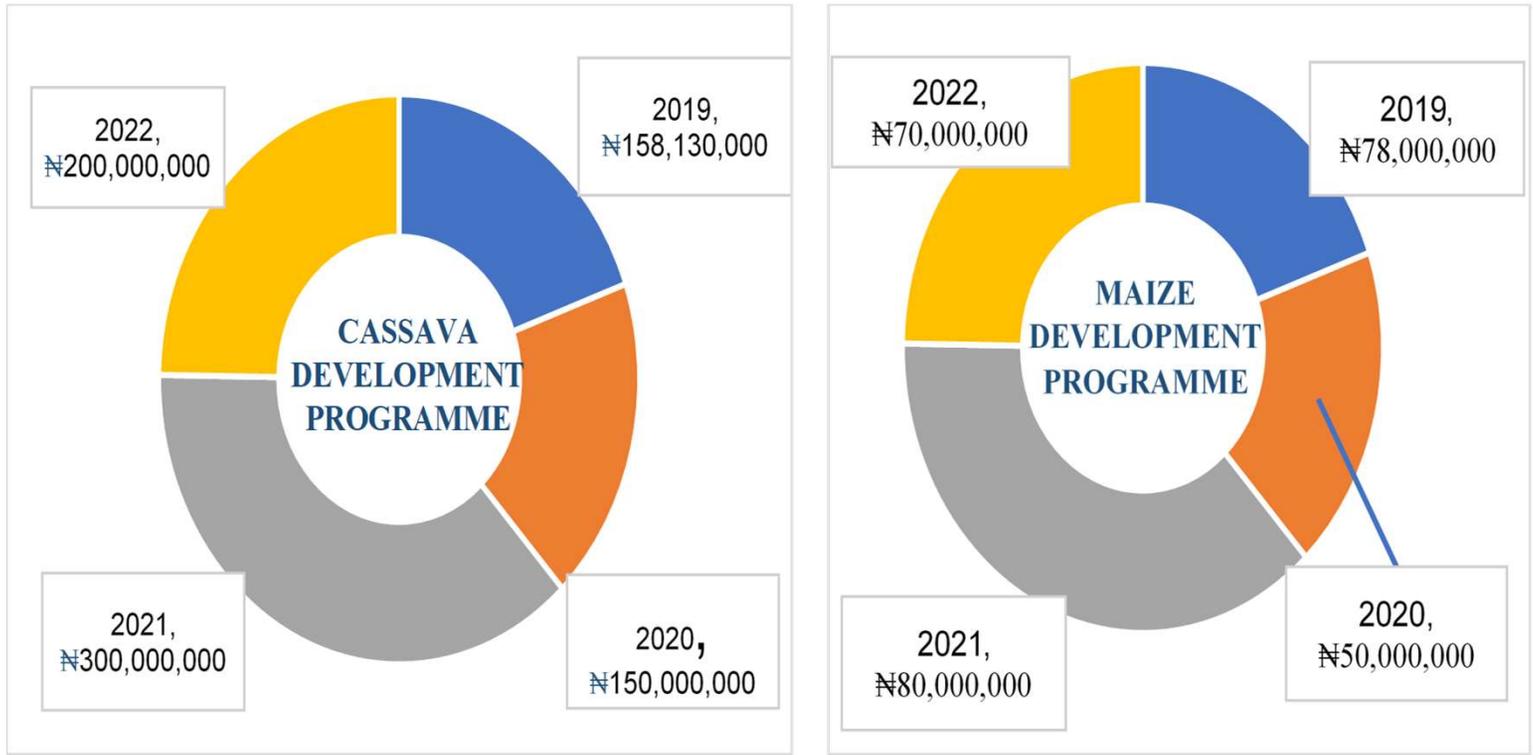
Budget Components	2019	2020	2021	2022
Data Management and Promotion	25,300	22,000	25,000	24,463
Crop Development	362,287	243,000	477,963	406,500
Livestock Development	292,000	120,000	190,000	309,000
Fisheries Development	282,603	-	201,000	102,500
Infrastructure Enhancement	672,878	117,000	165,000	127,000
Capacity Building and Training	51,026	52,000	15,000	15,000
Equipment and Machinery Procurement	201,840	90,000	82,000	80,000
Financial Support and Subsidies	883,666	320,000	225,000	355,000
Agricultural Enhancement Programme	-	1,110,000	500,000	500,000
Produce inspection	4,000	2,000	2,000	-
Others	28,000	307,000	32,000	111,000
Health in rural areas	-	35,000	25,000	15,000
Water	42,000	-	-	-

Source: Delta State Budget Documents, 2019-2022)



# Government Policies, Investments and Productivity Growth Co

Figure 13: Public Expenditure on Cassava and Maize



Source: Delta State Budget Documents, 2019-2022)

# Agricultural Growth and Climate Change Policy in Delta State

Fig. 14: Annual Rainfall Deviation from the mean in Delta State, 2000-2023

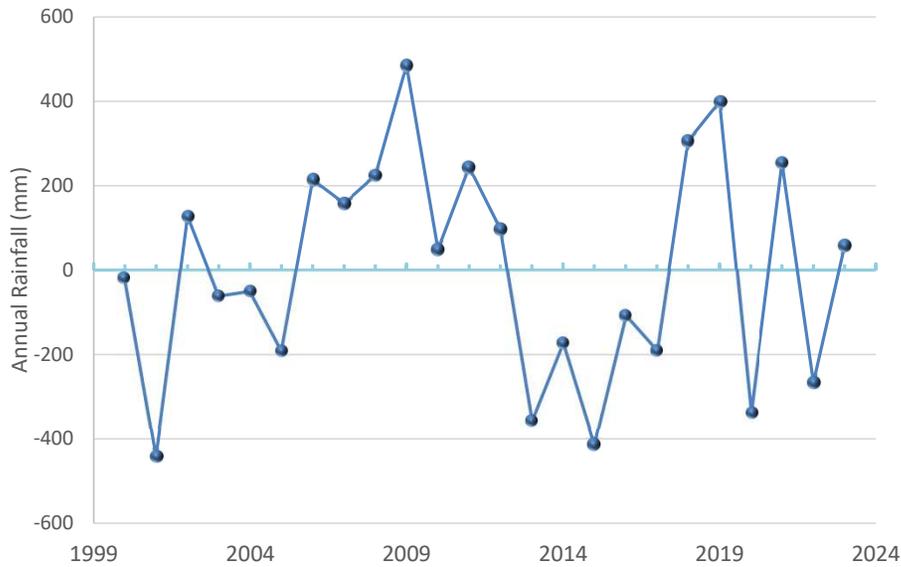
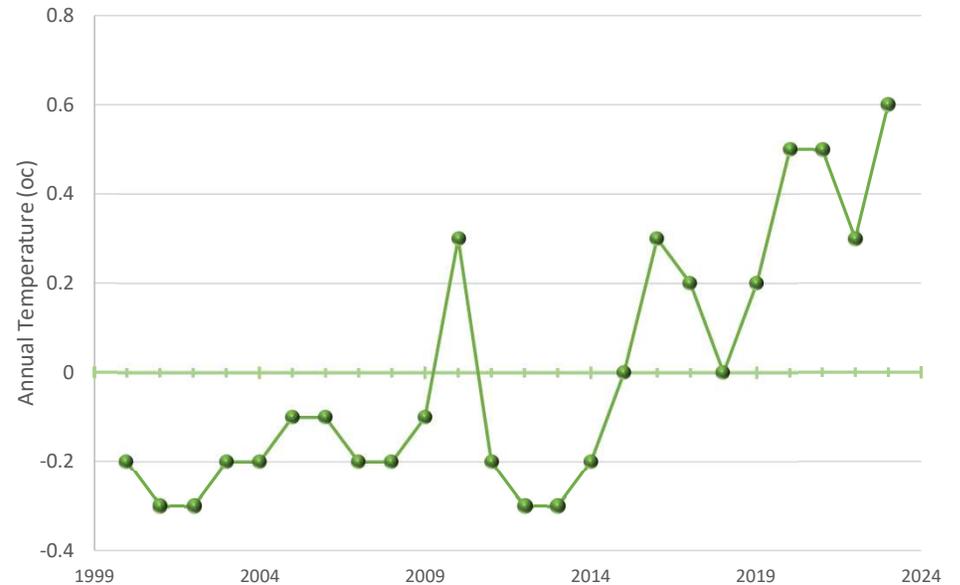


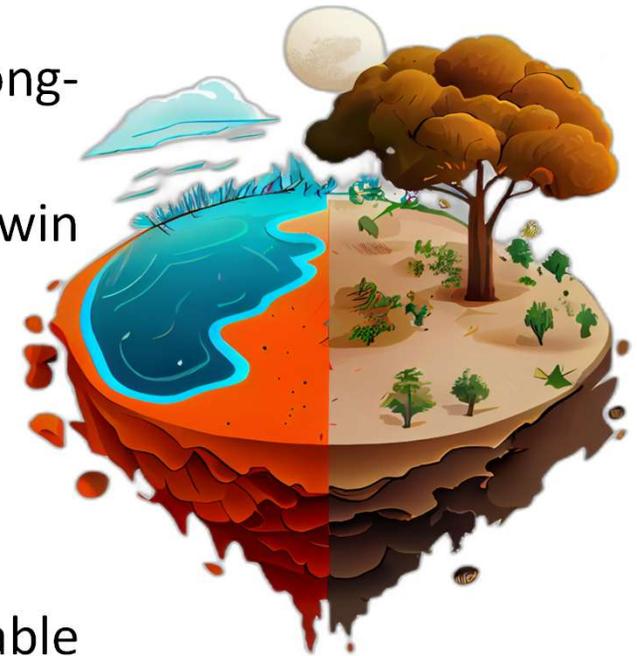
Fig. 15: Annual Temperature Deviation from the mean in Delta State, 2000-2023



*Authors' Construct from Climate Engine and Google Earth Engine (GEE)*

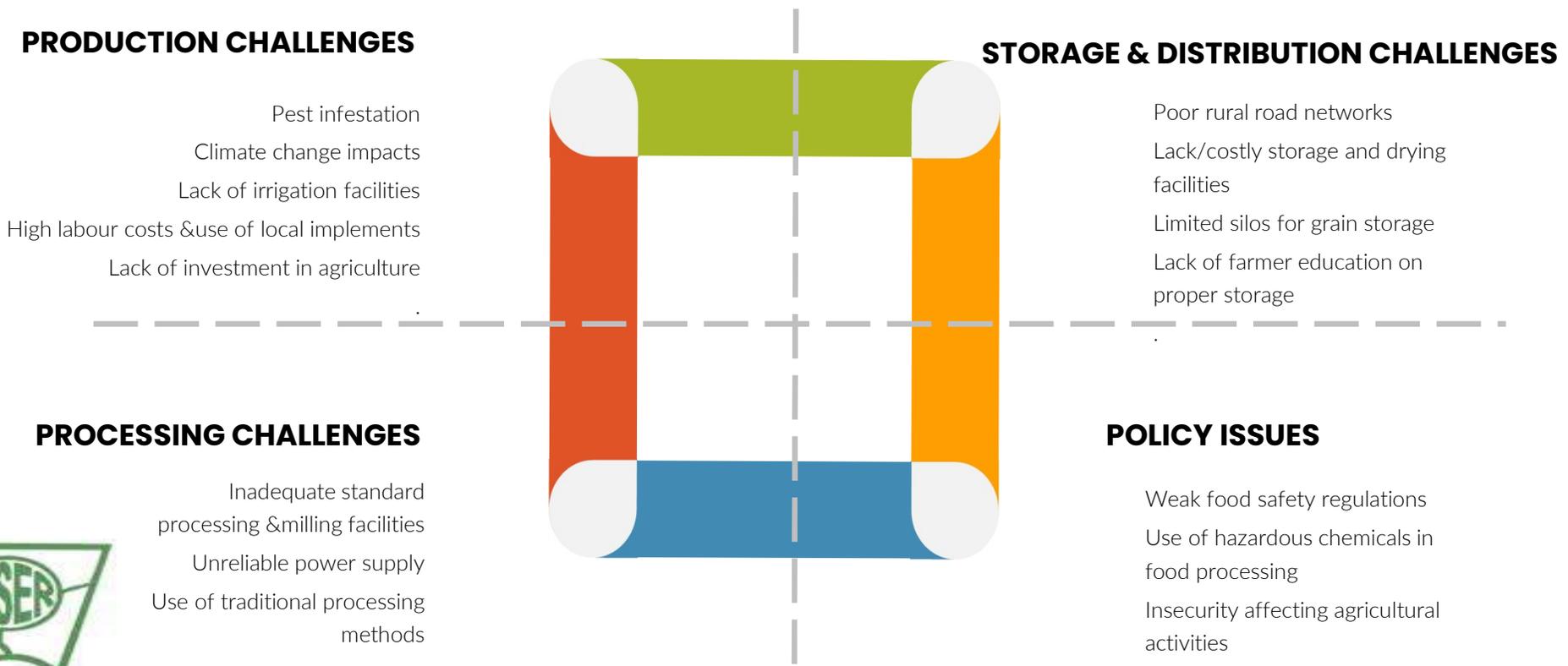
## Agricultural Growth & Climate Change Policy in Delta State (Contd.)

- The climatic trends in Delta State necessitate long-term planning and policies.
- Climate Change Policy and TACC Initiative: quick win projects:
  - fuel-efficient wood stoves
  - solar installations
  - water treatment facilities
  - methane harvesting
  - tree planting, and water filter distribution
- It offers significant opportunities for sustainable practices, agricultural productivity, food security, and climate resilience efforts



# Constraints to Agricultural Growth and Food Security in Delta State

Agricultural productivity in Delta State faces challenges



Adapted from Obekpa and Tasie (2022)



# Future Sources of Agricultural Growth

- Integration of technological innovations like small-scale machinery, soil fertility management, irrigation technologies blockchain technology etc.
- Adoption of vertical farming and indoor agriculture
- Robotics and automation in agriculture
- Climate-smart agricultural practices
- Digital farming platforms for data-driven decision-making



## KEY TAKEAWAYS



The agricultural sector in the region is primarily dominated by crop production, indicating that the potentials of other sub-sectors, particularly fisheries and forestry, are not yet maximized



Although crop production appears to be increasing, the productivity level is generally low. Livestock and poultry production have experienced fluctuations, while inland fisheries have grown despite reduced public spending.



Delta State's agriculture is increasingly vulnerable to climate change, necessitating long-term planning and policies for sustainability and resilience



Factors influencing agricultural productivity include agricultural innovations, environmental conditions, extension services, input use, health status, farm size, financial inclusion, labour use, rural infrastructure.et.c.



The future of agriculture should be driven by the adoption of smart and innovative technologies such as precision agriculture, blockchain technology, small-scale machinery, advanced irrigation systems, robotics, digital automation etc



# RECOMMENDATIONS

- ▶ The Delta State Government, with the Federal Government and stakeholders, should prioritize developing roads, electricity, water projects, and market facilities, ensuring effective implementation through increased budget allocation and monitoring.
- ▶ Lead efforts to introduce high-yielding, disease-resistant crops, implement soil management practices, and strengthen agricultural extension services through coordination with the Federal Government, research institutions, and local farmer groups.
- ▶ Need for a robust climate-smart agricultural strategy integrating sustainable practices like agroforestry and precision farming, collaborating with experts and international bodies for effective implementation.
- ▶ Government agencies and cooperatives should provide support to smallholder farmers by facilitating access to agricultural inputs, markets, and credit, and offering training on sustainable farming practices.
- ▶ Implement land-use policies balancing economic development with environmental conservation, and strengthen agricultural and food safety policies through robust regulatory mechanisms and comprehensive education and sensitization programs.

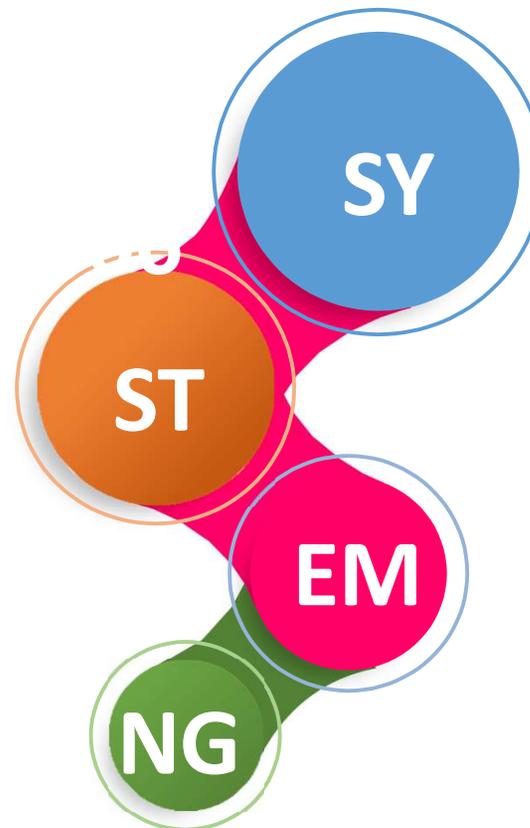


# KANO AGRI-FOOD SYSTEM AND GROWTH TRANSFORMATION

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## Background

- A well-functioning agrifood systems play an important role in increasing food and nutrition security, reducing poverty
- These are especially important now in the face of rising prices and food insecurity.
- Kano State agrifood system currently consists of multiple parts, all of which support the state's agricultural economy and socio-economic growth.
- Kano State's agrifood systems are characterized by a predominantly subsistence-based agriculture sector. Farmers rely heavily on traditional farming practices and the natural environment, with minimal irrigation infrastructure to support crop production.
- Efforts to improve productivity and sustainability however still face challenges due to limited access to modern agricultural technologies, financial resources, and efficient water management systems.

# Objectives

## Broad Objective

To diagnose the growth of agriculture and agric-food system in Kano State over the past decades

## Specific obj. 1

To analyze the current structure of Kano State's agri-food system and its transformation over the last decade

## Specific Obj. 2

Investigate the drivers of agricultural growth in Kano State

## Specific Obj. 3

Identify constraints to growth and forecast future sources of agricultural growth

## Specific Obj. 4

Evaluate the alignment between climate goals and agricultural policies in Kano State; and

## Specific Obj. 5

Synthesize key findings, and provide actionable policy recommendations for sustainable agricultural development in the State

# Methodology

- This report employs a methodology that draws data from a variety of sources such as government publications, scholarly research, and statistical repositories, to examine the present configuration, influencing factors, and future potentials of agricultural development in Kano State.
- Employing descriptive statistical analysis techniques, the study scrutinizes tables and charts to discern trends and patterns in agricultural output, input usage, and policy execution.
- Additionally, partial productivity analysis is conducted utilizing the most recent iteration of the Integrated Survey on Agriculture (ISA) from the National Living Standard Survey (LSMS) for the period of 2017/2018.

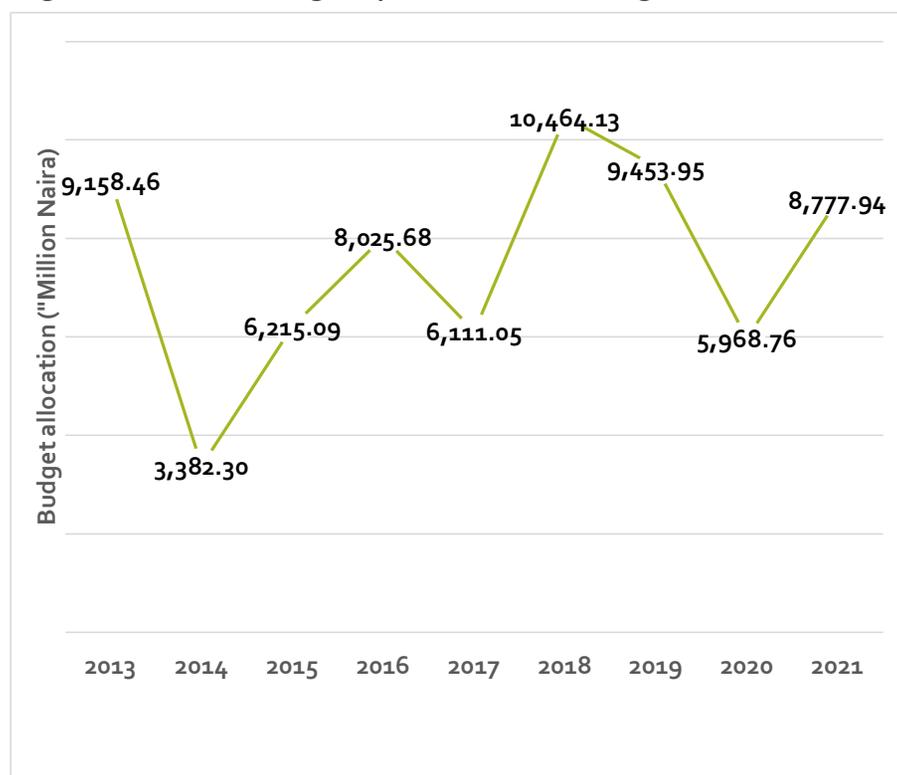
## **Agri-Food System in Kano, Growth/Transformation over the last decade**

- Kano State has a diverse agricultural production system, and livestock farming, including indigenous cattle, ruminants, and poultry.
- Agricultural production in the state is structured along the lines of crop production livestock production, fisheries, and an array of value-added activities.
- Kano engages in agro-processing activities, leveraging irrigation schemes for intensive cultivation, along with activities in forestry sectors.
- Kano State is a major producer of mainly grain crops
- The trend in production of these grain crops has fluctuated over the years; as the system grapples with changes in climatic and economic conditions.

**Table 1: Trend in Crop production Output in Kano state (2010-2022)in MT.**

CROPSMT	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>GRAINS</b>													
MAIZE	326,941	496,570	612,780	490,244	524,536	402,000	384,016	336,749	395,536	336,749	338,807	357,060	370,850
MILLET	310,637	301,590	402,708	402,813	382,573	353,266	321,831	379,551	361,887	304,168	306,623	88,420	109,890
SORGHUM	895,650	923,350	154,928	732,789	657,268	649,530	650,342	644,229	652,380	632,809	607,191	618,600	625,970
RICE	313,975	307,820	304,830	314,065	317,992	317,096	319,233	343,239	381,647	372,045	396,051	438,720	480,110
WHEAT	17,336	19,100	18,001	55,483	56,314	58,646	58,935	60,441	57,423	64,987	72,008	73,316	75,609
<b>LEGUMES</b>													
BEANS(COWPEAS)	175,008	176,705.	168,986.0	169,025.0	171,598.0	172,627.0	167,995.0	170,162.0	171,083.0	169,746.0	173,310.0	169,940.0	171,560.0
GROUNDNUT	358,343	363,800	348,800	338,334	352,886	356,981	326,492	292,659	290,045	241,756	231,143	153,330	149,190
BENISSED	11,980	11,010	11,840	12,113	12,141	12,169	13,183	13,873	12,994	13,335	12,676	12,590	13,410
SOYBEANS	62,520	65,820	12,590	46,976	55,533	54,195	62,752	58,473	67,293	68,087	72,849	76,200	79,380
<b>TUBERS</b>													
CASSAVA	34,387.0	35,450.0	9,990.00	11,053.00	23,169.00	23,864.00	35,481.00	34,417.00	25,491.00	33,354.00	34,354.00	35,450.00	34,049.00
POTATOES	129,503.	123,260	312,841.0	316,628.0	254,152.0	306,698.0	315,388.0	294,540.0	297,506.0	295,389.0	301,141.0	124,230.0	322,840.0
<b>VEGETABLES</b>													
TOMATO	81,374	79,390	87,310	138,513	135,448	162,162	244,853	236,578	235,487	236,607	227,719	228,390	236,490
ONIONS	119,271	122,960	203,480	157,107	148,570	144,113	139,804	141,439	127,890	126,553	125,067	124,440	127,860
OKRA	8,159	7,930	15,250	8,992	18,013	10,083	18,571	19,368	22,181	24,831	25,783	26,500	29,220
MELON	19,196	19,790	26,290	22,412	21,759	22,431	23,103	23,220	23,800	23,817	24,293	23,274	26,673
<b>OTHERS</b>													
COTTON	-	7,030	18,890	19,457	20,590	21,030	22,820	21,857	24,117	28,791	33,465	35,730	29,210

**Figure 1: Trend in budgetary allocation to the Agricultural sector**

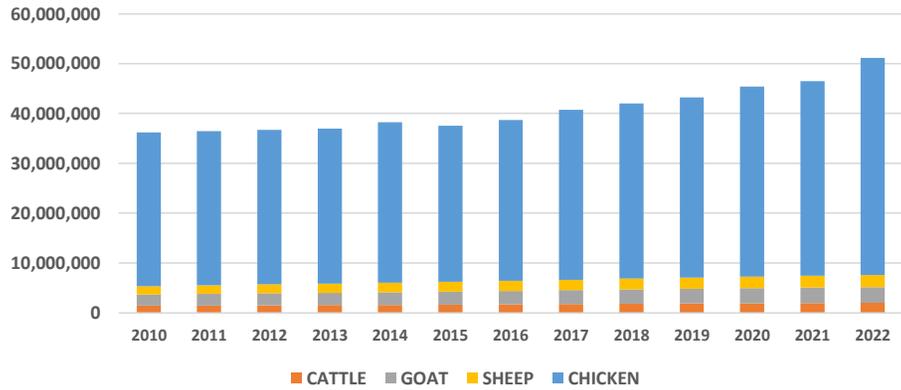


Source: Kano state Ministry of Agriculture, inputs

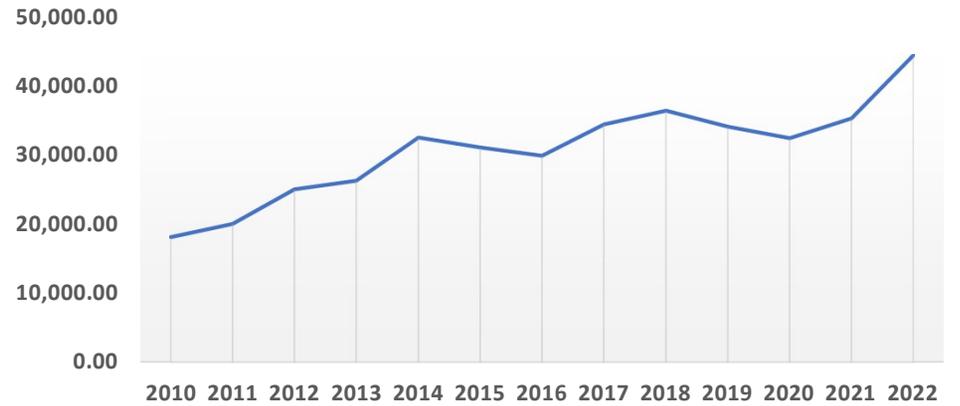
**Table 2: Actual Expenditure in the Kano state Agriculture in Million naira**

Type of expenditure	2016	2017	2018	2019	2020	2021	2022
Actual expenditure on seedlings	252.3	20.24	20.24	21.11	20.53	21.00	21.69
Actual expenditure on fertiliser	NA	NA	NA	NA	NA	NA	NA
Actual expenditure on mechanization	NA	NA	NA	NA	NA	NA	NA
Actual expenditure on pesticides and herbicides	50	NA	NA	NA	NA	NA	NA
On farm services (pest & disease control, veterinary services, on farm training)	51.57	23.24	23.24	19.86	9.73	20.60	17.91
International grants flow into agriculture	411.92	990.95	990.95	1159.89	3673.03	1194.96	1310.10
Total salaries of inspection officers or researchers	296.49	295.32	295.32	296.49	296.49	305.38	305.38
Subsidies on output and	94.34	NA	NA	NA	NA	NA	NA

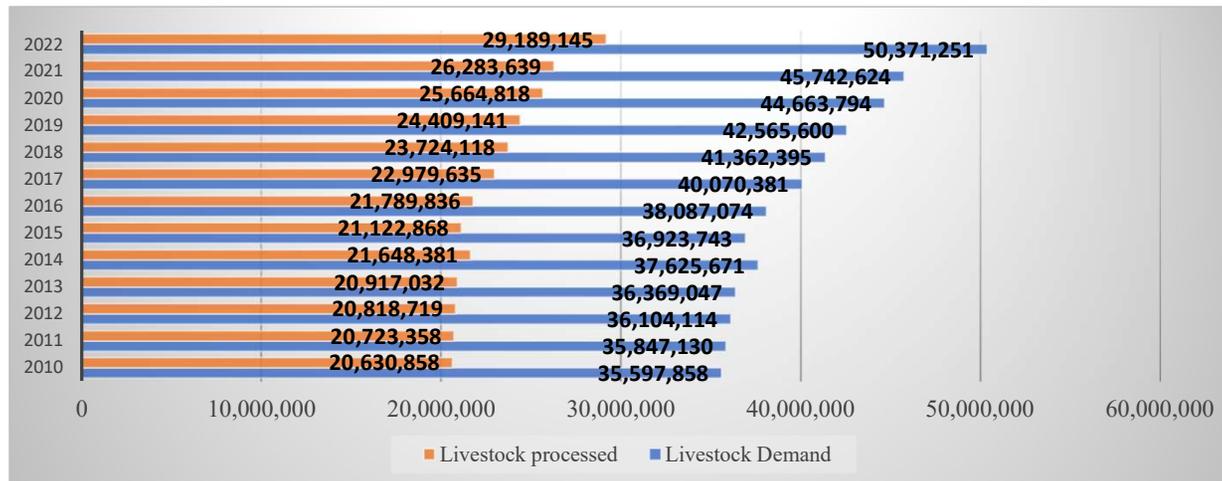
**Figure 2 : Production Output of livestock in Kano state, Nigeria (2010-2022)Number in millions.**



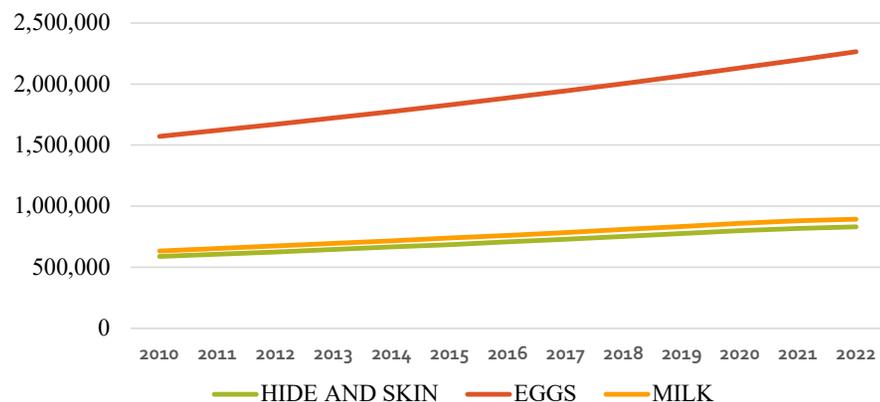
**Figure 3: Aquaculture output (unit)in Kano state (2010-2022)**



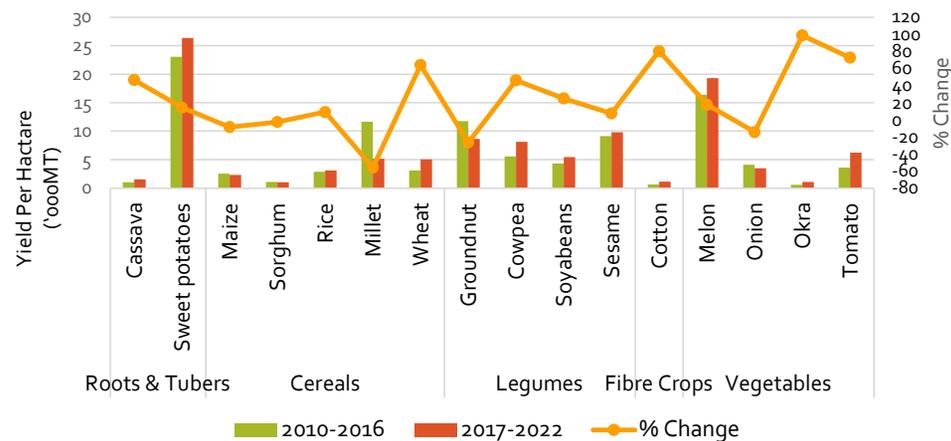
**Figure 4: Total Demand for Livestock and total Livestock Processed in Kano State (2010-2022)(unit)**



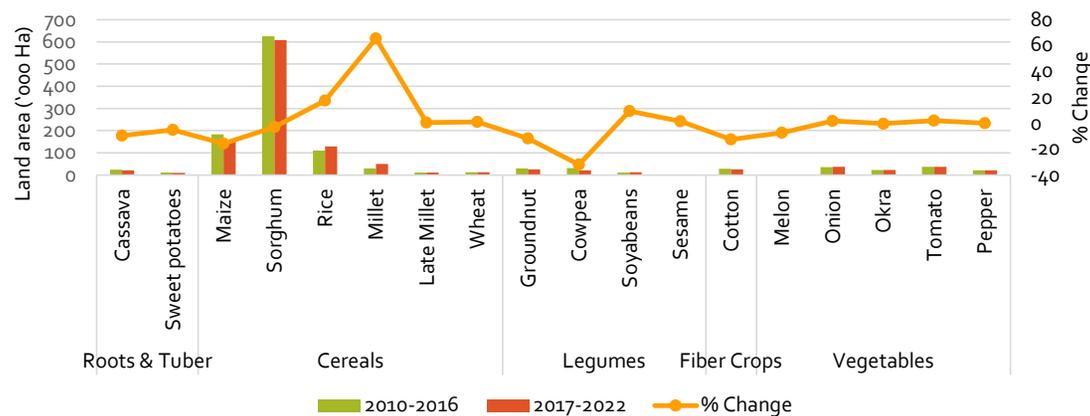
**Fig. 6: Value of products of livestock production in Kano state (2010-2022)(million naira).**



**Fig. 7: Average Yield per Hectare in Some Major Agricultural Crops in Nigeria**

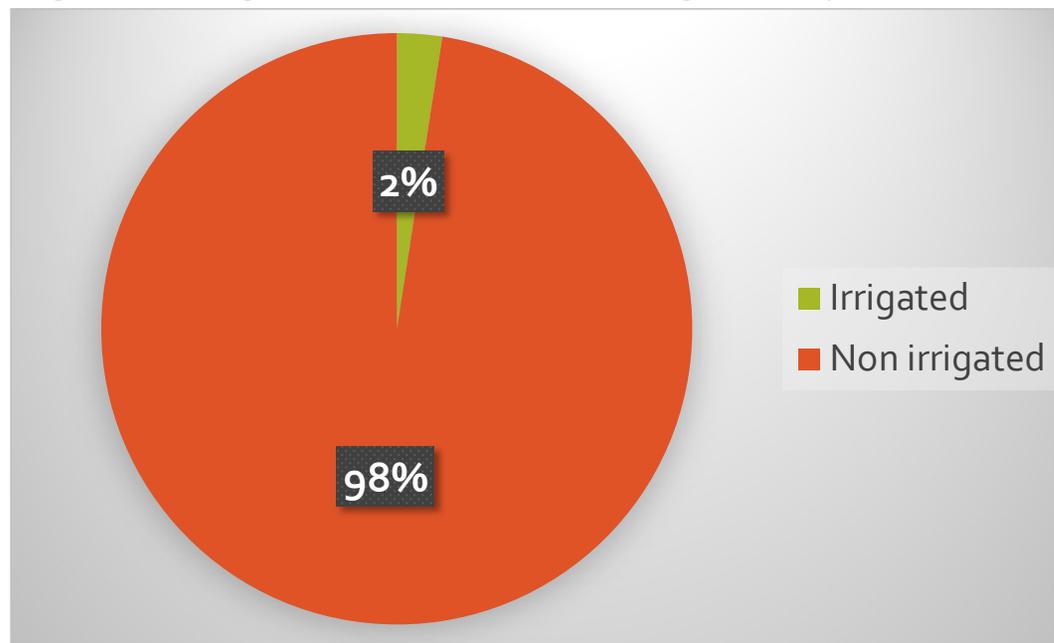


**Fig. 8: Average land areas harvested for some crops in Kano (2010-2022) (Ha)**



Technology use remains low in the Kano state farming system with about 2% of the farmers reporting the use of some form of irrigation in their farming system

**Figure 9: Irrigation use in Kano state Agrifood system**



## **Constraint to agriculture growth and food security in Kano State**

- Despite progressive shift toward mechanization and adoption of contemporary agricultural practices, challenges like input access, market constraints and climate risks persist.
- Inefficient storage and transportation lead to post-harvest losses, impacting food availability.
- Kano State Agriculture Progress Report (2023) reported the numerous challenges bedeviling the state's agricultural sector. These includes challenges of productivity occasioned by:
  - Agricultural production remains labour intensive and largely subsistence
  - Poor natural resource management including water resources
  - Limited agro-processing facilities
  - Poorly organized markets
  - Inconsistencies in government agricultural policies
  - Low quality agricultural inputs
  - Poor agricultural extension delivery system
  - Poor crop and livestock sector's integration
  - Inadequate rural infrastructures

## Future Prospects for agricultural growth and food security in Kano State.

- **Technology Adoption:** Embrace agricultural technologies and digital tools for enhanced productivity and sustainability.
- **Infrastructure Development:** Invest in rural infrastructure to improve market access and reduce post-harvest losses.
- **Capacity Building:** Provide training and extension services to enhance farmers' skills and resilience.
- **Market Access:** Strengthen market linkages and promote agro-processing industries for value addition.
- **Diversification and Value Addition:** Encourage diversification into high-value crops and value-added processing.
- **Policy Reforms:** Implement supportive policies and regulatory frameworks for smallholder farmers.
- **Climate Adaptation Strategies:** Develop climate-resilient practices and infrastructure to mitigate climate change impacts.
- **Finance:** Improve access to finance through agricultural insurance and tailored lending products.

## **Policy Support for Agric Food System**

**A.** The most observable policy support to the agrifood system in Kano state is the budgetary allocation to the sector.

**B.** State policy coordination with private sector and international development organizations

### **Agro-Industrial Processing Zones**

- The development of Special Agro-Industrial Processing Zones (SAPZs) in Kano state premised on the Federal Government initiative to develop agriculture in Nigeria
- Kano state identified three commodities (Rice, Tomatoes, and oil) to be the focus-commodities which were developed in Bagauda, in Babeji LGA as its main SAPZ.
- Three other locations were identified as Rural Transformation centres; viz; Dawanau in Dawakin Tofa LGA, Bagwai in Baagwai LGA and Kura in Kura LGA which specializes in oil, tomatoes, and rice respectively.

## **Policy Support for Agric Food System (Cont..)**

### **GIZ Maize Value chain support**

- The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) under the special initiative, provided funding for the maize value through capacity building for the youths, and provision of finance and market linkages

### **Agro-Pastoral Development**

- The Islamic development bank in conjunction with the Federal Government of Nigeria is implementing an Agro-Pastoralist Development Project in Kano state. The aim is to improve food and nutrition security; and enhance poverty reduction through livestock and selected crop value chains in the state comprising tomatoes, maize, rice, sorghum, millet, onions.

# Agricultural Productivity and Drivers

The effectiveness of agricultural practices depends on the knowledge and skills of farmers. Trained extension agents are expected to provide on-farm guidance on improved techniques, crop management, and efficient use of inputs.

## Main Drivers

- *Improved seeds and increase use of fertilizers, and pest control products* to foster resilience against unpredictable weather patterns.
- *Government intervention* through reforms in fertilizer policies, focusing on improving distribution mechanisms, enhancing transparency, and promoting private sector participation in the fertilizer value chain.
- **Knowledge dissemination through extension services.** The effectiveness of agricultural practices depends on the knowledge and skills of farmers. Trained extension agents provide on-farm guidance on improved techniques, crop management, and efficient use of inputs

## Agricultural Productivity and Drivers (CONTD.)

- *Increasing utilization of agrochemicals*

Fig. 10: Trend in quantity of fertilizer (Kg) use in Kano state

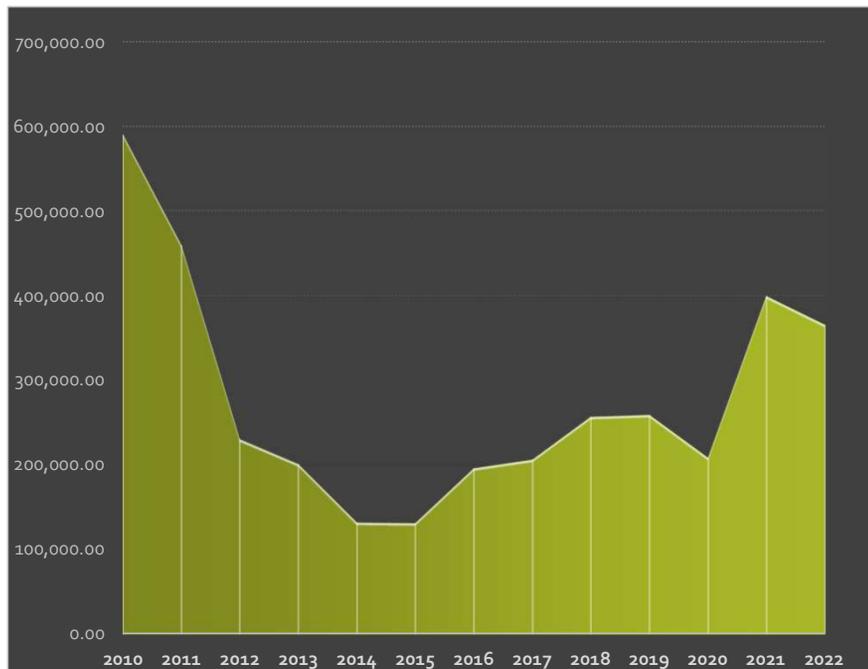
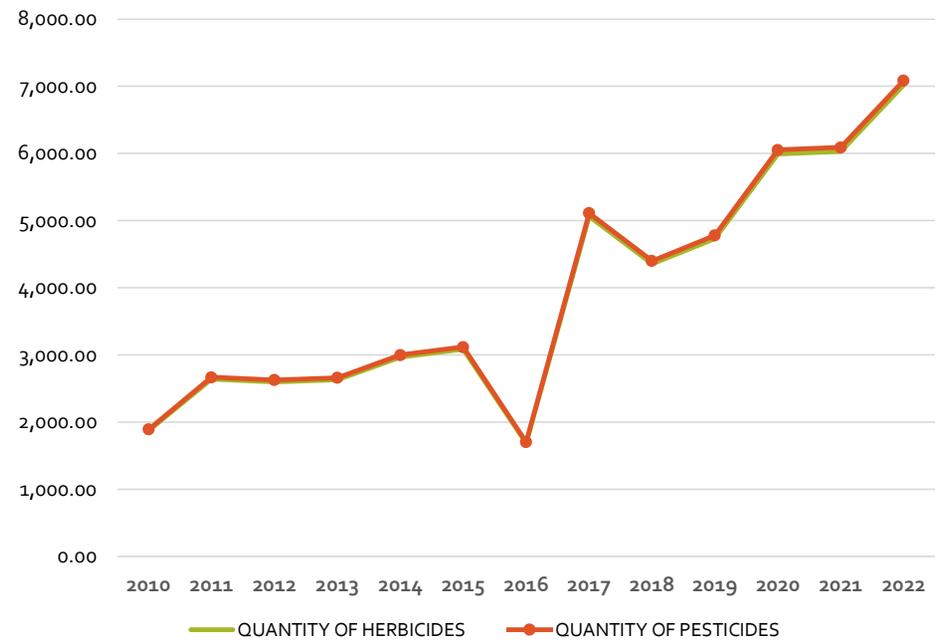


Fig. 11: Trend in Herbicides and Pesticides Use(Kg) in Kano

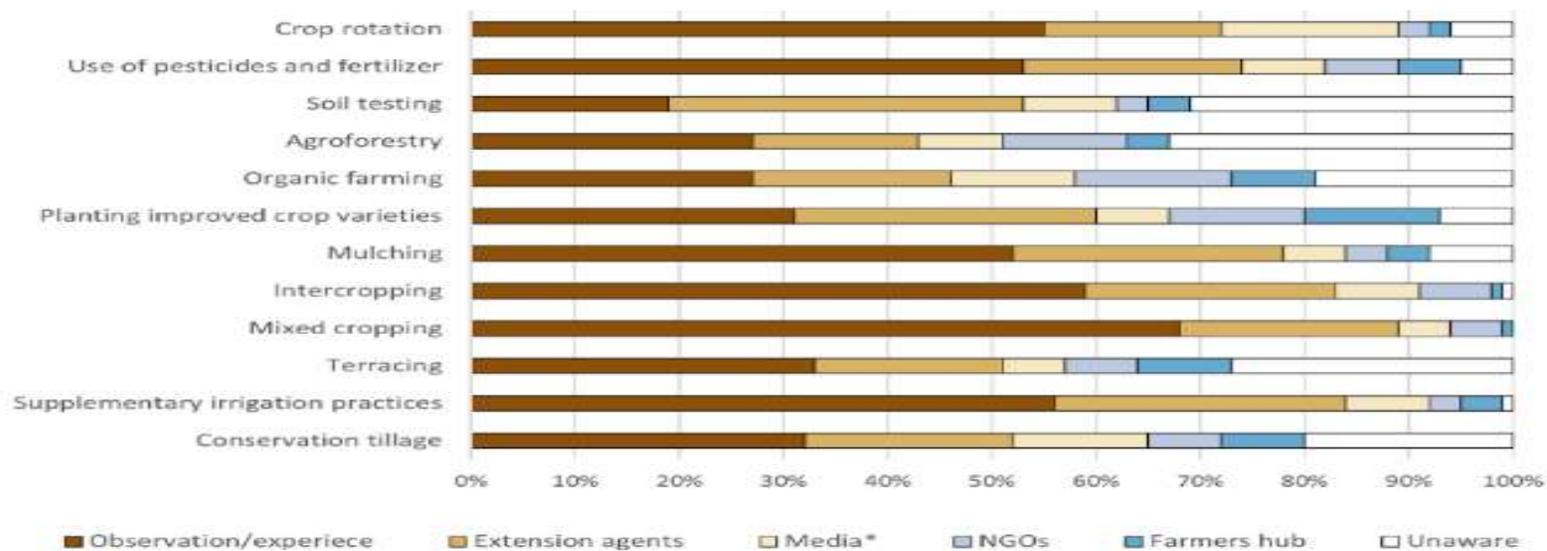


## Agricultural Productivity and Drivers (Cont....)

- *Climate –Smart Agriculture*

Some of the climate resilient practices in Kano state includes cultivating drought-resistant crop varieties, using water conservation techniques, and diversifying agricultural activities

**Fig. 11: Climate Smart Agriculture Practices with their source of information**

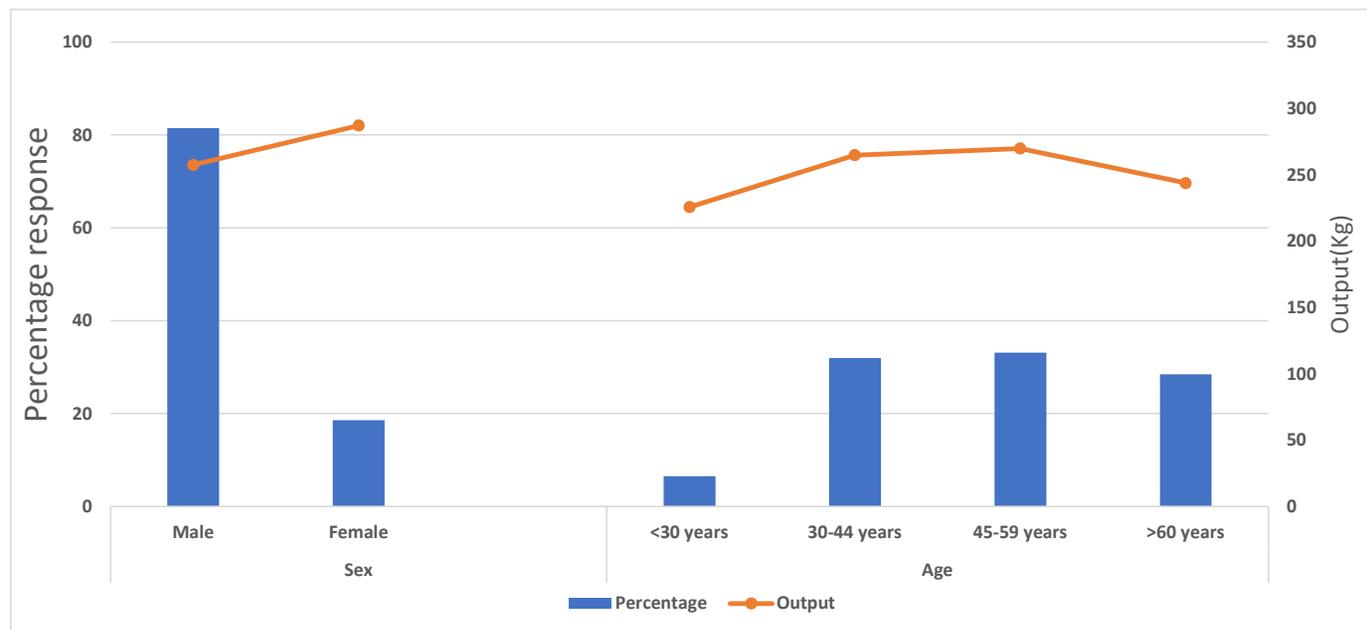


# Agricultural Productivity and Drivers (Cont.)

## Socioeconomic Factors

There are differences in production levels across different household characteristics in agrifood system

Figure 12: Sex and age differences in output in Kano state, Nigeria



## **Kano State Agriculture Productivity Enhancement Programmes**

- The Kano State Agriculture Sector Progress Report (2023) highlights significant achievements and ongoing projects aimed at enhancing agricultural productivity in the state.

### **Livestock Development**

- In the livestock sub-sector, the government sponsored overseas training for 100 youths in artificial insemination, stationed in Kadawa and Tukai, to inseminate 25,000 animals annually.
- Training of Agro-Pastoral Development Project (KSADP) trained and equipped 1,220 Community-based Animal Health Workers to provide veterinary services.
- A model grazing reserve and 3,000 hectares of fodder production were developed in Dansoshiya and Dudduru.
- A veterinary reference laboratory was constructed, and a partnership with Bayero University was established for a Veterinary Teaching Hospital.
- Annual mass animal vaccinations saw 2.8 million cattle vaccinated against CBPP and 2.6 million sheep and goats against PPR.
- Smallholder livestock farmers received support through matching grant schemes for cattle fattening and sheep and goat production.

## **Kano State Agriculture Productivity Enhancement Programmes (Cont...)**

### **Subsidy Programmes**

- Kano State implemented a large-scale input subsidy program, reviving the Kano State Agricultural Supply Company (KASCO) to produce subsidized fertilizers for farmers.
- The program also provided subsidized seedlings, pesticides, irrigation pumps, tractors, and harvesters, addressing issues of racketeering and ensuring the availability, affordability, and accessibility of farm inputs.

### **Improved Extension Services**

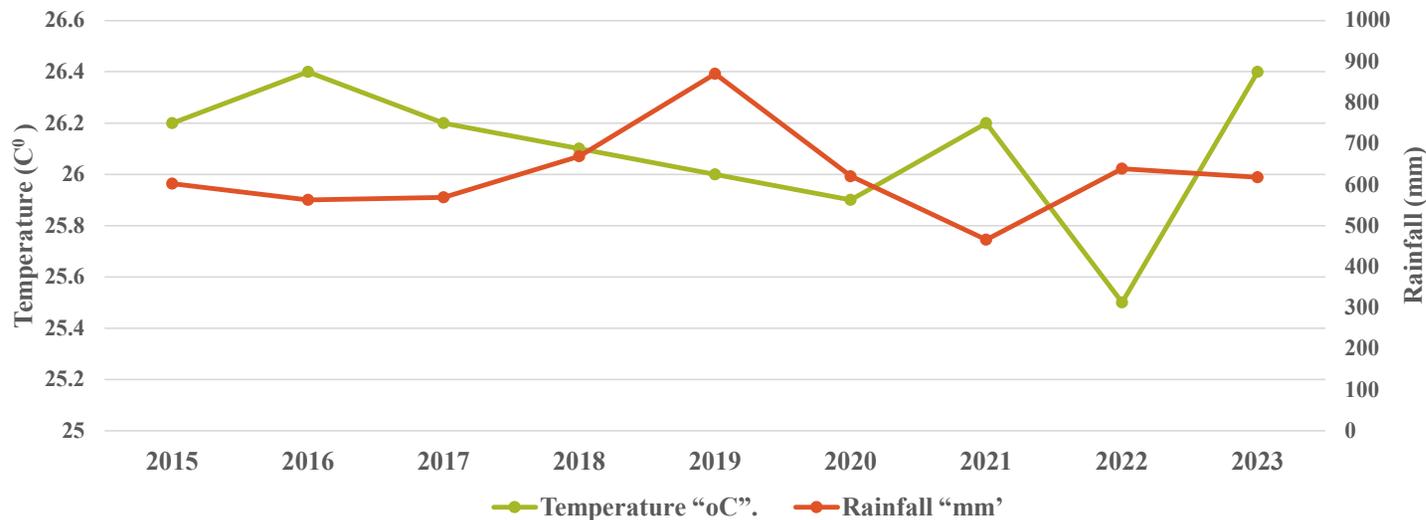
- To improve agricultural practices, the government employed 742 additional extension workers and sponsored 60 pastoralists for training in livestock husbandry and artificial insemination in Turkey.

### **Integrated Rural Development**

- The integrated rural development program, Karkara Salamun Alaikum, focused on constructing hundreds of kilometers of feeder and tarred roads to enhance rural accessibility and foster development.
- The government also tackled desertification and ecological problems through annual tree planting campaigns, establishing and rehabilitating shelterbelts, and executing erosion control projects, ensuring a sustainable environment for agricultural growth and food production.

## Aligning Climate and Agricultural Goals and Policies (Cont..)

- Kano state faces serious climate change-related environmental problems such as high temperatures, landslides, erosion, desertification, drought, leading to loss in biodiversity and arable land, including violent competition for land by herders and farmers
- The climatic features of Kano State from 2015 to 2023 fluctuates within 25.5°C to 26.4°C
- Rainfall exhibits more variability, showing significant fluctuations from year to year.
- This has reduced ecosystem productivity, livelihood losses, heat waves, agricultural stress, and natural resource depletion. **Figure 13: Climatic feature of Kano State 2015 - 2023**



## Aligning Climate and Agricultural Goals and Policies (Cont...)

### Climate Adaptation Strategies used by rural farmers in Kano State

- *Sensitization to climate change:* Farmers in Kano State plan their activities based on climate projections and daily weather forecasts provided by NIMET.
- *Use of improved crop varieties:* Farmers have replaced low-yield traditional crops with early maturing, drought/pest resistant, and high yielding varieties, significantly increasing production.
- *Production of cash crops:* Some farmers supplement their income by developing orange and Acacia spp. orchards.

## Aligning Climate and Agricultural Goals and Policies (Cont...)

- *Dry season farming*: Farmers near streams and rivers practice dry season farming using motor water pumps, irrigation canals, and wash wells, primarily growing pepper, onions, and early maturing rice.
- *Low-cost wood-efficient stoves*: Homes use low-cost wood-efficient stoves that cook faster with less wood or charcoal, reducing deforestation and wood exploitation.
- *Livelihood diversification*: Farmers diversify their income through fish and poultry farming, animal husbandry, and beekeeping due to declining fish harvests and crop failures.

## Key Findings

- Kano State is predominantly subsistence-based agriculture with limited commercial farming activities.
- Heavy reliance on rain-fed agriculture, with minimal irrigation infrastructure.
- Livestock farming is an integral part of the agrifood system, contributing significantly to household incomes.
- Low productivity levels due to limited access to modern agricultural technologies and inputs.

## Key Findings

- Poor financial resources and credit facilities hinder the adoption of improved farming practices.
- Challenges with water management and efficient irrigation systems.
- Seasonal variability and climate change impact agricultural yields and food security.
- Agricultural productivity and sustainability improved substantially through government various programs and initiatives.

## Recommendations

- Kano State should develop and implement an integrated policy framework that prioritize climate-smart agriculture, promote sustainable land management practices, and foster inclusive growth and social equity.
- The government should prioritize infrastructure projects that connect rural communities with urban centres and facilitate the efficient movement of agricultural products.
- The government should invest in research and development, promote technology transfer, and provide training and extension services to facilitate the adoption of innovative practices among farmers.
- Given the increasing vulnerability of agriculture to climate change impacts, Kano State should prioritize climate adaptation and resilience-building measures.
- The government should support the development of agro processing industries, facilitate access to finance and markets, and promote inclusive business models that benefit smallholder farmers and marginalized groups.
- Kano State should develop indicators, benchmarks, and data collection systems to monitor agricultural performance, measure impact, and identify areas for improvement.

**THANK YOU  
FOR LISTENING**