

Women in Horticulture:

Transforming Livelihoods and the Sector in Kano and Kaduna















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ano and Kaduna are two of the most important states in Nigeria in terms of horticultural production. Like many countries across Africa, Nigeria has experienced population growth, urbanization, and rising incomes, which have driven an increased demand for vegetables in the country's horticulture sector. Since 2021 Horti-Nigeria has worked in four states - Kano and Kaduna in the North and Oyo and Ogun in the South West - to facilitate the development of an inclusive horticulture sector that will improve diets for Nigerian consumers and offer higher sustainable income for smallholder farmers, including young and adult women. While all smallholder farmers face challenges, barriers for women are higher due to a variety of constraints, including limited access to land, inadequate training, and restricted mobility. As the program is coming to a close at the end of 2025, this briefing captures insights in two interrelated areas: (1) the role of women in the horticulture sector and the contributions they are making to its development through the HortiNigeria program and (2) the changes in women's lives as a result of their increased involvement in the sector. The following are the key lessons learned and recommendations from the program.

Lessons learned

- Women's empowerment is achieved not only through training and improved access to resources but also by recognizing their role in the sector and their successes. This translates to greater independence and decision-making.
- Women require multiple interventions and ongoing support to allow them to sustainably contribute to the sector: training on agronomy, diversification of roles, financial literacy and leadership, producer organization (PO) membership, access to land, and ways to save and invest.
- Rural women's productivity and entrepreneurial potential in the horticulture sector is an underutilized resource that can help raise household incomes.
- While household responsibilities are a time constraint, many women manage to balance them with horticultural work by redistributing chores among family members and combining household and farm work.
- Meaningful and sustainable change in women's lives requires engagement of the wider community, especially their husbands.
- Social enterprises that support women's inclusion and smallholders are an essential part of developing the sector.

Recommendations

- Design interventions that are comprehensive (training, PO membership, access to markets, etc.), longer term (at least 3 years), and flexible to ensure as many women as possible become engaged, have the appropriate skills, can build on failure and success, and receive recognition so as to build confidence.
- Engage beyond the farm and agribusiness in (participatory) household and community dynamics that foster joint decision-making by all family members.
- Support social enterprises that integrate social inclusion into their business model to support women (and young people) to become sustainably engaged in the horticulture sector.
- Identify underutilized land that is close to rural communities and help women PO members gain access to this land.
- Maintain flexibility in monitoring, activities and the budget to adjust program design based on successes and challenges of engaging different women's groups and individuals. This also includes identifying niche areas, such as neem oil and seedling production, that women can champion.

The horticulture sector in the North

The horticulture sector includes key ingredients for many of the staple foods that Nigerians eat on a daily basis; to-matoes and onions are the most highly demanded products throughout the year, though peppers, okra, pumpkin, cabbage, and different kinds of leafy green vegetables are also part of the regular diet. While smallholder farmers in other states grow these types of produce, those in Kano and Kaduna collectively produce the most; produce that is grown by farmers in these two states is transported throughout the country all year long, with a large share going to Lagos and other burgeoning cities in the South West region. It is especially these growing urban populations that increasingly demand vegetables throughout the year and so provide an opportunity for smallholders to expand their livelihoods.

Women's role in the horticulture sector

Farming is still seen by many as a predominantly male activity, despite the amount of women already engaged in agriculture. However, it is difficult to determine how much women contribute to agriculture, specifically horticulture, in Nigeria. The Federal Ministry of Agriculture and Rural Development's 2015 report indicates that women account for 75% of Nigeria's farming population. More nuanced studies find that women's role varies by location and crop type; in the South, women contribute 51% to production, while in the North, the percentage is as low as 32%. In terms of crop value chain participation, it differs even more, from 92% for soybean to 41% for neem oil. This is explained by the mismatch between women's participation and their ability to access training, land, markets, and inputs. In the sum of the production of the production of the production and their ability to access training, land, markets, and inputs.

In addition, women tend to spend more time working during the day as a result of having both agricultural responsibilities and household chores.¹⁵ For women partners of HortiNigeria in Kano and Kaduna, the division of horticultural labor varies. Women who are members of women-only POs do all of the



farming work, including pesticide application. Those who have larger farms hire temporary (male) labor to do some of the heavier work, especially trellising, while overseeing the process. On the other hand, women who are members of mixed gender POs focus on nursery raising, sowing, and weeding and leave the heavier work to the men. Husbands and wives who work together take on all of the tasks except spraying between themselves, depending on what needs to be done and when.

As horticulture includes some of the most perishable agricultural goods, the choice to grow them for more than just household consumption depends on the farmer's access to market, a deterrent for women who live remotely and have more restricted mobility and limited resources and skills compared to men. For those living in peri-urban areas (and thus closer to larger markets), the challenge is often limited access to land. Inheritance laws do not formally restrict women from owning land, but in practice, women have less land ownership in these states. ¹⁶ Moreover, marriage sometimes means that women move away from any inherited land, meaning they lose control of or access to it.

Notably, while these are common trends for women in production, gender distinctions are less of a factor further up the value chain, though they are not entirely absent. Women with financial resources and business acumen are able to set up a processing unit and can in turn support rural female horticultural producers, as evidenced in the business case studies (see section on "How businesses engage with women").

- 10 Tichar, T., et al.
- 11 KT.
- 12 Olakojo, S.
- 13 Christiaensen, L., & Demery, L.
- 14 World Bank (2023).
- 15 East-West Seed Knowledge Transfer.
- 16 This looks to be tied to customary and religious laws; Kano and Kaduna are predominantly Muslim, while in the southern, more Christian states, property ownership can even favor women. Gaddis, I., et al.

HortiNigeria's inclusive strategy

he HortiNigeria program took women smallholder farmers in Kano and Kaduna through a four-step process (see Figure 1) as part of its approach to capacity building and market strengthening. While some had experience in the production of tomatoes, onions, and other vegetables, as well as seeds and seedlings, around 85% of the women were introduced to new farm-

ing practices and other skills by the program. A flexible approach was adopted so that events and additional trainings could be organized based on what could potentially benefit women. A key example is a competition called Her HortiVantage, which was held in 2023 to introduce commercial seedling production, neem oil production, simple agro-dealership, and vegetable processing (as value addition) to improve opportunities for women. This event offered support to women in a number of POs to develop business pitches, which received much fanfare during the final selection process.

Value added products produced and managed by some women groups.





Moreover, HortiNigeria worked with other initiatives to support women POs, including the Bridge Connect Africa Initiative (Canadian-funded) and the Digital Skills for Entrepreneurs (German-funded), building awareness around gender-based violence and improving digital literacy.

Agronomy training conducted

Producer organizations (POs) formed

Leadership and financial literacy training provided

POs linked to market buyers

Agronomy training conducted. Women received training on specific types of crops they are more likely to grow and how to prepare land, plant, water, trellis, etc.

Producer Organisations formed. Mixed groups and women-only groups were formed, with a maximum of 25 members per group. Each group worked together to decide what horticultural crops to grow and supported one another with advice.

Leadership and financial literacy training. Basic skills, such as bookkeeping and organizing, were taught.

POs linked to market buyers. The POs were connected to buyers of the types of produce and/or seedlings that the PO members grew.

Figure 1. HortiNigeria's four-step process of capacity building and market engagement for smallholder farmers.



lthough a final impact evaluation will not be done until the close of the program, preliminary results already give some important insights. Women and women POs have generated income that they have used for both consumption and reinvestment in vegetable production. In addition, seedling production benefits women as it requires less land, and during this process, they have introduced hybrid seed varieties within and outside their community. Furthermore, neem oil was identified as a means of reducing the impact of Tuta absoluta (a type of moth known as the tomato leafminer, a serious pest of tomato crops), and women now produce it to sell to smallholder farmers as part of an integrated pest management approach. Moreover, women adopt storage solutions at a similar rate as men; women use more plastic baskets, packaging equipment, and drying facilities, while more men use cold storage facilities. Collectively, this has resulted in a slightly higher decrease in food loss among women (75%) than men (70%), and more efficient use of resources (seeds, fertilizer, etc.), which generates a greater return on investment.9 The following section provides more details on these areas.

Changes in women's lives and their households

The following insights, quotes, and case study (see box) draw from interviews with women individually, with their husbands and families, and collectively as PO members.

The mix of interventions over time lead to a shift from passive application to active decision-making

The trainings on agronomy provide a good basis for women to start cultivating produce, but membership in a PO is what reshapes this newfound knowledge into longer term application. This is because PO membership allows women to interact more regularly and support one another with tips and suggestions, and the PO leader can provide more detailed technical support. In addition, members often work collectively in deciding what to purchase and grow and determining how to save and reinvest the funds. When they register as a cooperative, each member is incentivized to make sure that all do well. This longer term and collaborative work marks a transformative change in attitudes and behavior, increasing the chance that women will continue production and sales well into the future, even after the program ends.

The women's journey from developing their skills and changing their mindset is key, culminating from the combination of these activities. HortiNigeria's Youth and Gender Specialist Olubukola Funsho-Sanni refers to this as a "conscientization" – a gaining of consciousness, signifying a shift from simply doing what they have been trained to do to making independent choices, developing ideas, learning and supporting one another, contributing to household income, and making household decisions with their husbands.¹⁰

For some of the women, this happens over time, while for others, a specific moment sparks this shift. Attendance at the Her HortiVantage event brought about a substantive change in mindset for a number of women, bringing together so many involved in a similar process, putting them front and center, and celebrating their achievements.

For some of the women, though not all, this has translated to attitudinal and behavioral changes, resulting in collective

⁹ Note that this is in relative terms. In absolute terms, income generated by men is greater than that of the women as they use more land. Global Agri Projects & Consultancy services Ltd.

¹⁰ This also draws on interviews from East-West Seed Knowledge Transfer.

and individual decision-making on what crops or seedlings to grow based on (local) market demand, in addition to household needs. An example is considering the needs for upcoming public celebrations, such as growing watermelon for Ramadan and bell pepper for Christmas. The women also have a more proactive relationship with their husbands on household expenditures, savings and, to some degree, division of agricultural and household labor. They also say that it is the support of their family, especially their husbands, that is key to enabling them to make decisions independently.¹¹

Women use income for consumption, savings and reinvestments

The income generated by sales of produce is spent on a variety of things; some women use it for consumption, e.g., purchasing food, items for the household or their children's transportation to school and educational materials. The process of deciding what to spend the money on differs, varying from a more collective decision between the husband and wife to either the husband or the wife having more sway on the matter.

However, multiple PO members also save collectively, keeping the money within the PO, and decide to reinvest it. Mary Yakubu, leader of the Kungiyar mata Unguwar Duna PO in Kaduna, reflects on this: "During our group meetings, we each donate 50 Nigerian naira in dues ... With this and other savings, we started a village savings and loan association that loans money to group members and other people from our community. The service fee is set at 100 naira per every 1,000 naira loaned. This allows us to grow our funds. We utilize the meeting times to discuss challenges and plans to grow our business. We have plan to invest in storage for commodities to allow sales at peak market price." She also notes that they've opened a joint bank account for the cooperative through Unity Bank.

Another example is PO members growing seedlings, selling these to other farmers, and then using the earnings to buy rice, mill it to flour, and then resell the flour at a profit. This is also an example of the training and collective action translating into a more entrepreneurial approach. Zainab Shehu, leader of Kungiyar Nagarta Sabon-gari Malikanci in Malikanci community, Kaduna State, says, "People from our community laughed at us for using leaf pots, but our seedling production business was so successful we made profit of 36,000 naira."

PO membership has an additional advantage by providing women with a means of communication. Only 52% of women in these areas have a mobile phone, and as little as 5% own a smartphone. Being able to make and receive calls is essential for women to reach their clients, communicate with other market actors, and access banking services.

Women achieve recognition in pioneering roles in the horticulture sector

Through support from the program, women identified two areas of opportunity: farmer preferences for seedlings and the need for neem oil as a bio-pesticide against Tuta absoluta. These specific markets work well for women as they require less land. As a result, various women POs have become known for these goods, especially by male agro-dealers who trade in neem oil and neem seed. Maimuna Garba, leader of Ataimaki Mata PO in Kano, notes, "We started commercial neem oil production in 2023 We sell a liter of neem oil for 4,000 naira, and we have clients from different parts of the country. Through this business, the women in our community have the opportunity to earn income sustainably. We have opened a joint bank account and we now conduct cashless transactions."

Male farmers recognize the niche products that women POs provide. According to Lantana Kamilu, PO leader in Garin Ali community, Kano, "The husband of a group member provided our group about 230 square meters of land to support our seedling production business when he noticed our effort and profitability. In turn, we raise seedlings for his cultivation at no cost. The land is close to our houses and there is a nearby water source."

Women producers have also taken on roles as community field trainers. Having four female producers in this role reflects the change in narrative of women's contribution to primary production; they provide advisory services on vegetable production to both male and female farmers within their community and link farmers to trained agro-dealers and offtakers. They have led a campaign for promoting integrated pest management in the control of Tuta absoluta, which helped their communities to continue producing tomato during the peak infestation period. This gives them more influence in their communities and changes the perception of women in horticulture production.

¹¹ East-West Seed KT 2024.

¹² East-West Seed Knowledge Transfer Foundation (2024).

Husband and wife's changing roles

his case study covers the experiences of two couples Rabiu and Binta live in Gadama gram. Aisha even stepped into a women-only PO. Over a few years,

as the primary source of income The couple has been able to pay for their two daughter's education and transportation to school.

Living in a more rural area, Aisha and Musa were able to earn enough money to purchase additional land close to their home, which they are using to grow extra produce. Both couples have also improved their families' diets, with regular meals and more meat. Aisha has confidence in allowing family land to be registered in her husband's name, as both understand that their improved livelihood is a joint effort. They now have better dynamics and have built trust in one another through joint vegetable production.

While the women have not noted a decrease in household chores alongside their new horticultural work, they have managed to combine household and horticultural responsibilities, using their time more efficiently. Rabiu and Musa explained that they provide some

support in looking after the children, when necessary. The husbands also reflected on how other men have regarded their wives going to market and contributing to household income. Some of the men's friends had a positive view, observing the improved situation with their household income. Others mocked

the fact that their wives were allowed to farm. Musa also noted that, while he and Aisha keep their income separate, to the community they maintain that he makes all the spending decisions and owns the land.

In reality, both couples now have a more open and cooperative relationship, as both husbands recognize the value of their wives bringing income into the household. The wives realize that it's better for their husbands to be seen as "in control," while in practice, the decisions are mostly made collectively. As Musa noted, "If you don't let your wife fulfill her potential, who will help you in times of need? Not those mocking friends anyway."

For Binta and Aisha, their status has changed among their peers; they are now recognized as having a beneficial skillset, and women who have not been involved in the HortiNigeria program seek them out for their advice. Binta provides free training to these women out of solidarity, while also recognizing that they could be potential customers of the seedlings that she's growing. Aisha leads a group of 25 women producers, providing advice and passing on knowledge, in addition to growing and selling produce together with her husband. This provides her with much more satisfaction than before, when she was stuck at home most of the day. Both women were introduced to vegetable production in 2022 through the HortiNigeria program.



he HortiNigeria program works with medium-sized companies involved in input provision and processing. These agribusinesses understand that proactive engagement with producers and POs is an essential part of their business model, as they must ensure smallholder farmers have the capacity to deliver produce or seedlings. Seed Project Co Ltd., TomatoJos, Beta Agric Ventures, and Mix Condiment Paste Nig Ltd. are examples of businesses that specifically target women; they do so out of a mix of having good principles and recognizing an opportunity. Understanding that access to land is a constraint, they adjust their engagement to help women overcome this challenge.

Seed Project Co ltd.

Seed Project Co is run by Zainab Gwadabe, a woman entrepreneur. Originally sourcing seed from abroad, the company has also started producing local varieties, including of tomato, okra, amaranth, and hibiscus. Until recently, Zainab has worked with both women and men growers who produce seeds for her to resell, but since 2023, she has begun a pilot of women-only engagement. To do so, Zainab has reached out to 60 groups in Kano, each with around 25 members. Many of these women already have access to land. She helps those who don't gain access by approaching land owners on their behalf to negotiate for access. Zainab prefers working with women for two reasons. First, she finds that women are more inclined to sell the seeds back to her rather than consume them, as some men have done. Second, having already engaged with many men in these communities, she finds that reaching out to women increases the chances that no households are left behind - and households that are supported are more likely to support others, rather than steal from them. Underlying the business approach is a moral stance, however: Zainab sees that women are more likely to also send their daughters to school with the increased income than their husbands, who prioritize their sons. Ultimately, though, Zainab recognizes that the whole household should be engaged, which increases the chance that all members of the household benefit.

TomatoJos

TomatoJos is a woman-led enterprise that processes tomatoes into paste, then packages and sells it with the company's own brand. The business model is less common; to ensure sufficient supply of tomatoes, almost all of the tomatoes are sourced from the company's own land. To do this, small-holder farmers are trained to manage plots to grow quality tomatoes. The extension team supports them to ensure they follow best practices. This model allows the company



to hire both women and men, as land access is one of the key constraints for women's involvement as producers. The company aims to employ 60% women and engage the same people over the years so they can build their capacity and expertise. Investing in a smaller group over the long term is what Esson, head of agronomy and smallholder programs, sees as a more meaningful approach than the "hit-and-run" model that many NGOs adopt (training once with no follow-up support). This longer term engagement has meant that almost all of the farmers who started five years ago are still involved. Esson sees that working with as many community members as possible over a number of years helps shift practices and mindsets. And as farmers' skills develop, the company provides them with more land to scale up production, which means a higher income for the farmers as well.

TomatoJos has seen mixed results in terms of benefit for the business. The investment it has made in women has been useful, as their inexperience in farming means they are quicker to adopt the company's practices. In contrast, men often hold onto some of the old practices they learned informally. However, women often hire workers for some of the heavier labor, so labor shortages in the last year have meant those women produce fewer tomatoes.

The impact on women's lives is generally positive. Because the farmland is overseen by TomatoJos, the husbands of the women working there are assured of their safety and allow them to go to work. Widows find this job especially useful, as it provides an income they otherwise simply wouldn't have. Some of the longer term employees have invested in their own micro-businesses, such as purchasing cattle or even chickens to either raise poultry or sell eggs, though many of the women use the income directly for consumption.

Beta Agric Ventures



Run by Adaora Akojuru, Beta Agric Ventures is a tomato processing company in Kano that has developed partnerships with three of the women POs in Minjibir that HortiNigeria helped establish. The women provide support to improve the supply of tomato produce the company needs. The company works with community leaders to help the POs get access to land, covers transportation costs, and provides technical training on good agricultural practices, including sorting, grading, and weighing. Beta Agric Ventures has also organized visits to the Bera Tomato processing plant to help motivate the women POs, giving them a sense of pride by seeing the end product made from what they've grown. In the future, the company will also provide support on gaining access to credit to purchase inputs and solar water pumps for irrigation.

Mix Condiment Paste Nig Ltd



Hajiya Aminat Muhammad Sani is founder of Mix Condiment Paste Nig Ltd. As a business champion under the HortiNigeria program, she began offtaking tomatoes, peppers, and onions from women farmers, building a strong relationship with a view toward working together over the longer term. This involved addressing their specific challenges and offering a guaranteed market for what they grow.

She also set up the Mix Condiment Agricultural Farmers Multipurpose Cooperative Society, which is women-owned and incorporates members of the women POs in Bichi, Kumbotso, and Dawakin Kudu LGAs. Through the cooperative, they have access to solar-power drying and processing facilities at subsidized rates and benefit from a structured offtake system. Going forward, Hajiya wants to launch a women-focused grower scheme within the cooperative to support access to quality seeds and organic treatments on credit, which can be paid off at harvest. She also wants to extend the growing season through the introduction of greenhouses. Hajiya sees this type of partnership and empowerment of women as good for her business and the entire horticulture value chain.

Conclusions

This brief presents an example of the impact of a gender-inclusive approach in developing the horticulture sector on women's lives - and on their contribution to the sector. In a country with one of the fastest-growing and -urbanizing populations on the African continent, the demand for more horticultural produce in Nigeria is almost unending. In labor market terms. rural women remain a relatively untapped source of production, constrained by factors including a lack of access to land, agronomic skills, access to markets, and business acumen and, possibly most importantly, they don't have the attitude that they can become agribusiness leaders. Examples from Kano and Kaduna illustrate that investing in women and engaging men and communities more widely can pay dividends

for businesses, though it can take time for those results to be realized. No single intervention strategy is the answer, and not all women are able or willing to be entrepreneurial enough to set up their own business - nor should this be expected. A flexible and long-term approach is needed to shift markets and develop them. But for those women that want to commit - and have the support of their husbands and families - through their own drive and collaboration with other women, the benefits can be relatively quickly attained, given the relatively quick production cycles in the horticulture sector. This can translate into improved household income, better intrahousehold relations, and greater prospects for the next generation of both women and men.

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