Horti Nigeria

BUILDING A SUSTAINABLE & INCLUSIVE HORTICULTURE SECTOR

HORTINIGERIA PROGRAM

MIDTERM REVIEW DRAFT REPORT

February 2024

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HORTINIGERIA PROGRAM
MIDTERM REVIEW REPORT

INTERNATIONAL FERTILIZER DEVELOPMENT CENTER (IFDC)

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Dr. Charles Iyangbe
Managing Partner,
Jesnoch International.

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ACRONYMS

ABCs	Agribusiness Clusters
AFGEAN	Agricultural Fresh Produce Growers and Exporters Association of Nigeria
B2B	Business to Business
BCs	Business Champions
BOI	Bank of Industry
BSS	Business Support Services
EWS-KT	East-West Seed Knowledge Transfer
EKN	Embassy of the Kingdom of the Netherlands
EFs	Entrepreneurial Farmers
EQ	Evaluation Questions
ET	Evaluation Team
FGDs	Focus Group Discussions
FIs	Financial Institutions
FCMB	First City Monument Bank
GAPs	Good Agronomic Practices
GII	Group Informants Interview
GON	Government of Nigeria
HN	HortiNigeria
IFDC	International Fertilizer Development Center
ICT	Information and Communication Technology
IPs	Innovation Providers
KIIs	Key Informant Interviews
KIT	Royal Tropical Institute
KG/Ha	Kilogram per Hectare
LGAs	Local Government Areas
LOP	Life of Project
M&E	Monitoring and Evaluation
MDAs	Ministry Department and Agencies
MEL	Monitoring, Evaluation, Learning
MTR	Midterm Review
MSMEs	Micro, Small, and Medium Enterprises
NABG	Nigeria Agribusiness Group
NIHORT	National Horticultural Research Institute
OECD	Organization for Economic Co-operation and Development
DAC	Development Assistance Committee
PaBS	Participant Based Sampling
POs	Producer Organizations
SDGs	Sustainable Development Goals
SHFs	Smallholder Farmers
SMEs	Small and Medium Scale Enterprises
SOW	Scope of Work
SSPs	Spray Service Providers
TFOs	Technical Field Officers
ToC	Theory of Change
WUR	Wageningen University & Research

EXECUTIVE SUMMARY

Background

The HortiNigeria program, spanning from November 2021 to October 2025, is a four-year initiative led by the International Fertilizer Development Center (IFDC) with support from the Embassy of the Kingdom of the Netherlands (EKN) in Nigeria. Collaborating with consortium partners such as the East-West Seed Knowledge Transfer Foundation, Wageningen University & Research (WUR), and KIT Royal Tropical Institute (KIT), the program focuses on fostering a sustainable, gender- and youth-inclusive horticultural sector across four states: Oyo, Ogun, Kaduna, and Kano. The program aims to link smallholder farmers with commercial actors, improve productivity, facilitate access to finance, and enhance sector coordination. Jesnoch International was awarded the design and implementation of this Midterm Review (MTR), which serves as a comprehensive assessment, examining achievements, challenges, and the potential for sustainable positive impact, with an emphasis on remaining two years of program implementation.

Objectives of the Midterm Review

The primary goal of the MTR for the HortiNigeria program is to comprehensively review its performance, potential outcome and potential long-term sustainability. Specifically, the MTR aims to assess progress toward program objectives, relevance, coherence, effectiveness, efficiency, and sustainability based on OECD-DAC criteria. Additionally, the review focuses on the program's response to key youth and gender issues, evaluating its efforts to ensure gender equity and institutionalize systems promoting inclusiveness. Furthermore, the MTR identifies obstacles, bottlenecks, or outstanding issues limiting successful implementation and assesses the program's responsiveness to these challenges. Lastly, the review provides an opinion on expected benefits upon full program roll-out and formulates recommendations to improve overall program performance and adapt the theory of change or redistribute resources as needed. The MTR employs a mixed-methods approach to gather both quantitative and qualitative data for a comprehensive analysis.

Findings

HortiNigeria's Program Performance

- ✓ **Significant Achievement in Farmer Support and Training:** The HortiNigeria Program has surpassed midterm targets, with 56,876 (14,513 women and 35,794 youth) smallholders farmers benefiting from productivity-enhancing training in Northern Nigeria alone, exceeding expectations by 90%. Furthermore, 27,556 farmers have received training on eco-efficient production and postharvest practices, surpassing targets by 48%. These statistics underscore the program's effectiveness in providing tailored support and training to enhance smallholder productivity and income.
- ✓ **Promising Progress in Innovation and Market Access:** Component 2 of the program has made notable strides in piloting innovative production systems, surpassing midterm targets by 300% with 18 systems implemented. Despite challenges, such as transportation costs and exploitation by middlemen, the program has facilitated the organization of

horticulture innovation shows, exceeding targets by 400%, demonstrating a commitment to promoting innovation within the sector. However, challenges in accessing Lagos markets (occasioned by high transport costs and exploitation by middlemen) and adopting sustainable practices by Entrepreneurial Farmers (EFs) remain, indicating areas for targeted improvement.

- ✓ **Successful Capacity Building for MSMEs Despite Financing Challenges:** Component 3 has demonstrated significant progress in capacity building, with 122 MSMEs trained on business plan development, financial management, and brokering finance, surpassing midterm targets by over 380%. However, challenges such as high interest rate and insufficient cash flow on the part of the SMEs', and financial capacity to access the required fund to expand business persist in mobilizing private investment, with private finance facility facilitation falling short of targets by 15%. Despite these financing hurdles, the program has made commendable strides in fostering financial inclusion and supporting MSME development within the horticultural sector.
- ✓ **Robust Partnership and Advocacy Efforts:** Component 4 has excelled in fostering partnerships and policy advocacy, surpassing targets with 196 B2B opportunities identified and 26 B2B partnerships brokered. Despite no record of improved policies or regulations, strategic engagement with stakeholders, including the Nigerian Agribusiness Group (NABG), underscores the program's commitment to driving sector coordination and policy improvements. These achievements highlight the program's impactful efforts in enhancing collaboration and advocating for policy enhancements within the horticultural sector.
- ✓ **Efficiency in Resource Management and Implementation:** The HortiNigeria program staff affirms its efficient implementation, evidenced by a 65% increase in agricultural production volume within the first two years. This indicates successful resource utilization and effective management practices, resulting in tangible productivity improvements and demonstrating the program's ability to achieve its objectives while maximizing the value of invested resources.
- ✓ **Yield Improvement and Economic Impact:** Notable yield increases, such as an 8,298.9 kg/ha rise in cabbage production and a 7,825.1 kg/ha increase in tomato production, representing 119% and 120% yield increase respectively, highlight the HortiNigeria program's significant impact on crop productivity. In particular, 43,795 smallholder farmers, comprising 77% of the total, experienced increased yields, with 33,557, or 59%, being general smallholder farmers. Among specific demographics, 11,465 women smallholder farmers (79%) and 27,561 young smallholder farmers (77%) reported increased yields. Also, 8,998 women smallholder farmers (62%) and 19,687 young smallholder farmers (55%) reported increased income as a result of the program. These enhancements not only enhance food security but also elevate farmers' economic well-being by increasing their income, underscoring the program's effectiveness in delivering tangible benefits to smallholder farmers and the broader community.
- ✓ **Value of Production and Economic Viability:** Despite fluctuations in crop values, such as declines in cabbage and okra production, the HortiNigeria program has led to a positive difference of $192.99 per hectare in tomato production, signifying a 6.41% improvement in the midterm scenario. This nuanced impact underscores the program's role in enhancing

economic viability within the horticultural sector, contributing to both positive outcomes and nuanced shifts in crop value, thereby supporting sustainable economic growth.

- ✓ **Sustainability and Continuity Planning:** With unanimous agreement from key informants on effective alignment with policies, HortiNigeria demonstrates a commitment to sustainability and regulatory adherence. While this alignment suggests potential for long-term impact beyond external support, concerns remain regarding clarity in continuity plans and strategies for addressing challenges.

Program's Response to Key Youth and Gender Issues

- ✓ **Component 1 Exceeds Midterm Targets for Supporting Women and Young Smallholder Farmers:** Component 1 of the HortiNigeria Program achieved remarkable progress in supporting women and young smallholder farmers, surpassing midterm targets by 130% and 248%, respectively. Notably, the training efforts targeted at women and young farmers on eco-efficient production exceeded midterm targets by 60% and 119%, indicating the program's effectiveness in addressing gender and youth issues within the horticulture sector.
- ✓ **Component 2 Demonstrates Exceptional Performance in Facilitating Market Access:** Component 2 of the HortiNigeria Program significantly surpassed midterm targets, with women and young Entrepreneurial Farmers (EFs) accessing Lagos markets achieving an impressive252 women EFs in the south accessing Lagos markets, which is over 12 times more than the midterm target of 20, and 493 young EFs achieving, which is over 19 times more than the midterm target of 25. These figures highlight the program's success in promoting gender equity and youth participation in accessing market opportunities, showcasing its pivotal role in fostering economic inclusivity within the horticultural value chain.
- ✓ **Component 3 Surpasses Midterm Targets in Youth Entrepreneurship Training:** Component 3 of the HortiNigeria Program achieved notable success in training youth-led MSMEs, surpassing midterm targets of 13 by over seven times. However, there is room for improvement in promoting gender inclusivity, as the performance concerning women-led MSMEs fell short of LOP targets by 20%. Despite this, the program's overall progress relative to midterm targets was exceeded by 4 times, underscoring its effectiveness in advancing youth entrepreneurship within the horticultural sector.
- ✓ **Gender Disparities Persist Across Program Components:** While the program has made significant strides in empowering both youth and women within the horticultural sector, gender disparities persist across components. Component 1 faced challenges in reaching women smallholder farmers, achieving only 57% of the target, while Component 3 struggled with gender inclusivity in access to finance for women-owned MSMEs, with only 25% compliance with financial institutions' requirements. Addressing these disparities is crucial for ensuring equitable opportunities for all participants and maximizing the program's impact.

Obstacles, Bottlenecks, or Outstanding Issues from stakeholders that may be Limiting the Program's Successful Implementation and Achievement of Results

- ✓ **Communication and Coordination Challenges Hindering Business Partnerships:** Survey data reveal that 48% of respondents identified communication and coordination issues as common barriers to forming business partnerships among entrepreneurial farmers. Additionally, 68% of MSMEs in the south cited unclear roles and responsibilities as significant hurdles, indicating the need for improved communication and clarity in partnership arrangements.
- ✓ **Financial Constraints Impacting Innovation Adoption and Market Access:** Eighteen percent of EFs encountered obstacles in adopting innovations, with primary concerns including initial investment costs (61.11%) and energy costs (93.06%). Moreover, 40% of EFs faced challenges in maintaining consistent market access, primarily due to increasing transportation costs (100%) and exploitation by buyers and market officials (68.75%).
- ✓ **Widespread Consensus on Significant Challenges in B2B Partnerships:** Eighty-five percent of B2B partners acknowledged significant challenges in business-to-business partnerships within the horticulture sector. Key obstacles include access to finance (15.6%), policy issues (12.5%), trust and collaboration (15.6%), knowledge gap (12.5%), funding shortages (71.43%), and effective planning and coordination (71.43%).
- ✓ **Critical Issues Faced by Agro-Dealers and Innovation Providers:** Seventy-five percent of agro-dealers and all surveyed innovation providers reported facing challenges within the horticulture sector. Major concerns for agro-dealers include input and supply chain challenges (50%) and financial constraints (75%). For innovation providers, significant challenges include regulatory complexity (66.67%), high implementation costs (66.67%), limited access to markets (66.67%), and dependency on imported inputs (66.67%).

Program Responsiveness to Implementation Challenges

- ✓ **Measurable Impact on Climate Change Mitigation:** Ninety-six percent of smallholder farmers in the north affirm that their participation in the HortiNigeria program has measurably diminished the impact of climate change on their farming activities. The program's proactive introduction of innovative eco-efficient production techniques, including sustainable land use and water conservation, has garnered significant support among participants. Notably, water conservation practices have been particularly appreciated by 32.60% of farmers, emphasizing the effectiveness of these strategies in addressing climate-related challenges.
- ✓ **Effective Market Access Strategies for Climate-Resilient Farming:** The HortiNigeria program has strategically addressed market access challenges, especially in the Lagos market, by implementing innovative crop varieties and Smart Greenhouses. With adoption rates of 79% for innovative crop varieties and 48% for Smart Greenhouses, the program demonstrates a commitment to climate-resilient farming while effectively accessing and thriving in the competitive Lagos market. Emphasis on integrated pest management and smart irrigation systems further ensures the production of high-quality produce, aligning with contractual obligations and enhancing market connectivity.
- ✓ **Positive Impact of Knowledge-Sharing Events and Trade Fairs:** While a majority (78.75%) of EFs and SMEs in the South have not attended HortiNigeria-supported knowledge-sharing events, those who have (20%) found them beneficial, with 56.25% reporting them as beneficial and 12.50% as highly beneficial. Additionally, 32.50% of MSMEs

and EFs have engaged in horticulture-designated fairs or trade fairs sponsored by the program, reporting benefits such as increased network opportunities (100%) and knowledge gain (96.15%). These findings highlight the positive outcomes of participation in program-sponsored events, indicating strides in addressing challenges related to establishing formalized relationships with business partners.

- ✓ **Regional Adaptability and Collaboration Dynamics:** Sixty percent of program staff recognize HortiNigeria's capacity to tailor approaches to local contexts, with proactive promotion of agricultural produce suitable for specific regions like Ogun and Oyo. However, opinions diverge on collaboration among consortium partners, with 60% indicating limited collaboration. Challenges within the consortium structure, including personal agendas among partners, underscore the importance of effective collaboration and the need to overcome consortium-related obstacles for improved program responsiveness.

Program Reporting and Management

- ✓ Though the achievement of the program is remarkable, the MTR identified some program performance reporting and management issues. Currently, the program does not report on performance and progress at the overall program goal level using outcome indicators. The program lacks established baseline values for some of the performance indicators. The different component leads have different style of reporting on output indicators. This can be streamline to enhance efficiency in reporting. A streamlined reporting system for integrated program of this nature can create opportunities for HortiNigeria program to further highlight successes and learn from challenges. In addition, some of the program indicators are not well articulated and succinctly reflect what the indicators definition.

Conclusion

In conclusion, the HortiNigeria Program stands as a beacon of progress in Nigeria's horticulture sector, having made significant strides in addressing key challenges and advancing sustainable practices. Through its holistic strategy, adaptability to local contexts, and collaborative efforts, the program has demonstrated effectiveness in empowering stakeholders and improving livelihoods. There are notable positive signals of key interventions, including increased yields for key vegetable crops in Kaduna and Kano states and successful adoption of climate-resilient technologies like Smart Greenhouses in all program locations. The active participation of beneficiaries in training and peer-led field demonstrations has led to enhanced agricultural knowledge and widespread adoption of these innovations, positively influencing productivity. While facing obstacles such as limited market access and bureaucratic hurdles, HortiNigeria has shown resilience and responsiveness, emphasizing its commitment to achieving long-term impact. Moving forward, sustained collaboration, targeted interventions, and strategic planning will be crucial to build upon the program's successes and ensure its continued positive influence in Nigeria's agricultural landscape, fostering resilience, prosperity, and sustainability for generations to come.

Lessons Learned

From the MTR, critical lessons have been learnt and they are:

- Customizing interventions based on specific regional conditions contribute to the program's effectiveness and positive outcomes.
- Collaboration with diverse stakeholders in both public and private sectors to enhance the program's impact and address key issues more effectively.
- Peer-led, market-driven demonstrations are highly effective in bringing about tangible improvements in farmers' practices and productivity.
- Promoting agribusiness clusters can be an effective strategy in addressing challenges in the agricultural value chain, enhancing economic outcomes, and empowering farmers.
- An intentional effort to strengthen the sustainability and exit strategy is imperative to fortify the program's long-term success and ensure a lasting positive impact in the horticultural sector.
- Ensuring consistent market access is crucial, with transportation costs, exploitation, reduced production, and price volatility identified as major hurdles that requires urgent attention for SMEs.

Recommendations

The following provides some actionable recommendations for improved and continued impact:

- Continue to address yield gaps and optimize smallholder farmer productivity by establishing partnerships with agricultural suppliers to provide smallholder farmers with access to quality seeds, fertilizers, and other essential resources. Collaboration with agricultural extension services to offer personalized guidance to farmers will be helpful
- Foster financial resilience through farmer-institution linkages. It is recommended that the HortiNigeria program should learn from the just concluded USAID funded Agribusiness Investment Activity and focus on technical assistance to SMEs that will make them investment ready. Key intervention could include deal room to connect financiers and SMEs; financial literacy training for farmers and EFs to enhance their understanding of financial mechanisms; and training of agribusinesses on pitching skills in collaboration with BDSP – Business Champions
- Boost business partnership participation by developing targeted marketing campaigns to highlight the benefits of business partnerships. This can be done through various channels, including social media and local community engagement, to promote partnership opportunities.
- Develop a well-structured schedule and a clear calendar for upcoming activities should be designed. This will help HN to plan and allocate time efficiently, avoiding clashes with farming activities, ensuring better Coordination and communication for enhanced overall efficiency and collaboration.
- Continue to organize regular “pause and reflect” sessions with program team to discuss and analyze the reasons behind shortfalls in terms of meeting targets, considering both internal and external factors. Based on the outcomes of such sessions, formulate specific corrective measures to address underachievement and align the program with LOP targets.

- Improve synergies between program Components through a coordinated approach that ensure that interventions across components complement rather than compete with each other, thus enhancing the overall impact of the program.
- Revise the existing sustainability and exit strategy to include key elements that addresses long-term impact including strategies for financial independence, community involvement, and possible policy shift in the sustainability plan. An urgent need to leverage on government structures from the relationships that had been established to ensure the sustainability of the program after closeout will be critical.
- Strengthen the program monitoring and evaluation system by reviewing appropriate tools and protocols that streamline reporting process by component leads and put in place a reporting system for reporting on all the performance and progress using output and outcome indicators at the goal level along with established baseline data and performance targets.

I. INTRODUCTION

The HortiNigeria program is a four-year program (November 2021 – October 2025) that is being implemented by the International Fertilizer Development Center (IFDC) with support from the Embassy of the Kingdom of the Netherlands (EKN) in Nigeria as part of Dutch development policy. IFDC is implementing the HortiNigeria program in collaboration with the East-West Seed Knowledge Transfer Foundation, Wageningen University & Research (WUR), and KIT Royal Tropical Institute (KIT).

Since its inception, the HortiNigeria program has formed partnerships with key stakeholders to link thousands of smallholder farmers and producer organizations with high-performing commercial actors in the horticulture value chains (tomato, okra, pepper, onion, watermelon, cabbage, lettuce, sweet corn, and cucumber) in Oyo, Ogun, Kaduna, and Kano states. The linkage is expected to result in i**ncreased productivity and incomes in Kaduna and Kano; piloted production systems innovations in Ogun and Oyo States; increased access to finance for small and medium scale enterprises (SMEs); and enhanced sector coordination and business to business (B2B) linkages in the focus states.** The program, which commenced in November 2021 is expected to end by October 2025.

The primary purpose of this MTR was to generate relevant data and gather sufficient information for a comprehensive assessment of the long-term sustainable positive impact expected from the program, identify risks and opportunities for continued implementation, and inform decision-making for the next two years of the program. The MTR was also designed to identify key findings and insights from the program since inception by outlining specific achievements and outcomes over the past two years and steps that must be taken to enhance adaptive capacity and facilitate effective implementation of the HortiNigeria program for the remaining two years. For details on the HortiNigeria program overview, theory of change, critical assumptions etc., please see annex 1.

1.1 Purpose of the Midterm Review

The primary purpose of this midterm review was to generate relevant data and gather sufficient information for a comprehensive assessment of the long-term sustainable positive impact expected from the program, identify risks and opportunities for continued implementation, and inform decision-making for the remainder of the program.

It was intended to provide an independent examination of the overall progress and accomplishments of the program after two years of implementation. The review identified key findings and insights from the program since inception by outlining specific achievements and outcomes over the past two years and steps that must be taken to enhance adaptive capacity and facilitate effective implementation of the HortiNigeria program for the remaining two years. The MTR examined the preliminary impact of the program with specific focus on:

1. *Making an overall independent assessment of HortiNigeria's performance (intermediate outcome results) from inception to date, and the potential long-term impact, with a focus on progress towards its main objectives, relevance, coherence, effectiveness, efficiency, impact, and sustainability (according to the OECD-DAC criteria).*
2. *Evaluating the program's response to key youth and gender issues, and its efforts to ensure gender balance, i.e., the program's objective to institutionalize systems and procedures promoting gender and youth inclusiveness.*
3. *Assessing obstacles, bottlenecks, or outstanding issues from beneficiaries, service providers, consortium partners, or the donor side that may be limiting the program's successful implementation and achievement of results.*
4. *Assessing program responsiveness to implementation challenges. Providing an opinion (through review of available monitoring/evaluation study reports) on expected benefits upon full program roll-out.*
5. *Formulating recommendations to improve program performance in a broad sense, and to adapt the theory of change and/or redistribute resources to high-performing or underdeveloped activities.*

In summary, the MTR:

a. *Evaluated the relevance, coherence, efficiency, effectiveness, impact, and sustainability of the HortiNigeria program and the extent to which the program is meeting its goals and objectives.*
b. *Reviewed and documented the program's achievements, strengths, and weaknesses in relation to its goals and objectives and strategic recommendations for impactful program implementation.*
c. *Documented lessons learned -- both successes and shortcomings of the program in pursuing its intended objectives to generalize the best practice.*

2. METHODOLOGY

The Evaluation Team (ET) utilized a mixed-methods approach that employed both quantitative and qualitative research methods, involving the use of primary and secondary data in conducting the final evaluation. Primary data collection took place between December 11, 2023 and January 16, 2024. To gain broader insights into the evaluation questions, the ET undertook field visits to all the

four states. This enhanced the team's understanding of factors and issues associated with the HortiNigeria program implementation at the local level. This facilitated, most especially, the collection of local level information that may not be available through secondary sources. Specifically, the ET was involved in data collection and directly engaged with the following sources of information during the field visits and data collection process: smallholder farmers associated with the HortiNigeria program, component leads of the program, implementing partners, and sector stakeholders. The ET worked closely with the Monitoring and Evaluation (M&E) team of the HortiNigeria program to ensure proper engagement with the respondents. Notice of the intended purpose of visit, date, and time were served ahead of the team's visit. This was to facilitate adequate preparation and the readiness of the partners prior to the engagement of the team with the partners/respondents. The data collection method included the review of relevant program documents, survey of selected farmers including *Entrepreneurial Farmers (EFs)*; key informant interviews (KIIs) -- *MSMEs (input suppliers, processors, off-takers, agrodealers, marketers, aggregators etc.), Business Support Services (BSS) providers, innovators, private sector actors (Tomato Jos and Dangote)* active in the horticulture value chain); and focus group discussions (FGDs). Besides, the multiple sources of information, beneficiaries' spread across several locations, and the limited time available for the field work necessitated the use of online methods of data gathering in addition to in-person interviews especially with key informants. This was a good choice especially in situations where scheduling of appointments posed a challenge.

The ET conducted survey among selected farmers of the program, including the EFs, as well as some MSMEs, across the 27 LGAs in the four states. The ET collected data from the program partners and stakeholders in collaboration with the HortiNigeria program team from the four states. The team conducted KIIs with a variety of stakeholders including Ministries, Department, and Agencies (MDAs); and other key partners that the ET identified from the document review. For details on the methodology that was applied for the MTR, please see annex 2. Overall, the data were collected under the off-season/dry season period in December 2023.

3. RESULTS AND FINDINGS

1. HortiNigeria's Performance from Inception to Date

The HortiNigeria Program's Review (MTR) offers a thorough assessment of its performance since inception up to December 2023. Stakeholders express satisfaction with its responsiveness to beneficiary needs, alignment with government policies, and effectiveness in addressing climate change impacts. Despite challenges like limited market access and bureaucratic hurdles, the program's holistic strategy and collaborative approach demonstrate substantial impact in advancing sustainable horticulture practices and improving livelihoods in Nigeria.

1.1 Relevance

In reviewing the HortiNigeria Program, this section seeks to provide a succinct understanding of its relevance. The insights and learnings, gathered from program and MDA staff members as well as and program's documents, highlight both strengths and diverse perspectives on the program's responsiveness, alignment with government policies (e.g., food Self-sufficiency), and the validity of underlying assumptions in the program theory of change and logic model.

A significant 80% of program and MDA staff members strongly agree with the organization's responsiveness in meeting the needs of the beneficiaries, with the remaining 20% divided between agreement and neutrality (Figure 1). This indicates a prevailing sense of satisfaction among key informants regarding HortiNigeria's overall relevance. For instance, a key informant from one the HortiNigeria program staff stated: "*The objectives of HortiNigeria have proven to be highly significant, especially when considering the substantial impacts observed among the beneficiaries. The increase in income and knowledge levels among the farmers demonstrates the project's relevance in achieving its goals*." In the same vein, a group of farmer producer organizations also stated: "*Lots of the people from different places who were not interested in the kind of farming we are doing are now interested and engaging in the horticultural farming simply because HortiNigeria came and made things easier to us than before which is making the farming in several aspect very interesting*." Upon scrutinizing specific facets of HortiNigeria's approach, distinct strengths emerged. Firstly, program and MDA staff members emphasized the program's comprehensive strategy in addressing various beneficiary needs, encompassing climate-smart practices, financial inclusion, market access, and improved agro-input usage. This holistic approach is acknowledged by 90% of key informants. Secondly, there is consensus that HortiNigeria excelled in providing tailored and localized solutions to address unique challenges in the – north (Kaduna and Kano states) and south (Oyo and Ogun states). This adaptability is evident from the 70% agreement, demonstrating the program's intentional efforts in catering to the diverse needs of local communities. This positive response underscores an acknowledgment of the program's active efforts in mitigating challenges and offering crucial support to beneficiaries.

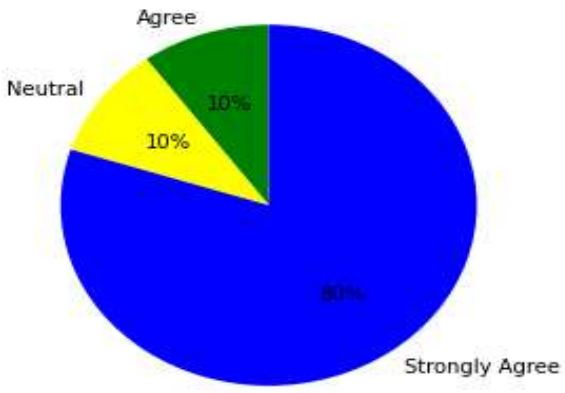


Figure 1: Responsiveness to the Beneficiaries' Needs

The assessment of the assumptions underlying the theory of change and logic model indicates a varied perspective among program staff. During discussions, one HortiNigeria staff member and one MDA staff member agreed that these assumptions remain relevant, while one HortiNigeria Program staff member disagreed, and another staff member from HortiNigeria remained neutral, indicating a mixed stance on the continued validity of the theoretical framework. A staff from the HortiNigeria program emphasized that the assumptions were initially formulated based on a comprehensive understanding of the challenges and needs of the farmers, suggesting that relevance is tied to alignment with the actual conditions and requirements of the target audience.

"Yes, the assumptions in the theory of change and logic model remain highly relevant. However, we must acknowledge that simply providing technical supports may not be sufficient, given the farmers' capacity limitations. To ensure success, a revision and review of the theory of change are necessary. It should be adapted to the current realities of the country, considering factors that might affect the program's effectiveness. This includes a closer examination of the assumption regarding supporting farmers with inputs, which needs careful reconsideration."

– HortiNigeria Staff Member

"I believe the assumptions on the theory of change and the logic model remain relevant for the project. Sustainability is crucial, and the theory of change guides how interventions and investments will lead to lasting impacts. The focus on achieving and sustaining outcomes is vital, ensuring that the project's influence extends beyond its immediate scope. If HortiNigeria adheres to the sustainability plan and follows the theory of change diligently, the project will undoubtedly succeed in creating a lasting impact." –

MDA Staff Member

1.2 Coherence

This section sheds light on the nuanced perspectives of key informants regarding the alignment and coherence of the HortiNigeria program within the wider policy landscape. The results suggest key collaborative efforts and potential areas for improvement, providing a comprehensive understanding of the program's interaction with internal (IFDC and EWS-KT) and external (e.g., FGN, NGOs, SDGs) policy frameworks and interventions.

The findings indicate a nuanced perspective among HortiNigeria Program and MDA staff members, with 33% expressing agreement, 17% remaining neutral, and 50% strongly affirming the positive alignment of HortiNigeria with wider government policy frameworks and interventions (Figure 2). This suggests a strong consensus regarding the program's alignment with government policies and its proactive involvement in agricultural policy-related activities. Amidst this positive outlook, three overarching themes emerged from key informants' responses, adding depth to the interpretation. Firstly, positive collaboration and alignment was evident. Simultaneously, the engagement in policy formulation and implementation emerged as the second theme, detailing activities such as requesting policy documents, providing valuable observations, proposing roundtable discussions, and actively participating in policy reviews. Lastly, the third theme centered on concerns of recent policies and the need for review. Specifically, while the majority of responses were positive, a key informant from the Kano State Ministry of Agriculture raised concerns about a policy shift in 2021 related to tomatoes, emphasizing the need for continuous review and adjustment. The key informant expressed the view in this manner: "*There is a policy on tomato, and it has undergone a significant shift in 2021. The initial collaborative effort among stakeholders, including farmers, marketers, and the ministry, was altered during the review. The new policy appears to favor packers and crushers, particularly those importing concentrates. This shift has raised concerns and needs urgent attention.*" This acknowledgment highlights the dynamic nature of policies and underscores the importance of addressing concerns through collaborative efforts and stakeholder involvement.

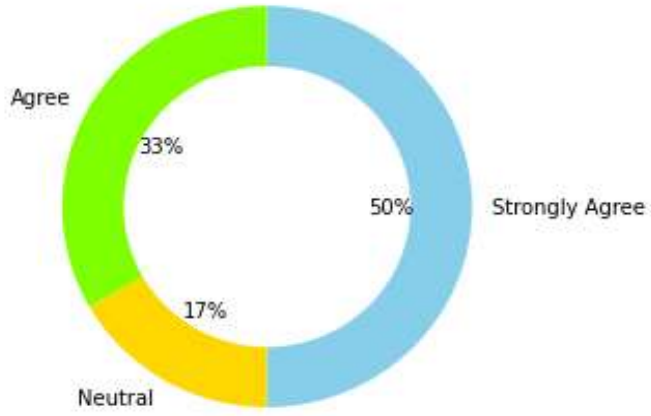


Figure 2: HortiNigeria program's alignment with wider policy frameworks and interventions within the institution

Other MDAs' key informant from Oyo and Ogun states perceived a high alignment with external policy commitments and interventions. This indicates a considerable acknowledgment of HortiNigeria's coherence with external policies by stakeholders in the south. In terms of alignment with SDGs, all key informants unanimously affirmed that HortiNigeria aligns well with the SDGs, demonstrating a strong consensus on the program's commitment to broader sustainability objectives. All key informants unanimously perceived the intervention as highly compatible with other initiatives in the country, sector, or institution, reflecting a strong consensus on its alignment with broader initiatives.

1.3 Effectiveness

The HortiNigeria program has been implemented with a focus on gender inclusion, peer-led field demonstrations, agribusiness cluster development, digital solutions, production planning, good agricultural practices, climate change adaptation, technological innovations, and business linkages. The results presented below provide a detailed review of the program's effectiveness across various components, revealing both successes and areas that may require targeted improvement for enhanced effectiveness and inclusivity.

Component 1: Increasing productivity and income of a large number of smallholder farmers in Northern Nigeria (Kaduna and Kano)

Component 1 of the HortiNigeria Program has demonstrated positive performance across various indicators, as evidenced by the data provided in Table 1. The number of smallholder farmers supported towards increasing productivity exceeded midterm targets by 90%, with 56,876 farmers, where 14,513 are women and 35,794 are youth, benefiting from the program. The supports/trainings were provided via two routes: a direct training through Technical Field Officers (TFOs) and an indirect training via trained agrodealers. Notably, the number of farmers trained on eco-efficient production and postharvest practices through TFOs surpassed midterm targets by 48%, reaching 27,556 individuals. The program also made significant headway in extending extension services to smallholder farmers through trained agrodealers, surpassing midterm targets by 157% and reaching 29,320 farmers. It is noteworthy that 898 demonstration plots were established and managed by key farmers, 780 key farmers mentored on eco-efficient production and postharvest practices, and 7,192 core farmers trained across two seasons over a 12-month period to enhance

productivity. Moreover, a substantial number of neighboring farmers, totaling 19,584, attended regular field-based trainings on eco-efficient production and postharvest methods, indicating a widespread dissemination of knowledge aimed at increasing agricultural productivity. Additionally, the number of trained agro-input dealers exceeded expectations, with 67 individuals trained, marking a remarkable 335% achievement compared to the midterm target of 20. However, there are areas that warrant further attention, particularly in the training of spray service providers (SSPs), for which specific data is currently unavailable. It's crucial to note that the program prioritized the formation of agribusiness clusters (ABCs) to create an enabling environment for SSP engagement, aligning with the anticipated plan. To ensure the program's success and the attainment of market linkages, establishing entry points into the Local Government Areas (LGAs) and communities and fostering relationships are imperative. Consequently, several steps were taken in the first two years, including identifying ABCs, forming groups, identifying Business Champions, providing training, and facilitating agreement signings. With ongoing documentation, it's anticipated that linkages will be established within the remaining two years, given that all other dependencies have been met. Despite these challenges, the formation of 15 ABCs surpassed midterm targets by 50%, highlighting the program's successful community engagement efforts. When considering the performance relative to LOP targets, the achievements remain commendable, albeit slightly lower in some areas. For instance, while the number of smallholder farmers supported and receiving extension services maintained high levels relative to LOP targets at 95% and 129% respectively, the number of agribusiness clusters formed and trained agro-input dealers fell to 75% and 168% respectively. Nevertheless, the overall achievement of Component 1, totaling 216% relative to midterm targets and 116% relative to LOP targets, underscores its significant impact in promoting sustainable horticultural practices and improving the livelihoods of smallholder farmers in Nigeria. The qualitative nature of training through TFOs, implemented using peer-led demonstration plots under direct program staff control, likely contributed to the overall high level of performance.

As a result of these interventions as discussed above, 43,795 smallholder farmers, comprising 77% of the total, experienced increased yields, with 33,557, or 59%, being general smallholder farmers (Please see Table 10 below – under intermediate outcomes). Among specific demographics, 11,465 women smallholder farmers (79%) and 27,561 young smallholder farmers (77%) reported increased yields. Also, 8,998 women smallholder farmers (62%) and 19,687 young smallholder farmers (55%) reported increased income as a result of the program. These enhancements not only enhance food security but also elevate farmers' economic well-being by increasing their income, underscoring the program's effectiveness in delivering tangible benefits to smallholder farmers and the broader community.

Table 1: Component 1 Midterm Level of achievement and Performance Relative to Midterm and Life of Program Targets

Indicators	MT LOA	MT Targets	Performance Relative to MT Targets	LOP Targets	Performance Relative to LOP Targets
Number of smallholder farmers supported towards increasing productivity	56,876	30,000	190%	60,000	95%
Number of farmers trained on eco-efficient production and postharvest practices through Technical Field Officers (TFOs)	27,556	18,600	148%	37,200	74%
Number of smallholder farmers receiving extension services from trained agrodealers	29,320	11,400	257%	22,800	129%
Number of trained agro-input dealers	67	20	335%	40	168%
Number of spray service providers (SSPs) trained	NA	300	-	600	-
Agribusiness clusters formed	15	10	150%	20	75%
Number of market linkages brokered within ABCs (transporters, Aggregators, processors, financial institutions, POs)	NA	4	-	8	NA
Total			**216%**		**116%**

Source: Estimated from Project's Key Performance Indicator (KPI) (December, 2023)
MT = Midterm; LOA = Level of Achievement; LOP = Life of Program.

Component 2: Piloting production systems innovation and regional diversification in South-West Nigeria (Ogun and Oyo)

Component 2 of the HortiNigeria Program has shown significant progress across various indicators, as outlined in Table 2. The number of innovative and viable vegetable production systems piloted exceeded midterm targets by an impressive 300% (three times more than the midterm target), with 18 systems implemented, showcasing the program's commitment to agricultural innovation. These innovations are piloted to address the needs of the Business champion and EF. Additionally, the organization of horticulture innovation shows surpassed midterm targets by 400% (4 times more than the midterm target), indicating effective efforts to promote and showcase innovative practices within the sector. Overall, the program reached 1,973 EFs (981 women and 1,323 youth) through trainings and introduction to various innovations. Specifically, the program has achieved a notable milestone in training 522 EFs on phytosanitary techniques, grading, packaging, and processing,

indicating a focused effort to enhance expertise in key areas crucial for agricultural development and quality assurance within the program's scope. However, the number of EFs accessing Lagos markets and those adopting sustainable vegetable production fell short of midterm targets at 34% and 35%, respectively, suggesting potential challenges in market access and adoption of sustainable practices despite program interventions. For instance, transportation cost and exploitation by middlemen were highlighted as major constraints, thereby causing EFs, particularly from Oyo, to seek for alternative means. Nevertheless, the total achievement of Component 2, totaling 226% relative to midterm targets and 116% relative to LOP targets, implying that the components have overachieved both in terms of midterm LOP targets. This emphasize the significance of the components towards promoting innovation and sustainable practices within the horticultural sector through the HortiNigeria Program.

Table 2: Component 2 Midterm Level of achievement and Performance Relative to Midterm and Life of Program Targets

Indicators	MT LOA	MT Targets	Performance Relative to MT Targets	LOP Targets	Performance Relative to LOP Targets
Number of innovative and viable vegetable production system piloted	18	5	400%	9	200%
Number of Entrepreneurial Farmers (EFs) accessing Lagos markets	655	1,000	66%	2000	33%
Number of entrepreneurial farmers that have adopted sustainable vegetable production	652	1,000	65%	2000	33%
Number of horticulture innovation show organized	5	1	500%	2	250%
Number of data system piloted for 3 different actors	2	2	100%	3	67%
Total			**226%**		**116%**

Source: Estimated from project's KPI (December, 2023)

MT = Midterm; LOA = Level of Achievement; LOP = Life of Program.

Component 3: Increasing access to finance for SME companies investing in solving value-chain bottlenecks at regional and national level

Component 3 of the HortiNigeria Program has demonstrated notable achievements across key indicators, as illustrated in Table 3. The program surpassed midterm targets significantly, with 122 Micro, Small, and Medium Enterprises (MSMEs) trained on business plan development, financial management, and brokering finance, which is over 4 times higher than the midterm target of 25, indicating a strong commitment to capacity building within the sector. While the number of horticulture-related MSMEs with access to financial solutions exceeded midterm targets by 20%, signaling successful efforts to bolster financial accessibility for business implementation, the amount of private finance facility facilitated fell short of midterm targets at 85%, revealing notable challenges in mobilizing private investment despite program interventions. Three primary reasons for this shortfall were identified. Firstly, banks displayed high levels of risk aversion, particularly concerning the price volatility and perishability of horticultural commodities. Secondly, MSMEs exhibited limited transaction records and impatience during the loan application process. Lastly, bureaucratic hurdles within NIRSAL impeded the program, resulting in delayed access to funds for agrodealers as initially envisioned in the proposal document. Addressing these challenges is paramount to enhancing private investment mobilization and ensuring the sustained success of the program in supporting MSME development within the horticultural sector. Nevertheless, the total achievement of Component 3, totaling 181% relative to midterm targets, demonstrates significant progress in fostering financial inclusion and supporting MSME development within the horticultural sector of the HortiNigeria Program. When considering performance relative to LOP targets, while achievements remain commendable, they are slightly lower, with a total achievement of 90%, suggesting the need for continued efforts to sustain and enhance financial support mechanisms throughout the program's lifecycle.

Table 3: Component 3 Midterm Level of achievement and Performance Relative to Midterm and Life of Program Targets

Indicators	MT LOA	MT Targets	Performance Relative to MT Targets	LOP Targets	Performance Relative to LOP Targets
Number of MSMEs trained on Business plan development, financial management, and brokering finance	122	25	488%	50	244%
Number of horticulture related MSMEs with access to financial solution to implement their business plans	12	10	120%	20	60%
Amount of private finance facility to MSME facilitated (€)	444,851	3,000,000	15%	6,000,000	7%
Number of sustainable inclusive financial model facilitated	1	1	100%	2	50%
Total			**181%**		**90%**

Source: Estimated from project's KPI (December, 2023)
MT = Midterm; LOA = Level of Achievement; LOP = Life of Program.

Component 4: Enhancing sector coordination and business-to-business linkages

Component 4 of the HortiNigeria Program has demonstrated commendable performance across key indicators, as outlined in Table 4. The program significantly surpassed midterm targets, with 196 business-to-business (B2B) opportunities identified, representing a 196% achievement relative to midterm targets, indicating robust efforts to foster partnerships and opportunities within the horticultural sector. However, the number of B2B partnerships brokered stood at 52% relative to the midterm targets, highlighting some level of effort in terms of effective collaboration and networking initiatives, while leaving room for additional work that need to be done in this regard. Although there is no record for the number of federal/state horticulture policies or regulations improved, efforts have been made to identify and advocate for policy enhancements, with three policies identified and concerted engagement undertaken. The dynamic policy context underscores the ongoing nature of discussions and the need for continuous advocacy. Notably, engagement with the Nigerian Agribusiness Group (NABG) to convene a presidential roundtable meeting serves as a strategic platform to garner government attention towards key horticultural policies, including those related to fertilizer importation, tomato policy, and road tax policy. The program's total achievement, totaling 124% relative to midterm targets and 66% relative to LOP targets, highlights its significant impact in driving partnerships and policy advocacy efforts to support the growth and development of the horticultural sector in Nigeria.

Table 4: Component 4 Midterm Level of achievement and Performance Relative to Midterm and Life of Program Targets

Indicators	MT LOA	MT Targets	Performance Relative to MT Targets	LOP Targets	Performance Relative to LOP Targets
Number of business to business (B2B) opportunities identified	196	100	196%	200	98%
Number of B2B partnership brokered	26	50	52%	100	26%
Number of federal or state horticultural policies or regulations improved	NA	1	-	2	-
Total			**124%**		**66%**

Source: Estimated from project's KPI (December, 2023)

MT = Midterm; LOA = Level of Achievement; LOP = Life of Program.

Overall components' performance

Table 5 provides a comprehensive overview of the overall performance of each component of the HortiNigeria Program, relative to both midterm (MT) and life of program (LOP) targets. Component 1 demonstrated strong performance, achieving 216% relative to midterm targets and 116% relative

to LOP targets. This indicates that Component 1 exceeded midterm targets by a significant margin, showcasing its effectiveness in promoting sustainable horticultural practices and improving the livelihoods of smallholder farmers in Nigeria. Component 2 also performed well, achieving 216% relative to midterm targets and 116% relative to LOP targets, demonstrating its substantial contribution to innovation and sustainable practices within the horticultural sector. Similarly, Component 3 did well in achieving 181% performance relative to midterm target and falling short of only 10% of the LOP targets, thereby showcasing significant progress in fostering financial inclusion and supporting MSMEs development within the horticultural sector. Component 4 displayed commendable performance, achieving close to twice the midterm targets and 99% relative to LOP targets, highlighting its impact in driving partnerships and policy advocacy efforts. Overall, the HortiNigeria Program achieved an impressive 215% relative to midterm targets and 111% relative to LOP targets, underscoring its substantial impact in advancing a thriving horticultural sector in Nigeria across various dimensions. However, each of these components equally faced significant challenges in terms of access to finance and Lagos markets, persistent challenges in establishing linkages and improving state/federal horticultural policies.

Table 5: Midterm Level of overall achievement and Performance Relative to Midterm and Life of Program Targets

Indicators	Performance Relative to MT Targets	Performance Relative to LOP Targets
Component 1	216%	116%
Component 2	216%	116%
Component 3	181%	90%
Component 4	198%	99%
ALL	**215%**	**111%**

Source: Estimated from project's KPI (December, 2023)

MT = Midterm; LOA = Level of Achievement; LOP = Life of Program.

Inter-components relationships

the relationships between the components are reflective of a collaborative effort with some challenges hindering optimal synergy. Component 1 strong performance in supporting smallholder farmers and promoting sustainable practices aligns well with Component 2s emphasis on innovation and showcasing innovative techniques. However, Component 2 faces challenges in ensuring market access and adoption of sustainable practices by EFs, which could limit the impact of Component 1 efforts in empowering farmers in terms of increasing productivity and sale. Similarly, while Component 3 capacity-building initiatives for MSMEs theoretically support Component 4s goal of driving partnerships and policy advocacy, challenges in mobilizing private investment and improving horticultural policies may impede the effectiveness of these efforts. Component 4s commendable performance in fostering partnerships and policy advocacy is promising, but without significant improvements in access to finance and policy frameworks, its impact may be limited. Overall, while

there is alignment in the objectives of the components, addressing the identified challenges is crucial to realizing their full potential and achieving a holistic impact on the horticultural sector in Nigeria.

Insights from KIIs and FGDs

Key informants' perspectives on the HortiNigeria program's achievement of its stated objectives vary, with an MDA staff member citing a high level of success, a staff member of HortiNigeria Program noting limited progress, and another MDA staff member in the southern region remaining neutral. This diversity of opinions underscores a nuanced view of the program's effectiveness in meeting its outlined goals. In terms of progress assessment and concerns, two HortiNigeria Program staff members and an MDA staff member acknowledged achievements, highlighting positive momentum. However, another MDA staff member in Ogun state expressed concerns, signaling the need to address specific issues for continued success. These concerns often revolve around the effectiveness in carrying out certain program activities due to poor communication with partners. Notably, regarding data and information gaps, responses are evenly split, with a HortiNigeria Program and MDA staff members noting the presence of gaps and the remaining HortiNigeria Program and MDA staff suggesting otherwise. The emphasis on the lack of specific data on the achievement of HortiNigeria's stated objectives, signaled a need for more information on baseline assessments and mid-term evaluations. Additionally, there are suggestions to establish a horticulture policy, enabling a more comprehensive evaluation of the program’s impact. In the context of collaboration and enhancement for future success, a HortiNigeria Program and two MDA staff members affirmed collaborative efforts by the program. They stressed the importance of collaboration, proposing that consortium partners work together to strengthen the program's visibility. Furthermore, they opined that collaboration with extension services and the government is deemed crucial for enhancing the program's effectiveness and coverage in achieving its objectives in the future. This underscores the significance of ongoing collaboration as a key factor in ensuring the continued relevance and success of HortiNigeria.

Half of the key informants (62.50%), from the program staff and MDA staff members agreed or strongly agreed that there are variations in outcomes across different beneficiary groups, while 37.50%. including some HortiNigeria staff members remained neutral. This indicates a recognition among stakeholders that the impact of the program may differ among distinct beneficiary groups, reflecting a nuanced understanding of the diverse contexts in which HortiNigeria operates. Delving into specific aspects, regarding varied support and training levels, the majority of program staff (62.50%) did not assert that there are differences in the levels of support and training received by different beneficiary groups. This suggests an acknowledgment that tailored approaches may be necessary to address the unique needs and challenges - discussed under objective 3 - faced by various groups, emphasizing the importance of personalized support mechanisms within the program. Exploring outcome disparities across components and locations, the majority of program staff including an MDA staff member (62.50%) affirmed the presence of disparities. This underscores the need for a more targeted examination of the program's components – discussed under effectiveness - and operational locations to address potential variations in outcomes. The findings emphasized the importance of a continued localized and context-specific approach to ensure equitable impacts across different areas. Regarding factors influencing success, 62.50% of program staff including an MDA staff member indicated that there are factors influencing success that vary

across beneficiary groups such as trainings and knowledge transfer, improved farming practices, access to quality seeds, market access expansion, formation of agribusiness clusters, etc.). This recognition suggests an awareness of the multifaceted nature of success factors and the importance of tailoring interventions to the specific dynamics of each beneficiary group.

In terms of partnerships and collaborations, 75% of program staff including an MDA staff member in Kano affirmed the crucial role played by collaborations with various stakeholders, including the private sector, educational institutions, and government bodies, in shaping the outcomes of the HortiNigeria program. This robust consensus highlights the pivotal importance of these partnerships, fostering ownership, commitment, co-learning, and co-innovation for sustainable success. Collaborative efforts are seen as instrumental in navigating the complexities of the agricultural landscape, creating a synergistic approach that positively impacts the program's overall effectiveness. Government involvement and policy support also emerged as influential factors, with recognition of their significance in facilitating the success of HortiNigeria Program. The acknowledgment extends to the importance of a supportive policy environment and active government engagement, contributing not only crucial resources but also creating an enabling framework aligned with the program's objectives. The findings suggest a harmonious partnership with State policies, particularly in agriculture and youth development, emphasizing the role of government support in the program's achievements. The adaptability and strategic engagement of HortiNigeria are identified as key factors significantly influencing outcomes by 75% of key informants. This underscores the importance of the program's ability to adapt to changing circumstances and engage strategically with evolving agricultural landscapes. Key informants highlight the flexibility to tailor interventions based on contextual shifts, navigate policy complexities, obtain waivers, and adapt to circumstances. The strategic engagement with stakeholders is recognized as a dynamic approach, turning challenges into opportunities for farmers and the program, contributing to its resilience and long-term relevance.

1.4 Efficiency

The evaluation of the program's efficiency suggests that stakeholders hold different views. In the context of a positive assessment of efficiency, most of the HortiNigeria program staff affirms that the implementation of HortiNigeria has been efficient and perceive the program as making effective and prudent use of financial resources. They emphasize the alignment of the program with its objectives, the generation of value for the invested funds, and the overall positive impact observed during field visits. Key themes highlighted by specific key informants include efficiency in delivering intended outcomes, leveraging partnerships, reducing costs, avoiding unnecessary spending, and witnessing impressive results during on-site assessments. This positive sentiment underscores the program's success in managing resources efficiently and achieving its intended goals, as recognized by a majority of engaged stakeholders.

The allocation of human resources for the overall management of the HortiNigeria Program was appropriate and adequate, and results have been commensurate with the expenses till date. As regards the deployment of the human resource allocation there was no significant shortage of personnel, except in a case where the lead for inclusive finance resigned, and the position was replaced immediately. The personnel that the program has engaged so far for the implementation

of the program comprised of 6 IFDC senior management field level staff. In addition, there are other layers of management of the program; the consortium management team and the supervisory board. All these positions have been filled as at the time of this MTR. On the other hand, EWS-KT, a member of the consortium has a team of its senior technical staff and a pool of technical Field officers across all clusters in both Kano and Kaduna states. Similarly, WUR-KIT another member of the consortium also has its team largely on a short-term consultants' basis supporting the implementation of the program. IFDC operations team (administration & finance) provides support to HortiNigeria on a cost shared basis. Together they handle the administrative aspect of the program implementation, supervise partners and monitor results against indicators. And to ensure value for money, staff have been trained in results-based management and finance. The program staff also had frequent engagement with partners to meet project's targets and ensure a high delivery rate. In addition, the ET found that the consultants engaged for various capacity-building activities were regarded as notable experts in their fields, with beneficiaries claiming that they benefitted a lot from the services they rendered. However, the assessment of HortiNigeria's timeliness, as reported by the program staff, reflects a varying perception regarding the program's adherence to timelines and the promptness of delivering intended outcomes. One of the program staff acknowledged setbacks, highlighting challenges or delays in certain aspects of implementation. This finding underscores the importance of identifying and addressing specific areas that may require attention to enhance overall timeliness and efficiency.

The HortiNigeria team and the monitoring and evaluation officer always ensured that data collected during monitoring exercises informed the preparation of the program review reports. Such data was also considered at in-house project review meetings, with a view to ensuring that perceived challenges in the implementation were addressed to ensure that the program was moving in the right direction. The program has a MEL plan that was embedded in the program inception report. Having a dedicated and standalone MEL plan will enable the program team to intentionally embark on periodic performance monitoring and document evidence-based outcome-level results and achievements of the program, thus increasing the overall efficiency of the MEL activities.

Though the achievement of the program is remarkable, the MTR identified some program performance reporting and management issues. Documentary evidence from program reports and the performance monitoring plan shows that:

- The program does not report on performance and progress at the overall program goal level using outcome indicators. Outcome level indicators are important for measuring the degree of success in realizing the ultimate objective, and this should be done annually.
- The program did not establish baseline values for some of the performance indicators. This is inconsistent with donor requirements and best practice. The donor requires program to report baseline values for all performance indicators. Baseline data help managers determine progress in achieving outputs and outcomes and to identify the extent to which change has happened at each level of result.
- Different component leads have different style of reporting on output indicators. This can be streamline to enhance efficiency in reporting. Streamline the reporting processes for HortiNigeria among component leads to better track results is critical. The program's high level of integration is a major strength. However, the present reporting structure for such

program is not adequately coordinated, which makes it challenging for the program to obtain a full picture of all interventions. A streamlined reporting system for integrated program of this nature can create opportunities for HortiNigeria program to further highlight successes and learn from challenges.

- A careful review of the program documents suggests that some of the program indicators are not well articulated and succinctly reflect what the indicators definition. For example, it is difficult to differentiate between these indicators: "*Number of active farmers with 100% technology adoption rate*" and "*Number of technological innovations with 70% adoption rate.*" It is critical for the program to do a thorough review of its indicators ensuring that they are well streamlined with clear indicator definitions and reporting plan.

The leadership of the HortiNigeria program should encourage the program to develop a streamlined reporting system for reporting on all the performance and progress using output and outcome indicators at the goal level along with established baseline data and performance targets. Baseline values and performance should be established for all performance indicators.

1.5 Impact

The evaluation of the HortiNigeria program's preliminary impact after two years of implementation provides a detailed analysis of its influence on water and energy use efficiency, pesticide practices, access to finance for SMEs, crop yields, and overall agricultural development. The results reflect both positive outcomes and areas requiring attention, offering valuable insights into the program's effectiveness in addressing key challenges and contributing to sustainable horticultural practices and

Volume of Production, Crops Yield and Yield Gap

Crop yields play a pivotal role in shaping the economic landscape for farmers, and the HortiNigeria program has been instrumental in fostering substantial improvements in various crops. Notably, cabbage production has experienced a significant boost, with an impressive 8,298.9 kg/ha increase representing 118% vis-a-vis the baseline figure, as highlighted in Table 6. This surge in yield does not only signifies a positive influence on farmers' income but also contributes to enhanced food availability. Similarly, the positive impact on okra production, reflected in a 1,645.8 kg/ha increase, holds the promise of advancing food security and fostering economic benefits for okra farmers. Tomatoes, too, have witnessed a substantial uptick in yield, registering an impactful 7,825.1 kg/ha increase representing 120% (relative to the baseline yield) attributable to the HortiNigeria program. This surge is poised to meet market demands and elevate the livelihoods of tomato farmers. Moreover, the program's affirmative influence on pepper production, evidenced by a 1,634.4 kg/ha yield increase, representing 26% has the potential to not only fulfill market requirements but also elevate the economic prosperity of pepper farmers. Even in the case of sweet corn, where the yield increase is moderate at 737.7 kg/ha, representing about 12%, the positive impact signals a favorable outcome for sweet corn farmers. In essence, these yield improvements underscore the program's role in not just bolstering agricultural productivity but also in elevating the incomes of farmers, thereby contributing to the broader economic well-being of the community.

Table 6: Summary of the yield/volume of production per hectare impact of HortiNigeria program

	Farm size (ha)	Midline (kg/ha)	Baseline (kg/ha)	Diff. (kg/ha)	Change (%)
Cabbage	0.18 (0.25)	15,250.9	6,952	8,298.9	119.4
Cucumber	0.08 (0.10)	8,050	NA	-	NA
Okra	0.22 (0.39)	5,396.8	3,751	1,645.8	43.9
Tomato	0.73 (8.04)	14,310.6	6,485.5	7,825.1	120.7
Watermelon	0.16 (0.15)	7,515.2	NA	-	NA
Pepper	0.25 (0.37)	7,915.9	6,281.50	1,634.4	26.0
Onion	0.20 (0.38)	13,752.7	5,433.2	8,319.5	153.1
Sweet corn	0.12 (0.15)	7,018.7	6,281	737.7	11.7
Average					92.6

Source: Survey Data (December, 2023)
Note: The baseline yield data were obtained HortiNigeria Baseline Report (2022)

Despite the positive yield impact of the HortiNigeria program on some of the horticultural crops, there remains a substantial shortfall from the potential yield achievable under eco-efficient production practices. The data from Table 7 suggests significant yield gaps for the targeted crops. For example, in cabbage production, the actual yield of 15,250.9 kg/ha falls short of the potential yield of 46,640 kg/ha by 67%. Similarly, cucumber, okra, tomato, and watermelon exhibit yield gaps of 82%, 69%, 68%, and 76%, respectively. These disparities between actual and potential yields underscore the need for further optimization and enhancement of agricultural practices to bridge the existing gaps and maximize the benefits of the HortiNigeria program.

Table 7: Summary of yield gap of targeted crops

Crop	**Actual Yield (kg/ha)**	**Potential Yield (kg/ha)**	**Yield Gap* (%)**
Cabbage	15,250.9	46,640	67
Cucumber	8,050	45,400	82
Okra	5,396.8	17,680	69
Tomato	14,310.6	44,640	68
Watermelon	7,515.2	31,200	76

Source: Survey Data (December, 2023)
** Data was obtained from the program baseline report*

Value of Production

Analyzing the data from Table 8, it is apparent that the HortiNigeria Program has generated diverse impacts on the value of horticulture production per hectare when comparing the midterm and baseline scenarios. Noteworthy differences are observed across various crops. For cabbage, there is a decrease in the midterm value of production compared to the baseline, with a difference of -

$194.83 per hectare, representing a -9.45% change. Conversely, tomato production showcases a positive difference of $192.99 per hectare, indicating a 6.41% change. These results suggest that the HortiNigeria Program has led to nuanced outcomes, with certain crops experiencing declines in value while others see improvements. The negative differences for okra, pepper, and onion, amounting to -$383.57, -$357.09, and -$435.16 per hectare respectively, suggest a reduction in the value of production for these crops in the midterm scenario. Okra, in particular, shows a substantial -22.66% change, indicating a significant decrease in value. On the other hand, watermelon and sweet corn exhibit no specified differences due to the non-availability of baseline data. The average change across all crops is calculated at -3.5%, suggesting an overall decrease in the value of horticulture production per hectare between the midterm and baseline scenarios.

The observed negative differences in the value of cabbage, okra, pepper, and onion production per hectare suggest a decline in their economic value during the midterm scenario. It is noteworthy that these crops have experienced not only a decrease in production values but also a reduction in percentage change. This decline could be attributed, in part, to the first factor: the prices of these crops were better at the baseline. The decrease in the economic value of these crops per hectare may be a result of adverse market conditions or changes in consumer demand. Furthermore, the decline in the value of Naira can adversely impact the overall economic value of horticulture production. The negative differences observed in the values per hectare could, to some extent, be linked to the devaluation, as a weaker currency can contribute to reduced economic returns through relatively higher production costs as some critical inputs such as chemicals are imported. Finally, the observed negative differences in the value of certain crops, such as cabbage, okra, pepper, and onion, may be further influenced by uncertainties in macroeconomic policies. Changes or uncertainties in policies related to agriculture, trade, or investment can have a profound impact on the economic viability of horticulture production. Shifts in government regulations, subsidies, or trade agreements can introduce uncertainties that affect farmers' decisions and overall market dynamics. These uncertainties may contribute to a more challenging environment for horticulture producers, affecting their planning, investment, and production strategies. On the other hand, the positive differences observed in crops like tomato may suggest that certain crops are more resilient or responsive to prevailing macroeconomic conditions. It is essential to conduct a thorough analysis to understand how each crop is impacted by the evolving policy landscape and how farmers adapt their practices in response to these uncertainties.

Table 8: Summary of differences in Value of Horticulture Production per hectare between Midterm and Baseline Scenarios of the HortiNigeria Program

	Midterm ($/ha)	Baseline ($/ha)	Difference ($)	Change (%)
Cabbage	1,866.20	2,061.03	-194.83	-9.45
Cucumber	1,677.25	NA	NA	NA
Okra	1,308.88	1,692.45	-383.57	-22.66
Tomato	3,202.54	3,009.55	192.99	6.41
Watermelon	3,065.35	NA	NA	NA
Pepper	3,691.30	4,048.39	-357.09	-8.82
Onion	2,956.40	2,521.24	435.16	17.26

Sweet corn	1,694.49	NA	NA	NA
Average				-3.5

Source: Midterm Survey (December, 2023) and baseline (June, 2022) data.
NA = Not Available because they are not reported in the baseline report. The baseline value was adjusted for inflation to ensure comparability using the inflation rate of 28.92%; $1 = N907.11.

Annual Income

Table 9 provides a comprehensive overview of the differences in annual income within the HortiNigeria Program, comparing Midterm and Baseline Years. The mean annual income, representing the average income of participants, increased from $2,156.45 in the Baseline Year to $2,302.81 in the Midterm Year, indicating a positive change of $146.4 (6.8%). This suggests an improvement in the average income levels for program participants. The standard deviation, which measures the variability or spread of individual incomes, rose from $739.40 in the Baseline Year to $850.49 in the Midterm Year. The increase in standard deviation implies greater variability in income among participants during the Midterm Year. The implication is that the interventions implemented by the program have had a tangible and beneficial effect, resulting in improved average income levels for participating individuals.

Table 9: Summary of differences in Annual Income between Midterm and Baseline Years of the HortiNigeria Program

Statistics	**Midterm ($/Annual)**	**Baseline ($/Annual)**	**Impact ($)**	**Change (%)**
Mean	2,302.81	2,156.45	146.4	6.8
Std. Dev.	850.49	739.40	78.55	

Source: Midterm Survey (December, 2023) and baseline (June, 2022) data.
The baseline value was adjusted for inflation to ensure comparability using the inflation rate of 28.92%; $1 = N907.11.

Intermediate outcomes

The HortiNigeria Program has demonstrated significant positive impacts on various key indicators in Kaduna and Kaduna States. Notably, there has been a substantial 92.6% increase in the volume of agricultural production, indicating a marked improvement in productivity (Table 10). However, a counterintuitive -3.5% decrease in the value of production prompts further investigation into the dynamics behind this decline despite the increased volume. Financially, the program has positively affected farmers, with an additional net income of $146 per hectare and a 6.8% increase in annual income per farmer ($192). The adoption of sustainable intensification practices by 65% of farmers highlights a positive trend toward environmentally friendly and economically viable methods. Additionally, a 55% expansion in the total production area suggests a contribution to overall economic growth. With 1,727 hectares under sustainable production, the program underscores a commitment to long-term environmentally friendly agricultural practices. The significant reduction in postharvest losses by 53% and a 61% increase in access to input and output markets further emphasize the program's success in enhancing efficiency and connectivity for farmers. Additionally, the program has contributed to job creation in both states, with a 16% increase overall. Specifically,

there has been significant progress in creating employment opportunities for women and youth, with 36 and 69 jobs created. Moreover, 43,795 smallholder farmers, comprising 77% of the total, experienced increased yields, with 33,557, or 59%, being general smallholder farmers. Among specific demographics, 11,465 women smallholder farmers (79%) and 27,561 young smallholder farmers (77%) reported increased yields. Also, 8,998 women smallholder farmers (62%) and 19,687 young smallholder farmers (55%) reported increased income as a result of the program. This demonstrates a positive outcome in terms of gender inclusivity and economic empowerment, highlighting the program's effectiveness in fostering job growth, particularly among women and youth, in the horticultural sector in Nigeria.

Table 10: Summary of HortiNigeria Program's Impact on intermediate outcomes

S/N	Indicators	Impact
1	Increase in volume of production	92.6%
2	Increase in value of production	-3.5%
3	Amount of additional net income generated	$146/ha
4	Increase in annual income per farmer (U.S. $192)	6.8%
5	Increase on plots using sustainable intensification	65%
6	Increase in total production area,	55%
7	15,000 ha under sustainable production	1,727 ha
8	Increased productivity	92.6%
9	Reduction in postharvest losses	53%
10	Increased access to input/out markets	61%
11	Number of jobs created	16%
12	Number of smallholder farmers with increased yield	77%
13	Number of smallholder farmers with increased income	
12	Number of women smallholder farmers with increased yield	79%
14	Number of young smallholder farmers with increase yield	77%
15	Number of women smallholder farmers with increased income	62%
16	Number of young smallholder farmers with increase income	55%
17	Number of women jobs created	36
18	Number of youth job created	69

Source: Survey Data (December 2023)

Table 11 provides a succinct overview of the HortiNigeria program's impact on intermediate outcomes in Oyo and Ogun States. The data reveals significant strides in technology adoption, with 515 active farmers achieving a commendable 100% adoption rate, comprising 309 women and 467 youth participants. Furthermore, the program has introduced 82% new technological innovations, showcasing a high rate of acceptance and integration within the farming community. The impact extends to agricultural productivity, with a remarkable 73.8% increase in yield compared to conventional open field and rainfed vegetable farming. Additionally, there is a notable 37% improvement in the seasonal availability, quality, and diversity of vegetables. This data, sourced from a survey conducted in December 2023, underscores the program's effectiveness in promoting

technological advancements, enhancing yield, and positively influencing the vegetable farming landscape in these states.

Table 11: Summary of HortiNigeria Program's Impact intermediate outcomes for Oyo and Ogun States

S/N	Indicators description	Impact
1	Number of active farmers having 100% technology adoption rate.	515
	Women	309
	Youth	467
2	Number of new technological innovations with a 75% adoption rate.	82%
3	Increase in yield as compared to open field/rainfed vegetable farming.	73.8%
4	Increase in seasonal availability, quality, and diversity of vegetables.	37%

Source: Survey Data (December 2023)

Inter-Components Relationships

The success of component 1 in achieving an overall effectiveness level of 65% suggests progress within the first two years. This achievement, along with the assessment of component 2 indicators at 62%, implies that the combined implementation of component 1 and component 2 is on a positive trajectory. However, the initial hypothesis stating that the integration of components 1 and 2 significantly increases productivity and income of smallholder farmers is not fully supported. Shortfalls in production efficiency and LOP targets indicate room for improvement in virtually all indicators of both components 1 and 2, particularly concerning the engagement of women and youth. The high rate of adoption of production systems innovation piloted by HortiNigeria, which is believed to be supported by collaboration between components 2 and 3, does show some positive outcomes. However, the hypothesis that this collaboration accelerates the adoption of production technologies and practices is not fully validated given that access to finance appears to be grossly inadequate. The inadequate access to finance reported by beneficiaries remains a limiting factor, suggesting a need to address financial barriers hindering the adoption of innovative production systems. The hypothesis that inclusive access to finance that will be supported through component 3 positively influences sector coordination and strengthens business linkages within the agricultural value chain, as outlined in component 4, is equally weakly supported. Difficulties encountered in MSME training and the underachievement in inclusive access to finance aspects within component 3 suggest that improvements are necessary. The lack of adequate financial support for SMEs may impede their active participation in effective sector coordination and B2B linkages outlined in component 4, further indicating the need for enhanced coordination and strategic interventions around Component 3. Overall, the present underachievement in components 2 and 4, challenges the hypothesis that the integration of all four components significantly contributes to holistic agricultural development. The difficulties in fostering effective sector coordination and meaningful B2B linkages suggest that further improvements are necessary to enhance the impact of the integrated approach deployed by the HortiNigeria program and support the validity of the theory of change.

Insights from KIIs and FGDs

The analysis of higher-level effects attributed to the HortiNigeria program shows a mixed perspective among key informants. A key informant among the innovation providers noted significant

achievements in capacity building, productivity, and innovation. Notable progress includes the introduction of innovations such as solar-powered irrigation and capacity building for youth, contributing to positive regional diversification and improved market access.

> *"The higher-level effects attributable to the HortiNigeria program include significant achievements in capacity building, productivity, and innovation. Substantial progress has been made in introducing and piloting innovations, notably the solar-powered irrigation."*
>
> **- HortiNigeria Program Staff Member**

In terms of policy influence and high-profile investments, a staff member from the HortiNigeria Program, one from IFDC, and another from Donor expressed skepticism, suggesting that the program may not have had a significant influence on policy formulation or attracted high-profile investments. However, a HortiNigeria Program staff agreed that the program has indeed contributed to policy influence and attracted noteworthy investments. This divergence in opinions underscores the complexity of gauging the program's external influence and the need for a closer examination of its policy-related outcomes. Another key informant from the Ministry of Agriculture in Oyo state particularly emphasized the higher-level effects in policy influence and securing high-profile investments. Achievements include contributions to federal government platforms, engagement in policy discussions, collaborations with federal agencies, and potential infrastructure investments in six states, showcasing broader influence. Regarding shifting mindset, career promotion, and eco-efficient technologies, all program s staff interviewed who provided insights on this aspect indicated that the program has not brought about such higher-level effects. This unanimous view suggests a shared perception among key informants that the program has not been successful in instigating a change in mindset, promoting careers, or introducing eco-efficient technologies. Despite the unanimity in responses, the detailed perspectives provide valuable insights into the varied impacts of the program across different dimensions. There is an overall recognition of the program's significance in generating positive outcomes, albeit with some key informants adopting a cautious or reserved viewpoint. The qualitative aspect of these impacts is crucial to understanding the nuanced perspectives and the varied significance attributed by different stakeholders.

Similarly, when considering youth engagement and economic growth, most of key informants indicated skepticism. However, one agro-dealer participant from Zaria discussed the significant impact of the program in creating employment and engagement for youth, steering them away from potential crime. The expansion of the program is seen as inevitable, linking regions, fostering production, and leveraging ICT for broader participation and growth potential. Despite this positive perspective from an agrodealer from Kaduna State, overall skepticism points to the need for a more targeted approach to youth engagement and economic growth strategies within the program. Addressing concerns raised by agrodealers from Kaduna State and aligning program objectives with the desired outcomes in these specific domains becomes crucial. The findings underscore the importance of refining strategies to ensure that the observed impacts align with the broader goals of capacity building, adoption, youth engagement, and economic growth. The analysis of key informants' perspectives (Program staff including MDA staff member) on whether HortiNigeria has contributed to any transformational changes in the horticulture sector reflects a generally positive sentiment. A combined 60% (a HortiNigeria Program, an IFDC and an MDA staff member) agree and

40% (two MDA staff members) strongly agree that the program has indeed brought about transformational changes, emphasizing a notable impact on the sector.

> *"Yes, HortiNigeria has contributed to transformational changes in horticultural production practices in Ogun State. For example, through the entrepreneur farmer program, a hub has been established at FUNAB, where they have organized lectures and training sessions for the masses."* – **MDA Staff Member**

The qualitative data provided by key informants suggests a recognition of positive changes catalyzed by HortiNigeria, signaling a significant shift in the horticulture landscape. In terms of addressing challenges and enhancing productivity within the horticulture sector, all the key informants affirm that HortiNigeria has played a crucial role in overcoming challenges and elevating productivity. The unanimous agreement on this aspect highlights the program's effectiveness in tackling sector-specific challenges and fostering an environment conducive to improved productivity. Key informants specifically highlight initiatives such as the pilot of locally produced fertilizer, collaboration with stakeholders, and efforts to tackle production challenges. The emphasis on reducing transportation challenges from the north to Lagos markets and conducting surveys indicates a commitment to substantial changes and increased productivity.

1.6 Sustainability

The review of the HortiNigeria program's sustainability highlights a high level of perceived competence in understanding and contributing to the enabling environment, with unanimous positive feedback on active engagement, sustainability practices, and alignment with policies.

Furthermore, when examining comprehensive contributions and alignment with policies, all key informants agree that HortiNigeria aligns its contributions effectively with established policies. This reflects the organization's ability to not only understand the regulatory landscape but also actively ensure that its initiatives are in harmony with established policies. These positive results collectively suggest that HortiNigeria is well-regarded for its understanding and contributions to the enabling environment, positioning it as a significant player in promoting sustainable practices within the horticultural sector.

> *"Yes, positive effects are expected to continue beyond the program's duration. However, there are serious risks tied to potential shifts in government policy and financing challenges. To address these risks, linking farmers with various sources of finance, including sister projects or showcasing investments, can contribute to sustainability."* – **MDA Staff Member**

In examining the anticipated positive results, a balanced view emerged, with a staff member from the HortiNigeria Program considering the results likely, and a Donor staff deeming them very likely to continue beyond external support. This equilibrium underscores the significance of setting realistic expectations and strategic planning to secure the lasting success of the program. In the context of hope for continuation with unclear duration, stakeholders are evenly split, with a Donor staff member expressing optimism for sustained success despite uncertain timelines and a staff member from HortiNigeria Program

acknowledging the challenges associated with unclear durations. This highlights the necessity of clarifying and communicating clear continuity plans to alleviate concerns and instill confidence among stakeholders. Insights from specific stakeholders further enrich the interpretation. Emphasis on voluntary participation, community building, bulk purchasing advantages, ongoing relationships, training initiatives, and exploring ways for stakeholders to access services after HortiNigeria's presence diminishes aligns with the overarching theme of implementing diverse strategies for sustained positive effects. Suggesting linking farmers with various sources of finance as a strategy for sustainability, despite recognizing serious risks, reinforces the acknowledgment of risks while maintaining confidence in achieving ambitious program targets. Overall, the integrated details provide a nuanced understanding of stakeholders' perspectives, emphasizing the importance of multifaceted strategies and risk management in ensuring the program's long-term success.

While the MTR highlights commendable aspects such as perceived competence, active engagement, and alignment with policies, it has gone further to develop a clear plan for sustainability and eventual exit for program's long-term impact and continuity after cessation of funding. This eliminates any form of uncertainties regarding the program's ability to maintain positive outcomes beyond external support. However, the plan does not articulate strategy for dealing with any challenges or potential shifts in government policies and obstacles against SME financing. To mitigate these concerns and fortify the program's long-term success, establishing a robust sustainability and exit strategy that incorporates this element is imperative as opined by some key MDA informants. Brokering an effective relationship between financial institutions and farmers/EFs, as suggested by some of the business champions, can serve as a strong sustainability measure; therefore, this should be considered in revising the sustainability plan. This entails linking farmers with diverse sources of finance, thereby promoting financial resilience and reducing dependency on external support. Implementing such measures will not only address the current weakness identified in the sustainability plan but also fortify the program's resilience and positive impact in the horticultural sector.

2. Program's Response to Key Youth and Gender Issues, and its Efforts to Ensure Gender Balance

In its efforts to address youth and gender challenges in the horticulture sector, HortiNigeria has strategically deployed initiatives and key interventions. The following sections present an overview of the program's response to key youth and gender issues, with a focus on its endeavors to ensure gender equity and empower youth in entrepreneurship and innovation. Its commitment to gender inclusion, as demonstrated by a well-balanced distribution among participants is commendable. Currently, the program boasts a nearly equal representation, with 54% males and 46% females in its program delivery, showcasing a conscious effort to foster inclusive participation (Figure 3). Notably, the age group distribution further underscores the program's emphasis on diversity and inclusivity. A substantial 32.6% of participants fall within the 26-34 years range, indicating a proactive approach to engaging the youth demographic. Following closely, the 35-50 years' age group contributes significantly with 34.8%, portraying a program that caters to a relatively young and economically active participant base. Going by the HortiNigeria program's definition of youth, as those between the age range of 18-34 years, 60.8% of program participants falls within this age

limit. This further justifies the deliberate effort of the program to engage youth in its program delivery.

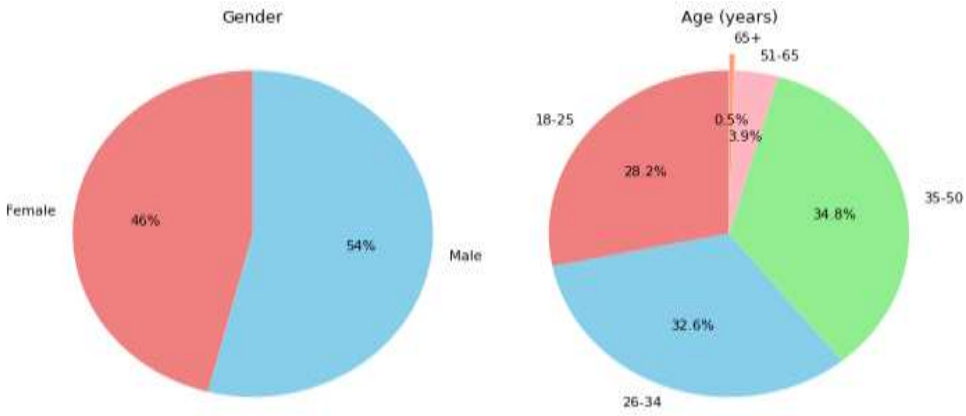


Figure 3: Gender and age distribution

Component 1

Component 1 of the HortiNigeria Program has made commendable progress in addressing youth and gender issues, as evidenced by the data presented in Table 12. The program exceeded midterm targets for supporting both women and young smallholder farmers towards increasing productivity, with achievements of 145% and 284%, respectively. Moreover, the training efforts targeted towards women and young smallholder farmers on eco-efficient production and postharvest practices through TFOs were also notable, surpassing midterm targets by 60% and 119%, respectively. There are areas that require attention, particularly in ensuring equitable access to extension services from trained agrodealers. Although the program made significant strides in engaging young smallholder farmers, achieving a remarkable 271% relative to midterm targets, it faced challenges in reaching women smallholder farmers especially in the north, with performance lagging at 57%. The design of the program to work with existing agrodealers dominated by men may continue to limit women participation. Therefore, a revision in the program to support women participation in the input market is critical. Notably, the training conducted through TFOs via peer-led demonstration plots proved more effective in reaching a larger audience compared to trained agrodealers. Consequently, expanding the number of TFOs from 12 to 17 is anticipated, as this approach appears less influenced by cultural norms, a significant barrier in engaging women farmers through agrodealers. It is noteworthy 185 women and 352 young key farmers were mentored on eco-efficient practices to manage demonstration plots over 12 months, while training 1,718 women and 3,193 young core farmers across two seasons. Additionally, 5,980 women and 10,593 young neighboring farmers attended regular field-based trainings on eco-efficient production and postharvest methods over a 12-month period, indicating a focused effort towards enhancing agricultural productivity among various demographics. Additionally, while the program exceeded midterm targets in training women agro-input dealers, with a 200% achievement, the current count of 2 remains relatively low, underscoring the necessity for further initiatives to bolster women's involvement in this aspect of the horticultural value chain. Overall, with a total achievement of 191% relative to midterm targets and 95% relative to LOP targets, Component 1 illustrates progress in addressing youth and gender

issues, yet ongoing efforts are vital to ensuring equitable access to extension services and sustained participation throughout the program's duration.

Table 12: Component 1 Midterm Level of Achievement and Performance Relative to Midterm and Life of Program Targets - A Youth and Gender Perspective

Indicators	MT LOA	MT Targets	Performance Relative to MT Targets	LOP Targets	Performance Relative to LOP Targets
Number of women smallholder farmers supported towards increasing productivity	14,513	12,000	145%	24,000	73%
Number of young smallholder farmers supported towards increasing productivity	35,794	15,000	284%	30,000	142%
Number of women smallholder farmers trained on eco-efficient production and postharvest practices through TFOs	11,922	7,440	160%	14,880	80%
Number of young smallholder farmers trained on eco-efficient production and postharvest practices through TFOs	20,342	9,300	219%	18,600	109%
Number of women smallholder farmers receiving extension services from trained agrodealers	2,591	4,560	57%	9,120	28%
Number of young smallholder farmers receiving extension services from trained agrodealers	15,452	5,700	271%	11,400	136%
Number of trained women agro-input dealers	2	1	200%	NA	NA
Total			**191%**		**95%**

Source: Estimated from project's KPI (December, 2023)
MT = Midterm; LOA = Level of Achievement; LOP = Life of Program.

Component 1I

Component 2 of the HortiNigeria Program has made remarkable strides in addressing youth and gender issues, particularly by facilitating access to Lagos markets for women and young Entrepreneurial Farmers (EFs). The program has exceeded midterm targets significantly, with 252 women EFs in the south accessing Lagos markets, which is over 12 times more than the midterm target of 20, and 493 young EFs achieving, which is over 19 times more than the midterm target of

25, despite challenges such as transportation costs and exploitation by middlemen. These achievements underscore the program's effective strategies in empowering women and youth within the horticultural sector, thereby fostering economic opportunities and inclusivity. With a total achievement of 845 women and youth EFs having access to Lagos markets relative to the midterm and LOP targets and 45 and 99, respectively, It is noteworthy that 289 women and 522 youth EFs were trained on phytosanitary techniques, grading, packaging, and processing. This targeted training effort aims to empower diverse demographics with essential skills crucial for advancing agricultural practices and ensuring quality standards within the program's framework. Overall, Component 2 has surpassed its targets significantly, demonstrating significant progress in promoting gender equity and youth participation in accessing market opportunities. This underscores its pivotal role in advancing socio-economic empowerment within the horticultural value chain.

Table 13: Component 2 Midterm Level of achievement and Performance Relative to Midterm and Life of Program Targets - A Youth and Gender Perspective

Indicators	MT LOA	MT Targets	Performance Relative to MT Targets	LOP Targets	Performance Relative to LOP Targets
Number of women EFs accessing Lagos markets	252	20	1,260%	40	630%
Number of young EFs accessing Lagos markets	493	25	1,972%	50	986%
Total			**1,616%**		**808%**

Source: Estimated from project's KPI (December, 2023)
MT = Midterm; LOA = Level of Achievement; LOP = Life of Program.

Component 1II

Component 3 of the HortiNigeria Program has made notable strides in addressing youth and gender issues, particularly through the comprehensive training provided to youth-led MSMEs in essential areas such as business plan development, financial management, and finance brokering. This effort has yielded impressive results, surpassing midterm targets by 652%, thus underscoring its effectiveness in equipping young entrepreneurs in the horticultural sector with vital skills for achieving business success. Noteworthy is the fact that 80 scoping leads to identify MSMEs for capacity building initiatives were conducted. This achievement underscores the program's strategic approach to engaging with local businesses, fostering growth, and enhancing capabilities within the agricultural sector to drive sustainable development. However, the performance concerning women-led MSMEs, while exceeding midterm targets at 160%, signals the need for intensified efforts to enhance women's participation in entrepreneurial activities within the horticultural value chain, particularly in light of the 20% shortfall from its LOP target. Additionally, the relatively low access to finance among women-owned horticultural-related MSMEs, standing at 25%, primarily resulted from non-compliance with financial institutions' requirements, emphasizing the imperative for enhanced strategies to promote gender inclusivity and equity within the program. Despite these challenges, Component 3 has achieved an overall progress of 312% relative to midterm targets and

156% relative to LOP targets, showcasing significant advancement in promoting youth entrepreneurship. Nonetheless, concerted efforts are indispensable to prioritize gender inclusivity and equity, ensuring that the program benefits all participants equitably.

Table 14: Component 3 Midterm Level of achievement and Performance Relative to Midterm and Life of Program Targets - A Youth and Gender Perspective

Indicators	MT LOA	MT Targets	Performance Relative to MT Targets	LOP Targets	Performance Relative to LOP Targets
Number of women-led MSMEs trained on Business plan development, financial management, and brokering finance	16	10	160%	20	80%
Number of youth-led MSMEs trained on Business plan development, financial management, and brokering finance	94	13	752%	25	376%
Number of women-owned horticultural related MSMEs with access to finance	1	4	25%	8	13%
Total			**312%**		**156%**

Source: Estimated from project's KPI (December, 2023)
MT = Midterm; LOA = Level of Achievement; LOP = Life of Program.

The overall performance of the HortiNigeria Program in addressing youth and gender issues, as depicted in Table 15, reflects significant achievements and areas for improvement. Across all components, there is evidence of commendable progress in empowering both youth and women within the horticultural sector. Component 2 stands out with an exceptional performance, exceeding both midterm and LOP targets by a significant margin, demonstrating its effectiveness in promoting gender equity and youth participation in accessing market opportunities. However, while Component 1 shows progress, it falls short of meeting LOP targets, particularly in ensuring equitable access to extension services for women smallholder farmers. Component 3 exhibits promising results in promoting youth entrepreneurship but underscores the need for enhanced strategies to ensure gender inclusivity and equity, especially regarding access to finance for women-owned MSMEs. Thus, while the program has made significant strides, continued efforts are essential to address disparities and ensure equitable opportunities for all participants.

Table 15: Midterm Level of overall achievement and Performance Relative to Midterm and Life of Program Targets - A Youth and Gender Perspective

Indicators	Performance Relative to MT Targets	Performance Relative to LOP Targets

Component 1	191%	95%
Component 2	1,616%	808%
Component 3	312%	156%
Component 4	NA	NA
ALL	**706%**	**136%**

Source: Estimated from project's KPI (December, 2023)
MT = Midterm; LOA = Level of Achievement; LOP = Life of Program; NA=Not Applicable due to non-activity

Inter-components relationships

Practically speaking, the relationships among Component 1, Component 2, and Component 3 in the HortiNigeria Program demonstrate both areas of synergy and areas for improvement. Component 1, which focuses on supporting smallholder farmers and enhancing their productivity, lays the groundwork for Components 2 and 3 by equipping beneficiaries with essential skills and knowledge. However, Component 1 faces challenges in reaching women smallholder farmers, indicating a gap in gender inclusivity that could hinder the effectiveness of Components 2 and 3 in empowering women entrepreneurs. Component 2 excels in facilitating market access, which directly benefits the youth and women targeted by Component 3. Nevertheless, while Component 2 surpasses targets significantly, Component 3 struggles with achieving its objectives, particularly in ensuring gender inclusivity and equitable access to finance for women-owned MSMEs. Thus, while there is potential for collaboration and mutual reinforcement among the components, addressing the gender gap and enhancing the effectiveness of Component 3 are crucial for maximizing the program's impact and ensuring equitable opportunities for all participants.

3. Obstacles, Bottlenecks, or Outstanding Issues that may be Limiting the Program's Successful Implementation and Achievement of Results

In the pursuit of its objectives, the HortiNigeria program has encountered multifaceted challenges and bottlenecks as reported by diverse stakeholders. The subsequent sections delve into the detailed findings, highlighting the complex array of obstacles faced by entrepreneurial farmers, innovation providers, agro-dealers, and off-takers in the horticulture sector, shedding light on critical issues that may impact the program's successful implementation and the realization of its intended outcomes.

The survey data unveil several obstacles faced by EFs in forming business partnerships. Communication and coordination issues and mismatched cultures emerged as common barriers, with both categories equally reported by 48% of respondents (Figure 4). An innovation provider in Ogun state, speaking in that lens stated "*I recommend improvement in timing and planning. A well-structured schedule and a clear calendar for upcoming activities would greatly benefit farmers. This will help us to plan and allocate time efficiently, avoiding clashes with our farming activities. Coordination, better communication, and cultural sensitivity regarding program timelines would enhance overall efficiency and collaboration*." This suggests that effective communication and cultural alignment are critical aspects that require attention when establishing partnerships. Conflict of interest and lack of trust were identified as significant hurdles, with 68% MSMEs in the south citing unclear roles and responsibilities as another prevalent issue. These challenges point to the

importance of establishing clear expectations and fostering mutual trust to ensure the success of business collaborations. Personal and trust issues were reported by 28% of MSMEs in the south, emphasizing the interpersonal dynamics that can impact partnership formation. Resource allocation conflicts and inadequate due diligence were mentioned by 40% and 32% of MSMEs in the south, respectively, indicating potential gaps in strategic planning and risk assessment. Changing market conditions emerged as a concern for 64% of MSMEs in the south, highlighting the need for adaptability in dynamic business environments. Personnel issues were a prominent challenge, acknowledged by 20% of EFs, underscoring the importance of addressing human resource aspects in collaborative ventures. Additionally, 4% of MSMEs in the south mentioned other challenges, emphasizing the diverse array of obstacles faced by MSMEs in forming successful business partnerships. Overall, the findings underscore the complexity of forming collaborations, urging attention to interpersonal, strategic, and operational dimensions to enhance the likelihood of successful business partnerships among entrepreneurial farmers.

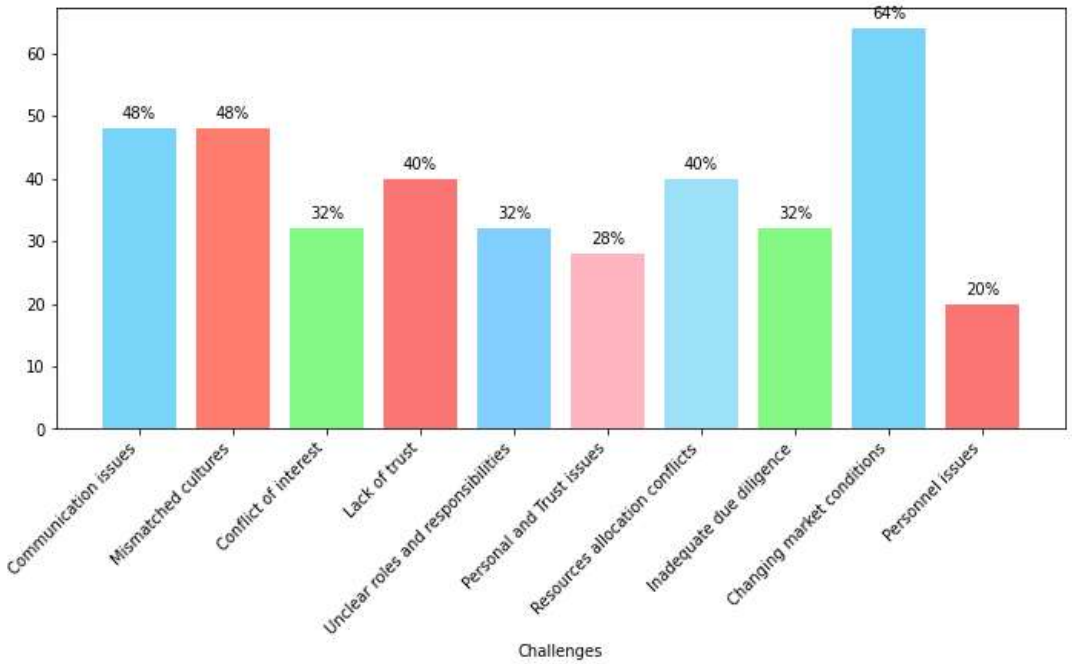


Figure 4: Challenges Encountered in Forming Business Partnerships

Eighteen percent of MSMEs and EFs in the south encountered obstacles that impeded their adoption of the innovations they were exposed to and trained in. Notably, among the challenges hindering the adoption of greenhouse technologies, primary concerns for EFs include initial investment costs (61.11%) and energy costs (93.06%). Conversely, issues such as climate control, pest and disease management, water management, technology complexity, space limitations, optimal crop selection, and dependency on external inputs appear to be less prominent concerns, each cited by less than 5% of EFs. Despite the HortiNigeria program's interventions, EFs continue to encounter challenges in maintaining consistent market access in Lagos. According to the survey results, 40% of SMEs acknowledged facing such challenges. The primary hurdles identified include the increasing cost of transportation (100%), exploitation by buyers and market officials (68.75%), reduced production (21.88%), price volatility (90.63%), and increased competition in the market (62.50%) (Figure 5). The high percentage of SMEs facing challenges related to transportation costs underscores the

broader economic pressures affecting market access. The exploitation by buyers and market officials is a concerning issue, potentially indicating unequal power dynamics in the market. The reduced production challenge signals a potential limitation in the farmers' capacity to meet market demands consistently. Price volatility poses a significant risk, affecting the financial stability of SMEs, while increased competition in the market adds another layer of complexity.

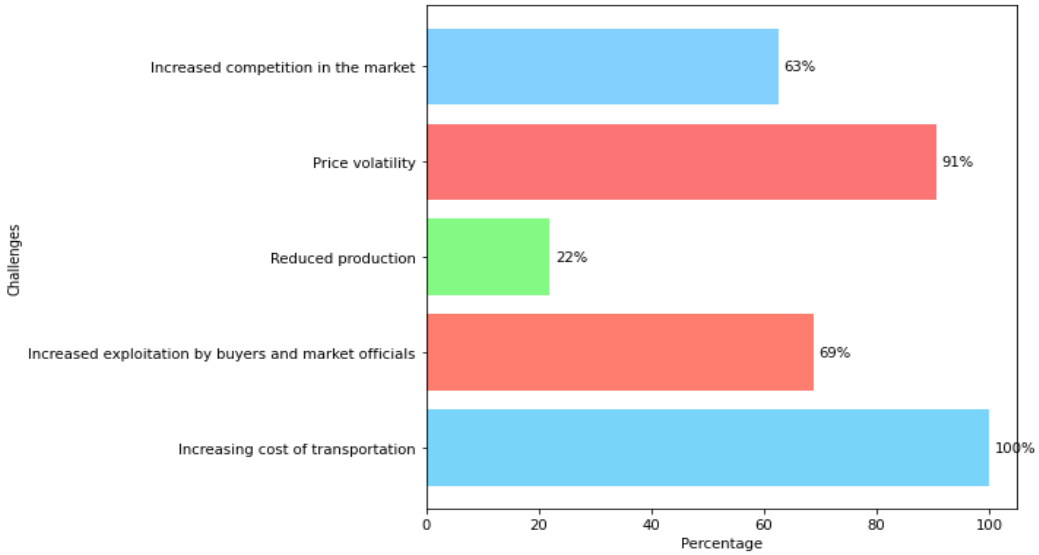


Figure 5: Challenges faced by SMEs in Maintaining Consistent Market Access in Lagos

There is a widespread consensus (85.71%) among B2B partners regarding the significant challenges faced in B2B partnerships in the horticulture sector with virtually even perception across both the north and south. One of the critical issues highlighted is access to finance, with 15.6% of B2B partners pointing out financial constraints as a major challenge (Figure 6). Specifically, smallholder farmers' poor repayment records contribute to hesitancy from financial institutions to provide loans for agricultural activities. The lack of financial backing or guarantees is hindering larger-scale initiatives in the horticulture sector. Policy issues also rank high among the challenges, with 12.5% of B2B partners recognizing them as significant obstacles. B2B partners mentioned policy challenges from both government and sector perspectives, emphasizing the difficulty in achieving B2B partnership objectives due to inadequate conducive policies. Trust and collaboration emerged as major challenges, identified by 15.6% of B2B partners. Building successful relationships is noted as challenging, and the prevailing competitive mindset over collaboration poses a hurdle. A shift in mindset within the industry is emphasized to foster trust and enable effective collaboration. The knowledge gap within the horticulture sector is identified as a substantial challenge by a majority of B2B partners (12.5%). Continuous learning and development are deemed essential, with the need to understand who is doing what in the field, set standards of operation, and address information gaps for effective collaboration. Funding shortages are consistently highlighted as a major obstacle, with 71.43% of B2B partners emphasizing the need for financial support. Businesses are exploring alternative options like crowdfunding or seeking support from financial institutions to overcome funding constraints. Effective planning and coordination are critical factors, recognized by a substantial majority (71.43%) as significant challenges. Coordination issues, particularly in planning and synchronizing activities among farmers, processors, and other stakeholders, pose a significant

challenge in sustaining operations within the vegetable value chain. Market dynamics and transparency are identified as major challenges by a majority of B2B partners (57.14%). Prevailing market dynamics, influenced by middlemen dictating prices and external pricing influences, contribute to the challenges. Lack of transparency in pricing, strict market rules, and an information gap in the supply chain were identified as hurdles in achieving successful business-to-business linkages.

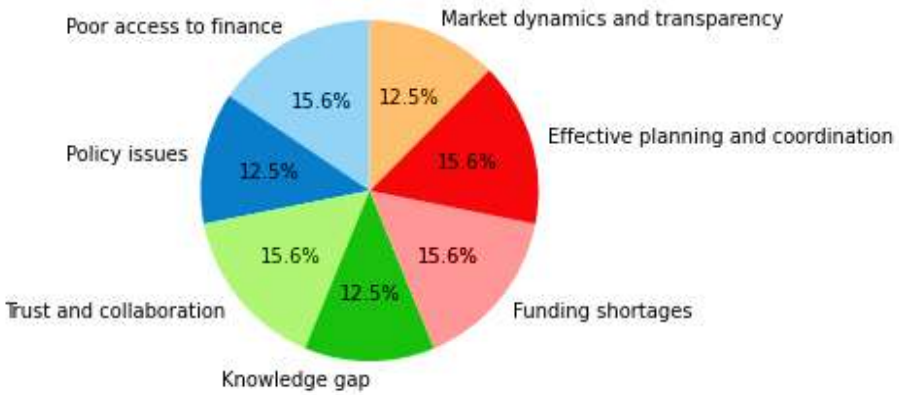


Figure 6: Other Existing Challenges Encountered by B2B Partners in B2B Partnerships

A clear consensus emerges among agro-dealers in both the north and south, with 75% either agreeing or strongly agreeing that they face challenges in the horticulture sector (Figure 7), although with the majority being in the north (86%). This high level of agreement underscores the existence of significant hurdles that demand immediate attention within the agrodealer community. Half of the agrodealers highlighted input and supply chain challenges, indicating potential issues related to the availability and efficient management of agricultural inputs within the horticulture sector. Efficient supply chain management is crucial for ensuring a seamless flow of inputs, and addressing these challenges is essential for the success of the HortiNigeria program. Financial challenges take center stage, with a significant majority (75%) of agrodealers identifying financial constraints. This points to concerns related to the financial sustainability and operational capacity of agrodealers within the horticulture sector. Addressing these financial challenges is crucial for ensuring the continued presence and effectiveness of agrodealers in supporting the sector. The data indicates that 62.5% of agrodealers recognized challenges in customer relations and market dynamics for agrodealers. This highlight potential difficulties in navigating the complex market dynamics of the horticulture sector and maintaining positive customer relations. Strategies aimed at improving customer engagement and addressing market challenges are crucial for the success of agrodealers. A majority (62.5%) of agrodealers also acknowledged challenges in post-harvest handling and logistics. This underscore potential issues related to the efficient and effective handling of produce after harvest and the logistical aspects of distribution. Enhancing post-harvest infrastructure and logistics is imperative to minimize losses and ensure a smooth flow of products through the supply chain. Seed cost and affordability emerged as a significant concern, with the majority of agrodealers (87.5%) highlighting challenges related to seed costs. This suggests that the cost of seeds may pose a substantial barrier for agrodealers in the horticulture sector, impacting both their operational costs and the affordability of seeds for farmers. Addressing seed cost challenges is crucial for promoting widespread access to quality seeds.

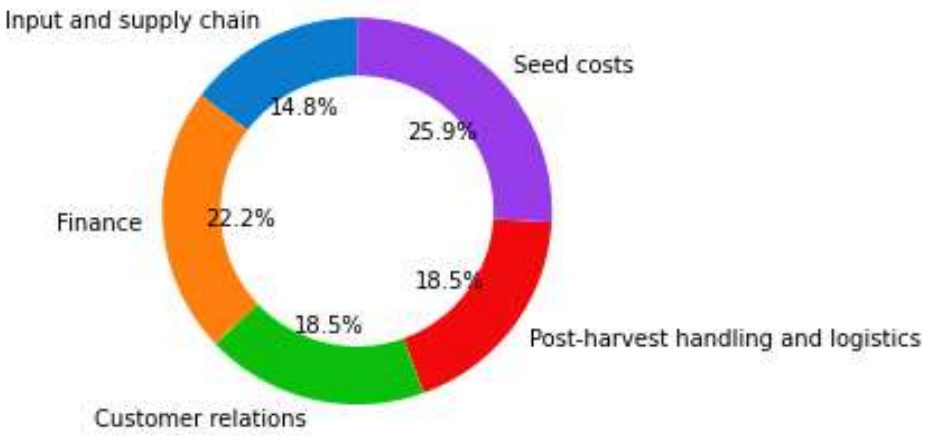


Figure 7: Bottleneck or Challenges Encountered by Agro-dealers

All three surveyed innovation providers in the south unanimously acknowledged the existence of challenges faced by innovation providers in the horticulture sector, signaling a critical area requiring attention for the successful implementation of the HortiNigeria program. Two out of three innovation providers emphasized the challenge posed by regulatory complexity, especially when navigating the intricate regulatory landscape related to inputs such as chemicals, fertilizers, and insecticides. This underscore concerns regarding the potential hindrance to the seamless introduction and implementation of innovative solutions in the horticulture sector. Effectively addressing regulatory challenges is imperative to foster an environment conducive to the adoption of innovative practices, particularly in dealing with complex regulations surrounding crucial inputs in the industry. Likewise, two out of three innovation providers acknowledged the substantial challenge posed by high implementation costs. This highlights the significant financial burden associated with acquiring new technologies, encompassing logistics and expenses related to implementing innovations like drip irrigation and renewable power sources in the horticulture sector. Recognizing the noteworthy concern of these costs is essential for the successful adoption of innovations, necessitating strategic approaches to mitigate implementation expenses and thereby fostering the widespread adoption of innovative practices. Once more, around two out of three innovation providers highlighted the significant challenge of limited access to markets. This underscores the obstacles in reaching markets for horticulture products, which, in turn, hinder the return on investment for innovations. Emphasizing the importance of establishing pathways for innovation providers to effectively reach markets is crucial, as it facilitates the adoption of their solutions. Enhancing market access for innovative products becomes integral for ensuring the success and impact of the HortiNigeria program. Similarly, two out of three innovation providers highlighted the challenge of dependency on imported inputs. This underscores the need to address issues related to the accessibility and reliance on imported components, potentially hindering innovation implementation. Developing strategies to reduce dependency on imported inputs could contribute to the sustainability and scalability of innovative solutions in the horticulture sector.

> *"Collaborating with local input producers, particularly those focusing on organic methods, is another avenue to explore. While challenges with internationally sourced inputs and regulations persist, HortiNigeria can leverage local partnerships and initiatives for more immediate impact."* – **Innovator Provider in the South**

Three off-takers from Kaduna and Kano States out of four interviewed expressed concerns about the inconsistent application of training by farmers, emphasizing potential issues with the effective

> *"In my opinion, the challenges faced by off-takers in the Horticulture sector stem from farmers not consistently applying the training provided to them. There's a tendency for some farmers to cultivate tomato varieties with weaker layers, resulting in losses during transportation to the East. Encouraging farmers to use quality seeds is essential, and we strive to enlighten them on best practices."* – **Off-taker from Kaduna State**

implementation and application of training programs. This inconsistency could compromise the reliability and uniformity of agricultural practices among farmers, hindering the desired outcomes of the HortiNigeria initiative.

Additionally, the three off-takers noted the cultivation of weaker tomato varieties leading to losses. This underscore worries about the quality of produce and the associated financial losses incurred by off-takers in Kaduna and Kano States due to the cultivation of suboptimal tomato varieties. Improving the selection and cultivation of robust and high-yielding varieties becomes imperative to enhance the overall success of the program. Financial constraints emerge as a pervasive issue, with the three off-takers in the north recognizing the need for capital for both off-takers and farmers. This underscores the financial challenges faced by stakeholders in the horticulture sector, emphasizing the crucial role of access to capital in ensuring the success of off-takers and farmers alike. Addressing these financial constraints in the north becomes paramount for the sustainable growth of the horticulture industry. Security concerns also loom large, as two off-takers in Kaduna State and one in Oyo State highlighted insecurity impacting market transportation and pricing as a significant challenge for off-takers. The data indicates that security issues are disrupting the smooth functioning of market transportation and pricing mechanisms within the horticulture sector in these states. Addressing security challenges is crucial to create a secure and stable environment for market activities. While there is a mixed perception among off-takers regarding challenges with fuel prices and tax collection in the north and south, the findings suggest that these issues may not be uniformly perceived as severe challenges. This implies that the impact of fuel prices and tax collection on off-takers varies with perceived negative impact in Kaduna State in particular, and therefore tailored interventions may be needed to address the diverse perspectives and challenges related to these factors. Finally, the KIIs reinforced concerns about pricing dynamics within the horticulture sector, as two off-takers in Kaduna State and one in Oyo State highlighted the challenge of farmers selling products at high prices impacting off-taker profits. This underscores the need for strategies to manage pricing issues and ensure a fair and sustainable pricing structure that benefits both farmers and off-takers.

4. Program Responsiveness to Implementation Challenges

As the HortiNigeria program navigates the complexities of implementation, stakeholders' perceptions of its responsiveness to challenges provide a nuanced landscape, encompassing varying degrees of approval, caution, and neutrality. The subsequent section delves into these perspectives, shedding light on the program's adaptability, regional responsiveness, collaboration dynamics among consortium partners, reliance on approved documents, and its efforts in youth empowerment amidst evolving circumstances.

With a resounding 96% of smallholder farmers in the north affirming that their participation in the HortiNigeria program has measurably diminished the impact of climate change on their farming activities, it is evident that the program has played a crucial role in addressing the intricate challenges posed by environmental shifts. The program has proactively introduced innovative eco-efficient production techniques and practices, encompassing sustainable land use, water conservation, improved agricultural methods, and the integration of climate-resistant inputs and recommended pesticide use. Smallholder farmers' feedback underscores the particularly beneficial impact of water conservation practices, with 32.60% expressing appreciation for its effectiveness (Figure 8). Furthermore, improved agricultural practices and the utilization of climate-resistant inputs have garnered significant support, with 56.20% and 45.01%, respectively, acknowledging their positive influence. However, sustainable land use and appropriate pesticide application have received endorsement percentages of 60.58% and 52.80%, respectively. These diverse perceptions emphasize the need for more targeted awareness campaigns or improvements in implementation to maximize the perceived benefits of specific climate change mitigation strategies among program participants.

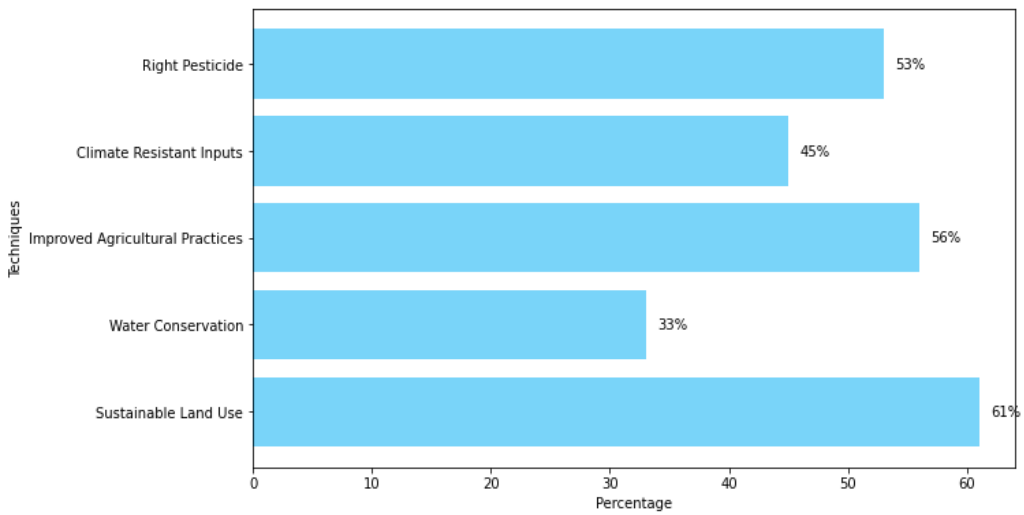


Figure 8: HortiNigeria Program Response to Climate Change Challenges through Promotion of Improved Production Techniques

The HortiNigeria Program's response to climate change challenges through innovative production systems, as highlighted by the statistics, is complemented by its strategic focus on addressing market access challenges, particularly in the vital Lagos market. Recognizing the significance of the Lagos market for EFs and SMEs, the program has implemented innovative crop varieties and Smart Greenhouses to meet the expected quality standards in contractual business models. The adoption rates of 79% for innovative crop varieties and 48% for Smart Greenhouses has not only

demonstrated a commitment to climate-resilient farming but also served as effective tools for accessing and thriving in the competitive Lagos market in a consistent manner (Figure 9). The emphasis on integrated pest management and smart irrigation systems further ensures the production of high-quality produce, aligning with contractual obligations. The program's encouragement of direct-to-consumer platforms and digital agricultural platforms not only contributes to climate resilience but also enhances market connectivity, making the agricultural sector more robust and adaptive. In essence, HortiNigeria's holistic approach, encompassing both climate resilience and market access, positions Nigerian agriculture to successfully navigate the challenges posed by climate change while thriving in key markets like Lagos.

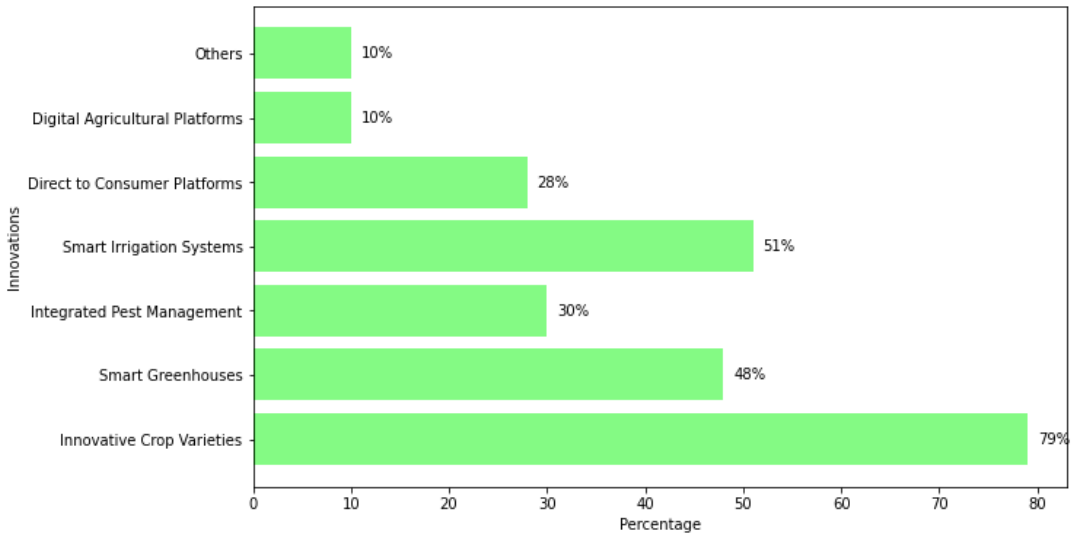


Figure 9: HortiNigeria Response to Climate Change and Access to Market Challenges through Demand-Driven Innovations in Farming Operations

HortiNigeria program has responded to challenges encountered by EFs and MSMEs in the South establishing formalized relationships with business partners. While a majority (78.75%) of EFs and SMEs have not attended HortiNigeria-supported knowledge-sharing events, those who have (20%) found them beneficial, with 56.25% reporting them as beneficial and 12.50% as highly beneficial. The belief in the contribution of these events to improved practices and collaboration is high, as indicated by 91.25% (40% agreeing and 51.25% strongly agreeing). Concerning participation in horticulture-designated fairs or trade fairs sponsored by HortiNigeria program, 32.50% of MSMEs and EFs have engaged in these events. The benefits reported by participants include 100% for increased network opportunities, 3.85% for enhanced visibility and access to new markets, and 96.15% for knowledge gain (Figure 10). While these findings demonstrate positive outcomes for those who participated, the data also highlights that a significant portion of respondents has not taken advantage of these opportunities. The implication of these findings suggests that while there is room for increased participation in knowledge-sharing events and trade fairs, the positive responses from those who attended indicate that the HortiNigeria program has made strides in addressing challenges related to establishing formalized relationships with business partners.

Encouraging broader participation and addressing barriers can further enhance the program's effectiveness in facilitating valuable connections and opportunities within the horticulture sector.

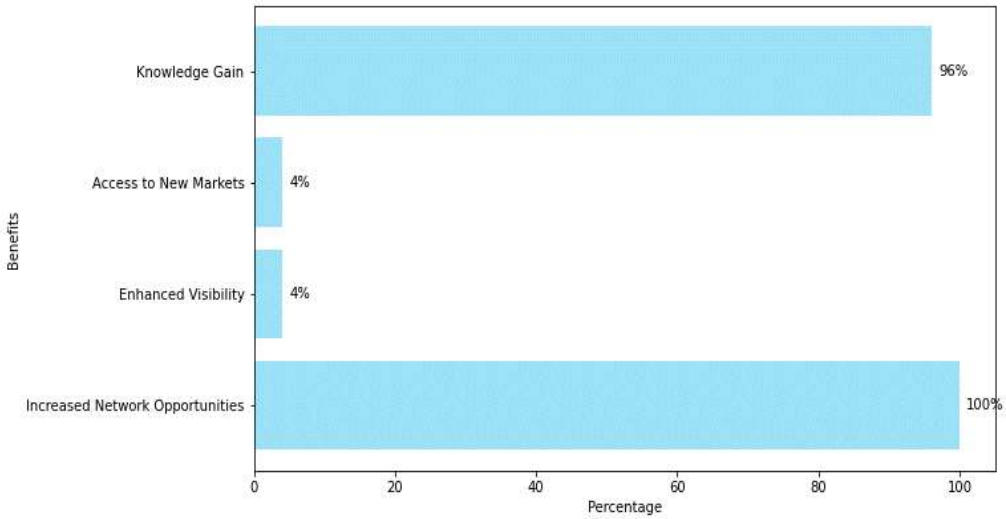


Figure 10: Benefits Derived from Participating in HortiNigeria Program-sponsored Events

In terms of regional adaptability, 60% of program staff recognize HortiNigeria's capacity to tailor approaches to local contexts. For instance, in Ogun and Oyo, the program proactively promoted agricultural produce suitable for the southwest region, showcasing an understanding of and adjustment to regional needs. However, opinions diverge on collaboration among consortium partners, with 60% indicating limited collaboration and 40% affirming collaboration. Some program staff noted challenges within the consortium structure, emphasizing the impact of personal agendas among partners on the program's responsiveness. This highlights the importance of effective collaboration and the need to overcome consortium-related obstacles. The findings related to youth empowerment and adaptability present a balanced perspective, with 50% program staff acknowledging HortiNigeria's efforts and the remaining 50% expressing reservations. Key informants highlight the program's responsiveness to changing circumstances, such as beneficiaries funding challenges (Low capital), demonstrating its adaptability. The emphasis on supporting disadvantaged individuals in the north and engaging those with more opportunities in the south reflects a nuanced approach based on the specific conditions of each region.

4. CONCLUSIONS, LESSONS LEARNED, AND RECOMMENDATIONS

Conclusion

In conclusion, the HortiNigeria Program stands as a beacon of progress in Nigeria's horticulture sector, having made significant strides in addressing key challenges and advancing sustainable practices. Through its holistic strategy, adaptability to local contexts, and collaborative efforts, the program has demonstrated effectiveness in empowering stakeholders and improving livelihoods. While facing obstacles such as limited market access and bureaucratic hurdles, HortiNigeria has shown resilience and responsiveness, emphasizing its commitment to achieving long-term impact. Moving forward, sustained collaboration, targeted interventions, and strategic planning will be crucial to build upon the program's successes and ensure its continued positive influence in Nigeria's agricultural landscape, fostering resilience, prosperity, and sustainability for generations to come.

Lessons Learned

The following provides some key lessons learned from the review:

1. **Tailored Approaches Yield Success:** The HortiNigeria Program's nuanced approach in addressing diverse beneficiary needs led to significant impacts, with 80% of key informants strongly agreeing on its responsiveness. For instance, surpassing midterm targets by 90%, Component 1 supported 56,876 smallholder farmers, showcasing the effectiveness of tailored training strategies. This emphasizes the importance of personalized support mechanisms in achieving program objectives.
2. **Policy Alignment Spurs Progress:** Aligning with government policies and engaging in policy formulation bolstered program coherence, with 50% of key informants strongly affirming alignment. Despite challenges highlighted by the Kano State Ministry of Agriculture regarding policy shifts, the program's proactive engagement in policy advocacy resulted in tangible outcomes, such as identifying three policies and brokering partnerships, showcasing the importance of policy alignment in driving sectoral growth.
3. **Collaboration Enhances Impact:** Robust collaborations with stakeholders, affirmed by 75% of program staff, were instrumental in shaping outcomes. Component 4's success in identifying 196 business-to-business opportunities and brokering partnerships underscored the significance of collaborative efforts in expanding market access and advocating for policy enhancements, highlighting the transformative potential of strategic partnerships.
4. **Adaptability Drives Resilience:** The program's adaptability and strategic engagement were key in navigating challenges and seizing opportunities. Despite obstacles in accessing finance and improving horticultural policies, the program's ability to adapt, as acknowledged by 75% of key informants, ensured continued progress. This underscores the importance of flexibility in responding to dynamic agricultural landscapes, fostering resilience, and long-term relevance.
5. **Efficient Resource Management Drives Productivity:** The HortiNigeria program's success in efficiently managing resources is evidenced by a 65% increase in agricultural production volume within the first two years. By emphasizing alignment with objectives and prudent resource utilization, the program achieved tangible results, with specific indicators showcasing efficiency gains. For instance, the program's intervention led to a notable

8,298.9 kg/ha increase in cabbage production, highlighting the positive impact of efficient resource management on productivity.

6. **Timeliness and Adherence to Targets Require Continuous Improvement:** While the program demonstrated efficiency in resource management, challenges in timeliness and adherence to targets emerged as areas for improvement. Stakeholder perceptions regarding the program's timeliness varied, indicating the need for enhanced monitoring and evaluation strategies to ensure prompt delivery of outcomes. Addressing these concerns is crucial for sustaining momentum and maximizing the program's impact. For instance, streamlining reporting processes and establishing clear baseline values for performance indicators can enhance accountability and facilitate timely decision-making.
7. **Value Creation Demands Strategic Alignment and Market Resilience:** The HortiNigeria program's impact on the value of horticulture production underscored the importance of strategic alignment and market resilience. While certain crops experienced declines in value, others saw improvements, reflecting market dynamics and external factors. For example, tomato production exhibited a positive difference of $192.99 per hectare, indicating a 6.41% improvement, highlighting the program's ability to capitalize on market opportunities and enhance economic viability for farmers.
8. **Sustainability Relies on Policy Alignment and Continuity Planning:** Achieving sustainability hinges on effective policy alignment and continuity planning. Despite positive feedback on policy influence, concerns lingered regarding the program's long-term viability and continuity beyond external support. Developing a clear sustainability and exit strategy is imperative for ensuring lasting impact, as highlighted by stakeholder perspectives. By addressing challenges such as uncertain durations and potential shifts in government policies, the program can fortify its resilience and secure sustained success.
9. **Importance of Targeted Training Initiatives:** The success of Component 1 in exceeding midterm targets for supporting women and young smallholder farmers (130% and 248% achievement, respectively) underscores the effectiveness of targeted training initiatives. Training efforts focused on eco-efficient production and postharvest practices, delivered through Technical Field Officers (TFOs), proved notably successful, surpassing midterm targets by 60% and 119%. This highlights the importance of tailored training programs to address specific needs and challenges faced by different demographic groups within the horticulture sector.
10. **Need for Gender-Sensitive Market Access Strategies:** Component 2's remarkable performance in facilitating market access for women and young Entrepreneurial Farmers (EFs), achieving 1,260% and 1,972% of the target, respectively, emphasizes the importance of gender-sensitive strategies in promoting economic opportunities. Despite challenges such as transportation costs and exploitation by middlemen, the program's efforts underscore the significance of addressing gender disparities in accessing markets to foster economic inclusivity and empowerment within the horticultural value chain.
11. **Challenges in Ensuring Gender Equity in Entrepreneurship:** Component 3's progress in promoting youth entrepreneurship, surpassing midterm targets by 652%, highlights the effectiveness of training initiatives in equipping young entrepreneurs with essential skills. However, the performance concerning women-led MSMEs, while exceeding midterm targets at 160%, indicates challenges in ensuring gender equity in entrepreneurship. The relatively

low access to finance among women-owned horticultural-related MSMEs (25%) underscores the need for enhanced strategies to promote gender inclusivity and equity within entrepreneurship programs.

12. **Synergy and Gaps Across Program Components:** The inter-component relationships reveal both areas of synergy and gaps in addressing gender and youth issues. While Component 1 lays the groundwork for Components 2 and 3 by providing essential skills and knowledge, challenges in reaching women smallholder farmers highlight a gap in gender inclusivity. Component 2 excels in facilitating market access, benefiting the youth and women targeted by Component 3, yet Component 3 struggles with achieving its objectives, particularly in ensuring gender inclusivity and equitable access to finance for women-owned MSMEs. These insights underscore the importance of addressing gender disparities and enhancing collaboration among program components to maximize impact and ensure equitable opportunities for all participants.
13. **Importance of Effective Communication and Coordination in Partnership Formation:** The survey data reveal that communication and coordination issues, along with cultural mismatches, were common barriers reported by 48% of respondents. Additionally, 68% of MSMEs in the south cited unclear roles and responsibilities as significant hurdles. This underscores the critical importance of establishing clear expectations, fostering mutual trust, and improving communication channels to enhance the likelihood of successful business partnerships among entrepreneurial farmers.
14. **Addressing Financial Constraints for Innovation Adoption and Market Access:** Eighteen percent of MSMEs and EFs encountered obstacles in adopting innovations, primarily due to initial investment costs (61.11%) and energy costs (93.06%). Moreover, 40% of SMEs faced challenges in maintaining consistent market access, primarily due to transportation costs (100%) and exploitation by buyers and market officials (68.75%). These findings emphasize the need to address financial constraints to ensure the successful adoption of innovations and sustained market access for entrepreneurs in the horticulture sector.
15. **Building Trust and Collaboration for B2B Partnerships:** A widespread consensus (85.71%) among B2B partners highlighted significant challenges in business-to-business partnerships within the horticulture sector. Key obstacles include access to finance (15.6%), policy issues (12.5%), trust, and collaboration (15.6%). Building successful relationships and fostering collaboration over competition is essential to overcome these challenges and achieve mutually beneficial partnerships.
16. **Mitigating Financial, Operational, and Market Challenges for Agro-Dealers and Innovation Providers:** Seventy-five percent of agro-dealers identified financial constraints as a major challenge, while innovation providers emphasized regulatory complexity (66.67%), high implementation costs (66.67%), limited market access (66.67%), and dependency on imported inputs (66.67%). Addressing these challenges requires strategic approaches to improve financial sustainability, streamline regulatory processes, reduce implementation costs, enhance market access, and promote local sourcing of inputs.
17. **Effective Climate Change Mitigation Strategies Yield Positive Results:** The HortiNigeria program's proactive introduction of innovative eco-efficient production techniques has significantly impacted smallholder farmers in the north, with 96% affirming

a measurable reduction in the impact of climate change on their farming activities. Notably, practices such as water conservation have been particularly appreciated by 32.60% of farmers. These findings underscore the importance of implementing targeted climate resilience strategies to address environmental challenges and enhance agricultural sustainability.

18. **Integrated Approach to Market Access and Climate Resilience Enhances Program Impact:** The program's strategic focus on addressing market access challenges, alongside initiatives for climate-resilient farming, has demonstrated positive outcomes. Adoption rates of 79% for innovative crop varieties and 48% for Smart Greenhouses highlight the effectiveness of the program in facilitating access to competitive markets like Lagos while promoting climate-resilient agricultural practices. This integrated approach enhances the program's impact and sustainability in addressing multifaceted challenges.
19. **Investment in Knowledge-Sharing Events and Trade Fairs Facilitates Collaboration and Knowledge Exchange:** Despite the majority of EFs and SMEs not attending HortiNigeria-supported knowledge-sharing events, positive feedback from participants indicates their perceived benefits in terms of improved practices and collaboration. Similarly, engagement in horticulture-designated fairs or trade fairs has led to increased network opportunities (100%) and knowledge gain (96.15%). These findings emphasize the importance of investing in such events to facilitate collaboration, knowledge exchange, and market access within the horticulture sector.
20. **Effective Collaboration and Regional Adaptability are Crucial for Program Success:** While the program demonstrates regional adaptability, with 60% of staff recognizing its capacity to tailor approaches to local contexts, challenges within the consortium structure highlight the importance of effective collaboration. Divergent opinions on collaboration among consortium partners underscore the need to address personal agendas and overcome obstacles to collaboration. Lessons learned emphasize the critical role of effective collaboration and regional adaptability in enhancing program responsiveness and effectiveness.

Recommendations

The following provides some actionable recommendations based on findings and learnings from the MTR for improved and continued impact:

1. Strengthen Stakeholder Engagement and Collaboration

Action Steps:

- Implement a feedback mechanism, such as quarterly surveys or focus group discussions, to gather input from beneficiaries and stakeholders on program effectiveness and relevance.
- Facilitate knowledge-sharing platforms, such as webinars or community-based learning sessions, to disseminate lessons learned and promote peer-to-peer learning among stakeholders.
- Develop joint projects and initiatives with partner organizations to leverage resources, expertise, and networks for greater impact and sustainability.

2. Foster Financial Resilience through Farmer-Institution Linkages

Action Steps:

- Identify and establish partnerships with local financial institutions, banks, and microfinance organizations to design customized financial products that cater to the specific needs of horticultural entrepreneurs
- Learn from the USAID funded Agribusiness Investment Activity and focus on technical assistance to SMEs that will make them investment ready. Key intervention could include deal room to connect financiers and SMEs; financial literacy training for farmers and EFs to enhance their understanding of financial mechanisms; and training of agribusinesses on pitching skills in collaboration with BDSP – Business Champions
- Forge partnership with financial institutions and develop a framework for transparent and fair loan processes, ensuring accessibility and affordability for farmers and EFs.
- Promote the importance of financial planning and saving practices among farmers to foster long-term financial resilience.

3. Improve Tailored Training and Support Mechanisms

Action Steps:

- Conduct a needs assessment to identify specific training needs and preferences among different beneficiary groups, considering gender, age, and geographic location.
- Develop customized training modules and materials tailored to the diverse needs and learning styles of smallholder farmers, agro-input dealers, and MSMEs.
- Implement peer-to-peer learning exchanges and farmer field schools to promote knowledge sharing and practical skills development among program participants.
- Provide ongoing mentorship and coaching support to smallholder farmers and MSMEs, linking them with experienced practitioners and industry experts.
- Establish community-based support networks and farmer cooperatives to facilitate collective action, resource sharing, and market linkages among program participants.

4. Continue to Foster Innovation and Adaptability

Action Steps:

- Establish an innovation fund to support pilot projects and experiments aimed at testing new approaches, technologies, and business models within the horticultural sector.
- Encourage staff and partners to explore innovative solutions to address emerging challenges and capitalize on opportunities, fostering a culture of creativity and experimentation.
- Facilitate knowledge exchange and cross-learning with other horticultural programs and initiatives, both nationally and internationally, to stay abreast of best practices and trends.
- Conduct regular risk assessments and scenario planning exercises to anticipate and mitigate potential threats to program implementation and sustainability.
- Develop a flexible and adaptive management approach, allowing for iterative adjustments and course corrections based on changing contexts and stakeholder feedback.

5. Strengthen Monitoring and Evaluation Processes:

Action Steps:

- Assess the current monitoring and evaluation processes and make necessary improvements to ensure accuracy and completeness of data.

- Establish clear baseline values for all performance indicators to facilitate accurate progress tracking.
- Maintain a routine schedule for regular reviews of program performance, allowing for timely identification of challenges and successes.
- Encourage the program to review the reporting system for reporting on all the performance and progress using output and outcome indicators at the goal level along with established baseline data and performance targets.

6. Promote Market Resilience and Economic Viability

Action Steps:

- Develop market intelligence systems to monitor price fluctuations and anticipate market trends, enabling proactive decision-making.
- Facilitate access to finance and market linkages for smallholder farmers to enhance their resilience to market uncertainties.
- Provide capacity-building programs on value chain development and market diversification to empower farmers to explore new opportunities.

7. Strengthen Sustainability Planning and Policy Alignment

Action Steps:

- Engage with key stakeholders, including government agencies and regulatory bodies, to ensure alignment with existing policies and regulations.
- Refine and implement the existing sustainability and exit strategy to ensure seamless transition to local ownership and management
- Revise the existing sustainability and exit strategy to include key elements that addresses long-term impact including strategies for financial independence, community involvement, and possible policy shift in the sustainability plan. An urgent need to leverage on government structures from the relationships that had been established to ensure the sustainability of the program after closeout will be critical.
- Conduct periodic reviews of the sustainability plan to address emerging challenges and adapt strategies as needed.

8. Enhance Gender-Specific Training Initiatives

Action Steps:

- Conduct a comprehensive assessment to identify specific needs and challenges faced by women and young farmers in horticulture.
- Develop tailored training programs focused on eco-efficient production and postharvest practices, leveraging the success of Component 1's training efforts.
- Expand the deployment of TFOs to reach a larger audience of women and young farmers, ensuring equitable access to training opportunities.

9. Promote Cross-Component Collaboration and Synergy

Action Steps:

- Facilitate regular meetings and knowledge-sharing sessions among program components to foster collaboration and synergy in addressing gender and youth issues.

- Identify opportunities for joint interventions and initiatives that leverage the strengths of each component to maximize impact and outcomes.
- Develop a coordinated monitoring and evaluation framework to track progress and identify areas for cross-component support and alignment.

10. Enhance Communication and Coordination in Partnership Formation

Action Steps:

- Develop clear communication channels and protocols for all stakeholders involved in business partnerships.
- Implement regular meetings or check-ins to discuss progress, address concerns, and align expectations.
- Provide training or workshops on effective communication and cultural sensitivity to improve collaboration among entrepreneurial farmers and partners.

11. Promote Trust and Collaboration in B2B Partnerships

Action Steps:

- Foster a culture of trust and collaboration through joint initiatives, knowledge-sharing platforms, and capacity-building workshops.
- Establish clear guidelines and agreements outlining roles, responsibilities, and mutual benefits for all B2B partners.
- Encourage transparency and open communication to address concerns and build stronger relationships among stakeholders in the horticulture sector.

12. Strengthen Market Access Initiatives with a Focus on Innovation Adoption

Action Steps:

- Expand efforts to promote innovative crop varieties and Smart Greenhouses, especially in regions like Lagos where market competitiveness is crucial.
- Provide targeted support and incentives for entrepreneurs to adopt climate-resilient farming practices, emphasizing the link between innovation adoption and improved market access.
- Foster partnerships with market stakeholders, such as wholesalers and retailers, to ensure the availability and promotion of climate-resilient produce to consumers.

ANNEX 1: HORTINIGERIA PROGRAM OVERVIEW

Beginning in November 2021 and closing in October 2025, HortiNigeria, with IFDC as the prime implementing partner, aims to facilitate the development of a sustainable and gender- and youth-inclusive horticultural sector that contributes to food & nutritional security in Nigeria. Furthermore, it has a geographic concentration on the following four states: Oyo, Ogun, Kaduna, and Kano states. The MTR will cover a total of 32 Local Government Areas (LGAs) across the four states, including 8 LGAs in Kano state, 7 LGAs in Kaduna state, 7 LGAs in Ogun state, and 10 LGAs in Oyo state.

The HortiNigeria program is designed to facilitate the development of a sustainable and gender- and youth-inclusive horticulture sector that contributes to nutritional security in Nigeria. Overall, the goal is aligned with the Dutch and Nigerian food security and private sector development objectives and fits within the framework of the larger transformation of food systems in Nigeria. The program will foster change through scaling proven eco-efficient production technologies for sustainable intensification, deepening value chain relations and performance and promoting innovation in the enabling environment. It seeks to bolster smallholder farmers' social capital and contribute to their market empowerment, with a particular focus on women and youth, and it will incentivize value chains and support the sustainable integration of entrepreneurial farmers into profitable markets. At the end of the HortiNigeria program, the Dutch Government expects to see a remarkable increase the productivity and income of 60,000 smallholder farmers, half (50%) of whom will be youth and 40% women, resulting to the production value of 9.7 million euros by the end of year 4; increase sustainable land use by 15,000 hectares; adoption of new knowledge and technologies for at least 2,000 entrepreneurial farmers (50% youth and 40% women; and development of business and investment plans by 25 horticulture-related small and medium-sized enterprises (SMEs) to invest, trade, or provide services. Half of these SMEs will be youth-owned, and 40% will be female-owned.

The HortiNigeria program uses a systematic and adaptive strategy in facilitating an improved sustainable production system, agribusiness, investment climate, and enabling environment all of which play a pivotal role in catalyzing an inclusive, sustainable, and competitive horticulture sector. The program leverages on the multi-annual Country Strategy of the Embassy of the Kingdom of the Netherlands (EKN) as outlined its plan to support Nigeria's vegetable sector in a sustainable manner. Currently, Nigeria is unable to meet the local demand for vegetables, specifically tomatoes, onions, and okra. This creates a supply gap of around 13 million metric tons. However, by focusing on the development of this sector, there is an opportunity to address this gap while achieving multiple benefits. The program partners with private sector -- MSMEs, financial services providers (FSPs), and other relevant government entities. The program works directly with these and other agribusinesses, as well as the suppliers, distributors, financiers, aggregators, investors, and business service providers within their horticulture value chains, to assist them in realizing their growth objectives. See Annex 3 for details of the major activities and key interventions that have been designed to create the intended intermediate, sub-intermediate, and final outcomes as well as the overall goal of the project.

The HortiNigeria program builds on lessons learned from Dutch supported and other successful horticulture projects, capitalizes on existing structures and partnerships in Nigeria, empowers gender and youth inclusion, takes climate and environmental action, and develops the private sector and builds trust between value chain actors. The program builds on experience and expertise of

existing Nigerian partners, as well as the existing infrastructure and networks of all consortium partners, and incorporates lessons learned to consolidate and scale up.

Overall, the HortiNigeria program is designed to double smallholder productivity and income; achieve ecologically sustainable land use and climate-resilient farms; create direct jobs through private sector development programs; engage Dutch and local businesses with a well-supported plan to invest, trade, or provide services; improve access to finance and enhance the inclusivity and effectiveness of financing infrastructure; and enhance access to digital solutions. Through the provision of capacity-building technical assistance and transaction facilitation, the HortiNigeria's program is anticipated to improve the competitiveness of the Horticulture value chains in Nigeria. Critical interventions around access to improved seeds; digital extension services; sustainable production practices; access to data; agribusiness facilitation; business-to-business linages; innovations around enabling environment; and coordination among market actors would lead to:

- *Proven efficient production technologies for sustainable intensification.*
- *Deepened value chain relations and performance*
- *Promotion of innovation in the enabling environment*

Theory of Change

The overall theory of change for the HortiNigeria program is depicted in Figure 1 below (See detailed Result Framework in Annex 4). It shows the pathways by which the program will achieve its goal of promoting a more inclusive sustainable horticulture sector that contributes to food and nutrition security in Nigeria. This framework is central to the management, monitoring, and evaluation of the program.

Theory of Change for the HortiNigeria Program

Impact	**A sustainable and inclusive horticulture sector that contributes to food and nutrition security in Nigeria**								
	1		**2**					**3**	
Impact Pathways	Proven eco-efficient technologies for sustainable intensification are scaled		Value chain actors are competitive and high performing					The enabling environment is conducive and promoting innovation	
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**
Outcome	Increased yields of vegetable farmers	All-year round sustainable production of vegetables	Value chain actors plan and manage their resources	Business transactions among value chain actors increased	Market opportunities for value chain actors and SMEs are increased and diversified	Access to markets for value chain actors and SMEs are increased and diversified	Finance-driven bottlenecks in the value chains are solved	Policies and regulations become conducive and increase sector performance	Ongoing dialogue on sector bottlenecks and B2B opportunities are enhanced
Target areas	**Kano, Kaduna**	**Oyo, Ogun**	**Oyo, Ogun**	**Kano, Kaduna**	**Kano Kaduna**	**Oyo, Ogun, Kano, Kaduna**	**Oyo, Ogun, Kano, Kaduna**	**Nigeria federal level**	**Nigeria federal level**
	1.1.1	**1.2.1**	**2.1.1**	**2.2.1**	**2.4.1**		**2.5.1**	**3.1.1**	**3.1.2**
Outputs	Smallholders have built their capacities and are able to use digitalized extension information	Sustainable production systems are piloted and	Use of and access to data has been piloted	Agribusiness clusters formed	Business services are improved, and B2B linkages brokered		Access to financial solutions is facilitated	Innovations in the enabling environment are promoted	Coordination mechanisms in the sector has improved

	promoted						
1.1.2 Access to and use of agro-inputs improved							

The HortiNigeria program Theory of Change is articulated in the Logic Model presented in Figure 1 above. It utilizes three impact pathways as shown below:

Pathway 1: Scaling proven eco-efficient production technologies for sustainable intensification.

Pathway 2: Deepening value chain relations and performance.

Pathway 3: Promoting innovation in the enabling environment.

The Theory of Change is summarized as follows:

IF

The vegetable sector in the target states in Nigeria is made inclusive (gender and youth), productive, and profitable through:

- Promotion and adoption of eco-efficient production systems; and
- Facilitation of improved access to and use of adequate agricultural input, good agronomic practices, and post-harvest technologies; and
- Setup of improved logistics contributing to transport, storage, and marketing of vegetable products; and
- Establishment of functional agribusiness clusters for vegetable growers to improve their production, planning, and marketing skills.

AND IF

The bottlenecks hindering the development of the vegetable sector are diminished and an enabling environment is strengthened profitable through:

- Promotion of access to finance for SMEs in input supply and business service provision; and
- Creation of platforms for greater interaction to build trust among vegetable sector stakeholders.

THEN

Smallholder farmers, including women and youth, will experience a quantitative and qualitative increase in vegetable production, receive a higher return on investment, and generate higher household incomes and improved availability and access to nutritious foods.

LEADING TO:

The desired change of an inclusive and sustainable horticulture sector that contributes to food and nutrition security in Nigeria to be achieved, they require three key pathways of change. Please see Annex 5 for the set of performance quantitative indicators that will be used to measure the outputs and outcomes of the HortiNigeria program.

HortiNigeria program will build farmers capacities to be able to use digital extension information in Kano and Kaduna states; facilitate the piloting and promotion of sustainable production systems in Oyo and Ogun states; pilot the use and access to data in Oyo and Ogun states; facilitate the formation of agribusiness clusters in Kano and Kaduna states; and improve business services and broker B2B linkages in all the target states; facilitate access to finance in all the target states; and promote innovations in the enabling environment; and improve coordination mechanism in the sector at the Federal level.

The program's development hypothesis presumes that a poor agribusiness-enabling environment and weak agricultural infrastructure discourage private sector investment and hinder food security. Therefore, the program will diminish critical bottlenecks hindering development of the vegetable sector and strengthen the enabling environment through the promotion of access to finance for SMEs in input supply and business service provision; and creation of platforms for greater interaction to build trust among vegetable sectors stakeholders. In addition, the HortiNigeria program will facilitate the promotion and adoption of eco-efficient production systems; facilitate improved access to and use of adequate agricultural inputs, good agronomic practices, and post-harvest technologies; setup of improved logistics contributing to transport, storage, and marketing of vegetable products; and establish functional agribusiness clusters for vegetable growers to improve their production planning and marketing skills. These will capacitate smallholder farmers, including women and youth, and enable the program to will increase yield of vegetable farmers, guarantee all-year round sustainable production of vegetables in the four target states; value chain actors will be able to plan and manage their resources; business transaction among value chain actors will increase; there will be increased and diversified access to markets and market opportunities for actors and SMEs; and finance-driven bottlenecks along the value chains are resolved; policies and regulations become conducive and increase sector performance; ongoing dialogue on sector bottlenecks and B2B opportunities are enhanced. The vegetable sub-sector in the target states will become competitive, innovative, self-reliant, and sustainable, contributing to improved livelihoods and the food and nutrition security of men, women, and youth.

Critical Assumptions and Challenges

There were a few critical assumptions for the HortiNigeria program to achieve its targets and objectives.

- Political Stability: The program will be able to build government networks at Federal and State levels, and monitor alignment with GON economic, non-oil private sector, and food security strategies.
- Safety and Security: Violence escalation in Nigeria may cause investors to withdraw.
- Foreign Exchange: Foreign currency exchange rate's impact on trade competitiveness must be considered.
- Weather & Seasonality: The timing of planting seasons must be monitored to take advantage of opportunities, while severe weather patterns could damage crop cycles.

- Prices: Rising costs of commodities such as petrol or imported inputs may reduce investments in expanding operations; the program focuses on technology, & better business practices to improve efficiencies & profitability.
- Internal Politics: Cooperation between Federal Government and State Governments is essential for policy reform success at both National & State levels; the program remains politically agnostic as a neutral third party funded by the US Government.
- Competition: Nigeria must keep up with global agricultural standards & certifications for successful exports & reduced imports.
- Business environment: Government, policymakers, FIs, private sector investors, and other stakeholders targeted by the project are receptive to new ideas, responsive to evidence presented, and committed to implementing and enforcing the outcomes of policy research and analysis.

ANNEX 2: METHODOLOGY

Data Collection

The Evaluation Team (ET) utilized a mixed-methods approach that employed both quantitative and qualitative research methods, involving the use of primary and secondary data in conducting the final evaluation. Primary data collection took place between December 11, 2023 and January 16, 2024. To gain broader insights into the evaluation questions, the ET undertook field visits to all the four states. This enhanced the team's understanding of factors and issues associated with the HortiNigeria program implementation at the local level. This facilitated, most especially, the collection of local level information that may not be available through secondary sources. Specifically, the ET was involved in data collection and directly engaged with the following sources of information during the field visits and data collection process: smallholder farmers associated with the HortiNigeria program, component leads of the program, implementing partners, and sector stakeholders. The ET worked closely with the Monitoring and Evaluation (M&E) team of the HortiNigeria program to ensure proper engagement with the respondents. Notice of the intended purpose of visit, date, and time were served ahead of the team's visit. This was to facilitate adequate preparation and the readiness of the partners prior to the engagement of the team with the partners/respondents. The data collection method included the review of relevant program documents, survey of selected farmers including *Entrepreneurial Farmers (EFs)*; key informant interviews (KIIs) -- *MSMEs (input suppliers, processors, off-takers, agrodealers, marketers, aggregators etc), Business Support Services (BSS) providers, innovators, private sector actors (Tomato Jos and Dangote)* active in the horticulture value chain); and focus group discussions (FGDs). Besides, the multiple sources of information, beneficiaries' spread across several locations, and the limited time available for the field work necessitated the use of online methods of data gathering in addition to in-person interviews especially with key informants. This was a good choice especially in situations where scheduling of appointments posed a challenge.

Survey

The ET conducted survey among selected farmers of the program, including the EFs, as well as some MSMEs, across the 27 LGAs in the four states.

Key Informant Interviews

The ET collected data from the program partners and stakeholders in collaboration with the HortiNigeria program team from the four states. The team conducted KIIs with a variety of stakeholders including Ministries, Department, and Agencies (MDAs); and other key partners that the ET identified from the document review. There were seven main groups of key respondents that were included in this evaluation:

1. HortiNigeria program staff (IFDC, WUR, KIT, and EWS-KT)
2. B2B partners.
3. Business Champions
4. Agrodealers
5. Financial institutions
6. Innovation providers
7. Ministries, Departments, and Agencies (MDAs)

The ET collected data from each of the stakeholder groups using protocols/tools designed for each stakeholders group, which allowed for all questions to be customized to fit the knowledge and perspectives of each stakeholder group. The final tools and protocols are provided in Annex 6.

Focus Group Discussions

For stakeholder groups with many representatives, like the producer organizations that participated in the program, a FGD was conducted to ensure a good representation of the group opinion and views. This enabled the ET to fully address each of the relevant review questions and to clarify several issues arising from the desk review. The required qualitative data was collected using an appropriate interview guide based on the category of respondents. The multiplicity of data sources and triangulation that the ET adopted in the evaluation ensured data validity throughout the review process.

Site Visits

In addition to the many KIIs that took place, the ET visited program sites to interview beneficiaries in communities, service providers, private sector entities engaging with farmers as indicated above.

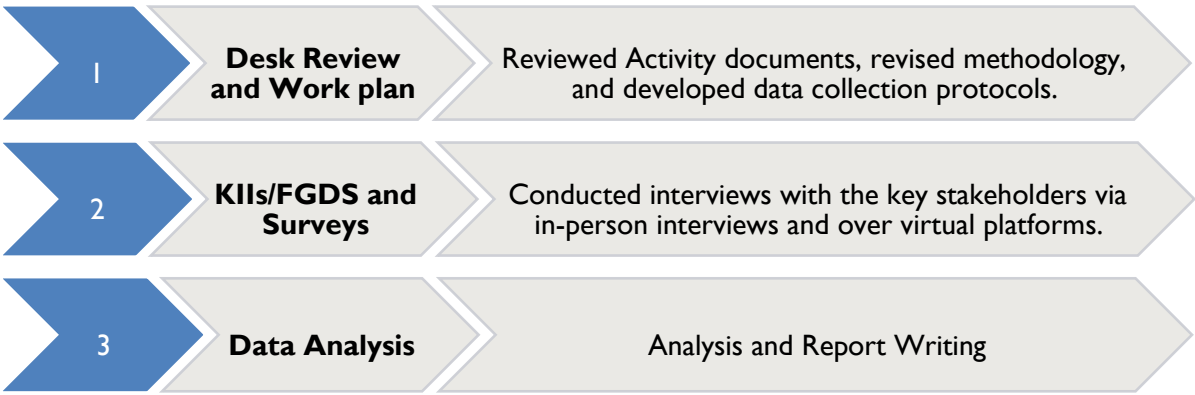
Documents Review

The ET carried out a desk review of the available documents to acquire in-depth information about the HortiNigeria program objectives, targets, scope, and expected outcomes. The desk was closely aligned with the specific research objectives of this MTR and was carried out prior to the field exercise. To assess the progress made by the program, the team conducted a thorough review of the program's annual work plans, alongside the corresponding annual reports for Years 1 to 2. This assessment specifically included a trend analysis using secondary data from the program's data sets

for each available year to determine the program's performance in achieving its intended outcomes. Summarily, the desk review provided the ET with some detailed information on the achievements as well as the gaps – mainly data or information gaps with regard to the evaluation questions. The document review process provided an opportunity for the ET to identify key areas that were probed further during data collection. In addition, the ET established the geographical scope, and the categories of stakeholders as well the required interview questions for each of the stakeholder's groups. Finally, a list of emerging questions that could assist the team in measuring the level of achievements made by the Activity and the gaps was documented.

MTR Design

The MTR was carried out in three stages (See Figure below):



Evaluation Process

Sampling

Sampling strategy

The sampling was designed to provide statistically representative and precise information for the program beneficiaries and partners. The HortiNigeria team provided the database of stakeholders including partners and beneficiaries across the program locations. This enabled the ET to determine the final list stakeholders and/or respondents that the ET needed to cover in the MTR. Thus, the final database required for the sampling consisted of program participants who were stratified by location and category of stakeholders/partners in the four states where the program is currently operating, and different participating groups. Essentially, a probability sampling approach was adopted in which respondents for primary data collection were randomly sampled. Regarding the respondents' categories, the target population for this review was the whole population that the HortiNigeria program is currently working with. Therefore, the ET applied a sample size formula with a margin of error of 5%, confidence level of 95%, and the standard deviation to determine the estimated sample sizes for the different respondents' categories especially for smallholder farmers and applied a 10% rate to sample the EFs and MSMSs for this review. Drawing reference to the existing data on program

participants, and applying the Cochran's Sample Size Formula for categories with large sample frames, the ET estimated a sample size of 610 respondents as shown in the Table 1 below. However, after the field exercise, a sample size of 636 was obtained (See Table). The list of stakeholders was obtained and validated; and the overall sampling strategy was modified and finalized in coordination with the HortiNigeria team. The ET tracked changes using cross-sectional data and comparison with baseline figures and projected targets. It is important to note that this was not a quasi-experimental design nor a full-fledged impact evaluation.

Distribution of Respondents and KII for the MTR

	Stratified Sampling				
Strata	**Sampling frames**	**Proposed sample sizes**	**Actual Sample Sizes**	**Method of data collection**	**Sampling Method**
HortiNigeria Program staff					
IFDC	NA	5	5	KII	Purposive
WUR	NA	3	3		
KIT	NA	3	4		
EWS-KT	NA	2	2		
MDAs	NA	5	5	KII	Purposive
Smallholder farmers	13,775	380	405	KII	Random using PPS
Entrepreneur farmers (EFs)	795	79	80	Survey	Targeted
MSMEs	36	36	33	Survey	Targeted
B2B partners	57	10	10	KII	Targeted based on approximately 10% of sample frame
Business Support Services (BSS)	14	14	12	KII	Purposive
Producer Organizations	472	50	50	FDG	Targeted based on approximately 10% of sample frame
Agrodealers	67	10	10	KII	Targeted based on approximately 10% of sample frame

Financial institutions	9	6	6	KII	Purposive
Innovation providers	7	7	5	KII	Purposive
Off-takers	0	0	3	KII	Purposive
Total		**610**	**636**		

Ethical Considerations

The team ensured sound ethical consideration during the data collection process. Respondents were informed about the purpose of the MTR and their consents were sought prior to the commencement of the data collection exercise. In addition, questions were asked with consideration for the respondents' personality and interests. Also, the team complied with the program standards of data collection. The team ensured that survey protocols do not reflect any sensitive information like the organizational mode of operations, which could later pose a threat to their performances. To achieve these, the ET trained the Research Assistants on critical elements of ethical consideration and other research ethics.

Quality Control and Oversight

As indicated above, both primary and secondary data were collected for this evaluation. The ET strengthened the validity of the data collected through triangulation by bridging information gaps from the documentary review using primary data from the field and cross-checking facts among stakeholders as the assessment progressed. The secondary data was obtained from the HortiNigeria program existing reports. The primary data was obtained through surveys, KIIs, and FGDs. As a quality control mechanism, the ET key members conducted all KIIs, the data collection supervisors conducted the FDGs in addition to supervising the enumerators, while the enumerators conducted the surveys. To minimize waste of time during the interview, all responses from the KIIs and FDGs were recorded via a digital recording device with the respondents' consent. Data were uploaded to a secure web-based platform using mobile phone or Wi-Fi networks, which helped to avoid data entry errors and allow for instant aggregation and real-time quality control. This made the programming of appointments efficient and fact-checking possible during subsequent stages of the evaluation. The ET members that conducted the interviews took handwritten notes on emerging key issues relating specifically to the evaluation questions and sub-questions. This was necessary for better interpretation of the data.

The HortiNigeria technical team also provided oversight functions to the consultant and provided the ET with technical and logistical support to assist with the respective beneficiaries identified for the review. A back-check exercise on 10% of total responses across the assessment areas was conducted to enhance accuracy, credibility, and correct anomalies in responses. It was also used to cross-reference responses to ensure data accuracy and identify any potential anomalies in responses.

Data Analysis

The ET used quantitative and qualitative analysis methods to analyze the data, with the help of MS Excel (for quantitative data), NVIVO, and python programming (for qualitative data). The quantitative analysis involved a descriptive analysis of selected parameters using datasets to assess the objectives of the MTR. The data obtained was then presented in a tabular/graphical format, employing suitable descriptive statistics to highlight pertinent areas in line with the objectives of the MTR. The ET employed a multi-stage approach to code and analyze the data derived from KIIs as follows. NVIVO, a qualitative statistical software, and Python, a versatile programming language, were utilized for conducting thematic and sentiment analysis.

- First, the interview guide questions were mapped to evaluation questions with the intent of aggregating and synthesizing results to answer the research questions and objectives.
- Second, the ET generated and coded themes from the responses to the interview questions and objectives.
- Third, the ET synthesized and matched the codes to the themes, with aggregation of similar themes thereafter.
- Finally, networks that capture the themes, evaluation questions, and key components of the analysis were synthesized for a visual representation of the results.

The ET applied robust data analysis techniques to draw evidence-based conclusions and recommendations. The data that the ET collected from key respondent groups was compared with the results from the program documents and reports to validate some key findings. The quantitative analysis addressed project implementation performance and the extent to which the project objectives have been achieved. The ET subjected some of the data obtained to descriptive analysis using suitable descriptive statistics (e.g., mean, percentages, etc.) focusing on performance indicators as variables and the proportion of respondents attesting to the relevance of the activities and the benefits derived. The information supplied by respondents varied across groups of stakeholders was also tabulated and described as a way of assessing the project's benefits and the different ways they are distributed among clients. Prior to final analysis, the ET organized an online sense making workshop with the HortiNigeria implementation team to present the initial findings in the form of data presentation to align with everyone's understanding of the results; before interpreting, discussing the findings, and validating conclusions and recommendations. This contributed to the quality of MTR report, as well as the likelihood of the uptake of key findings. The analytical approach in respect of each of the evaluation objectives and EQs is highlighted in Annex 5.

Gender, female empowerment, and social inclusion

The ET applied a gender lens to ascertain how gender equality and female empowerment have been integrated into program activities to date. The ET operationalized these considerations by ensuring that data collection tools included questions focused on important issues of gender and social inclusion, directed at a broad range of stakeholders to collect various perspectives and cross-validate findings from different segments of project implementation or beneficiary populations. As relevant to this review, this included, for example, the explicit or implicit ways that women, youth, or other potentially marginalized or disadvantaged groups were considered in the program design, how they

were included or excluded from the program interventions and the ways that such activities impacted them, whether intentional, unintentional, positive, or negative. Where relevant, sex- and age-disaggregated individual-level data will be analyzed and presented in the evaluation report.

Potential Risk and Limitations

The Table below summarizes the bias and challenges which could potentially undermine the quality/validity/timeliness of results.

Limitations and Mitigation Strategies

Study Limitations and Mitigation Strategies	
Bias	**Mitigation Strategy**
Response Bias is the risk that key informants may be motivated to provide responses that would be considered socially desirable or influential in obtaining donor support.	The ET mitigated this bias by eliciting explicit examples from participants, stressing confidentiality and the importance of objectivity to improve the program. Additionally, the evaluation team call upon a diverse group of stakeholders and multiple data sources to triangulate findings in order to answer EQs.
Selection Bias is an inherent risk when implementers help to facilitate contact with program recipients. There was a risk that the HortiNigeria program staff will refer the ET to the most active, responsive, or engaged stakeholders.	The ET mitigated this bias by preselecting respondents based on exhaustive list and program database.
Gender Bias was a risk because most individuals have a subconscious sense of appropriate roles and behavior for women and men.	The ET mitigated this bias by purposefully including women in group interviews and eliciting their opinion.
Challenges	**Mitigation Strategy**
Insecurity remains an issue in Nigeria and in particular in Kaduna and Kano states, with news of possible kidnapping activities.	While there was potential security threat such as in Kaduna and Kano states, the ET did not face any difficulty and data were collected as planned.
Limited availability of respondents since the data collection spilled over to the festive period and some key stakeholders may not be available.	While availability of respondents could have been an issue, the ET did not encounter any difficulties, and interviews were performed as planned. The ET mitigated this challenge by pre-planning interviews, being flexible in the planning process, and proposing virtual methods to accommodate respondent availability.

ANNEX 3: HORTINIGERIA MAIN PROPOSED INTERVENTIONS AND ACTIVITIES

The HortiNigeria program has designed specific and necessary activities to be undertaken to create the intended intermediate and sub-intermediate and final outcomes as well as the overall goal of the project. The HortiNigeria program is organized into four key components as outlined under the sub-themes below:

HortiNigeria Program Components and Activities

Components	Activities
Increasing Productivity and Income of Smallholder Farmers in Kaduna and Kano states	This component focuses on identifying farmers, providing training, resources, and access to and use of improved agro input to farmers, enabling them to adopt more efficient farming methods and thereby increase their crop yields and overall income.
Piloting Innovation Systems and Regional Diversification with Entrepreneurial Farmers in Ogun and Oyo states	This component involves identifying and testing new agricultural technologies and crop varieties in these states to diversify agricultural production and enhance the resilience of local farming systems.
Increasing Access to Finance for Micro, Small and Medium Enterprises (MSMEs) – Kaduna, Kano, Oyo, and Ogun states	This component aims to facilitate better access to credit and financial services for agricultural businesses, which can help them invest in new equipment, expand their operations, or manage risks more effectively.
Enhancing Sector Coordination and Business-to-Business (B2B) Linkages – Kaduna, Kano, Oyo, and Ogun states	This component seeks to improve communication and collaboration among different actors in the horticulture sector, from farmers to suppliers to retailers, aiming to create a more integrated and efficient sector. Component 4 is also aimed at forging business linkages amongst stakeholders in the sector in all target areas.

Cross-cutting throughout these components is an integral inclusion of youth and gender. A detailed overview of the expected results by program components is presented in the Tables below, and a schematic overview of the results framework is presented in Annex 4.

Expected Results Under Component 1

Target	Impact Year 4
60,000 farmers (50% youth and 40% women)	• 1,200 key farmers intensively mentored to manage two demonstrations over 12 months (2,400 plots). • 12,000 core group farmers follow a full crop cycle intensively for 12 months. • 24,000 neighboring farmers attend regular field-based trainings over a 12-month period.
Target	**Impact Year 4**
	• 22,800 other farmers benefit from improved services and inputs of agro-input dealers.
Productivity increase	• 25% increase from total production area. • 130% increase on plots using sustainable intensification. • 25% increase in total production area, leading to the availability of an additional 64,155 MT of vegetables every year
Income increase	• U.S. $11,500,000 additional net income generated every year at the farm gate. • 26% increase in annual income per farmer (U.S. $192).
40 agro-input dealers	• Increased sales of U.S. $300,000 every year.
Vegetable traders	• Trading an additional 64,000 MT of better-quality vegetables.
Consumer nutrition	• Additional productivity sufficient to potentially increase per capita consumption of 4 million consumers by 60%. • Improved availability and affordability enable increase in vegetable consumption from 138 to 180g per day for 4 million lower income consumers
Sustainable land use	• 15,000 ha under sustainable production
20 Agribusiness Clusters	Vegetable Value chain actors build trust within themselves for a profitable business relation
600 SSPs	Provide Spray Services to farmers

Expected Results Under Component 2

Target	Impact Year 4
Number of farmers	• At least 2,000 active farmers (40% women, 50% youth) having 100% technology adoption rate.
Number of jobs created	• At least 500 (40% women, 50% youth) jobs created off-farm.
Number of innovations introduced	• At least 15 new technological innovations with a 75% adoption rate.
Increase in marketable volumes	• At least a 100% increase in yield as compared to open field/rainfed vegetable farming. • Increase in seasonal availability, quality, and diversity of vegetables.

Additional finance mobilized	• Increased SME access to credit valued at least U.S. $1,000,000.

Expected Results Under Component 3

Target	Impact Year 4
SME capacity building	• Scoping leads to 50+ SMEs identified for capacity building. • 50+ SMEs trained in business plan development, financial management, and brokering finance. • 200 B2B opportunities identified (see also Component 4), 100 B2B deals brokered.
Access to finance brokered	• At least 25 horticulture-related SMEs (10 female-led SMEs and 50% young SMEs (leaders under 35 years old) have developed business/
Target	**Impact Year 4**
	investment plans to mobilize private finance. • At least €4 million private SME-finance mobilized. • 20 agro-input companies have obtained finance through NIRSAL risk-sharing mechanisms. • At least €2 million finance mobilized for agro-input SMEs.
Pilot 2 innovations in access to finance	• 2 innovations for SME credit piloted and, if successful, implemented.
Job creation	At least 500 additional jobs (50% female, 50% youth) in horticultural SMEs created.

Expected Results Under Component 4

Target	Impact Year 4
Brokering business partnerships	• 200 B2B opportunities identified. • At least 100 B2B partnerships brokered.
Advocacy	• Road taxes reduced; taxes charged at fewer than 4 locations between Kano and Lagos (both states inclusive), from the current number of 20-25 points. • Importation of horticulture-specific fertilizers included in fertilizer law and law enforcement.
Strengthen horticulture sector platforms, AFGEAN and NABC	• Membership increased by 50%. • 4 policy constraints solved through successful lobby and advocacy. • Sector strategy for control of Tuta absoluta developed.

ANNEX 4: HORTINIGERIA RESULTS FRAMEWORK

Transition: Innovation Pathway

Geogr-aphy	Comp-onent	Activity	Performance			Outputs	Intermediate Outcomes	Final Outcomes	Target	Outcome Indicators
			2021	2025	2030					
Kaduna & Kano	1	Building Capacity of smallholder farmers in eco-efficient production, post-harvest practices				Output 1.1.1 Smallholder have built their capacities in eco-efficient production, and post-harvest; 2. Inclusive digitalized extension information is available and targeted to smallholders	Smallholder farmers apply sustainable production and post-harvest practices, and plan production in line with the market and use of digitalized extension information.	Yields of vegetable farmers in Kano and Kaduna are increased in a sustainable and eco-efficient manner, while the risks of seasonality and vegetable losses are reduced	T1	*60,000 smallholder farmers (SHFs) with improved productivity and income * 50% of the 60,000 SHFs are youth (<35 years) * 40% of 60,000 SHFs are women * 80% increase in income * 60% increased productivity * 60% of postharvest losses reduced * 15,000 ha of farms under sustainable land use
	1	Improved access to and use of digitized extension information								
	1	Improved access to and use of agro-inputs				Output 1.1.2 Access to and use of agro-inputs improved	Smallholder farmers have access to good quality inputs and apply those in a responsible and effective way	Yields are increased and yield losses are reduced	T3	*40 agrodealers deliver improved services to farmers * 600 SSPs deliver improved services to farmers; youth/women
	1	Form agribusiness clusters				Output 2.2.1 Agribusiness clusters formed	Value chain actors begin to leverage on trusted business relations within the sector	Business transactions among value chain actors increased	T4	* 20 agribusiness clusters formed * 8 partnerships brokered
	3	Facilitate value chain and SME finance				Output 2.5.1 Access to financial solutions is facilitated	Financial bottlenecks in Kano/Kaduna are addressed	Finance-driven bottlenecks in the value chains in Kano/Kaduna are solved	T6	*20 horticulture related SMEs have access to financial solutions to implement their business plans * 40% of the 20 horticultural related SMEs are female-owned enterprises
	4	Strengthen business level services / Broker B2B collaboration				Output 2.4.1 Business services are improved, and B2B linkages brokered	More actors in the sector start to connect and establish business relationships	Market opportunities for actors and SMEs increased and diversified	T5	* 100 business partnerships brokered and market opportunities increased among SMEs
Oyo & Ogun	2	Pilot eco-efficient production / sustainable intensification systems				Output 1.2.1 Sustainable production systems are piloted and promoted	Entrepreneurial farmers and SMEs have adopted sustainable production systems	All-year round sustainable production of vegetables is improved	T7	* 9 different innovative and viable vegetable production systems piloted * 5 local SMEs have piloted their local production systems innovation * 2,000 entrepreneurial farmers have adopted sustainable vegetable production systems/technologies/innovation * 30% of those farmers are youth (<35 years) * 40% of those farmers are women * 2 horti innovations shows organized
	2	Pilot on access and use of data				Output 2.1.1 Use of and Access to data has been piloted	Value chain actors use data for production planning and business transactions.	Vlue chain actors plan and manage their resources	T2	* 3 data systems piloted for 3 different types of actors
	3	Facilitate value chain and & SME finance				Output 2.5.1 Access to financial solutions is facilitated	Value chain actors have access to inclusive financial models.	Finance-driven bottlenecks in the value	T8	* Sustainable inclusive final models implemented * Access to € 2 million private finance

								chains in Oyo/Ogun are addressed and solved		facility to SMEs facilitated * 500 direct jobs supported of which at least 50% youth (<35 years) and 40% women
	4	Strengthen business level services / Broker B2B collaboration				Output 2.4.1 Business services are improved, and B2B linkages are brokered.	More actors in the sector start to connect and establish business relationships	Access to Lagos markets for actors and SMEs are increased and diversified.	**T9**	* 2,000 SME farmers have sustainable access to Lagos market * 50% of them are youth (<35 years) * 40% of them are women-owned
Federal level	**4**	Promote innovation in the enabling environment				Output 3.1.1 Innovations in the enabling environment are promoted.	Challenges in the horticulture enabling environment are tackled.	Policies and regulations become conducive and increase sector performance.	**T10**	* 2 major federal and state horticultural policies or regulations improved
	4	Enhance sector coordination				Output 3.1.2 Coordination mechanisms in the sector are improved.	Actors in the sector engage in the sector level discussions.	Ongoing dialogue on sector bottlenecks and B2B opportunities are enhanced.	**T11**	* 100 business partnerships brokered and B2B opportunities enhanced

Performance/Competitiveness Weak Satisfactory Good HortiNigeria Primary Moderate High

ANNEX 5: PERFORMANCE INDICATORS

The HortiNigeria program has a set of 21 performance quantitative indicators to measure outputs and outcomes. These indicators include required Performance Monitoring Plan (PMP) indicators, as well as others that are useful for timely management decisions and credibly reflect the actual performance of the activity and meet the donor criteria for performance indicators. They are direct, objective, practical, adequate, management useful, and reflect progress toward achieving results. The Table below below shows the 21 sets of indicators with level of achievements based on available reports from the HortiNigeria Monitoring, Evaluation, and Learning (MEL) office.

HortiNigeria Program Performance Indicators

Key Performance Indicator	LOA Target	Results to Date	% Achievement
Smallholder farmers (SHFs) with improved productivity and income: *50% of the 60,000 SHFs are youth (<35 years) and 40% of 60,000 SHFs are women, income increase by 80%, productivity increase by 60%, postharvest reduced by 60%*	60,000	55,164 Women - 68% Youth - 116%	92
Number of hectares under sustainable land use	15,000 hectares	2,567 hectares	17
Number of agrodealers delivering improved services to farmers	40	67	167
Number of SSPs delivering improved services to farmers; youth/women	600	0	0
Number of agribusiness clusters formed	20	15	75
Number of partnerships brokered under ABC	8	0	0
Number of horticulture related SMEs having access to financial solutions to implement their business plans: *40% are female-owned enterprises*	20	12	60
Number of different innovative and viable vegetable production systems piloted	9	18	200
Number of local SMEs that have piloted their local production systems innovation	5	2	40
Number of entrepreneurial farmers that have adopted sustainable vegetable production systems/technologies/innovation: *30% of those are youth (<35 years) and 40% are women*	2,000	TBD	TBD
Number of horticulture innovations shows organized	8	2	25
Number of data systems piloted for 3 different types of actors	3	TBD	TBD

Key Performance Indicator	LOA Target	Results to Date	% Achievement
Number of sustainable inclusive final models implemented	TBD	TBD	TBD
Value of private finance facility facilitated for SMEs	€ 6 million €2M (Agro-input) €4M (MSMEs)	49,614,169	0.83
Number of direct jobs supported of which at *least 50% youth (<35 years) and 40% women under comp 2*	500	70	15
Number of Entrepreneurial farmers having sustainable access to Lagos market: *50% of them are youth (<35 years), 40% of them are women-owned*	2,000	635	32
Number of major federal and state horticultural policies or regulations improved	2	2	100
Number of business partnerships brokered and B2B opportunities enhanced	100	129	129
Number of Entrepreneurial farmers trained	2,000	1,705	85
Number of innovation hubs established	20	14	70
Number of business plans developed by MSMEs	20	23	115
Number of Jobs created under compo 3	500	0	0
Number of HortiNigeria AFGEAN/NABC 'white papers 'for advocacy and policy reformed	12	TBD	TBD
% increase in the membership of existing platforms and associations supported	50%	TBD	TBD

ANNEX 6: OECD EVALUATION QUESTIONS

This MTR will address the following Evaluation Questions (EQ). In determining the achievement of these objectives, the evaluation will focus on relevance, coherence, effectiveness, efficiency, impact, and sustainability, and the following sub questions under the key evaluation questions will be answered:

1. Relevance: *Is the intervention doing the right things*?

- *To what extent do the intervention's objectives and design respond to the needs, policies, and priorities of the target group(s), global community, country, and partner/institution?*
- *Will it continue to do so if circumstances change?*
- *Are there existing gaps towards achieving the objective of the project?*
- *Are the assumptions on the theory of change and logic model still relevant?*

2. Coherence: *How well does the intervention fit*?

- *How compatible is the intervention with other initiatives in a country, sector, or institution (e.g., other donors, partner countries and institutions, 2030 Agenda and the Sustainable Development Goals (SDGs))?*

3. Effectiveness: *Is the intervention achieving its objectives*?

- *To what extent has the intervention achieved, or is expected to achieve, its objectives and results, including any variations in results across groups?*
- *Are there any significant positive or negative, intended, or unintended changes that the project had on the targeted beneficiaries?*

4. Efficiency: *How well are resources being used*?

- *To what extent does the intervention deliver, or is likely to deliver, results in an economic and timely way?*

5. Impact: *What difference does the intervention make*?

- *To what extent has the interventions generated, or is expected to generate, significant positive or negative, intended or unintended, higher-level effects?*
- *To what extent have interventions and results likely contributed likely to contribute to efficient production and productivity of the smallholder farmers across the key value chains in the implementation areas?*

6. Sustainability: *Will the benefits last*?

- *Are the anticipated positive results of the program, once implemented, realistic and likely to continue beyond the end of external support.*
- *What significant innovation (if any) can be replicated by other programs from the implementation?*

ANNEX 7: ANALYTICAL APPROACH AND DATA COLLECTION SOURCES TO ANSWER EACH EVALUATION OBJECTIVES AND QUESTIONS

EVALUATION OBJECTIVES AND QUESTIONS	STAKEHOLDERS	DATA COLLECTION SOURCE	ANALYTICAL APPROACH
Objective 1: Make an overall independent assessment of HortiNigeria's performance (intermediate outcome results) from inception to date, and the potential long-term impact, with a focus on	*Smallholder farmers in Kano and Kaduna* *Entrepreneurial farmers in Oyo and Ogun* *HortiNigeria program component leads & MEL.*	Survey and FDGs Document review.	Quantitative analysis of the variations in the responses from different categories of stakeholders. There was be quantitative analysis of program implementation and performance and the extent to which

progress towards its main objectives, relevance, coherence, effectiveness, efficiency, impact, and sustainability (according to the OECD-DAC criteria).			project objectives have been achieved. Some of the data obtained will be subjected to descriptive analysis using suitable descriptive statistics (e.g., mean, percentages, etc.) focusing on performance indicators as variables and the proportion of respondents attesting to the relevance of the activities and the benefits derived from the interventions. The information that was be supplied by respondents varied across groups of stakeholders and this was tabulated and described as a way of assessing the project's objectives.
Objective 2: Evaluate the program's response to key youth and gender issues, and its efforts to ensure gender balance, i.e., the program's objective to institutionalize systems and procedures promoting gender and youth inclusiveness	*Smallholder farmers in Kano and Kaduna* *Entrepreneurial farmers in Oyo and Ogun* *HortiNigeria program Youth and Gender lead*	Survey and FDGs Document review.	Quantitative analysis of the variations in the responses from different categories of stakeholders
Objective 3: Assess obstacles, bottlenecks, or outstanding issues from beneficiaries, service providers, consortium partners, or the donor side that may be limiting the program's successful implementation and achievement of results	*Smallholder farmers in Kano and Kaduna* *Entrepreneurial farmers in Oyo and Ogun* *HortiNigeria program component leads & MEL.* *HortiNigeria program Consortium partners*	Survey and FDGs Document review.	Qualitative analysis of the variations in the responses from different categories of stakeholders
Objective 4: Assess program responsiveness to implementation challenges. Providing an opinion (through review of available monitoring/evaluation study reports) on expected benefits upon full program roll-out.	*HortiNigeria program component leads & MEL.* *HortiNigeria program Consortium partners*	Survey and FDGs Document review.	Qualitative analysis of the enablers and inhibitors vis-à-vis project results

Objective 5: Formulate recommendations to improve program performance in a broad sense, and to adapt the theory of change and/or redistribute resources to high-performing or underdeveloped activities.	*Smallholder farmers in Kano and Kaduna* *Entrepreneurial farmers in Oyo and Ogun* *HortiNigeria program component leads & MEL.* *HortiNigeria program Consortium partners*	Survey and FDGs Document review.	Quantitative analysis of the variations in the responses from different categories of stakeholders
EQ1. **Relevance –** Is the HortiNigeria project and the delivery approach appropriate to advance the stated aims of the project? *Is the intervention doing the right things*? What adaptions should have been made to align these?	Government MDAs *HortiNigeria program Consortium partners* Financial institutions MSMEs LGA representative *HortiNigeria program component leads & MEL*	Document review; KIIs.	Both qualitative and quantitative analytical tools will be used. The interventions that are being implemented were analyzed quantitatively and qualitatively vis-à-vis the expected results.
EQ2. **Coherence –** *How well does the HortiNigeria program intervention fit*? *How compatible is the intervention with other initiatives in a country, sector, or institution (e.g., other donors, partner countries and institutions, 2030 Agenda and the Sustainable Development Goals (SDGs))?*	*Government MDAs* *HortiNigeria program Consortium partners* *Financial institutions* *MSMEs* *LGA representative* *HortiNigeria program component leads & MEL*	Document review; KIIs	Qualitative analysis of the effort the project as it aligned with other donor funded or government interventions in the target states.
EQ3. **Effectiveness –** *Was the implementation approach useful in achieving its stated objective, including any differential results across the various programmatic areas?*	*Government MDAs* *HortiNigeria program Consortium partners* *Financial institutions* *MSMEs* *LGA representative* *HortiNigeria program component leads & MEL*	Document review; KIIs	Qualitative analysis of the effort the program made to trigger impact among program beneficiaries.
EQ4. **Efficiency –** *How well were the resources used, and to what extent is the approach delivering results in an economic and timely fashion? Are there differences in efficiency across the various programmatic areas?*	*HortiNigeria program Consortium partners* *HortiNigeria program component leads, MEL & Operations*	Document review, KII .	Qualitative analysis of the effort the project made in delivering results in an efficient manner. Quantitative analysis of the variations in the responses from different categories of stakeholders
EQ5. **Impact –** *Is the project making a*	*Government MDAs*	Document review; KIIs	Qualitative analysis of the impact of the effort

difference in its stated areas of impact? In other words, to what extent can the HortiNigeria project be is expected to generate significant positive or negative, intended, or unintended, higher-level effects?	*HortiNigeria program* *Consortium partners* *Financial institutions* *MSMEs* *LGA representative* *HortiNigeria program component leads & MEL*		the program has made to trigger impact vis-à-vis the expected results.
EQ6. **Sustainability –** *Are any benefits observed likely to last, to extend beyond the direct period of investment?*	*Government MDAs* *HortiNigeria program* *Consortium partners* *Financial institutions* *MSMEs* *LGA representative* *HortiNigeria program component leads & MEL*	Document review; KIIs.	Comparison of sustainability measures/strategy developed by the program with what has been implemented. Comparison stakeholders' sustainability options with reality and with a view to determining how the desired change will be sustained.

ANNEX 8: INTERVIEW PROTOCOLS

HortiNigeria Mid-term Review Survey: Key, Core, Neighboring and Smallholder Farmers - North

Greetings! I am _____, representing the HortiNigeria Mid-term Review team. As a beneficiary of this program, your insights are crucial for evaluating HortiNigeria's impact on the horticulture sector in Nigeria. This interview is voluntary, taking less than an hour. Your feedback is confidential and will only be shared with the project team. Before we start, any initial questions? Are you ready to start? Yes __ No __. Your time and insights are greatly appreciated. Thank you!

Demographic information

1. Location: Kaduna _____ Kano _____

2. Gender: Male _____ Female _____

3. Age group: 18-25 _____ 26-34 _____ 35-50 _____ 51-65 _____ Over 65 _____

3b. Category of Farmers: Key Farmers_____ Core Farmers _____ Neighbouring Farmers _____

4. Education level: None_____ Quranic Education_____ Primary School _____ Secondary School _____ Vocational/Technical Training _____ College/University _____ Postgraduate Degree _____

5. Marital status: Single _____ Married _____ Divorced _____ Widowed _____

6. Household size: 0-2 _____ 3-5 _____ 6-10 _____ Above 10 _____

7. Main occupation: Farmer _____ Agrodealer _____ Processor _____ Aggregator _____ Storage service provider _____ Off-taker _____ Other (please specify): _____

8. Years of experience in Agribusiness: Less than 1 year _____ 1-5 years _____ 6-10 years _____ 11-20 years _____ Over 20 years _____

9. Type of farming operation (Multiple response): Crop Farming _____ Livestock Farming _____ Mixed Farming _____ Horticulture _____ Other (please specify): _____

10. Years of experience in horticulture: Less than 1 year _____ 1-5 years _____ 6-10 years _____ 11-20 years _____ Over 20 years _____

11. Size of farm (in hectares): Small (0-2 hectares) _____ Medium (3-10 hectares) _____ Large (11 hectares and above) _____

12. What year did you become a beneficiary of HortiNigeria? _____

13. How did you hear about the HortiNigeria program? Word of mouth _____ Radio / Television _____ Extension services _____ Online platforms(WhatsApp, Facebook, LinkedIn, YouTube, google search) _____ Other (please specify): _____

14. Frequency of interaction with HortiNigeria: Daily _____ Weekly _____ Monthly _____ Occasionally _____ Rarely _____ Never _____

15. Preferred communication channel for program updates: SMS/Text _____ Email _____ Phone calls _____ Social media _____ Community meetings Other (please specify): _____

I. Production Component

1.1. Key Interventions

Peer-led, Market-Driven Field Demonstrations

1. In the HortiNigeria project, what type of farmer are you? Core Farmer _____ Key Farmer _____ Neighboring Farmer _____ Others _____

2. Have you participated in any Peer-led, Market-Driven Field Demonstrations facilitated by the HortiNigeria project? Yes _____ No _____

3. In what ways have you been involved in or benefited from peer-led, market-driven field demonstrations for crop production? Improved knowledge of agro-practices _____ Adoption of new techniques _____ Improved yields _____ Other (please specify) _____

4. How have these field demonstrations influenced your farming practices, and are there specific techniques or practices you have adopted as a result? Yes _____ No _____ Not applicable _____

Agribusiness Cluster Development and Food Loss Reduction

5a. Have you heard or identified any specific agribusiness clusters that have been established or supported in your locality? Yes _____ No_____

5b.If Yes? Are you currently a member of any producer organization that belongs to an agribusiness cluster (ABC) developed through the HortiNigeria project? Yes _____ No _____

6. How has the promotion of agribusiness cluster development contributed to the reduction of food losses in your community? Improved storage facilities,_____ Better transportation infrastructure _____ Adoption of modern post-harvest techniques _____Others _____ Not applicable _____

6b. Are there specific strategies or technologies implemented within agribusiness clusters to address post-harvest losses? Yes _____ No _____ Not Sure _____

6c. If yes? Which of the following technologies implemented by the program are the most beneficial to you. Cold Storage facilities _____ Training programs on proper handling of storage _____ Introduction of new packaging methods _____ Others_____ None _____

7. In what ways have you personally benefited from the agribusiness cluster? Shared knowledge _____ Economic benefits _____ Increased yield _____ Enhanced market access _____ Increased input access ___ Increased bargaining power _____ Not applicable _____

7b. Do you think women and youth are adequately represented in the clusters? Yes _____ No _____

Digital Solutions to Complement Knowledge

8. Have you utilized any digital solutions (Ignitial, radio, WhatsApp, Facebook etc.) provided by the HortiNigeria program to enhance your agricultural knowledge? Yes _____ No _____

8b. Which of the digital solutions deployed by the program to disseminate knowledge have you encountered most or most preferred? Ignitial _____, Growhow ___ Radio _____, WhatsApp _____, Facebook _____ Others (specify) _____

9. Can you share your experience with the digital solutions used to complement the knowledge gained from field-based activities? Yes _____ No _____

9b. If Yes? How have these technologies influenced your farming practices? Improved decision-making _____ Enhanced productivity _____ Access to market information _____ Other (please specify) _____

10. Are there specific challenges or successes you've encountered in adopting and using digital solutions, Yes_____ No _____ Not sure_____

10b. If yes? How have these impacted your overall experience with the project? Very positively_____ Positively _____ Neutral _____ Negatively _____ Very Negatively _____

10c If positively, how had the project impacted you? Improved knowledge _____ Increased yield _____ increased income _____ Others (specify) _____

10d. If negatively, how had the project impacted you? Increased Cost _____ Reduced yield _____ Time consuming _____ Others (specify) _____

Production Planning

11. Have you noticed any changes in the way you plan your agricultural production since participating in HortiNigeria activities? Yes _____ No _____

12. If yes? In what ways has the project contributed to improving production planning in your farming activities? Please provide specific examples: Better crop rotation _____ Improved seasonal planning _____ Enhanced pest and disease management _____ Improved budgeting _____ Other (please specify) _____

13. How have these improvements in production planning affected the overall efficiency and success of your farming operations? Increased yields _____ Reduced losses _____ Improved resource utilization _____ Not applicable _____

Good Agricultural Practices

14. Have you received training or guidance from the HortiNigeria project on improving good agricultural practices? Yes _____ No _____

14b. If yes? Which of the training have you participated in? Post-Harvest management _____ Book Keeping ___ Crop protection strategies ___ Food Safety and Handling ___ Improved nursery establishment ___ Good Agricultural practices of Transplanting ___ Power Tiller ____ Drone Technology ____ Farm Budgeting _____ Others ____

14c. If yes, which of them have you implemented in your farm operations? Post-Harvest management _____ Book Keeping ___ Crop protection strategies ___ Food Safety and Handling ___ Improved nursery establishment ___ Good Agricultural practices of Transplanting ___ Power Tiller ____ Drone Technology ____ Farm Budgeting _____ Others ____

14d. From the list of options selected above, which of them is the most beneficial to you? Post-Harvest management _____ Book Keeping ___ Crop protection strategies ___ Food Safety and Handling ___ Improved nursery establishment ___ Good Agricultural practices of Transplanting ___ Power Tiller ____ Drone Technology ____ Farm Budgeting _____ Others ____

15. How have your agricultural practices changed as a result of the project's efforts to improve good agricultural practices? Enhanced soil management _____ Improved pest control _____ Better irrigation practices _____ Improved access to finance ____ Other (please specify) _____

16. Are there particular crops or practices where you've seen the most significant positive changes

Yes _____ No ___ Not sure ___

16b. if yes, how have these changes impacted your yields? High Increase

_____ Low Increase _____ Stay same ____ Reduced _____ Greatly reduced ___

Climate Change Adaptation

17. In your farming experience, have you faced challenges related to climate change? Yes _____ No _____

17b. If yes, have your participation in the HortiNigeria project reduced the impacts of these challenges relating to climate change? Yes _____ No_____ Not sure_____

17c. Which technique or strategies were introduced by HortiNigeria is most beneficial to you in combating climate change? Sustainable land use _____ Water Conservation _____ Improved agricultural practices _____ Climate resistant inputs_____ Right pesticide use_____ Others _____

18a. Have you adopted any sustainable land use technique (e.g., Organic manure, chemical fertilizer, crop rotation etc.) Yes _____ No_____ Not sure _____

18b. If Yes, which of these land use technique have you adopted in your farm? Organic manure _____ Chemical Fertilizer _____ Organic mulch _____ Crop rotation _____ minimal tillage _____ integrated soil fertility management _____ Others (specify) _____

18.c. What percentage of land under horticulture production did you apply sustainable land use technique? _____%

19a. Can you share any specific instances where the project's interventions in climate change adaptation have been particularly challenging? Yes _____ No _____ Not applicable _____

19b. If yes, select from the list of options below challenges encountered in the course of the project? Infrastructure limitations _____ Cost of Technologies _____ Integration challenges _____ Access to financing _____ Climate variability and unpredictability _____ Limited supporting regulations _____ Others _____

Water Use Efficiency

20. Have you noticed any changes or improvements in water use efficiency on your farm since engaging with the HortiNigeria project? Yes _____ No _____

21. If yes? How has the project contributed to increasing water use efficiency in your farming practices? Yes ___ No___ Not sure ___

21b If Yes? Can you share any changes or technologies that have been introduced to achieve this? Improved irrigation systems _____ Adoption of water-saving techniques _____ Enhanced water management practices _____ Other (please specify) _____

22. Have you faced any challenges or obstacles in implementing these water use efficiency measures, and how have you addressed them? Yes _____ No _____ Not applicable _____

22b. If Yes? Select from the list of options below the challenges in implementing water use efficiency measure? Limited water sources_____ Cost of Technology adoption_____ lack of information or education _____ Irregular rainfall_____ Social and cultural factors _____ Limited access to water-efficient technologies _____Limited mulching materials _____ Others(specify)_____

Energy Use

23. Have you observed any changes in energy use in your agricultural activities since participating in the HortiNigeria project? Yes _____ No _____

24. If yes? How has the project influenced the efficiency of energy use on your farm? Adoption of energy-efficient technologies _____ Changes in equipment use _____ Improved energy management practices _____ Other (please specify) _____

25. Are there specific activities or technologies introduced by the project that have led to notable changes in energy consumption, Yes _____ No _____ Not applicable _____

25b. Which of the technologies below have you adopted to increase the efficiency of energy use? Renewable energy sources ___ Use of Energy efficient equipment _____ Low energy irrigation practices___ Proper equipment Maintenance ___ Others _____

25c. From the list of options below, which of them are the most beneficial to you? Renewable energy sources ___ Use of Energy efficient equipment _____ Low energy irrigation practices___ Proper equipment Maintenance ___ Others _____

Pesticide Use

26. Have you received any guidance or training from the HortiNigeria project on reducing pesticide use? Yes _____ No _____

26b. Have you received any guidance or training from the HortiNigeria project on the right use of fertilizer application and other inputs? Yes _____ No _____ Not sure _____

26c. If yes? Have you noticed any change in the farm operations and production? Yes _____ No _____ Not sure _____

27. If yes? What changes have you observed in pesticide use on your farm as a result of the project's efforts to reduce pesticide use? Increase yield_____ Reduced yield _____ Reduced land contamination _____ Increase soil microbial community _____ Others (specify) _____

27b. If Yes? How has this impacted your farming practices? Reduced use of chemical pesticides _____ Adoption of alternative pest control methods _____ Improved pest management practices _____ Other (please specify) _____

28. Have you faced any challenges or concerns related to reducing pesticide use,? Yes _____ No _____ Not applicable _____

28b. If yes? Select from the list of options below some of the concerns. Increase pest activities____ Crop yield variability _____ Lack of alternatives _____ Adequate knowledge _____ Weed management Challenges _____ Others (specify) _____

Farm Yield Measurement

29. Crop Name Planted: Pepper _____Okra _____ Onion _____ Watermelon _____ Cabbage _____ Lettuce _____ Sweetcorn _____ Cucumber _____ Tomato _____ Pumpkin _____ Eggplant _____

29a. Total farm size of horticulture crops cultivated this year: _____Ha

29b. What is the length of the production cycle _____ Months

29c. What measuring unit do you use to measure the quantity of selected crop harvested? 0.5kg Bag,_ 1Kg bag__ 2Kg bag _ 5kg bag __ 10Kg bag __ 20Kg bag__ 50kg bag __ 100kg bag __ Others specify

29d. How many units of selected crop harvested in the last cropping season did you Harvest? ___

29e. How many units were consumed? ___

29f. How many units were given out? ___

29g. How many got spoilt ___

29h. How many units were sold ___

29i. What is the price of the one selected unit of selected crop sold?

30. where do you sell your produce? Farm gate ___ Weekly market __ Permanent market __Aggregators place ___ Processing firms ___ Others ___

1.2. Outcomes and Impact Assessment

A. Number of Smallholder Farmers Supported

1. Have you received any support from the HortiNigeria project? Yes _____ No _____

2. If yes, can you specify the type of support you have received? Training _____ Input support (seeds, fertilizers, etc.) _____ Mentoring _____ Other (please specify) _____ Not applicable _____

C. Number of Trained Farmers on Eco-Efficient Production and Postharvest Practices

3. Have you participated in any training programs related to eco-efficient production and postharvest practices offered by the HortiNigeria project? Yes _____ No _____

4. If yes, what specific topics or practices were covered in the training? Eco-efficient farming practices _____ Postharvest handling _____ Crop-specific techniques (please specify) _____ Not applicable _____ Other (please specify) _____

B. Number of Demonstration Plots Established and Managed

5. Are you currently involved in managing any demonstration plots as part of the HortiNigeria project? Yes _____ No _____

6. If yes, how many demonstration plots are you managing, and what crops are being cultivated? _____

D. Number of Farmers Trained on Eco-Efficient Production and Postharvest Practices

7. Have you received training on eco-efficient production from the HortiNigeria project? Yes _____ No _____

8. If yes, what types of eco-efficient production training have you received? Sustainable irrigation methods _____ Organic farming practices _____ Integrated pest management _____ Crop rotation techniques _____ Not applicable _____ Other (please specify) _____

8b. Which of the following sustainable irrigation methods have you adopted? ____Surface irrigation ___ Furrow irrigation ___ Drip irrigation system____ Others _____

9. Have you received training on postharvest practices from the HortiNigeria project? Yes _____ No _____

10. If yes, what types of postharvest practices have you adopted through the HortiNigeria project? Improved storage methods _____ Proper handling and packaging techniques _____ Quality assessment and sorting _____ Cold storage utilization _____ Not applicable _____ Other (please specify) _____

11. If yes in any of the last two questions, how have the trainings impacted your farming practices? Increased productivity _____ Improved postharvest handling _____ Better crop quality _____ Not applicable _____ Other (please specify) _____

E. Number of Key Farmers Mentored on Eco-Efficient Production and Postharvest

12. Have you received mentoring on eco-efficient production and postharvest practices from the HortiNigeria project? Yes _____ No _____

13. If yes, how has the mentoring influenced your farming practices? Improved crop management _____ Enhanced postharvest practices _____ Increased knowledge of market linkages _____ Not applicable _____ Other (please specify) _____

F. Number of Core Farmers Trained Under a Full Crop Cycle

14. Have you undergone training covering a full crop cycle (both wet and dry season) from the HortiNigeria project? Yes _____ No _____

15. If yes, what specific aspects of the crop cycle were covered in the training? Crop planning _____ Seasonal considerations _____ Pest and disease management _____ Not applicable _____ Other (please specify) _____

G. Number of Neighboring Farmers Attending Regular Field-Based Trainings

16. Have you attended any field-based training sessions on eco-efficient production and postharvest practices offered by the HortiNigeria project in the past year? Yes _____ No _____

17. If yes, how frequently did you attend these sessions, and what did you find most valuable? Regularly _____ Occasionally _____ Rarely _____ Not applicable _____

H. Number of Agro-Dealers Trained

18. Are you involved in the sale of agricultural inputs or services as an agro-dealer? Yes _____ No _____

19. If yes, have you received any training from the HortiNigeria project to improve the services you provide to farmers? Yes _____ No _____ Not applicable _____

I. Number of Smallholder Farmers Receiving Advisory Services from Trained Agro-Dealers

20. Have you received advisory services related to horticulture from any trained agro-dealers associated with the HortiNigeria project in the past year? Yes _____ No _____

21. If yes, what specific advice or services did you find most helpful? Crop selection _____ Pest and disease management _____ Market information _____ Not applicable _____ Other (please specify) _____

J. Number of Agribusiness clusters formed

22. Are you aware of any agribusiness clusters formed in your community through the HortiNigeria project? Yes _____ No _____ Not sure _____

23. If yes, do you belong to any of these agribusiness clusters formed through the HortiNigeria project? Yes _____ No _____

24. If yes, how many agribusiness clusters are there in your community? _____

K. Members of Agribusiness Clusters (ABC) formed

25. Are you familiar with the Agribusiness Cluster (ABC) model introduced by the HortiNigeria project? Yes _____ No _____

26. If yes, do you belong to any Agribusiness Cluster formed through the HortiNigeria project? Yes _____ No _____

27. If yes, how many of such Agribusiness Clusters are you aware of in your community? _____

L. Number of Spray Service Providers delivering improved services to farmers

28. Are there spray service providers delivering services to farmers in your community through the HortiNigeria project? Yes _____ No _____ Not sure _____

29. If yes, how many spray service providers are delivering improved services to farmers? _____

30. Can you share any specific improvements or changes you've observed in the services provided by these spray service providers? _____

31. Are there youth or women involved as spray service providers in your community through the HortiNigeria project? Yes _____ No _____ Not sure _____

32. If yes, how many youth and women are involved as spray service providers delivering improved services to farmers? _____

33. In what ways do you think the inclusion of youth and women as spray service providers has benefited the community? _____

M. Number of farmers receiving advisory extension service on the use and apply those in a responsible and effective way from trained SSPs

34. Have you received advisory extension services on the use of agricultural inputs from trained spray service providers through the HortiNigeria project? Yes _____ No _____ Not sure _____

35. Can you share any positive changes or improvements you've observed in farming practices as a result of the advisory extension services? _____

N. Increased access to input markets under Agribusiness Clusters (ABC)

36. Have you noticed any changes in the availability and accessibility of agricultural inputs since the formation of agribusiness clusters in your community? Yes _____ No _____ Not sure _____

37. If yes, have you experienced any increase in access to input markets under any agribusiness cluster developed by the HortiNigeria project? Yes _____ No _____ Not sure _____

38. If yes, can you provide details on the specific changes you've observed in your access to input markets? _____

O. Producer Organizations

39. Are you aware of any producer organizations (POs) formed in your community through the HortiNigeria project? Yes _____ No _____ Not sure _____

40. If yes, do you belong to any of these producer organizations formed through the HortiNigeria project? Yes _____ No _____

41. If yes, how many producer organizations are you aware of in your community? _____

42. Are you aware of any training on group dynamics and leadership skills provided to producer organizations in your community through the HortiNigeria project? Yes _____ No _____ Not sure _____

43. If yes, have the producer organizations in your community received training on group dynamics and leadership skills through the HortiNigeria project? Yes _____ No _____ Not sure _____

44. If yes, how many producer organizations do you know of that have been trained on group dynamics and leadership skills? _____

P. improving Access to Financial Services

45. Have you utilized financial services tailored for farmers through the HortiNigeria project, such as credit from Sterling Bank, LECON Financial Service Limited, Bank of Industry (BOI), , First City Monument Bank (FCMB), JAIZ Bank, SYTIAMO, LAPO MFB, fintechs like Kolomoni, or Input credit from any value chain actor (EF, BC, input supplier, etc.) ? Yes _____ No _____ Not sure _____

46. If yes, how has increased access to SME innovation credit impacted your farming activities?***Q. Horticulture Crops, Farm size cultivated, Quantity Harvested and Market Prices***

47. Please fill the following Table:

Crop	Land size (ha)	Qtity harvested	Unit	Qtity Sold	Unit	Price (N)	Unit
Tomato							
Pepper							
Sweet corn							
Onion							
Cucumber							
Lettuce							
Watermelon							
Carrot							
Cabbage							
Okra							
Egg plant							
pumpkin							
Others (Specify)							

HortiNigeria Mid-term Review Survey: Entrepreneurial Farmers - South

Greetings! I am _____, representing the HortiNigeria Mid-term Review team. As a beneficiary of this program, your insights are crucial for evaluating HortiNigeria's impact on the horticulture sector in Nigeria. This interview is voluntary, taking less than an hour. Your feedback is confidential and will only be shared with the project team. Before we start, any initial questions? Are you ready to start? Yes __ No __. Your time and insights are greatly appreciated. Thank you!

I. Demographic information

1. Location: Oyo _____ Ogun _____

2. Gender: Male _____ Female _____

3. Age group: 18-25 _____ 26-34 _____ 35-50 _____ 51-65 _____ Over 65 _____

4. Education level: Primary School _____ Secondary School _____ Vocational/Technical Training _____ College/University _____ Postgraduate Degree _____

5. Marital status: Single _____ Married _____ Divorced _____ Widowed _____

6. Household size: 0-2 _____ 3-5 _____ 6-10 _____ Above 10 _____

7. Main occupation: Farmer _____ Agrodealer _____ Processor _____ Aggregator ___ _____Storage service provider _____ Off-taker _____Other (please specify): _____

8. Years of experience in Agribusiness: Less than 1 year _____ 1-5 years _____ 6-10 years _____ 11-20 years _____ Over 20 years _____

9. Type of farming operation (Multiple response): Crop Farming _____ Livestock Farming _____ Mixed Farming _____ Horticulture _____ Other (please specify): _____

10. Years of experience in horticulture: Less than 1 year _____ 1-5 years _____ 6-10 years _____ 11-20 years _____ Over 20 years _____

11. Size of farm (in hectares): Small (0-2 hectares) _____ Medium (3-10 hectares) _____ Large (11 hectares and above) _____

11b. Number of greenhouses in the farm _____

11c. On the average what is the size of the greenhouses (square metre) 0-10_____ 10-20 _____ 21-50 _____ 50-100 _____ above 100_____

12. What year did you become a beneficiary of HortiNigeria? _____

13. How did you hear about the HortiNigeria program? Word of mouth _____ Local media _____ Extension services _____ Online platforms _____ Other (please specify): _____

14. Frequency of interaction with HortiNigeria: Daily _____ Weekly _____ Monthly _____ Occasionally _____ Rarely _____ Never _____

15. Preferred communication channel for program updates: SMS/Text _____ Email _____ Phone calls _____ Social media _____ Community meetings Other (please specify): _____

II. Innovation Component

A. Deployment of Demand-Driven Innovations and Practices

1. Have you heard about or received training on innovative agricultural technologies through the HortiNigeria project? Yes _____ No _____ Not sure _____

2. If yes, have you or your farm adopted any innovative agricultural technologies as part of the HortiNigeria project? Yes _____ No _____ Not sure _____

3. If no, what challenges or concerns do you have regarding the adoption of greenhouse technologies? Initial investment costs ___ Energy costs ___ Climate control ___ Pest and disease management___ Water management ___Complexity of technology ___ Limited spaces and layout challenges ___ Optimal crop selection and rotation ___ Dependencies on external inputs ___ Labour shortages ___ Inadequate knowledge ___ Others ___

4. Are you aware of any entrepreneurial farms or SMEs/Business Champions in your community piloting market-driven horticulture production innovations through the HortiNigeria project? Yes _____ No _____ Not sure _____

4b. If yes, which of these demand -driven innovations have you implemented in you farming operations? Innovative crop varieties ___ Smart Greenhouses ___ Integrated pest management ___ Smart irrigation systems ___ Direct to consumer platforms ___Digital agriculture platforms

_____ Others _____

5. If yes, have you observed any positive impacts or changes in farming practices as a result of these innovations? High Increase ___ Low increase ___ Stay same _____Low decrease ___ High decrease _____

B. Value Addition on Final Produce

6. Have you received training on phytosanitary techniques, grading, packaging, and processing through the HortiNigeria project? Yes _____ No _____ Not sure _____

7. If yes, have you implemented any of these techniques in your farming practices? Yes _____ No _____ Not sure _____

7b. If yes, which of these techniques have you implement? Phytosanitary techniques ___, grading _____ packaging _____ processing _____

8. How has the training on value addition techniques influenced your marketing and selling of produce? _____

9. Are you aware of the market-led public-private partnerships (PPPs) established by the HortiNigeria project? Yes _____ No _____ Not sure _____

10. If yes, have you or your business engaged in any of these partnerships? Yes _____ No _____ Not sure _____

11. How have these partnerships influenced your access to markets? High Increase ___ Low increase ___ Stay same _____Low decrease ___ High decrease _____

C. Improving Access to Financial Services

12. Have you utilized financial services tailored for farmers through the HortiNigeria project, such as credit from Sterling Bank, LECON Financial Service Limited, Bank of Industry (BOI)First City Monument Bank (FCMB), fintechs like Kolomoni, or input credits from any value chain actors (EF, BC, input supplier, ETC)? Yes _____ No _____ Not sure _____

13. If yes, how has increased access to SME innovation credit impacted your farming activities? High Increase ___ Low increase ___ Stay same _____Low decrease ___ High decrease _____

D. Knowledge Management and Regional Scaling of Innovations

14. Have you been involved in any knowledge-sharing activities facilitated by the HortiNigeria project? Yes _____ No _____ Not sure _____

15. If yes, how has this knowledge-sharing influenced your farming practices? High increase in the adoption of innovations ___Low increase in the adoption of innovations ___ No increase in innovation adoption ___ Not sure

15b. If knowledge sharing have not influence on scaling innovations adoption, what could be responsible? Technological barriers ___ Language and communication barriers ___ Limited infrastructure ___ Resistance to change ___ Inadequate training and capacity building ____ Fragmented information sources ___ Limited extension services agents ___ Lack of incentives ___ Financial constraints ___ Rapid Technological advancements ____

E. Specific Innovations Introduced

16. Are you familiar with or have you received training on greenhouse technology through the HortiNigeria project? Yes _____ No _____ Not sure _____

17. If yes, have you adopted greenhouse technology in your farming practices? Yes _____ No _____ Not sure _____

18. Have you been introduced to or participated in any of the following innovations? (Select as many as they apply): Soil enhancer demo _____ Plastic mulching _____ Soluble Fertilizer _____ Onion variety trial _____ Improved nursery establishment _____ New blend inorganic fertilizer _____ Organic agriculture _____ Precision agriculture _____ Record keeping _____ Seed variety demonstration _____ Post-harvest handling (use of crates) _____ Aquaponics _____

19. If yes, how have these innovations influenced your farming practices? High Increase ___ Low increase ___ Stay same ____Low decrease ___ High decrease ____

F. Number of Active EFs Trained on New Knowledge and/or Technology

20. Have you, as an Entrepreneurial Farmer (EF), received training on new knowledge and/or technology as piloted by the HortiNigeria project? Yes _____ No _____ Not sure _____

21. If yes, how has the training influenced your farming practices? High Increase ___ Low increase ___ Stay same ____Low decrease ___ High decrease ____

G. Number of Jobs Created

22. Have you or your farm created jobs as a result of the HortiNigeria project? Yes _____ No _____ Not sure _____

23. If yes, how many jobs have been created? Total _____ Women _____Youth _____

24. Have you or your SME business benefited from increased access to credit? Yes _____ No _____ Not sure _____

25. How much did you receive as credit? _____ N

26. If yes, how has increased access to credit impacted your business activities? High income ____ Low income ___ stay same ____ Low decrease in income ___ High decrease in income ___

27. Have you attended any horticultural innovation shows organized by the HortiNigeria project? Yes _____ No _____ Not sure _____

28. If yes, how have these shows influenced your knowledge or adoption of new innovations? High increase in adoptions ___ Low increase in adoptions ___ Stay same ___ Slight decrease in adoption ___ High decrease in adoption ___

H. Number of Innovations Piloted

29. Have you been part of any pilot initiatives testing new innovations under the HortiNigeria project? Yes _____ No _____ Not sure _____

30. If yes, how has your participation in these pilots influenced your farming practices? High Increase in income ___ Low increase in income ___ Stay same _____Low decrease in income ___ High decrease in income _____

I. Number of EFs Trained on Phytosanitary Techniques, Grading, Packaging, and Processing

31. Have you, as an Entrepreneurial Farmer (EF), received training on phytosanitary techniques, grading, packaging, and processing through the HortiNigeria project? Yes _____ No _____ Not sure _____

32. If yes, how have these training sessions influenced your post-harvest activities and marketing? Increased sales _____ Reduction in waste ___ Increase shelve lives of product ___ Increased patronage ___ Increased income ___ Product differentiation ___ None ___ Others ___

J. Number of EFs Trained on Environmental Sustainable Use of Crop Residue and Environmentally Sensitive Crop Protection

33. Have you, as an Entrepreneurial Farmer (EF), received training on the environmentally sustainable use of crop residue and environmentally sensitive crop protection through the HortiNigeria project? Yes _____ No _____ Not sure _____

34. If yes, how have these training sessions influenced your farming practices? Improved knowledge and skills ___ Adoption of sustainable practices ___ Enhanced productivity _____Improved crop diversity ___ Better pest and disease management _____ Efficient resources use ___ shift towards organic farming _____ Effective record keeping ___ Increased income ___ Others

K. Number of SME Farmers Who Have Access to Lagos Market

35. Do you, as an SME farmer, have access to the Lagos market through the HortiNigeria project? Yes _____ No _____ Not sure _____

36. How would you describe your experience in accessing and participating in the Lagos market?
Very profitable……..1Profitable……2 Indifferent……..3
Unprofitable……..4 Very unprofitable……..5

36b. How sustainable is your access to the Lagos market for selling agricultural products? Sustainable for a long time _____ Sustainable over a short period _____ Not sustainable _____

36c. Have you faced any challenges in maintaining consistent market access in Lagos? No _____

Yes _____ Not sure _____

36d. If so, why? Increasing cost of transportation _____ Increased exploitation by buyers _____ Reduced production _____ Price volatility _____ Competition from other actors _____ Others _____

L. Number of Data Systems Piloted for Three Different Actors

37. Have you participated in any pilot initiatives testing data systems for different actors (e.g., farmers, SMEs, agro-dealers) facilitated by the HortiNigeria project? Yes _____ No _____ Not sure _____

38. If yes, how has the use of data systems influenced your interactions or collaboration within the agricultural value chain? Very Productive ___ Productive ___ Indifferent ___ Not Productive ___ Not very Productive

III. B2B Business Linkages

Advocacy for Enabling Environment

1. How would you rate the impact of advocacy efforts on relief from road taxes in reducing logistics costs for transporting vegetables? Very High _____ High _____ Moderate _____ Low _____ Very Low _____

2. Are you aware of any successful cases where transporters lobbied for the lifting of local government taxes on vegetable transport? Yes _____ No _____

Import of Crop-Specific Fertilizers

1. Have farmers in your community experienced an improvement in crop yield and quality due to the import of crop-specific fertilizers for vegetables? Yes _____ No _____

2. If Yes? To what extent do farmers in your community have access to vegetable-specific fertilizers compared to generic fertilizers? High access _____ Moderate access _____ Low access _____ No access _____

Strengthening Sector Platforms

3. Are you a member of AFGEAN, NABG, or NIHORT, and if yes, how effective do you find these platforms in addressing sector bottlenecks? Very Effective _____ Effective _____ Moderately Effective _____ Ineffective _____ Very Ineffective _____

4. How often do these platforms engage in sector dialogues to find solutions to major challenges in the horticulture value chain? Frequently _____ Occasionally _____ Rarely _____ Never _____

Business-to-Business Partnerships

5. Have you participated in HortiNigeria-facilitated business partnerships,

Yes ___ NO ___ Don't Know _____

5b. if yes, how has it impacted your business? Significantly Positive Impact _____ Positive Impact _____ No Significant Impact _____ Negative Impact _____ No Impact _____

6. What factors do you consider when identifying potential partners for business collaboration along the horticulture value chain? Good Track record ___ Adaptability ___Cultural alignment ___ Communication skills ___ Regulatory compliance ___ Geographic compatibility ___ Efficient Distribution channels ___ Innovation and technology adoption ___ Quality products ___ Certifications from regulatory bodies ___ Others

Brokering B2B Partnerships

7. How did you become aware of opportunities for inclusive business relationships facilitated by HortiNigeria? Through Competitive Calls or Advertisements _____ Through Selected Networks and Business Associations _____ Through Peers or Media _____ Other (Specify) _____

8. What challenges have you encountered in establishing formalized relationships with business partners? Limited Information _____ Trust Issues _____ Operational Challenges _____ Regulatory Barriers _____ Other (Specify) _____

Knowledge-Sharing Events

9. Have you attended AFGEAN knowledge-sharing events supported by HortiNigeria,

Yes ___ No ___ Not sure ___

9b If yes, how beneficial were they? Highly Beneficial _____ Beneficial _____ Moderately Beneficial _____ Not Beneficial _____ Did Not Attend _____

10 Do you believe knowledge-sharing events contribute to improved practices and collaboration in the horticulture sector? Strongly Agree _____ Agree _____ Neutral _____ Disagree _____ Strongly Disagree _____

Trade Fairs and Horticulture Events

11. Have you participated in horticulture-designated fairs or trade fairs sponsored or supported by HortiNigeria? Yes _____ No _____

12. If yes, what benefits did you derive from your participation? Increased Networking Opportunities _____ Enhanced Visibility _____ Access to New Markets _____ Knowledge Gain _____ No Benefits _____

HortiNigeria Mid-term Review Survey: MSMEs - South

Greetings! I am _____, representing the HortiNigeria Mid-term Review team. As a beneficiary of this program, your insights are crucial for evaluating HortiNigeria's impact on the horticulture sector in Nigeria. This interview is voluntary, taking less than an hour. Your feedback is confidential and will only be shared with the project team. Before we start, any initial questions? Are you ready to start? Yes __ No __. Your time and insights are greatly appreciated. Thank you!

I. Demographic information

1. Location: Oyo _____ Ogun _____

2. Gender: Male _____ Female _____

3. Age group: 18-25 _____ 26-34 _____ 35-50 _____ 51-65 _____ Over 65 _____

4. Education level: Primary School _____ Secondary School _____ Vocational/Technical Training _____ College/University _____ Postgraduate Degree _____

5. Marital status: Single _____ Married _____ Divorced _____ Widowed _____

6. Household size: 0-2 _____ 3-5 _____ 6-10 _____ Above 10 _____

7. Main occupation: Farmer _____ Agrodealer _____ Service Provider _____ Other (please specify): _____

8. Years of experience in agribusiness: Less than 1 year _____ 1-5 years _____ 6-10 years _____ 11-20 years _____ Over 20 years _____

9. Type of farming operation (Multiple response): Crop Farming _____ Livestock Farming _____ Mixed Farming _____ Horticulture _____ Other (please specify): _____

10. Years of experience in horticulture: Less than 1 year _____ 1-5 years _____ 6-10 years _____ 11-20 years _____ Over 20 years _____

11. Size of farm (in hectares): Small (0-2 hectares) _____ Medium (3-10 hectares) _____ Large (11 hectares and above) _____

12. What year did you become a beneficiary of HortiNigeria? _____

13. How did you hear about the HortiNigeria program? Word of mouth _____ Local media _____ Extension services _____ Online platforms _____ Other (please specify): _____

14. Frequency of interaction with HortiNigeria: Daily _____ Weekly _____ Monthly _____ Occasionally _____ Rarely _____ Never _____

15. Preferred communication channel for program updates: SMS/Text _____ Email _____ Phone calls _____ Social media _____ Community meetings Other (please specify): _____

II. Inclusive Finance Component

A. General Information about MSME/SME

1. Can you provide a brief overview of your SME's core activities and focus within the horticultural sector? Crop Production _____ Agro-Inputs _____ Processing _____ Other (please specify) _____

2. How many years has your SME been actively involved in the horticultural sector? Less than 1 year _____ 1 year _____ 2 years _____ 3 years _____ and above

3. Could you specify the primary products or services your SME offers in the horticultural value chain? Seeds _____ Fertilizers _____ Crop Protection _____ Farming Processing _____ Other (please specify) _____

4. Does your SME operate in any specific sub-sector of horticulture? Yes _____ No _____

5. If yes, please specify _____

B. Involvement with HortiNigeria Project

6. Is your SME currently involved with the HortiNigeria project? Yes _____ No _____

7. If yes, please describe the nature of your engagement _____

8. Have you or your SME attended any training sessions or workshops organized by the HortiNigeria project? Yes _____ No _____

9. If yes, please share key takeaways or impacts of these sessions _____

C. Capacity Building and Training

10. Has your SME received training in financial literacy and business plan development facilitated by the HortiNigeria project? Yes _____ No _____

11. If yes, how has this training influenced your SME's planning and development? _____

12. How familiar is your SME with innovative technologies introduced by the HortiNigeria project for horticulture? Very familiar _____ Somewhat familiar _____ Not familiar _____

13. If familiar, specify adopted technologies _____

D. Financial Aspects

14. Has your SME accessed any form of credit or financial service through the HortiNigeria project? Yes _____ No _____

15. If yes, specify the amount and utilization _____

16. How would you describe your SME's experience with accessing finance in the horticultural sector before engaging with the HortiNigeria project? Very challenging _____ Somewhat challenging _____ Neutral _____ Somewhat easy _____ Very easy _____

E. Leadership and Workforce

17. Is your SME led by a female entrepreneur? Yes _____ No _____

18. If yes, how has female leadership contributed to your SME? _____

19. Is your SME led by a young entrepreneur? Yes _____ No _____

20. If yes, how has youth leadership influenced your SME? _____

F. Market Access and Partnerships

21. How has your SME benefited from the HortiNigeria project in terms of market access or forming partnerships? Increased market access _____ Formed new partnerships _____ Enhanced existing partnerships _____ No significant impact _____

22. Has your SME formed any business-to-business (B2B) partnerships facilitated by the HortiNigeria project? Yes _____ No _____

23. If yes, provide details about these partnerships and their impact _____

G. Number of Scoping Leads to 50+ SMEs Identified for Capacity Building

24. Has your SME been part of the scoping process facilitated by the HortiNigeria project, leading to the identification of 50+ SMEs for capacity building? Yes _____ No _____

25. If yes, how has the scoping process contributed to your SME's development or capacity building?

H. Number of SMEs Trained in Business Plan Development, Financial Management, and Brokering Finance

26. Have you or your SME received training in business plan development, financial management, and brokering finance from the HortiNigeria project? Yes _____ No _____

27. If yes, how have these training sessions impacted your SME's operations and financial management? _____

I. Number of Horticulture-Related SMEs with Supported Business/Investment Plans

28. Does your horticulture-related SME have a supported business/investment plan provided by the HortiNigeria project? Yes _____ No _____

29. If yes, how has the supported business/investment plan influenced your SME's ability to invest, trade, or provide services? _____

J. Number of Female-Led SMEs

30. Is your SME led by a female entrepreneur? Yes _____ No _____

31. If yes, how has female leadership contributed to the success or unique aspects of your SME? _____

K. Number of Youth-Led SMEs

32. Is your SME led by a young entrepreneur? Yes _____ No _____

33. If yes, how has youth leadership influenced the dynamics or innovative aspects of your SME? _____

L. Number of Agro-Input Companies Obtained Finance through NIRSAL Risk-Sharing Mechanisms

34. Has your agro-input company obtained finance through NIRSAL risk-sharing mechanisms facilitated by the HortiNigeria project? Yes _____ No _____

35. If yes, how has access to finance through NIRSAL influenced your agro-input business activities? _____

M. Number of Innovations for SME Credit Piloted and Implemented

36. Have your SME credit operations been part of any pilot initiatives for innovations facilitated by the HortiNigeria project? Yes _____ No _____

37. If yes, how have these innovations influenced your SME's credit operations, and have they been successfully implemented? _____

N. Number of Direct Jobs Supported

38. Has your SME supported direct jobs under Component 3 of the HortiNigeria project? Yes _____ No _____

39. If yes, how have these direct jobs contributed to the growth or efficiency of your SME?

O. Amount of Money Horticultural-Related SMEs Accessed from Private Finance Sector

40. Has your horticulture-related SME accessed money from the private finance sector through the HortiNigeria project? Yes _____ No _____

41. If yes, can you specify the amount of money accessed and how it has been utilized in your SME's activities?

41. Amount of Money Agro-Input SMEs Accessed from Private Finance Sector

42. Has your agro-input SME accessed money from the private finance sector through the HortiNigeria project? Yes _____ No _____

43. If yes, can you specify the amount of money accessed and how it has been utilized in your agro-input SME's activities? _____

KIIs for HortiNigeria Program staff -- IFDC, WUR, KIT, and MDAs

Sir/Ma, my name is _____, representing HortiNigeria. Today, we aim to gather deep insights about the program's performance from individuals like you who have valuable knowledge or expertise in specific areas. Your feedback is invaluable. I assure you of complete confidentiality; your responses, name and personal identifiers won't be used in our reports. Instead, we're keen on understanding your detailed experiences and suggestions. Remember, participation is entirely voluntary. You can choose not to answer any question or stop at any point. With that said, do you feel comfortable proceeding with our discussion? We appreciate your time and expertise in contributing to the evaluation of HortiNigeria.

1. Relevance

A. Does HortiNigeria adequately respond to the needs of its beneficiaries?

B. How well does the program align with relevant policies and priorities?

C. To what extent is HortiNigeria sensitive and responsive to the contextual nuances?

D. How would you rate the quality of the program's design in meeting its objectives?

E. Has HortiNigeria demonstrated responsiveness over time to changing circumstances?

F. To what extent do the intervention's objectives and design respond to the needs, policies, and priorities of the target group(s), global community, country, and partner/institution?

G. Will it continue to do so if circumstances change?

H. Are there existing gaps toward achieving the objective of the project?

I. Does the assumptions on the theory of change and logic model remain relevant?

2. Coherence

A. Internally, does HortiNigeria align with wider policy frameworks and interventions within the institution?

B. Externally, how well does the program align with external policy commitments and interventions by other actors in specific contexts?

C. How compatible is the intervention with other initiatives in a country, sector, or institution (e.g., other donors, partner countries and institutions, 2030 Agenda, and the Sustainable Development Goals (SDGs))?

3. Effectiveness

A. To what extent has HortiNigeria achieved its stated objectives?

B. How would you assess the varying importance of objectives and results?

C. Are there differential results across different beneficiary groups?

D. What factors have significantly influenced the outcomes of HortiNigeria?

E. To what extent has the intervention achieved, or is expected to achieve, its objectives and results, including any variations in results across groups?

F. Are there any significant positive or negative, intended, or unintended changes that the project had on the targeted beneficiaries?

4. Efficiency

A. How economically efficient is the implementation of HortiNigeria?

B. In terms of operations, is the program efficiently delivering its intended outcomes?

C. How would you rate the timeliness of HortiNigeria's activities and results?

D. To what extent does the intervention deliver, or is likely to deliver, results in an economic and timely way?

5. Impact

A. What higher-level effects can be attributed to the HortiNigeria program?

B. How significant are the observed impacts (so what)?

C. Are there differential impacts among different groups or regions?

D. Have there been any unintended effects resulting from the program?

E. Has HortiNigeria contributed to any transformational changes in the horticulture sector?

F. To what extent have interventions and results contributed likely to contribute to efficient production and productivity of the smallholder farmers across the key value chains in the implementation areas?

6. Sustainability

A. How well does HortiNigeria understand and contribute to the components of the enabling environment?

B. Are positive effects expected to continue beyond the program's duration?

C. What risks and trade-offs, if any, are associated with the sustainability of HortiNigeria's impacts?

D. Are the anticipated positive results of the program, once implemented, realistic and likely to continue beyond the end of external support?

E. What significant innovation (if any) can be replicated by other programs from the implementation?

KIIs for B2B Partners

1. How would you describe your overall experience with the HortiNigeria project?

2. How aware are you of the project's goals and activities?

3. Have you actively participated in any project-related activities?

4. In your opinion, what are the major challenges faced by B2B partnerships in the horticulture sector?

5. Can you identify any specific opportunities that have arisen due to the project's interventions?

6. How would you rate the level of collaboration between different stakeholders in the horticulture sector?

7. Are there any specific networking initiatives or events that have been particularly beneficial for your business?

8. Has the number of road tax collection points between Kano and Lagos (both states inclusive) been reduced from the previous range of 20-25 points?

9. How many locations are currently being charged road taxes?

10. Have there been improvements in the number of major federal or state horticultural policies or regulations?

11. If yes, approximately how many have been improved?

12. Has the project identified B2B partnerships as a result of its interventions?

13. If yes, approximately how many B2B partnerships have been identified?

14. Has the project brokered B2B partnerships as a result of its interventions?

15. If yes, approximately how many B2B partnerships have been brokered?

16. From your perspective, what impact has the HortiNigeria project had on the horticulture sector?

17. What improvements, if any, would you suggest for enhancing the effectiveness of the project's interventions?

KII Protocol for Business Support Services (BSS)

1. How has HortiNigeria contributed to building the capacity of business support services in the horticulture sector?

2. Can you highlight any challenges you've encountered in delivering services to smallholder farmers, and how HortiNigeria has addressed or can address them?

3. From your perspective, what role do business support services play in enhancing the overall horticulture value chain?

4. In your opinion, what are the key success factors for agribusiness clusters, and how has HortiNigeria supported these factors?

5. How has the collaboration with HortiNigeria impacted the sustainability of agribusiness clusters in the long term?

6. Can you share any innovative approaches or practices introduced by HortiNigeria that have positively influenced agribusiness clusters?

KII Protocol for Agrodealers

1. How has the training provided by HortiNigeria improved your ability to meet the needs of smallholder farmers?

2. In your experience, what specific challenges do agrodealers face in the horticulture sector, and how has HortiNigeria addressed these challenges?

3. Can you elaborate on any notable changes you've observed in the demand for agro-inputs among smallholder farmers?

4. How has HortiNigeria's intervention influenced the collaboration and networking among agrodealers in the horticulture sector?

5. From your perspective, what opportunities and benefits have arisen for agrodealers through collaboration with HortiNigeria?

6. In what ways can agrodealers contribute to the sustainability of HortiNigeria's impact on the horticulture sector?

KII Protocol for Financial8 Service Providers

1. How has HortiNigeria enhanced your understanding of the horticulture sector and its potential for investment?

2. Can you discuss any challenges or opportunities you've encountered in financing horticulture-related SMEs, and how HortiNigeria has addressed these?

3. From your viewpoint, how sustainable are the financing models introduced by HortiNigeria for agro-input companies?

4. In your opinion, what role can financial institutions play in fostering innovation in the horticulture value chain?

5. How has the NIRSAL risk-sharing mechanism influenced the perception of financial institutions toward agro-input companies?

6. What are the key factors that financial institutions consider when supporting horticulture-related SMEs, and how has HortiNigeria aligned with these factors?

KII Protocol for Innovation Providers

1. How has HortiNigeria facilitated the integration of innovative technologies and practices in horticulture-related activities?

2. Can you share examples of successful innovations introduced in the horticulture sector through HortiNigeria's intervention?

3. In your experience, how have the piloted data systems contributed to improved decision-making and efficiency in the horticulture value chain?

4. From your perspective, what are the key challenges faced by innovation providers in the horticulture sector, and how can HortiNigeria address these challenges?

5. How has the training of EFs on phytosanitary techniques, grading, packaging, and processing impacted the overall quality of horticultural products?

5. Can you discuss any specific instances where innovations introduced by HortiNigeria have led to positive transformations in the sector?

Focus Group Discussion for Producer Organizations

1. How has HortiNigeria contributed to improving the productivity of smallholder farmers within your organization?

2. What has been the impact of HortiNigeria's training programs on eco-efficient production and postharvest practices for your organization's members?

3. Have you been involved in the formation of Agribusiness Clusters, and if so, how has this benefited your organization and its members?

4. To what extent has your organization observed increased access to input markets under the Agribusiness Cluster initiative?

5. How has HortiNigeria supported the formation and capacity building of Producer Organizations like yours?

6. Can you share experiences where your organization has adopted innovative technologies introduced by HortiNigeria?

7. What impact has HortiNigeria had on the market access for your organization's products, especially in relation to the South-Western markets like Lagos?

8. How has HortiNigeria contributed to enhancing the financial capacity of your organization and its members?

9. How has your organization engaged in advocacy efforts related to the reduction of road taxes and improvements in horticultural policies?

10. From your perspective, what overall impact has HortiNigeria had on your organization and the horticulture sector in Northern Nigeria?

ANNEX 9: ADDITIONAL DETAILS OF PERFORMANCE OF INTERVENTIONS UNDER COMPONENTS 1-4

The following provides additional review of performance of the program under components 1-4 from inception till date.

Performance of Component 1: Increasing productivity and income of a large number of smallholder farmers in Northern Nigeria (Kaduna and Kano)

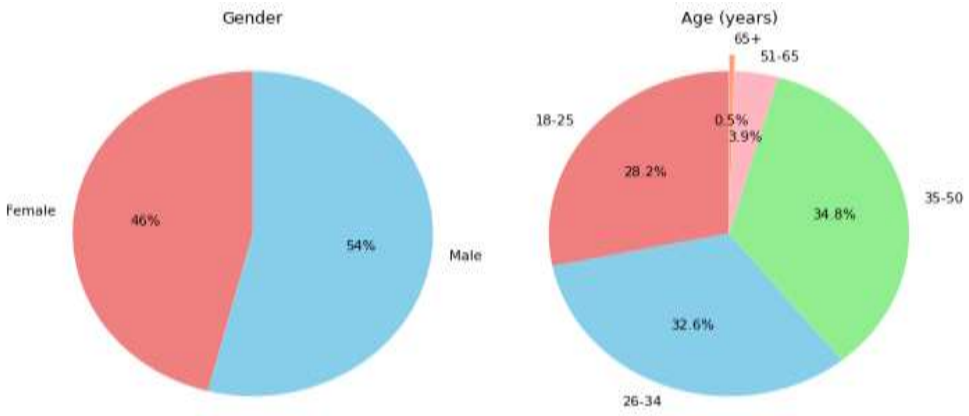
In the reporting period of 2021-2022, the program demonstrated notable success in establishing and managing demonstration plots. These demonstration plots served as practical examples for showcasing profitable and sustainable agricultural technologies and practices, providing hands-on learning experiences for the farmers. Training initiatives were a cornerstone of the program's strategy. The training covered a range of topics, including good agronomic practices and climate-smart techniques. Specific interventions under component 1 are discussed below

Youth and Gender inclusion

The HortiNigeria Program strategically implemented interventions to enhance productivity and income for smallholder farmers in Kaduna and Kano States. Through peer-led, market-driven field demonstrations, the program trained 25,606 smallholder farmers including a significant proportion of women and youth and facilitated an advisory service to 28,699 through agrodealers. The deployment of digital solutions, such as the HortiNigeria radio program and social media platforms, further extended the reach of extension advisory services. The program's emphasis on environmentally sustainable practices and agribusiness cluster development aligns with global agricultural sustainability goals. The following provides a review of performance of the program from inception till date.

In the reporting period of 2021-2022, the program demonstrated notable success in establishing and managing demonstration plots. With a target of 300 plots, the project surpassed expectations by establishing 379 plots, achieving an impressive 126% of the goal. These demonstration plots served as practical examples for showcasing profitable and sustainable agricultural technologies and practices, providing hands-on learning experiences for the farmers. Training initiatives were a cornerstone of the program's strategy. The training covered a range of topics, including good agronomic practices and climate-smart techniques. Based on the midterm review (MTR) data, HortiNigeria program exhibits a commendable commitment to gender inclusion, as demonstrated by a well-balanced distribution among participants. Currently, the program boasts a nearly equal representation, with 54% males and 46% females in its program delivery, showcasing a conscious effort to foster inclusive participation (See Figure below). Notably, the age group distribution further underscores the program's emphasis on diversity and inclusivity. A substantial 32.6% of participants fall within the 26-34 years range, indicating a proactive approach to engaging the youth

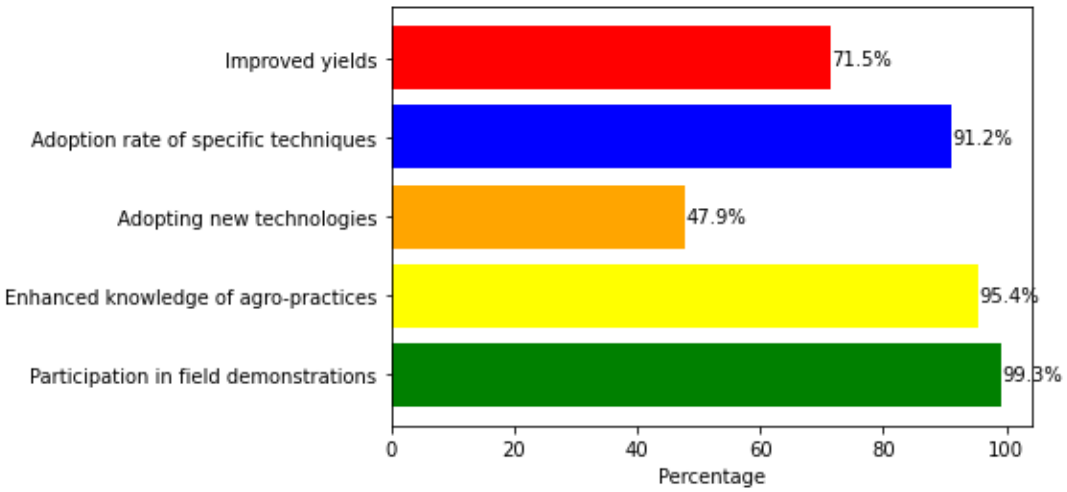
demographic. Following closely, the 35-50 years' age group contributes significantly with 34.8%, portraying a program that caters to a relatively young and economically active participant base. Going by the HortiNigeria program's definition of youth, as those between the age range of 18-34 years, 60.8% of program participants falls within this age limit. This further justifies the deliberate effort of the program to engage you in its program delivery. In addition, the examination of smallholder farmers' categories suggests that a majority of participants (62.5%) were identified as Core Farmers. This underscores the program's outreach to those deeply involved in agriculture, reflecting its commitment to supporting and involving individuals with substantial experience in the field.



Gender and age distribution

Peer-led, Market-Driven Field Demonstrations

The MTR survey data suggests that an overwhelming majority of the beneficiaries (99.27%) actively participated in these peer-led, market-driven field demonstrations, reflecting a high level of engagement and acceptance of the program (See Figure below). Delving into the specific ways farmers have benefited unveils notable figures. For instance, 95.38% of farmers reported enhanced knowledge of agro-practices, 47.93% adopted new technologies, and 71.53% of those that have adopted new technologies experienced improved yields. These insights underscore an achievement and the multifaceted impact of the interventions within two years of implementation, showcasing that a significant proportion of farmers had actively incorporated new knowledge and technologies, leading to tangible improvements in horticultural crop yields. The high adoption rate of specific techniques or practices (91.24%) further emphasizes the positive influence of these interventions on the farming practices of the targeted smallholder farmers. In summary, these findings suggest that the success of the HortiNigeria program in not only engaging farmers but also in effectively enhancing their agricultural practices and overall productivity.



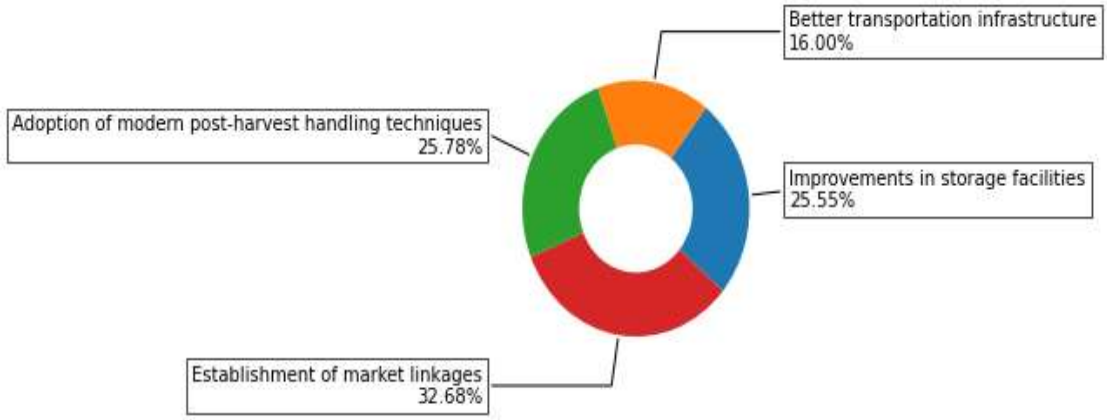
Participation and Benefits of Peer-Led and Market-Driven Field Demonstrations

Mentoring key farmers was another aspect of the program's approach. In 2021-2022, the program successfully mentored 357 key farmers, surpassing the target of 300 by 19%. However, in the following year, the number of mentored key farmers increased to 407, exceeding the 300 target. The program's efforts in training core farmers showed a mixed picture. In 2021-2022, the program successfully trained 2,906 core farmers, slightly falling below the target of 3,000 by 3%. However, in the subsequent year, the number of trained core farmers increased to 13,432. Neighboring farmers training, on the other hand, demonstrated initial success in 2021-2022, with 8,911 individuals attending the sessions against a target of 6,000, achieving 149% of the goal. However, in the subsequent year, the number of attending neighboring farmers decreased to 5,131, falling short of the 6,000 target and reaching 85.52% of the goal. This decline suggests a need for the program to reassess and adapt its strategies for engaging and maintaining the interest of neighboring farmers. Advisory services for input access emerged as a success story for the program. In 2021-2022, the program provided advisory services to 3,895 smallholder farmers, achieving 68% of the 5,700 targets. However, in the subsequent year, there was a significant increase, with 10,255 farmers receiving advisory services, surpassing the 5,700 target and reaching an impressive 179.91% of the goal This positive trajectory indicates a successful connection between the project and smallholder farmers in enhancing their access to the input market.

Agribusiness Cluster Development

Agribusiness Clusters (ABCs) formation showcased a decline in performance. In 2021-2022, the project formed 12 clusters, achieving 60% of the target set at 20 clusters. However, in the subsequent year, the number of clusters formed dropped significantly to 3, falling short of the target and reaching only 15% of the goal. This decline in the formation of Agribusiness Clusters raises concerns about the program's ability to sustain and expand its efforts in fostering collaborative networks among value chain actors. The program successfully formed a total of 1,669 members of ABCs in the reporting period of 2021-2022. Based on the midterm review survey, the majority of smallholder farmers (94.16%) reported awareness or identification of specific ABCs in their localities, indicating a substantial reach and recognition of these clusters within the farming communities. Furthermore, 74.16% of those aware of the clusters are currently members of producer

organizations (POs) associated with ABCs developed through the HortiNigeria program. This high membership rate suggests active participation and alignment with the program's initiatives, highlighting the effectiveness of the cluster development approach in fostering farmer engagement and collaboration. Based on the development of ABCs and their contribution to reducing food losses, smallholder farmers reported positive outcomes, including improvements in storage facilities (25.6%), better transportation infrastructure (16%), adoption of modern post-harvest handling techniques (25.68%), and the establishment of market linkages (32.68%) (See Figure below).

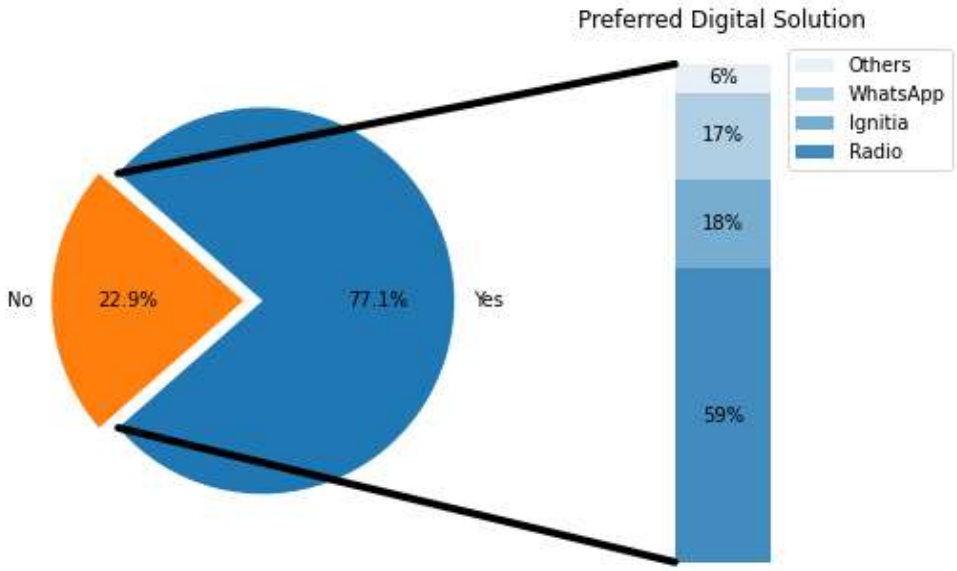


Contributions of Agribusiness Clusters in Reducing Food Losses

Most smallholder farmers also acknowledged personal benefits from the clusters, such as shared knowledge (76.16%), economic benefits (58.39%), increased yield (60.34%), enhanced market access (61.07%), increased input access (53.77%), and increased bargaining power (45.50%). Additionally, the data suggests that women and youth are perceived to be adequately represented in the clusters, with 99.51% of smallholder farmers expressing satisfaction in this aspect. Overall, these findings highlight the positive impact of Agribusiness Cluster Development interventions, both at the community level in reducing food losses and at the individual level in enhancing farmers' economic outcomes and access to resources.

Digital Solutions

A significant majority of smallholder farmers (77.13%) reported having knowledge of and utilizing digital solutions to complement their agricultural activities, indicating a noteworthy engagement with agricultural technology within the farming communities (See Figure below). Among the preferred digital solutions, radio emerged as the most utilized by farmers (58.99%), followed by Ignitia weather forecast related technology (17.98%) and WhatsApp (17.35%). This distribution suggests the importance of accessible and widely used platforms in disseminating agricultural knowledge. The data further indicates that a substantial proportion of farmers (73.24%) have experience using digital solutions to complement the knowledge gained from field-based activities.



Utilization and Preference in Digital Farming Activities

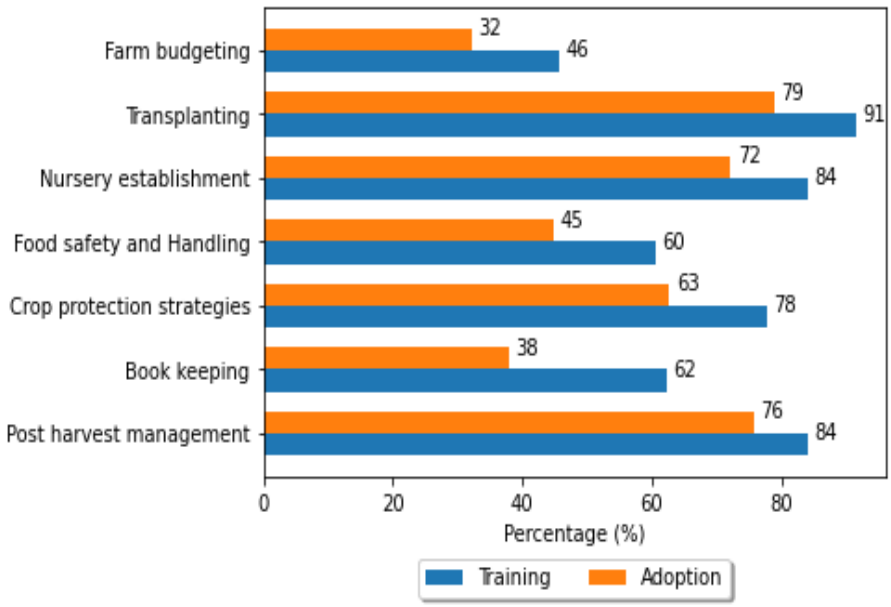
In terms of impact, smallholder farmers reported positive influences on farming practices, including improved decision-making (86.71%), enhanced productivity (73.75%), and better access to market information (55.81%). However, challenges such as climate variability, high cost of technology, inadequate access to finance, etc. were acknowledged by a significant portion (59.12%) of smallholder farmers, emphasizing the need for addressing potential barriers to effective adoption. Impressively, the majority of those facing challenges (64.61%) reported that the digital solutions positively impacted their overall experience with the program, with notable improvements in knowledge (92.44%), increased yield (80.25%), and enhanced productivity (60.92%). These findings underscore the significance of integrating digital solutions into agricultural practices and highlight the positive outcomes and challenges faced by farmers in leveraging technology for improved farming outcomes within the HortiNigeria program.

Production Planning

A majority of smallholder farmers (59.12%) reported noticing changes in the way they plan their agricultural production since participating in HortiNigeria activities, indicating the program's influence on farmers' practices and behaviours. Among those who experienced changes, a significant proportion (64.61%) expressed that the program contributed very positively to improving production planning in their farming activities. This positive perception suggests that HortiNigeria's interventions have been effective in enhancing farmers' skills and approaches to planning their agricultural activities. Further exploration into the consequences of these improvements in production planning show overwhelmingly positive outcomes. The majority of smallholder farmers reported that the enhanced production planning positively affected the overall efficiency and success of their farming operations, with notable impacts on increased yields (80.25%), reduced losses (60.92%), improved resource utilization (60.92%), and other positive influences (60.92%). These findings underscore the crucial role of production planning interventions in HortiNigeria's program, showcasing a tangible and multifaceted improvement in smallholder farmers' agricultural practices, productivity, and overall success.

Good Agricultural Practices

A significant 98.54% of smallholder farmers have actively participated in the program's training sessions on good agricultural practices (GAPs). This high level of engagement reflects the program's success in effectively reaching and involving a substantial portion of the local farming community. Upon examining specific training areas, it is evident that farmers have shown interest and commitment to improving their skills across various agricultural practices. Notable training areas include post-harvest management (84%), bookkeeping (62.2%), and crop protection strategies (77.8%) (See Figure below). However, there are areas such as power tiller operation (0.74%) and drone technology (0.7%) with lower participation, suggesting potential opportunities for the program to address specific needs or enhance outreach in these domains. In terms of perceived benefits, participants highlight post-harvest management (59.75%), bookkeeping (81.98%), and power tiller operation (99.75%) as the most beneficial aspects of the training. This aligns with changes reported in agricultural practices, showcasing improvements in soil management (88.81%), pest control (67.64%), irrigation practices (61.56%), and access to finance (19.22%). The percentages underscore the tangible positive changes brought about by the HortiNigeria program, contributing to enhanced productivity and income for smallholder farmers in the region.



Training and Adoption of Good Agricultural Practices Climate Change Adaptation

A majority of farmers (79.81%) acknowledge facing challenges related to climate change. However, the positive impact of the HortiNigeria interventions is evident, with 96.04% of those experiencing climate-related challenges indicating a reduction in their impacts due to the program. Concerning the specific strategies introduced by HortiNigeria to combat climate change, sustainable land use techniques (60.58%), water conservation (32.60%), and climate-resistant inputs (54.99%) are highlighted as the most beneficial by smallholder farmers. The adoption of sustainable land use techniques is widespread, with 95.38% of farmers incorporating these practices on their farms. Challenges encountered during the program implementation include irrigation infrastructure limitations (31.46%), the cost of technology adoption (61.03%), market integration challenges

(17.84%), access to financing (46.48%), climate variability and unpredictability (10.33%), government regulations (11.27%), cultural beliefs (1.88%), and other factors (4.69%). Despite these challenges, the data suggests that the HortiNigeria program has played a crucial role in helping smallholder farmers in the regions to adapt to and mitigate the impacts of climate change on their agricultural practices.

Performance of Component 2: Piloting production systems innovation and regional diversification in South-West Nigeria (Ogun and Oyo)

The program's approach to piloting innovation systems and regional diversification with Entrepreneurial Farmers in Oyo and Ogun states was multifaceted and collaborative. Through Component 2, the program engaged a network of private and public partners, including local and multinational companies, such as the Federal University of Agriculture, Abeokuta, BIC Farms Concepts, Eupepsia Place Ltd., Farm Help Agro, Kaspharyn Solutions, Feed the West, Kartlos Farms Ltd., the National Horticulture Research Institute (NIHORT), and Solokad Multiventures Ltd. These partners served as anchors to kick-start production system innovations. Major achievements included the identification of 1,200 active entrepreneurial farmers, 14 business champions, 20 technology innovations, mapping entrepreneurial hubs, and selection of 13 business champions. Notably, the collaboration between Kartlos Farms Ltd. and Candel Company Ltd. to address the unavailability and high cost of soluble fertilizer showcased a practical and impactful pilot initiative. The relevance and effectiveness of these interventions were evident in the program's achievements, particularly in identifying and mobilizing business champions and fostering partnerships with a diverse range of stakeholders. The emphasis on technology innovations and business collaborations with private and public entities demonstrated a strategic approach to drive sustainable agricultural practices among Entrepreneurial Farmers. However, it is essential to continually evaluate the scalability and adaptability of these innovations to ensure long-term relevance and effectiveness.

In the reporting period of 2022-2023, the HortiNigeria program had trained 795 Extension Facilitators, surpassing the target of 600. Notably, this accomplishment included training 366 women Extension Facilitators against a target of 240 and 624 youth Extension Facilitators against a target of 300 The program's ability to surpass the set targets demonstrates an effective approach to capacity building. Training more Extension Facilitators, both women and youth, implies a broader pool of individuals equipped with the knowledge and skills necessary for promoting sustainable agricultural practices and entrepreneurship. Despite these commendable achievements, the absence of specific figures for the previous year hinders a comprehensive assessment of the program's progression over time. Similarly, in terms of job creation under Component 2, the program faced challenges in 2022-2023, reporting the creation of only 15 jobs, significantly falling short of the target of 120 and achieving only 12.5%. The cumulative achievement till date is 15 out of 200 cumulative life of program target, resulting in a mere 7.5%. The lack of specific figures for jobs created for women and youth in both reporting periods limits a comprehensive understanding of the program's impact on gender and age-specific employment opportunities. A thorough analysis of the factors influencing the lower-than-expected job creation numbers is crucial for recalibrating strategies and ensuring the overall success of the HortiNigeria program in promoting economic growth and sustainability in South-West Nigeria.

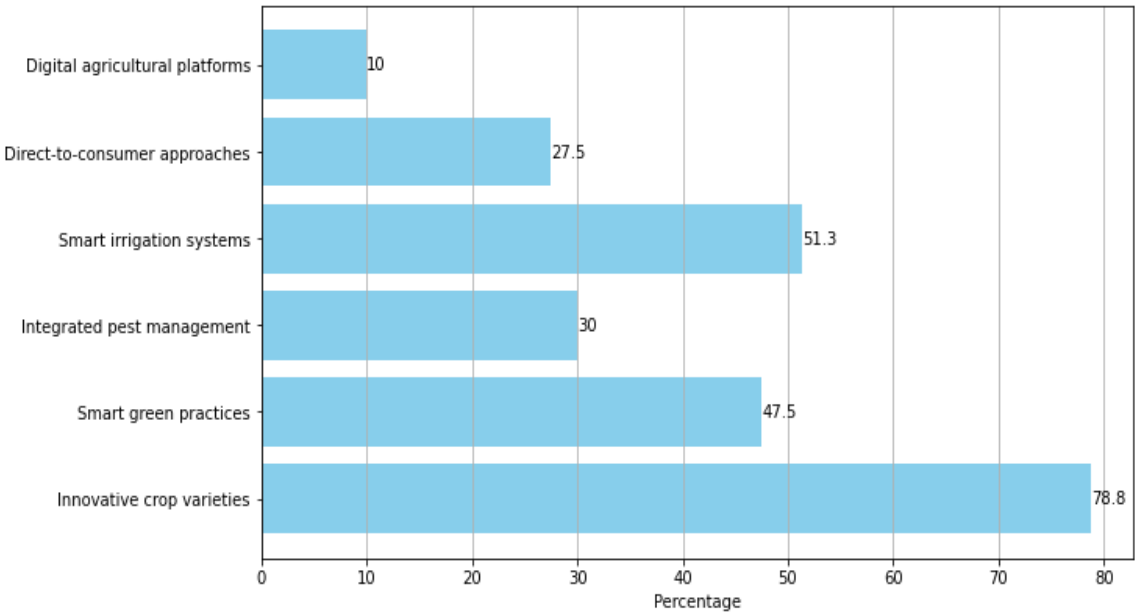
Turning to SME credit access, the program encountered a substantial gap in achieving the intended goal, with an achievement of only 0.06% in the reporting period of 2022-2023. The program participated in or facilitated 8 horticultural shows (including but not limited to the EU Cleantech Event of 2023, AgroFood Event of 2023, 4 Farmers' Field days, Sara Event in 2023, and Exhibition show in Oyo State) as of 2023. While indicator 18, measuring the number of horticultural innovations shows organized, showed success in 2021-2022, surpassing the target with one show against a target of 2 (50%), the subsequent year witnessed no shows organized, resulting in a 0% achievement. These findings highlight notable challenges in achieving key targets related to SME credit access and horticultural innovation shows. Consistent reporting and a focus on inclusivity in employment opportunities will be key to enhancing the impact of the program in promoting innovation and diversification in production systems for SME farmers in the South-West region. Regular monitoring and adaptive strategies are essential for aligning the program with its targets over its entire lifespan.

The identified gaps in the interventions pose potential challenges to sustainability. A thorough review of the program's document indicated that several constrained impeded the realization of component two. This includes the inability to reach farmers in these targeted areas, theft of farm produce resulting in revenue loss, high cost of farm inputs, and mobilization of farmers to the training venue among others. The significant gap in job creation indicates the need for a thorough analysis of the factors influencing lower-than-expected results. Assessing the types of jobs created, understanding local dynamics, and identifying barriers to employment are crucial steps for recalibrating strategies. SME credit access remains a substantial challenge, with only 0.06% of the targeted credit accessed. A comprehensive reassessment of strategies is necessary to address this gap. Additionally, the absence of horticultural innovation shows in the second year indicates a need for a careful examination of the factors influencing this decline. The drop in the number of SME farmers accessing the Lagos market due to rising transport cost and price volatility raises concerns about the program's ability to sustain and expand market access efforts. A detailed evaluation of the reasons behind this decline is essential to develop targeted strategies for revitalizing and enhancing SME participation. To close these gaps, the program could conduct thorough analyses, timely report on challenges and lessons learned, and adapt strategies accordingly. Aligning interventions with industry standards and best practices will contribute to the sustainability and long-term success of the HortiNigeria program in promoting innovation and diversification among Entrepreneurial Farmers in Oyo and Ogun states. Regular monitoring and feedback mechanisms will be crucial for adapting interventions to address emerging challenges and enhance overall effectiveness. Specific interventions under component 2 are discussed below:

Technological and Value Addition Innovations

A significant proportion (90%) of EFs have received training on innovative agricultural technologies through the HortiNigeria program. However, 81.94% of them have adopted these technologies on their farms. Regarding awareness of the EFs or SMEs/Business Champions in the community piloting market-driven horticulture production innovations through the HortiNigeria program, 91.25% of EFs

are aware. The implementation of demand-driven innovations in farming operations includes a variety of practices, such as innovative crop varieties (78.75%), smart green practices (47.50%), integrated pest management (30%), smart irrigation systems (51.25%), direct-to-consumer approaches (27.50%), and digital agricultural platforms (10%) (See Figure below). Finally, when reviewing the observed changes in demand for farm produce resulting from these innovations, 56.25% and 17.5% of EFs reported a low and high increase, respectively. This suggests a positive overall impact on the demand for farm produce due to the HortiNigeria program's deployment of demand-driven innovations and practices.



Implementation of Demand-Driven Innovations in Farming Operations

A significant portion of EFs, 56.25%, have received training on value addition, demonstrating a substantial interest in enhancing their farming practices. A deep dive review of the specific training received through the HortiNigeria program shows that the majority of EFs (91.11%) have received training on product protection techniques, followed by grading (80.00%), packaging (51.11%), and processing techniques (17.78%). This suggests a considerable uptake of knowledge across a range of value addition practices. Interestingly, the implementation rates of these techniques vary, with 91.11% of those trained are incorporating the learned practices into their farming operations. Specifically, phytosanitary techniques and grading have high implementation rates of 71.11% and 88.89%, respectively, showcasing the practical application of the acquired knowledge. Regarding the influence of value addition training on marketing and selling, the data shows that 51.25% of EFs experienced either a high (20%) or small (31.25%) increase in their marketing outcomes. This suggests that the HortiNigeria program's interventions in value addition techniques have positive correlation with farmers' marketing outcomes, contributing to improved marketability and potentially better economic returns.

There is a nearly equal split among EFs regarding their familiarity with or training on greenhouse technology, with 48.75% having received such training. Among those trained, 71.79% have adopted greenhouse technology in their farming practices, indicating a relatively high adoption rate. Further insights emerge regarding the introduction and participation of farmers in various agricultural

innovations facilitated by the program. While innovations like plastic mulching, soluble fertilizer, and improved nursery establishment show high introduction rates (90% or above), other innovations such as aquaponics and post-harvest handling have seen full participation from the surveyed farmers. The varying levels of adoption suggest a nuanced response to different innovations, possibly influenced by factors such as applicability to local conditions and perceived benefits. The impact of these innovations on farming practices is reflected in the EFs' perception. Overall, the program's interventions have had a positive influence, leading to improvements in various aspects of agricultural practices.

Performance of Component 3: Increasing access to finance for SME companies investing in solving value-chain bottlenecks at regional and national level

Under Component 3, the HortiNigeria Program strategically focused on enhancing access to finance for SMEs in the horticultural sector. In 2022, the program conducted a thorough scoping study, sensitizing key actors, identifying potential financial partners, and assessing available financial products. This laid the foundation for subsequent interventions, emphasizing the importance of financial literacy, inclusive financial instruments for women and youth, and brokering investment deals to match demand and supply. The program's approach, recognizing that access to finance encompasses various services beyond loans, underscores its relevance and effectiveness in addressing the diverse needs of value chain actors.

To execute interventions for increasing access to finance for SMEs within the targeted northern and southern states, HortiNigeria employed a multi-faceted strategy. In the reporting period of 2021-2022, the program successfully identified 86 SMEs for potential support. The training of SMEs in business plan development, financial management, and brokering finance achieved 244% of the set goal in the same period. Unfortunately, the absence of specific figures for the subsequent year poses challenges in evaluating the program's performance. The program engaged with SMEs, with a focus on women and youth, ensuring inclusivity and a gender-sensitive approach. However, comprehensive reporting, especially regarding specific figures for SMEs identified and trained, is essential for a thorough assessment and to enhance coherence with other stakeholders and projects.

The identified gaps in the program's interventions include the lack of specific figures for SMEs identified and trained in the subsequent reporting year, hindering a comprehensive evaluation. The HortiNigeria program faced significant gaps, with an alarming 80% shortfall in the performance indicator for private financing for SMEs. While the program has trained 122 EFs on business plan development, the engagement with insurance companies was limited, and there was an inadequate number of financial providers/options involved. Furthermore, a notable gap existed as there was no recorded data on the number of jobs created, underscoring the need for a comprehensive evaluation and strategic adjustments to address these shortcomings and enhance the program's impact. These gaps affect the program's ability to demonstrate sustained impact and progress over time. Furthermore, several challenges were identified, including the reluctance of banks to lend to the agricultural sector, particularly smallholder farmers due to reasons associated with the inability of farmers to meet the bank conditions and requirements. Difficulty in accessing available capital, coupled with inadequate financial management capacity among companies, further compounds the

constraints. Additionally, the limitation of access to financial resources is particularly pronounced for women, especially in the Northern states. These identified constraints underscore the need for targeted interventions to address financial barriers and enhance the overall effectiveness of the program in supporting agricultural development.

Therefore, a comprehensive approach, which encompasses interventions from both the supply side and the demand side, as well as the establishment of linkages between SMEs, smallholder farmers clusters, commodity associations, financial institutions, and investors, could be a panacea to unlocking additional finances into the horticulture market. HortiNigeria program could explore the possibility of offering valuable support to selected SMEs aiming to improve their overall capabilities. This support should be targeted at addressing crucial management limitations, such as the absence of standardized operational procedures and book-keeping processes. Additionally, HortiNigeria program should provide specialized assistance for specific needs that will make the SMEs to be investment ready such that they can access specific markets or secure the needed loans.

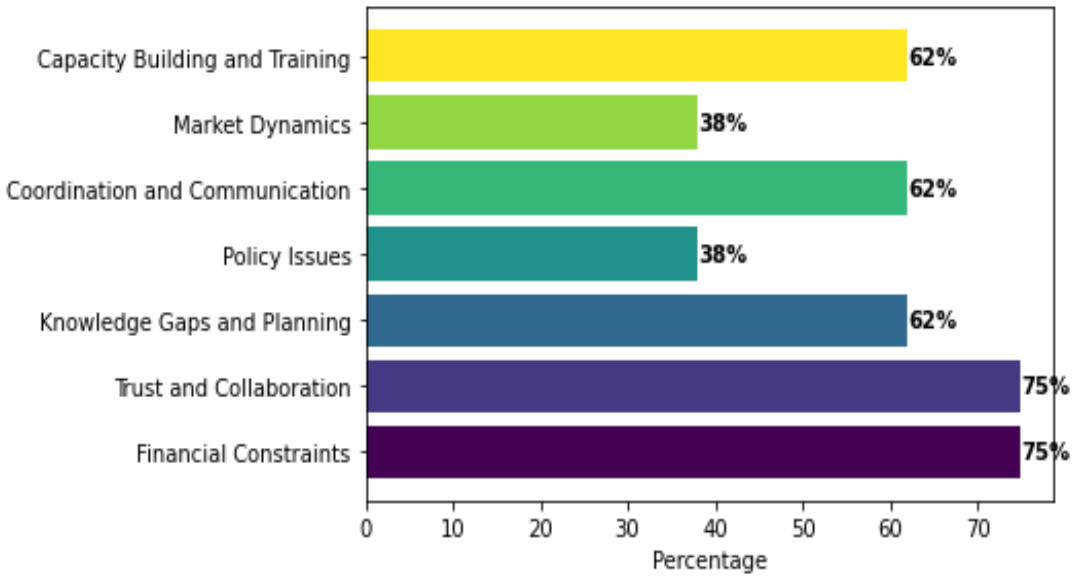
Performance of Component 4: Enhancing sector coordination and business-to-business linkages

In Component 4, the HortiNigeria Program took substantial measures to enhance sector coordination and foster B2B linkages within the horticultural sector. The program focused on promoting coordination between various horticulture projects, establishing a public-private platform, and actively engaging stakeholders through policy advocacy, supporting existing sector platforms, brokering B2B partnerships, and organizing knowledge-sharing events. By collaborating with governmental bodies, private sector entities, and civil society organizations, the program addressed critical policy issues, strengthened existing sector platforms, and facilitated B2B partnerships, demonstrating the relevance and effectiveness of its interventions in promoting sector-wide growth. Notably, the program identified 169 B2B partnerships between 2021 and 2023, surpassing the set target of 100. However, the brokering of these partnerships reached only 26, representing 26% of the target. This discrepancy highlights a potential challenge in translating identified opportunities into concrete collaborations. Despite this gap, the program made significant strides in promoting sector coordination, especially in the identification of B2B opportunities.

The interventions for enhancing sector coordination and B2B linkages within Oyo and Ogun states involved a meticulous approach by HortiNigeria. The program identified and collaborated with existing platforms such as Boosting Agricultural Gains and Services (BAGS), National Tomatoes Growers Processors and Marketers Association of Nigeria (NAPTAN), and Seeds for Change (S4C), among others. The strategic plan for 2023 includes deepening collaborative efforts with these platforms, enhancing coordination, facilitating linkages, and supporting specific initiatives such as the Greenhouse Innovation Platform. In 2021-2022, the program achieved success in identifying 69 B2B partnerships, demonstrating a proactive engagement strategy. However, the brokering of these partnerships reached only 8, indicating a potential gap in translating identified opportunities into concrete collaborations. To enhance coherence, the program should continue aligning its activities with other stakeholders and donor-funded projects, fostering a synergistic approach to sector development.

The program's performance in brokering B2B partnerships suggests potential challenges in translating identified opportunities into concrete collaborations. Financial constraints and limited access to finance, emphasized by 75% of respondents, underscore a critical concern among stakeholders (Figure 8). The details reveal a pressing need for financial backing or guarantees to support smallholder farmers in obtaining loans, given historical challenges with loan repayment. Addressing this issue is imperative for fostering successful B2B partnerships, ensuring that financial constraints do not hinder the participation of smallholders in the agricultural value chain. Trust and collaboration, also recognized by 75% of respondents, take on added significance with the insights provided. Challenges such as a competitive mindset, opacity in pricing, and the necessity to shift from competition to collaboration were identified. Building trust extends beyond interpersonal relationships; it involves transforming the fundamental approach to business interactions. This transformation becomes foundational for overcoming challenges in the horticulture sector, fostering a collaborative environment that benefits all stakeholders.

Knowledge gaps and planning, identified by 62% of respondents (See Figure below), find resonance in the responses. Challenges arising from insufficient awareness about available resources and standards highlight the need for targeted efforts to bridge these knowledge gaps. Enhanced strategic planning becomes a key avenue for addressing these challenges and promoting synchronization in the agricultural value chain. Policy issues, mentioned by 37.5% of respondents, gain clarity in the context, emphasizing the necessity for conducive government policies and intervention to navigate obstacles hindering B2B partnerships from achieving their objectives within the horticulture sector. This underscores the importance of aligning policy frameworks with the dynamics of B2B partnerships. Coordination and communication, market dynamics, and capacity building and training, all identified as challenges by 62.5% of respondents, are substantiated by insights provided. Challenges in production planning, off-take plans, pricing, and the influence of unfavorable market dynamics underscore the critical role of effective coordination and communication. Additionally, the emphasis on balancing relational capacities with technical and soft skill development becomes pivotal for overcoming challenges in capacity building and training in the horticulture sector.



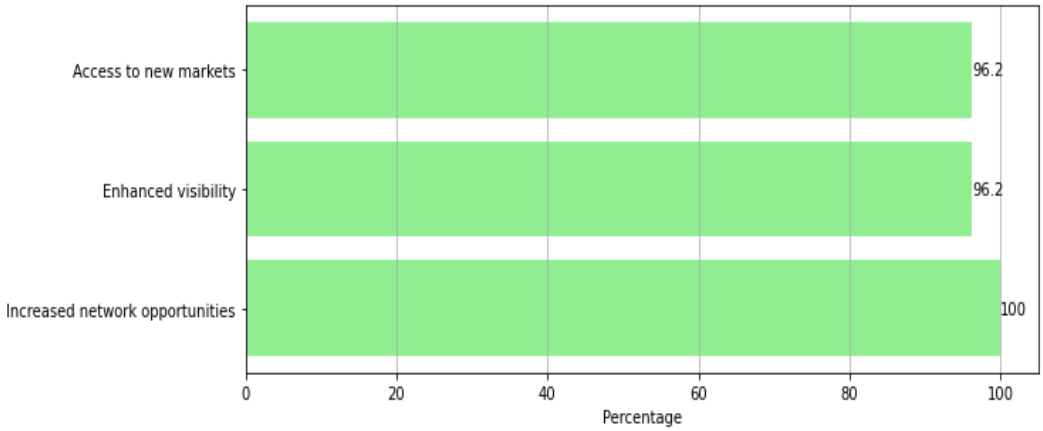
Challenges Faced in Business to Business Partnerships

Business to Business Linkages

The survey data discloses that 20% of EFs and micro, small and medium -scale enterprises (MSMEs) have attended knowledge-sharing events supported by HortiNigeria, such as Agricultural Fresh Produce Growers and Exporters Association of Nigeria (AFGEAN). Of those who attended, 56.25% found the events beneficial, while 12.50% deemed them highly beneficial. These knowledge-sharing platforms appear to contribute positively to the knowledge and practices of EFs, with 51.25% strongly agreeing that such events enhance practices and collaboration in the horticulture sector.

> "We are greatly benefiting from the interaction with the Agribusiness Cluster (ABC), and the collaboration is progressing well. Without the ABC, we would have to transport our products ourselves, incurring significant costs. However, thanks to the ABC established for us by HortiNigeria, it has saved us from additional expenses such as harvesting and transportation costs."

On the front of business partnerships facilitated by HortiNigeria, 18.75% of EFs have participated in such initiatives. Despite the relatively low participation, the benefits derived from these partnerships are notable. Increased network opportunities, enhanced visibility, and access to new markets were reported by 100%, 96.15%, and 96.15% of those who participated, respectively (See Figure below). Additionally, the majority (96.15%) acknowledged gaining knowledge from their participation. This indicates that HortiNigeria's efforts in promoting business linkages have yielded positive outcomes, fostering networking, visibility, market access, and knowledge acquisition among participating entrepreneurial farmers. Despite challenges in participation, these findings underscore the program's impact on enhancing collaboration and market engagement within the horticulture sector.



Benefits of Participation in Business Partnerships

Overall Key Take-Aways from the MTR

- ✓ **Tailored Approaches Yield Success:** The HortiNigeria Program's nuanced approach in addressing diverse beneficiary needs led to significant impacts, with 80% of key informants strongly agreeing on its responsiveness. For instance, surpassing midterm targets by 90%, Component 1 supported 56,876 smallholder farmers, showcasing the effectiveness of tailored training strategies. This emphasizes the importance of personalized support mechanisms in achieving program objectives.
- ✓ **Policy Alignment Spurs Progress:** Aligning with government policies and engaging in policy formulation bolstered program coherence, with 50% of key informants strongly affirming alignment. Despite challenges highlighted by the Kano State Ministry of Agriculture regarding policy shifts, the program's proactive engagement in policy advocacy resulted in tangible outcomes, such as identifying three policies and brokering partnerships, showcasing the importance of policy alignment in driving sectoral growth.
- ✓ **Collaboration Enhances Impact:** Robust collaborations with stakeholders, affirmed by 75% of program staff, were instrumental in shaping outcomes. Component 4's success in identifying 196 business-to-business opportunities and brokering partnerships underscored the significance of collaborative efforts in expanding market access and advocating for policy enhancements, highlighting the transformative potential of strategic partnerships.
- ✓ **Adaptability Drives Resilience:** The program's adaptability and strategic engagement were key in navigating challenges and seizing opportunities. Despite obstacles in accessing finance and improving horticultural policies, the program's ability to adapt, as acknowledged by 75% of key informants, ensured continued progress. This underscores the importance of flexibility in responding to dynamic agricultural landscapes, fostering resilience, and long-term relevance.
- ✓ **Efficient Resource Management Drives Productivity:** The HortiNigeria program's success in efficiently managing resources is evidenced by a 65% increase in agricultural production volume within the first two years. By emphasizing alignment with objectives and prudent resource utilization, the program achieved tangible results, with specific indicators showcasing efficiency gains. For instance, the program's intervention led to a notable

8,298.9 kg/ha increase in cabbage production, highlighting the positive impact of efficient resource management on productivity.

- ✓ **Timeliness and Adherence to Targets Require Continuous Improvement:** While the program demonstrated efficiency in resource management, challenges in timeliness and adherence to targets emerged as areas for improvement. Stakeholder perceptions regarding the program's timeliness varied, indicating the need for enhanced monitoring and evaluation strategies to ensure prompt delivery of outcomes. Addressing these concerns is crucial for sustaining momentum and maximizing the program's impact. For instance, streamlining reporting processes and establishing clear baseline values for performance indicators can enhance accountability and facilitate timely decision-making.
- ✓ **Value Creation Demands Strategic Alignment and Market Resilience:** The HortiNigeria program's impact on the value of horticulture production underscored the importance of strategic alignment and market resilience. While certain crops experienced declines in value, others saw improvements, reflecting market dynamics and external factors. For example, tomato production exhibited a positive difference of $192.99 per hectare, indicating a 6.41% improvement, highlighting the program's ability to capitalize on market opportunities and enhance economic viability for farmers.
- ✓ **Sustainability Relies on Policy Alignment and Continuity Planning:** Achieving sustainability hinges on effective policy alignment and continuity planning. Despite positive feedback on policy influence, concerns lingered regarding the program's long-term viability and continuity beyond external support. Developing a clear sustainability and exit strategy is imperative for ensuring lasting impact, as highlighted by stakeholder perspectives. By addressing challenges such as uncertain durations and potential shifts in government policies, the program can fortify its resilience and secure sustained success.
- ✓ **Importance of Targeted Training Initiatives:** The success of Component 1 in exceeding midterm targets for supporting women and young smallholder farmers (130% and 248% achievement, respectively) underscores the effectiveness of targeted training initiatives. Training efforts focused on eco-efficient production and postharvest practices, delivered through Technical Field Officers (TFOs), proved notably successful, surpassing midterm targets by 60% and 119%. This highlights the importance of tailored training programs to address specific needs and challenges faced by different demographic groups within the horticulture sector.
- ✓ **Need for Gender-Sensitive Market Access Strategies:** Component 2's remarkable performance in facilitating market access for women and young Entrepreneurial Farmers (EFs), achieving 1,260% and 1,972% of the target, respectively, emphasizes the importance of gender-sensitive strategies in promoting economic opportunities. Despite challenges such as transportation costs and exploitation by middlemen, the program's efforts underscore the significance of addressing gender disparities in accessing markets to foster economic inclusivity and empowerment within the horticultural value chain.
- ✓ **Challenges in Ensuring Gender Equity in Entrepreneurship:** Component 3's progress in promoting youth entrepreneurship, surpassing midterm targets by 652%, highlights the effectiveness of training initiatives in equipping young entrepreneurs with essential skills.

However, the performance concerning women-led MSMEs, while exceeding midterm targets at 160%, indicates challenges in ensuring gender equity in entrepreneurship. The relatively low access to finance among women-owned horticultural-related MSMEs (25%) underscores the need for enhanced strategies to promote gender inclusivity and equity within entrepreneurship programs.

- ✓ **Synergy and Gaps Across Program Components:** The inter-component relationships reveal both areas of synergy and gaps in addressing gender and youth issues. While Component 1 lays the groundwork for Components 2 and 3 by providing essential skills and knowledge, challenges in reaching women smallholder farmers highlight a gap in gender inclusivity. Component 2 excels in facilitating market access, benefiting the youth and women targeted by Component 3, yet Component 3 struggles with achieving its objectives, particularly in ensuring gender inclusivity and equitable access to finance for women-owned MSMEs. These insights underscore the importance of addressing gender disparities and enhancing collaboration among program components to maximize impact and ensure equitable opportunities for all participants.
- ✓ **Importance of Effective Communication and Coordination in Partnership Formation:** The survey data reveal that communication and coordination issues, along with cultural mismatches, were common barriers reported by 48% of respondents. Additionally, 68% of MSMEs in the south cited unclear roles and responsibilities as significant hurdles. This underscores the critical importance of establishing clear expectations, fostering mutual trust, and improving communication channels to enhance the likelihood of successful business partnerships among entrepreneurial farmers.
- ✓ **Addressing Financial Constraints for Innovation Adoption and Market Access:** Eighteen percent of MSMEs and EFs encountered obstacles in adopting innovations, primarily due to initial investment costs (61.11%) and energy costs (93.06%). Moreover, 40% of SMEs faced challenges in maintaining consistent market access, primarily due to transportation costs (100%) and exploitation by buyers and market officials (68.75%). These findings emphasize the need to address financial constraints to ensure the successful adoption of innovations and sustained market access for entrepreneurs in the horticulture sector.
- ✓ **Building Trust and Collaboration for B2B Partnerships:** A widespread consensus (85.71%) among B2B partners highlighted significant challenges in business-to-business partnerships within the horticulture sector. Key obstacles include access to finance (15.6%), policy issues (12.5%), trust, and collaboration (15.6%). Building successful relationships and fostering collaboration over competition is essential to overcome these challenges and achieve mutually beneficial partnerships.
- ✓ **Mitigating Financial, Operational, and Market Challenges for Agro-Dealers and Innovation Providers:** Seventy-five percent of agro-dealers identified financial constraints as a major challenge, while innovation providers emphasized regulatory complexity (66.67%), high implementation costs (66.67%), limited market access (66.67%), and dependency on imported inputs (66.67%). Addressing these challenges requires strategic

approaches to improve financial sustainability, streamline regulatory processes, reduce implementation costs, enhance market access, and promote local sourcing of inputs.

- ✓ **Effective Climate Change Mitigation Strategies Yield Positive Results:** The HortiNigeria program's proactive introduction of innovative eco-efficient production techniques has significantly impacted smallholder farmers in the north, with 96% affirming a measurable reduction in the impact of climate change on their farming activities. Notably, practices such as water conservation have been particularly appreciated by 32.60% of farmers. These findings underscore the importance of implementing targeted climate resilience strategies to address environmental challenges and enhance agricultural sustainability.
- ✓ **Integrated Approach to Market Access and Climate Resilience Enhances Program Impact:** The program's strategic focus on addressing market access challenges, alongside initiatives for climate-resilient farming, has demonstrated positive outcomes. Adoption rates of 79% for innovative crop varieties and 48% for Smart Greenhouses highlight the effectiveness of the program in facilitating access to competitive markets like Lagos while promoting climate-resilient agricultural practices. This integrated approach enhances the program's impact and sustainability in addressing multifaceted challenges.
- ✓ **Investment in Knowledge-Sharing Events and Trade Fairs Facilitates Collaboration and Knowledge Exchange:** Despite the majority of EFs and SMEs not attending HortiNigeria-supported knowledge-sharing events, positive feedback from participants indicates their perceived benefits in terms of improved practices and collaboration. Similarly, engagement in horticulture-designated fairs or trade fairs has led to increased network opportunities (100%) and knowledge gain (96.15%). These findings emphasize the importance of investing in such events to facilitate collaboration, knowledge exchange, and market access within the horticulture sector.
- ✓ **Effective Collaboration and Regional Adaptability are Crucial for Program Success:** While the program demonstrates regional adaptability, with 60% of staff recognizing its capacity to tailor approaches to local contexts, challenges within the consortium structure highlight the importance of effective collaboration. Divergent opinions on collaboration among consortium partners underscore the need to address personal agendas and overcome obstacles to collaboration. Lessons learned emphasize the critical role of effective collaboration and regional adaptability in enhancing program responsiveness and effectiveness.

ANNEX 10: RESEARCH TEAM

The ET was made up of four key members, including a team leader, who bring in a wealth of experience related to Nigerian Agribusiness space and agriculture-led development, as well as experience in performing evaluation in the Nigerian context.

MTR Team Leader and Agribusiness Development Specialist
Charles Osamudiamen Iyangbe, PhD in Agricultural Economics

Dr. Charles Iyangbe is a leader in the agribusiness space with ample experience in supporting market systems partnerships for enhancing value chains, food security, resilience, and livelihoods amongst smallholder farmers. Charles Iyangbe provides monitoring, evaluations, and learning support to assess the impact of the solutions and to adapt to changing market realities. He enjoys more than 23 years of professional experience in the project planning; designs and management; reporting; partnership building; working on agricultural enterprise development projects; and promoting climate-smart agriculture that is environmentally friendly. Dr. Iyangbe comes with strong experience and has worked with several development organizations including the United State Agency for International Development (USAID/Nigeria) as the Senior Agriculture Economist for close to 5 years. In this role, he undertook a variety of USAID's economic cooperation programs in Nigeria and West Africa with a portfolio covering agriculture, food security/livelihoods, trade, and investment. Dr. Iyangbe has led several assignments and evaluations including projects for USAID, European Union, the Dutch Government, BMGF, Global Affairs Canada, Islamic Development Bank etc. Iyangbe possesses strong qualitative and quantitative research; analytical; interpretation; and writing skills that has enabled him to successfully deliver on past assignments.

Dr. Iyangbe served as the role of Team Leader and Agribusiness Development Specialist in the MTR of the HoriNigeria Program and serve as the primary point of contact for the MTR. He will provide guidance on research methods and protocols, facilitate KIIs, and lead the drafting of the evaluation report in close collaboration with the entire team.

Mixed Methods Analytical Research Specialist
Dr. François Siéwé, Ph.D in Agricultural Economics

François Siéwé is a leading agricultural economist with comprehensive expertise in both quantitative and qualitative research in development economics. Graduated from University of Douala, Cameroon, in economics and management, he later pursued his post-graduate studies at Ahmadu Bello University, Kaduna State, Nigeria where completed his M.Sc., and Ph.D. in agricultural economics, focusing on sustainable agriculture and market participation research. His area of expertise includes, technology adoption, market participation, impact, and performance evaluation. His recent and notable works include pivotal roles in qualitative analysis in projects like CAtalyzing Strengthened policy aCtion for heAlthy Diets and resiliencE (CASCADE) project funded by the Dutch Government, Enabling Resilience to Climate Change Related Risks Through Civil Society Organization (CSO)'s Strengthening (ER2CC) Project funded by the European Union, and final evaluation of the USAID funded Feed the Future Nigeria Agribusiness Investment Activity. His leadership prowess is evident as the General Manager for Mivanyi Integrated Farms Limited, overseeing extensive crop production. Concurrently, he has demonstrated analytic acumen as a Data Analyst for various projects, including the transformative TRIMING initiative in Zamfara State. His consultancy contributions encompass data management for diverse projects in and outside Nigeria with IITA and ICRISAT, while his scholastic endeavors have garnered him a prestigious scholarship in 2018 for his PhD degree which was funded by the World Bank and Federal Ministry of Water Resources (FMWR),

Nigeria. With a blend of academic excellence and practical expertise, Siéwé is a beacon in the realm of agricultural development and research.

François Siéwé assumed the role of Mixed Methods and Analytical Research Specialist in the MTR of the HortiNigeria program. He will provide support to the Team leader in data analysis and contribute to the drafting of the evaluation report in collaboration with other team members.

Agronomist and Agriculture Innovation Specialist
Theophilus Agada, Masters in Development Studies and M. A. Conflict, Security and Development

Mr. Theophilus Agada has over Ten (10) years of experience in the management and capacity building of smallholder farmers/ farmer groups in Nigeria. Highly skilled in facilitating and implementing Agricultural, Advisory, and livelihood-based interventions in smallholder farming systems, especially in Nigeria with records of international experience. His major expertise includes Agricultural input production, sales, distribution, and business development. He has consulted for several profit and non-profit-based organizations, as well as international organizations. Has capacity building experience and he is able to offer advisory services on fruits and vegetable production and marketing, management of postharvest losses of key staple crops.

Theophilus Agada assumed the role of Agronomist and Agricultural Innovation Specialist in the MTR of the HortiNigeria program. He will provide support to the Team leader in the review of relevant themes as well as on the methodology, research protocols, conduct Key Informants Interviews; and contribute to the drafting of the evaluation report in collaboration with other team members.

Youth and Gender Specialist
Mrs. Chioma Adiele-Okpara, master's in international Affairs and Diplomacy; Management Development

Chioma Adiele-Okpara is a passionate gender equality and women's rights expert, with 18 years of professional experience in program/project leadership and management, capacity building and technical assistance in long term development programs. She is the founder of Women and Girls Advancement and Resources Centre, a Nigeria-based organization with the vision to create more opportunities for women to engage in social, economic, and political processes effectively and substantively in Nigeria and Africa at large. Mrs. Chioma has Served as the Gender Expert on IGNITE project by Tanager International to strengthen the ecosystem in Africa that allows for more sustainable gender equality outcomes in agriculture. She has had previous experience in similar capacities as Senior Gender and Social Inclusion Manager at the USAID-funded West Africa Trade & Investment Hub and as a Gender Advisor for the United Nations Development Programme, UN WOMEN, Economic Community of West African States, Oxfam International, and for the private sector. She has excellent competencies in intercultural negotiations and coordination of complex multi-country/multi-year and interdisciplinary projects, with vast experience in East and West Africa and South-East Asia. Chioma holds a bachelor's degree in English language, a post-graduate diploma in Gender Studies.

Chioma Adiele-Okpara assumed the role of Youth and Gender Specialist in the MTR of the HortiNigeria program. He will provide support to the Team leader in the review of relevant themes as well as on the methodology, research protocols, conduct Key Informants Interviews; and contribute to the drafting of the evaluation report in collaboration with other team members. She was assisted by Dr. Mrs. Confidence Kalu.

Rural Finance Specialist

Mrs. Esther Aina, master's in development communication

Esther Aina is a highly experienced finance expert with a proven track record in the donor, government, finance, and investment sectors. She has more than 15 years of experience in implementing projects that foster inclusive sustainable finance for smallholder farmers' growth, enhance productivity, and implement agricultural transformation strategies. Her expertise lies in value chain development, gender inclusion, financial services, and partnership management.

Esther Aina assumed the role of Rural Finance Specialist in the MTR of the HortiNigeria program. He will provide support to the Team leader in the review of relevant themes as well as on the methodology, research protocols, conduct Key Informants Interviews; and contribute to the drafting of the evaluation report in collaboration with other team members.

ICT and Data Collection Lead

Mr. Kenneth Ode, Bachelor in Electrical and Electronics Engineering

Kenneth Ode is a dynamic player in the technology space with proven impact in different sectors from Agriculture, Ecommerce, Education, and International Development. He possesses vast knowledge in the ICT field and has been involved in providing ICT related services to various organizations and the IT Product development for the past 11 years. He was Lead Consultant, USAID – IITA Feed the future Integrated Agriculture activity with a component of registration of 60,000 Smallholder farming households in 12 LGAs in Adamawa and Borno States. He was the Lead Consultant, USAID – CRS Water for Agriculture activity with a component of the digital registration of 50,000 Herders and 4,000 Smallholder farming households in Adamawa, Borno and Yobe state. He led the team saddled with the responsibility to develop the unique data collection tool, mapping activities of enumeration areas, enumerators training, community-based advocacy and field activity strategic planning and beneficiary registration supervision across the 3 states. He served as the Associate Consultant in the USAID-Water for Agriculture baseline study of herders and farmers in Adamawa, Yobe and Borno states across 8 LGAs. He also served as the Associate Consultant in the USAID-Water for Agriculture Livestock Value Chain Market Analysis Survey carried out in Adamawa, Borno, Yobe states implemented by Catholic Relief Services. He was Lead Consultant in the USAID-Rural Resilience Activity Digital Registration of 100,000 households in 23 LGA across Adamawa, Borno, Yobe and Gombe states implemented by Mercy Corps International, IFDC and Save the Children consortium. He has Co-founded notable ICT based solutions companies with products designed to meet several human needs and challenges. They include BOOX Community, AgricBOOX Solutions, SchoolBOOX Education Solutions, FoodsBOOX Global Solution Limited.

Kenneth Ode assumed the role of ICT and Data Collection Specialist in the MTR of the HortiNigeria program. He will provide leadership in all aspect of data collection and management and contribute to the drafting of the evaluation report in collaboration with other team members. He was assisted by Godwin Aina.