



PROJECT ENDLINE EVALUATION

**The Scaling Up Farmer Field and Business Schools (FFBS)
Kenya Project, Addressing Food, Nutrition Security and
Economic Resilience of the Vulnerable Smallholder farmers in
Homabay County.**

**JULY 2024,
CARE INTERNATIONAL**

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Acronyms and abbreviations

CAPI	Computer Assisted Personal Interviews
CBO	Community Based Organization
CIDP	County Integrated Development Plan
CRP	Community Resource persons
EPE	End of Project Evaluation
FFBS	Farmer Field and Business School.
FGD	Focus Group Discussions
GAP	Good Agronomic Practices.
JAM	Justice and Mercy
KALRO	Kenya Agriculture and livestock research organization
KBL	Kenya Breweries Limited
KAP	Knowledge Attitude Practice
KES	Kenya Shillings
KII	Key Informant Interviews
LOP	Life of project
MOA	Ministry of Agriculture
NGO	Non-Governmental Organization
PIP	Project implementation plan
PME	Planning, Monitoring and Evaluation
PRA	Participatory Rural Appraisal
SHG	Self-help Group
SPSS	Statistical Package for Social Sciences
TOR	Terms of Reference
USD	United state dollar (Exchange as in October: KES 129 to a dollar)
USD \$	United States Dollar
VSLA	Village savings and loaning associations

EXECUTIVE SUMMARY

The end term evaluation for the Scaling up Farmer Field and Business Schools in Kenya Project, that aimed at addressing food, nutrition security and economic resilience of the vulnerable smallholder farmers in Homabay County, was undertaken in the month of July 2024. The study employed cross-sectional research design and a mixed approach methodology, guided by a variety of participatory tools and techniques for data collection. A total of 312 smallholder farmers (229 being women, representing 73% and 83 men, representing 27%) were reached. In addition, 18 Key informants (KI) and 11 focus group discussion (FGD) sessions with 110 participants were conducted. A digital data collection platform, Kobo Toolbox, was used for quantitative data collection while qualitative data was collected through KII and FGD. A validation workshop was organized, on 29th July 2024, in Homabay county, with the participation of stakeholders from the county government at ward, subcounty, and county level; farmer representatives; Justice and Mercy (JAM) staff; and CARE Kenya staff. The participants agreed anonymously that the report represents a true reflection of the project achievements and challenges which have been incorporated in this report.

Demographic characteristics of the households: Most of the sampled FFBS members, 73% (229) were women, while 27% (83) were male, 64% of the household were headed by men, while 36% were headed by women. The study didn't encounter any child headed households within the project locations.

IMPACT INDICATOR INCOME 1: % increase in net income of smallholder farmers (KES/annum): Annual average income increased by 46%, from KES 25,207 (USD 195.4) at baseline, to KES 36,697 (USD 284.47) at Impact assessment. Income from sales of agricultural crops recorded an average of KES 43,336 (USD 335.94), indicating a 84% increase compared to an average of KES 25,253 (USD 195.76) at baseline. Among those who reported increased income, 25% associated it with a reduction in the cost of production, while 9% contributed to improved market access. There has been a 60% increase in the proportion of respondents who are earning income from the sale of agriculture products, from their farms. Generally, 21% of the respondents are now satisfied with the income from their farms compared to 11% at baseline, indicating 10% among those who are satisfied.

IMPACT INDICATOR, PRODUCTIVITY 2: % increase in yield for smallholder farmers - Ground nuts and sorghum (Kg/acre): Sorghum and ground nuts were priority value chains being promoted by Homabay county government and were selected by project participants in a participatory manner. Overall, the project targeted to improve the yields of both crops by 30% by the end of the project. The productivity per acre for ground nuts increased by 129%, from 90 Kg/acre to 206 Kg/acre, while that of sorghum, increased by 25%, from 225 Kg/acre to 282 Kg/acre during the short rain season of 2023. The increase in yields was attributed to access to extension services, adoption of sustainable agriculture practices, inputs, access to tractor mechanization services, access to market and soil testing services. The proportion of households in sorghum production has increased by 59% while those growing ground nuts increased by 42%.

IMPACT INDICATOR RESILIENCE 3: % change in livelihood resilience for FFBS Households: The coping strategy index (CSI), which measures the level of food insecurity within a household, reduced by 48%, from 33 Coping strategy Index¹ (CSI) at baseline to 17 CSI at impact assessment, based on a 7-day recall. The most practiced coping strategy, practiced by

¹ <https://fsnnetwork.org/resource/coping-strategies-index-field-methods-manual>

70% of households, was limiting the portion of what they eat in the past 7 days due to food insufficiency. In terms of vulnerability to pay for certain essential services, 64% are facing challenges in paying school fees due to increasing education costs, while 48% are vulnerable (facing challenges) in accessing essential supplies due to increased prices. 47% are vulnerable to health challenges, due to the cost of health services and 45% are vulnerable to food security.

IMPACT INDICATOR NUTRITION 4: % increase in HH dietary diversity: At baseline, the community were eating an average of 3 types of food, which has increased to 5 at impact. Those who eat 5 types of food above 76%, indicating a 19% increase from the baseline of 57%. These changes are associated with training in nutrition, access to food from kitchen gardens and increased production and productivity, which has led to increased sales and therefore disposable incomes. 92% of farmers are now accessing food from their own production, while only 7% were buying food.

OUTCOME Indicator: Income: Total agricultural production sold (disaggregated by market including local markets and certification

Ground nuts were sold by 75% (888 Households out of 1184 reached), while Sorghum was sold by 71% (840 HH). In total, in 2023, 92,174 Kgs of ground nuts, valued at KES 20.3 million (USD 157,054) were sold by 888 households. While 67% (61,756 Kgs) went to the local market, 10% (13,826 Kgs) was sold to neighbors, while 18% (16,591 Kgs) was sold collectively through groups. 97,935 Kgs of Sorghum, valued at KES 9.4 million (USD 72,882) was sold by 840 households. While 67% (65,616 Kgs) of sorghum sold went to the local market, 10% (14,690 Kgs) was sold to neighbors, while 18% (17,628 Kgs) was sold collective through groups.

OUTCOME INDICATOR PRODUCTIVITY: % of targeted farmers and households who adopted gender transformative and sustainable agricultural practices: Households who have adopted at least 3 technologies have increased by 27%, from 59% at baseline to 76% at impact. Those reporting better harvesting techniques have increased by 2% from 35% at baseline to 37% at impact assessment, while sustainable agricultural production practices are being practiced by 83% of the respondents. 79% of the households have adopted crop rotation, while 72% have adopted compositing. While 47% of the respondents have adopted improved pest and disease management, 84% of them own a kitchen garden.

OUTCOME INDICATOR PRODUCTIVITY: % producers adopting improved post-harvest management practices: The proportion of respondents who have adopted improved post-harvest management practices has reduced by 26%, from 97% at baseline to 71% at impact assessment. This was above the project target of 70% by 1%. The study noted that 71% of the respondents have applied post-harvest management practices in the past 12 months. 73% of the men headed households have applied post-harvest management practices compared to 67% among the women headed household. The most common post-harvest practice was the drying of the products as reported by 78%. While Storage was done by 73%. Sorting and grading were done by 72% Both men and women headed household undertake drying of the products, as mentioned by 78% respectively.

OUTCOME INDICATOR, % of smallholder farmers who reduced farm produce waste/ loss: The study noted that 49% of the respondents have experienced post-harvest losses over the past 12 months. Rotting of the product is a major cause of post-harvest loss, as mentioned by 66%, while 60% complained of product infestation by pests, such as weevils, while 52% complained of diseases, such as fungi. Overall, the study noted that farm waste/losses reduced by 27%, from 43% at baseline to 16% at impact assessment. In sorghum, product loss and waste has reduced by 32%, from 55% at baseline, to 21% at impact assessment, while in ground nuts,

the loss reduced from 30% at baseline to 17% loss at impact, translating to 16% reduction in post-harvest losses.

OUTCOME INDICATOR, Nutrition: % of households consuming vegetables from household production: The proportion of households consuming vegetables has increased by 4%, from 96% to 100% over the past 2 years. Households produce an average of 1,168 Kgs/acre of Africa leafy vegetables of which 25% of the harvest, is sold to the market, while 71% is consumed at home, while 9% is lost due to poor post-harvest management. Increased consumption has been due to improved production throughout the year due to supplementary irrigation, training on nutrition and the adoption of improved technologies.

OUTCOME INDICATOR: % of women FFBS producers who accessed need-based market information: The study noted that 83% of women are accessing need-based market information. This is a 54% increase from the baseline of 29%. The extension staff from the government, JAM, CARE staff VSLAs/FFBS Producer groups and cooperatives were instrumental in relaying the market information to the participants.

OUTCOME INDICATOR: % of women producers with control over core set of productive resources (land, inputs, tools): 61% of women have control over production resources compared to the 60% at baseline, indicating an improvement of 1% increase, while 52% of the men have control over income, compared to the baseline of 32%, indicating a 20% increase.

OUTCOME INDICATOR: % of women producers with control over HH Budget (Household financial budget): 74% of women take lead in decision making roles over the usage of household budget compared to the baseline of 50%, indicating a 24% increase, while 52% men make decision on the same, compared to a baseline of 34%, indicating a 18% improvement.

OUTCOME INDICATOR: % of women producers participating in decision making at HH level (production, marketing, financial): Women participation in decision making regarding agricultural production has improved by 16% from 46% at baseline to 62%, while their participation in decision making on household income has improved by 23%, from 36% to 59%.

OUTCOME INDICATOR: % of women in leadership positions at group level: The study observed a 14% increase in proportion of women holding leadership positions in VSLAs/FFBS producer groups and cooperatives, from the base on 16% to 30%. This is due to sensitization and training by the cooperative departments and CRPs to groups and cooperatives, and through participation in gender dialogue sessions.

OUTCOME INDICATOR: % of women and girls who have actively participated in formal (government-led) and informal (civil society-led, private sector-led) decision-making spaces: The proportion of women and girls who have actively participated in formal (government-led) and informal (civil society-led, private sector-led) decision-making spaces, has increased by 49%, from 50% at baseline to 99% at impact assessment. Women are now able to vote in the selection/election of new leaders/board members of the cooperative/Group. 99% of the respondents agreed that the cooperative, VSLAs, and FFBS Producer Groups are actively involving women in the decision-making processes.

Policy Influencing and advocacy initiatives: (1) The project established structured relationships with the partners, which included the county government, JAM, paving way for project implementation. **(2)** In partnership with the cooperative department, three farmer cooperatives were registered as part of promoting collective action. **(3)** The project also operationalized the County Agriculture Sector Steering Committee (CASSCOM), through development of the CASSCOM Bill, spelling out its mandate. **(4)** CARE launched its 2030 strategy in 2023 which enshrined FFBS as a key approach in implementation of programs under

Food Water and Nutrition (FWN) pillar, alongside the VSLA model. **(5)** Through CARE Kenya's influence, the Homabay County Groundnut value chain development forum was constituted, to coordinate ground nut production and marketing.

SHORT TERM INDICATOR: % of women who are active users of financial services (disaggregated by informal and formal services): The proportion of women accessing finance from informal sources such as VSLA, Merry go round and Farmer groups has improved by 54%, from 21% to 85%, while in the formal financial services, the proportion has improved from 3% to 4%, representing a 1% increase. 88% of the respondents have saved their earnings, with a slightly higher number of women, 87% saving in VSLA compared to 82% male. 72% of the respondents' accessed loans in the past 12 months, with more, 78% women accessing loans compared to 69% of men. VSLA was the main source of the loans to 83% of the respondents, with more women, 82% accessing loans from VSLA, compared to 75% men.

OUTPUT INDICATOR: # of new FFBS established by type: The project has created 62 VSLA/FFBS producer groups, representing a 3% increase from the target of 60. Most of these groups were providing Good Agronomic Practices (GAP) advisory services, as mentioned by 89%, of the respondents and financial services as mentioned by 50%. 41% of the respondents are accessing soil testing services, while 38% are accessing business development services. 85% are accessing VSLA, with 93%, being women headed households compared to 78% men headed households.

OUTPUT INDICATOR: # of direct participants reached: The project targeted to reach 1,200 for direct participants. The study observed a reach of 1,184 direct participants, translating to 99% of the target reached. The 1% deficit was due to attrition, with some members falling off as the project progresses.

OUTPUT INDICATOR: # of Indirect participants reached: The project has reached 5,091, indirect participants, translating to 46% achievement, above the target of 3,480 indirect participants. The achievement was due to the collaborative approach the project took, including working closely the local administration, Ministry of Agriculture, cooperative department and community resource persons who sensitized and mobilized members to participate in the project activities.

OUTPUT INDICATOR: # of producers trained through FFBS: The on-farm training has been able to reach 1,305 participants, representing 9% above the project target, through the extension staff and CRPs. 99% of the respondents find the extension services useful to Improve their agricultural production. Slightly more women, 79% compared to 74% among the men agreed that extension services were useful to improve their agricultural production.

OUTPUT INDICATOR: # of County Govts adopting FFBS as their extension model: The study noted that staff from the county government have been trained on FFBS curriculum and Gender transformative approaches, which they have applied during farmer trainings. The components of the curriculum included Agri - entrepreneurship financial literacy, Nutrition, and Gender equality. This curriculum improved the quality and content of what they were initially training farmers on.

Recommendations

Sequencing of activities and their introduction methodology and approach: While the introduction of different approaches and innovations were important, the evaluation noted that the additionalities were not informed by learnings, cost benefit and gap analysis. Different components such as tractor hire, soil testing and irrigation access were superimposed into the project, which required Sequencing. For example, the irrigation kits, tractor hire, and soil testing

would have come when the cooperatives have been established, registered and training on governance and financial management undertaken.

More time needed for policy engagements: The project initiative to activate the CASSCOM was relevant. However, the 2022 elections led to transition in leadership at the county, which delayed the planned activities. The two years of this project were therefore not enough for meaningful engagement at this level. We need to consider these dynamics at county level during programming.

Some norms are culture, and barriers take time or are difficult to break: The study noted that there are certain norms and cultures that take time to break to achieve a transformed gender participation. For example, there are rituals associated with sorghum seed planting, such as having sex with your husband a night before planting is done. These affected women headed households, where men are not present. We should therefore consider these during project designs especially during value chain selection, especially those targeting women headed households.

Sustainability at cooperative level: The project has introduced a number of income-generating activities that will be managed at the cooperative level. These include irrigation pumps, tractor hire services, product aggregation, and soil testing, which require financing. The stage at which the project is closing is leaving the cooperatives with low capacity for resource mobilization. Most of the cooperatives are still at a nascent stage with low borrowing power. There is need for the county government to link these cooperatives to existing programs, such as National Agricultural Value chain development project (NVCDP) funded by the world bank through the counties, from which they can access finances. The role of the department of cooperatives is still needed in building the capacity on governance and financial literacy among these cooperatives.

Commercializing CRP services: Though the sustainability of the CRP was based on commission they get from tractor services and soil testing, there are delivery of soft skills and facilitatory roles on VSLA and gender dialogue sessions which the CRP have been trained on. The CRP need to establish a platform, through which they can provide the services in a coordinated way, attracting remunerations for the services provided.

Proposal: We propose phase II of the project, more focused on the market side (collective action, market development, still emphasizing gender transformation), and strengthening county structures for policy dialogue. Innovations such as irrigation, mechanization services, and soil testing need to be scaled up as part of system change. Preference needs to be put on key sustainable agriculture practices with high adoption rates and how they can be scaled up in future in the context of mechanization.

1.0 BACKGROUND AND CONTEXT

1.1 About CARE International

CARE International was founded in 1945 and is a leading global humanitarian and development organization fighting poverty. CARE International in Kenya has been working in partnership with development and relief organizations, the private sector, and Government of Kenya since 1968. They seek a world of hope, tolerance, and social justice where poverty has been overcome and people live in dignity and security. Since 1968, CARE Kenya has built a substantial development and humanitarian program including refugee operations, emergency response, livelihoods, food security, climate change adaptation, sexual reproductive and maternal health, women and girls' economic empowerment, and youth employability. CARE Kenya's mission is to reduce poverty at the household level and to provide relief in emergencies.

1.2 The Farmers Field and Business School (FFBS) Project

CARE International in Kenya has been implementing a 2-year project dubbed **"Scaling up Farmers' Field and Business Schools in Kenya to address food, nutrition security and economic resilience of the vulnerable smallholder farmers in Homabay"**. CARE Kenya, through this project, addressed the dwindling food and nutritional insecurity amongst the communities in the lake basin region by promoting adoption and scaling up of the women focused Farmers' Field and Business School (FFBS) approach, "a learning-by-doing approach" that puts farmers at the heart of learning and decision-making around new agricultural techniques. The FFBS was designed to help small-scale farmers build requisite skills they need to increase production, improve resilience and gender equality, adapt to climate change, enhance access to markets, diversify diets, and boost nutrition. It was also designed to enable farmers to gain entry to markets and sell their harvests at competitive prices through aggregation of farm produce and marketing as a group. The FFBS approach is an integrated, gender transformative approach, embedding dialogue sessions using Social Analysis and Action (SAA) manual.

CARE Kenya targeted vulnerable smallholder farmers, and in particular care givers of Orphans and Vulnerable Children (OVC) and women- and child-headed households, organized into VSLAs/FFBS Producer Groups from Homabay County, to diversify options for food and nutritional security as well as strengthen their economic resilience through capacity building on agri-preneurship skills as well as VSLA mentorship for sustainable financial services. The beneficiaries, organized in VSLAs, established Farmer Field Business Schools, with the primary objective of improving food and nutrition security, as well as building household economic resilience. The project established 62 demonstration sites (FFBS), each per VSLA, with an average membership of 20 people. In the promotion of Sorghum, ground nuts and Africa leafy vegetable, as key products that have potential to generate income and improve food security. The demonstrations at the FFBS sites incorporated multiple components including sustainable agriculture practices, harvest and post-harvest management and market engagement, dialogue sessions on gender norms and access to productive resources, food and nutrition security, group empowerment, and participatory monitoring and evaluation.

CARE partnered with a local organization, JAM, which has experience in Orphans and Vulnerable Children (OVC) programs in Homabay County in the implementation of project

activities. CARE Kenya deployed the gender markers toolkit for an integrated approach in identification of beneficiaries and project monitoring, that ensured no one was left behind.

1.3 Project Objectives

The project goal: To improve food and nutrition security and economic resilience of vulnerable smallholder farmers, through a Gender transformative Farmer Field and Business School (GTFFBS) approach.

The specific objectives

- 1) To enhance access and consumption of nutritious food, by 60% of women and child headed households by the second year, through promotion of consumption of fish and drought tolerant nutritious indigenous vegetables.
- 2) To increase production and productivity per acre of select inclusive value chains by 30% by the second year, as alternative livelihoods to fishing.
- 3) To promote gender transformative approaches in addressing persistent inequalities in land-based food systems.
- 4) To strengthen economic resilience of vulnerable women and child headed households through capacity building on Agri-preneurship skills and VSLA methodology for resource mobilization.
- 5) To enhance uptake of FFBS methodology, by Government programs, as a Gender Transformative Approach

1.3 Justification for the project endline evaluation

The project endline evaluation assessed the performance of the project against the baseline status and the project's targets, and captured project achievements, experiences, opportunities, challenges, and best practices and lessons learnt to inform future similar programming. The evaluation has compared the baseline survey with endline to glean outcomes and impacts. The evaluation ensured accountability towards SALL Family Foundation as a donor and to the beneficiaries. The evaluation has offered a learning aspect for all stakeholders, identifying key lessons learned and recommendations.

Specific evaluation Objectives. Specifically, the consultancy seeks to:

- 1) Assess the unbiased appraisal of the project achievements in relation to output, outcome, and impact indicators by providing a summary of comparative analysis between baseline and endline using standard definition of key measurable indicators of the project.
- 2) Assess how changes in policy affected the two-year project.
- 3) Provide recommendations for more effective implementation based on the findings of the end line evaluation.
- 4) Provide analysis to answer the learning questions.

1.4 Evaluation Questions

The research was be guided by the following research questions:

- 1) How well did the project meet its purpose/objectives, including contribution to sustainability, greater economic empowerment, improved resilience among the beneficiaries?

- 2) What lessons were learnt that can inform future projects? The evaluation would strongly reflect on technical approach used, learnings from achievements and challenges, including reflection on institutional and policy engagement in the context of the project and how these learnings will be used.
- 3) How did CARE International apply practical programming tools to mainstream gender and social inclusion, what was done to address gender inequality and access to productive resources?
- 4) Capture some of the less tangible/ measurable sides of the project impact such as how barriers have been broken down at household and community level, or how mindsets have changed both for women and men towards improved resilience and livelihoods.

1.5 Project Evaluation Criteria

The evaluation was guided by the Organization for Economic Co-operation and Development's (OECD) Development Assistance Committee (DAC) evaluation framework, for Evaluating Development Assistance.

The evaluation therefore was guided by the following key evaluation questions:

EFFECTIVENESS: Did the intervention achieved its objectives: The extent to which the intervention achieved, its objectives, and results, including any differential results across groups. To what extent did the project achieve its objectives and why? and why not?

IMPACT: What difference does the intervention make: The extent to which the intervention has generated significant positive or negative, intended, or unintended, higher-level effects. These will be at economic, social, and environmental levels.

SUSTAINABILITY: Will the benefits last? The extent to which the net benefits of the intervention continue or are likely to continue. Are the project activities sustainable beyond the project support? Why and why not? This will include an examination of the financial, economic, social, environmental, and institutional capacities of the systems needed to sustain net benefits over time.

RELEVANCE: Are the interventions doing the right things? To what extent does this project meet the needs of the beneficiaries considering the changing context due to climate change? To what extent did the project influence local priority need of the community and government or training institutions?

COHERENCE: How well does the intervention fit? The evaluation will assess the compatibility of the intervention with other interventions in the regions and what the national government and development partners are undertaking in the region. We shall evaluate to what extent other interventions (particularly policies) support or undermine the intervention.

EFFICIENCY: How well are resources being used? Have the project outputs been achieved at cost effective and value for money manner? The evaluation will assess to what extent the intervention delivered the results in an economic and timely way.

2.0. EVALUATION METHODOLOGY AND APPROACH

2.1 The evaluation approach and Plan

The project end line evaluation employed a mixed methodology, which included both qualitative and quantitative approaches guided by participatory tools and techniques, addressing each objective and research question, guided by the organization for Economic Co-operation and Development - Development Assistance Committee (OECD - DAC) criteria.

2.2 Gender-transformative change

The project end line evaluation adopted a gender lens in bringing out gender dynamics within the project implementation, by showing how women, men, and youth were impacted through gender transformative approaches. Approaches used by the project that intentionally sought to close gender gaps and designed to meet the specific needs of women were evaluated. Factors in the enabling environment and systems that facilitated or hindered women's participation within the selected enterprise were also analysed. Issues related to intersectional indicators which included disaggregation of data on gender, age, head of households, geographical area (sub counties/wards) and disability were identified. This helped during data analysis, especially on multiple vulnerabilities. Emphasis was also put on division of Labor, considering who does what? how has Labor division allowed women, youth, and men to participate in gainful economic activities. In Household decision-making, data collection sought to answer questions around how decisions were made within the household and what are strategies have been used for influence. Household Decision Making Index (HDMI) and Women Empowerment Index (WEI) has been able to assess decision making on Major, Minor, Food crop production, and use of household income and borrowing.

2.3 Review of secondary information

The first step of the study was to review secondary information regarding the project. This involved an extensive and in-depth review of published literature, especially on baseline, women participation in decision making and women access to finance among the informal financial providers. Further review targeted project reports and equivalent project reports being implemented by other partners in the project area. We also reviewed the County Integrated Development Plan (CIDP) to gather information, and assessed to what extent the project was contributing to its achievement. Other documents that were reviewed included project implementation plan (PIP), project result frameworks, and CARE Kenya strategic plan, to triangulate information that was collected from the primary data.

2.4 Key Informant Interviews (KII)

Key informants were identified in collaboration with CARE Kenya and JAM staff, during the enumerator training. The individuals provided in-depth information that were used for triangulation with the quantitative individual household interviews. Some of the Key informants interviewed included the following: Government staff such as area chief and village elders, Ministry of Agriculture and cooperative staff, leadership at the three cooperatives, partners such as Kickstart, Ujuzi Kilimo and Hello Tractor, JAM and CARE Kenya staff. A total of twenty-one (21) KII were conducted, as presented in Annex 2.

2.5 Focus Group Discussion

Focused group discussions (FGDs) were undertaken at group level targeting women, mixed groups of men, women and youth, and Community Resource Persons Group. In total, eleven (11) FGDs, were done, reaching 110 participants, as presented in Annex 2. The FGD comprised of 10 members (5 women and 5 men) in a mixed group, women only, widows only, and community resource persons, putting into consideration gender and social diversity. Pre-prepared guiding questions for focus group discussions (FGD) were used. The FGD followed all the prescribed ethics of conducting such an exercise. The language of discussion in the FGD session was the local language, mainly Dholuo and Kiswahili, that the participants could understand, to ensure that they participate and contributed to the discussions.

2.6 Individual Household interviews

Individual household interviews were conducted targeting participants directly benefiting from the project, to gather data attributed to the beneficiary's knowledge, attitudes, practices, incomes, value chain production and productivity, nutrition, financial access, women participation in leadership and household activities, self-esteems, and economic activities. A general questionnaire in line with the project end line survey evaluation objectives and the project MEL plan was prepared and agreed upon with the Project Management Team at CARE Kenya. The interview questionnaires were semi-structured to allow for exploratory opinions of the participants to be captured. The questionnaire was administered to a total of 312 individual participants representing 97% of the sampled respondents. Data was collected through Computer Assisted Personal Interviews based on KOBO Toolbox platform, by a team of trained nine (9) enumerators identified from the project location, under the supervision of the consultants in the respective wards.

2.7 Sampling methodology

Sample size determination: The Scaling up Farmers' Field and Business Schools in Kenya to address food, nutrition security and economic empowerment for vulnerable household's project has so far reached about 1,200 project participants, of which 80% were women and youth. They were affiliated to 60 groups/VSLAs/FFBS producer groups in three wards: West Kasipul and East, Kamagak Wards, and Kagan Ward.

Table 1: Individual interviews targeted and achieved during mid-term evaluation

Sub-county	Ward	Groups	%	Sample	Special consideration
Rachuonyo	Two (2)	40	67	214	(1) care givers of the orphans (2) vulnerable children (OVC) (3) Women and child headed households.
	West Kasipul	20	0	107	
	East Kamagak	20	0	107	
Rangwe	One (1)	20	33	107	
	Kagan	20	0	107	
Total	Groups	60	100	321	

A Sample of 292 individual households, based on a 95% confidence level and confidence interval/Margin of error of 5%, response distribution of 50% from a population of 1,200 beneficiaries was determined. 10% was added (29) to cater for non-respondents. In total, 321 respondents were reached (Table 1).

Sampling design: Multi - stage sampling methodology, was applied in which all the three (3) wards and all the 60 VSLA/FFBS producer groups were purposefully selected. In stage two, the project participants were randomly select within the VSLA/FFBS producer groups for interviews. Random selection also put a special consideration for Care givers of the orphans, widows and child headed households.

2.8 Pre-Testing & Refining of Data Collection Tools

The project end line evaluation instruments were pre-tested under real conditions to determine if they met the study requirements. This was done in Oyugis, where the training was done, close to the study locations and with selected individuals being outside the study sample. The pre-test exercise involved the study enumerators interviewing at-least one respondent and providing feedback on length of interview, strategies for approaching sampled VSLA/FFBS producer group members and informing them of the challenges and intricacies to be expected in the field as well as identifying areas of the interview guides that required fine-tuning. The interview guides and the data collection protocol were then adjusted according to the pre-test feedback.

2.9 Data Quality Control and Management

The data management plan and procedure were intended to ensure that the data generated from the field survey, were as complete and accurate as possible and satisfy CARE Kenya and PENGUIN consultants data quality requirements for meaningful analysis and conclusions.

Relevant skip logics: The data quality check techniques used to incorporate the relevant skip conditions on every question, during data collection supported by KOBO Collect.

Back checks - this involved selecting 10% of the data submitted each day for the back checks in terms of completeness, consistence, and accuracy. The field supervisor/Research assistants held field feedback meeting with enumerators to discuss progress, success, and any challenges encountered when doing data collection exercise. The results were used to improve the entire data collection exercise. Cases of an enumerator interviewing a beneficiary twice was noted in West Kasipul, and corrective measure initiated for the concerned enumerator.

Spot checks - Each supervisor/research assistant in each ward conducted a surprise field visits to some of the enumerators in a day to observe how enumerators ask questions, how the participants responded to the questions, and checking if enumerators adhere to the data collection protocols and research ethics.

2.10 Data Cleaning and Analysis

The collected data was subjected to a cleaning procedure before analysis. The cleaning procedure involved data profiling by getting frequencies for each variable to help identify missing and blank values and identifying variables that are wrongly recorded. The data was then summarized in means, median, mode, and range to identify unexpected values. Quantitative data analysis was run on SPSS (Version 25) for the complex analysis (both Descriptive and inferential), Microsoft Excel was used to generate info graphics and performance of simple analysis procedures. Qualitative data analysis was done in two methods; narrative and content analysis, where the analysis helped generate information from observations made from both KII interviewers and FGD facilitators and stories and

experiences shared by the project beneficiaries both direct and indirect while the content analysis generated information from the beneficiaries' responses in terms of media, text, and physical items. The qualitative analysis results were thereafter used to triangulate the quantitative data and helped in interpreting the information coming out from the quantitative analysis. The final analysis results were then compared with the baseline results.

2.11 Ethical Standards and Quality

The assessment was guided by the seven PENGUIN Fundamental Principles: 1) humanity, 2) impartiality, 3) neutrality, 4) independence, 5) voluntary service, 6) unity, and 7) universality. PENGUIN also ensured that the study output was useful (Utility), feasible, realistic, and undertaken in a cost-effective manner. Other ethical considerations included ethics and legality, impartial and independent, transparent; accurate; participatory and collaborative. Preventing sexual exploitation, abuse and harassment (PSEAH) training was done with the enumerators. PENGUIN does not tolerate sexual exploitation, abuse or harassment (SEAH) of any kind. Consent Form for Personal Data Collection and Use was signed at the cooperative/group level to protect biometrics of respondents. On quality, PENGUIN ensured that (1) the recruited enumerators were qualified and competent, (2) that the training of the enumerators was based on the use of standard tools and forms for data collection; (3) the use of digital/online Computer assisted data collection methods will be used for the study and (4) Pre-testing of instruments/tools

2.12 Study limitation

The study was conducted in the advent of generation Z (GenZ) demonstrations across the country. There were fears of these demonstrations affecting the field travels and data collection. Though the demonstrations happened in Homabay town, locations where the survey were being undertaken were safe. The enumerators were sensitised on what to be done in such situations, including stopping interviews and returning when the situation calmed down. Secondly, there was information regarding Kenya Revenue authority, introducing taxation on farmer produce. This had potential for participants providing wrong information to show low incomes. The enumerators were trained and applied the training on how to approach the participants and explained their mission to reduce such fears. JAM and CARE staff were also coming in handy to sensitise the participants on the objective of the survey, which built confidence among the participants.

3.0 STUDY FINDINGS AND DISCUSSIONS

3.1 RESPONDENT DEMOGRAPHIC CHARACTERISTICS

3.1.1 Respondents Sex profile and age cohort

The end of project evaluation for the SU-FFBS- Kenya to address food, nutrition security and economic empowerment for vulnerable households in Homabay reached 312 Village saving and loaning Associations (VSLA)/Farmer field business schools (FFBS) members. 73% (229) were women, while 27% (83) were male. The high proportion of women reached confirms the role women are playing in livelihood activities especially on agriculture at both on-farm and off farms in East Kamagak, Kagan and West Kasipul wards in Homabay County.

Based on the age cohorts, 55% were within the 36-55 age cohort, while those above 56 years were 29%. Youth, aged 18-35 years, were 16%. Generally, the households in the targeted areas have an average of 6.3 members, composed of 3 Male and 3 female. The high number of household members, especially in West Kasipul of 7 members, means that the household needs sustainable production systems to be able to feed its members. Investment in agricultural production systems for improved livelihood was therefore relevant to these project locations.

3.1.2 Housing Condition

The kind of housing/shelter the respondent lived in with their family was observed. Those living in grass houses with mud walls, reduced from 0.4% to 0.3% at impact assessment, representing 33% reduction. On the other hand, 71% of the respondents live in iron roofed houses with mud walled, with 83% in West Kasipul, compared to 70% in Kagan and 61% in East Kamagak. The proportion of those living under this house condition reduced from 86% at baseline, representing a 17% reduction. Further, 28% of the respondents are living in permanent/brick walled houses with 38%, in East Kamagak. This is an improvement from 13% at baseline, representing a 115% increase from the baseline. These statistics indicate that 33% of the households upgraded their house to roofs with iron sheets, but maintained muddy walls, while 17% have upgraded their house to permanent brick wall. Slightly more women, 73% lived in iron roof with mud walls, compared to 70% men, while slightly more, 29% of men owned permanent/brick wall houses, compared to 27% women. Most of women headed households with iron roof with mud walled were in West Kasipul, represented by 88%, while those owning permanent/brick wall, were in East Kamagak, as represented by 37%. There are indications that the livelihood in the three locations is improving, with households investing in better improved shelter.

3.1.3 Men and women headed household ownership of disposal assets

The study noted that 96% of the respondent's own household furniture, while 90% own poultry and radio is owned by 78%. Solar panels were owned by 57% of the respondents. More women headed households, 98%, own furniture compared to 94% men headed households, while 92% of the women headed households, own poultry, compared to 85% men headed households. Ownership of radio was higher among the men headed households as reported by 81% compared to 71% female headed household. Solar panels is owned by 65% male headed households compared to 43% female headed households.

3.1.4 Average value (in KES) of the asset owned

There was no significant difference in average value of disposable assets owned by both women headed households (KES 21,424 (USD 166)) and male headed households (KES 21,825 (USD 169)). On average, the value of disposable assets was KES 21,211 (USD 164), with motorcycles being the highest valued at KES 82,229 (USD 591), followed by water pumping machine valued at KES 24,833 (USD 193). Furniture's were valued at KES 23,176 (USD 179), while rainwater storage tank was valued at KES 22,474 (USD 174). Motorcycles were only reported in West Kamagak, valued at KES 109,000 (USD 845) among the household headed by women, while water pump was found in Kagan, valued at KES 19,000 (USD 147). Solar panels, furniture, rainwater storage tank, television, poultry, bicycle and radio were found in both male and female headed households.

3.1.5 Participants marital status

The end of project evaluation noted that 64% of the household were headed by men, while 36% were headed by women. Slightly above half of the women headed households, 59%, were in East Kamagak, while 76% of households in Kagan and West Kasipul are headed by men (Figure 1).

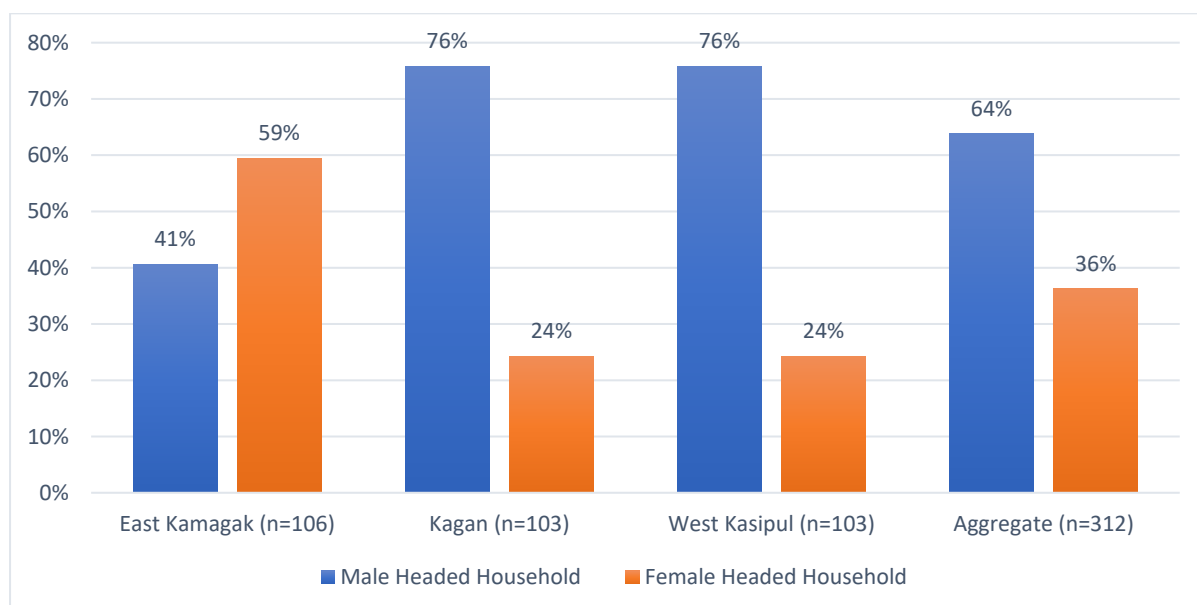


Figure 1: Desegregation of the respondents-based Household head

The study further noted that 73% of the respondents were married, with 83% in West Kasipul, 79% in Kagan, and 58% in East Kamagak. Most of those who are widowed, 41%, were in East Kamagak contributing to an overall 26% of the respondents who were widows.

Most households are headed by men as result of cultural beliefs that men should be the head whereas those that are headed by women are as result of death of a man. No cases of children headed household reported.

FGD, Rangwe

The determination of who heads the household was important to establish the power relations within the households participating in the project. It is deemed critical, especially for decision making purposes regarding the running of the household and the expenditure

of the proceeds generated and participation in the project. Such information was also necessary for understanding gender relations and the impact of the project on women's empowerment. The promotion of gender transformative approaches at household levels, was therefore relevant to balance the power dynamics.

3.1.6 Diversity in literacy level

The study noted that 88% of the respondents were able to read and write, with 93% in Kagan, followed by 86% in West Kasipul, and 83% in East Kamagak. Based on level of schooling, the respondents across all the wards, 50% have attained primary level of education, with 54% in Kagan, compared to 51% in East Kamagak and 44% in West Kasipul. Those who have achieved secondary level of education were 39%, with a higher proportion of respondents, 42%, in West Kasipul. Respondents who had no formal education were only 2%. The analysis also noted that there were more respondents, 15% in East Kamagak have gone through post-secondary level of education compared to 12% in West Kasipul and 6% in Kagan. The project adopted a mixed methodology in capacity development, which comprised of demonstrations and face to face training, through the FFBS, which were relevant to a diverse community, made up of illiterate and educated members of a community.

3.1.7 Land ownership

The study noted that, on average, households own 2.16 acres of land, with households in West Kasipul owning 2.56 acres, compared to 1.65 in Kagan and 2.27 in East Kamagak. The baseline indicated an average acreage of 2 acres, which has not deviated a lot from these findings. On average, households rented about 0.4 acres of land, during the 2023, March-May planting season, with more acreage of 0.5 acres being rented in Kagan, compared to 0.33 acres in East Kamagak and 0.35 in West Kasipul.

The study noted that 53% of the households have title deeds, compared to 37% owning land based on customary law. Most of those who have title deeds for their land, 57% were in West Kasipul, while 52% were in Kagan and 50% in East Kamagak. When asked in whose name is the title deed, 54% of the respondents confirmed that it is in the name of the male head of the households, while 14% mentioned it is in the name of the female head of the household. Only 2% had titles with names of both spouses. 30% of the respondents don't have title deeds.

Most of those who had titles in the name of the male head of the households were in West Kasipul, represented by 71%, followed by 47% in Kagan and 45% in East Kamagak. 25% of those who reported that the titles were in the name of the female head of the households were in East Kamagak. 30% of the respondents indicated that their land doesn't have titles, with 45% in Kagan, followed by 28% in East Kamagak and 16% in West Kasipul. Title deeds have been used by financial institutions in provision of credit as collateral. This means that 30% of the respondents will not be able to access formal loans, while only 14% of the women are able to access such loans. The promotion of VSLA within the community was therefore relevant as it provided loans to those who lack key collaterals.

3.2 GROUP MEMBERSHIP, PARTICIPATION AND INCLUSIVITY

OUTPUT INDICATOR: # of new FFBS established by type

OUTPUT INDICATOR: # of direct participants reached

OUTPUT INDICATOR: # of Indirect participants reached

The scaling up Farmers' Field and Business Schools in Kenya to address food, nutrition security and economic empowerment for vulnerable households in Homabay targeted to reach 60 Village saving and loaning groups (VSLA). As of the project endline evaluation, 62 VSLA/FFBS producer groups were created, representing 3% increase from the target. The project targeted 1,200 direct participants through different interventions. At the end of the project, 1,184 direct participants had been reached, against the target of 1200, translating to a 1% reduction (Table 2). This could be due to the attrition of members as some fall out as the project progresses. With the average household members of 5.3 (Direct participant excluded), the project reached 5,091 indirect participants, translating to 46% above the target of 3,480 indirect participants. Indirect participants were those reached through trainings, field days, yet they are not members of the FFS groups.

Table 2: Number of groups, direct and indirect participants reached by the project

Output Indicator	Project Target	Impact	Change
# of new FFBS established by type	60	62	3%
# of direct participants reached	1,200	1,184	-1%
# of Indirect participants reached	3,480	5,091	46%

3.2.1 Type of groups participants belong

The study noted that 94% of the respondents indicated they were registered members of the cooperatives, with 97%, in Kagan, followed by 95% in East Kamagak and 90% in West Kasipul. Further analysis indicated that 25% of the women belong to women only groups, while 13% were in widows' groups. Only 3% belonged to youth group. Other groups include vegetable producer groups, with 14% of the respondents. The study noted that the cooperatives had more women registered members, as mentioned by 95% of the respondents compared to 92% among men respondents. Most of the groups, 85% were undertaking VSLA groups, with those undertaking VSLA, 95% were in West Kasipul compared to 87% in Kagan and 71% in East Kamagak. Based on sex desegregation, women formed most members in the VSLA, as represented by 93%, compared to 78% among the men respondents. More men, 17% compared to 13% women, belong to vegetable production groups.

3.2.2 Leadership position within the VSLA/FFBS

The study noted that 43% of the respondents (46% in East Kamagak, 45% in West Kasipul, and 39% in Kagan) hold various positions within their groups. Based on sex disaggregation, 52% of men, with 58%, in East Kamagak, hold leadership positions in their groups, compared to 40% women, with 43%, in East Kamagak (Figure 2). Further analysis of the positions held by the respondents, indicated that most of them, 33% were chairpersons, with 45%, in Kagan, while 27% were secretaries in groups and 21% were treasurers. Analysis Based on sex desegregation, indicated that women mainly hold chairperson position, which correlates with the fact that most of the groups are women owned, against 21% men who hold similar positions. It was also noted that more women, 30% are secretaries

compared to 11% men, while 27% women are treasurers compared to 4% men who hold similar positions.

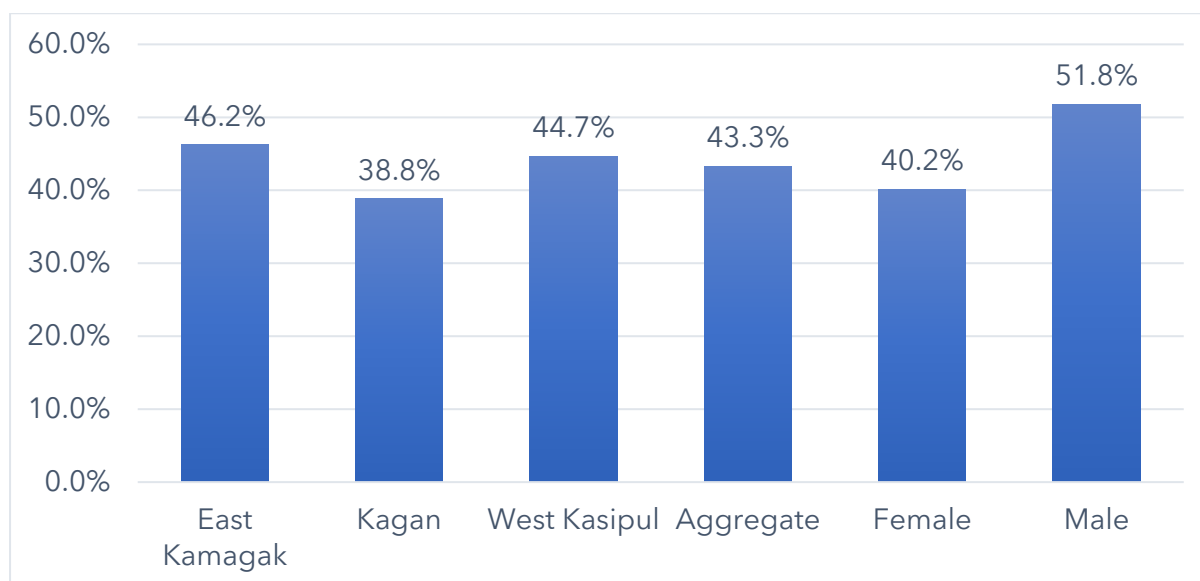


Figure 2: Proportion of respondents holding leadership positions in FFBS groups

3.2.3 Main activity of the VSLA/FFBS

The study noted that most of the VSLAs/FFBS producer groups were undertaking village saving and loaning, with 91% in Kagan, while 75% in West Kasipul and 40% in East Kamagak. 20% were into merry go round (a form of grouping where they collect money, don't save as in the case of VSLA. What is collected is given to one of the members till all the members have received, marking the end of the cycle (completed round) with 51% in East Kamagak. Based on sex desegregation, most of women, 76%, belonged to VSLA groups, compared to 65% men, while more men, 13%, were in producer groups compared to 8% women. More women, 21% are affiliated to merry go round, compared to 15% male in similar groupings.

3.2.4 Services provided by VSLA/FFBS

The study has noted that 89% of the respondents have accessed farming advisory services, while 50% have accessed loans from their respective groups. 41% have accessed soil testing services, while 38% have accessed business development services from the VSLAs/FFBS producer groups. In East Kamagak, the groups are mainly providing farming advice services as reported by 91% of the respondents, followed by 69% accessing business development services and 43% accessing soil testing services. In Kagan, 88% are accessing farming advice and loans, while 50% are accessing soil testing services. In West Kasipul, 87% are accessing farming services, 29% loans and business development services, and 31% soil testing services. Women are mainly accessing farming advice services from the groups, as reported by 88% of the women respondents, followed by 52% who are accessing loans while soil testing services and business development services are accessed by 41%. Among the men, 92% access farming advisory services, compared to 47% who are accessing loans, while 39% accessing business development services from their groups.

3.2.5 Leverage from other organizations

The study noted that groups received support from other organization such as Kenya Agricultural and livestock research organization (KALRO), Practical Action and Hand in Hand, apart from CARE, as confirmed by 65% of the respondents. External support from other organizations to the group and members have been prominent in West Kasipul as reported by 80%, followed by 65% from East Kamagak and 51% from Kagan. Provision of planting materials such as seeds has been the main support by other organizations, as reported by 70%, with 93%, in East Kamagak. Capacity development has also been delivered by other organizations, as reported by 62% with 92%, in West Kasipul. Financial support was reported by 22%, with 46%, in Kagan. Women majorly received planting materials as reported by 70%, compared to 72% men, while capacity development from other organizations reached 66% men compared to 60% women. Financial support reached 21% women, compared to 26% men.

3.2.6 Participation in advocacy and policy influencing

The study noted that 43% of the respondents have actively participated in advocacy and policy influencing activities, with 60% in East Kamagak, 43% in West Kasipul, and 24% in Kagan. More men headed households, 52%, participated in advocacy and policy influencing compared to 39% women headed households. 62% of the respondents have been advocating and influencing policy for better markets, with 75% in East Kamagak and 64% in West Kasipul. 52% have been advocating for better access to inputs, with 64% in Kagan and 59% in East Kamagak. 44% of the respondents advocated better roads. Women headed households mainly advocated for access to inputs as reported by 56%, compared to 44% men headed households. More women headed households, 63% were at the forefront in advocating for better markets compared to 58% men headed household. Generally, 56% of men headed household, advocated for better roads compared to 39% women headed household, while 21% of men headed households and women headed households, advocated for reduction in social vices such as theft and gender-based harassment.

The national government purchases maize from outside the country yet farmers have maize and that they end up selling at throw away price. We need policies to protect local producers.

FGD, Kinda women group

The evaluation reviewed the project progress on advocacy and policy influencing undertaken by CARE Kenya and its partners.

Structured relationship with partners: CARE Kenya signed a tripartite MOU with the County Government of Homabay and the local implementing Partner-Justice and Mercy (JAM), on 19/06/2023, paving way for project implementation and structured engagement with relevant County government departments, in provision of extension services and capacity building to farmer cooperatives.

Formalization of collective action: CARE Kenya in partnership with the County government of Homabay, Cooperative department facilitated the formation and registration of 3 farmers marketing co-operatives comprising 60 FFBS producer groups. The project has also facilitated the cooperatives to sign market supply contracts with Delish and Nutri (a private peanut processing company) for supply of 192 metric tons of

groundnuts. The contract has been signed off with Hello tractor for acquisition of a tractor on 5% deposit, while with Ujuzi kilimo the cooperatives have signed for purchase of soil testing equipment. With Kick start, the cooperatives have also signed an agreement for ownership of 17 irrigation pumps under the rent use and buy arrangement, effectively transforming the cooperatives into collective social enterprises.

Operationalization of the County Agriculture Sector Steering Committee (CASSCOM):

FFBS-Kenya hosted two County Agriculture Sector Steering Committee (CASSCOM) meetings, on December 6th, 2023, and June 13th, 2024. Where stakeholders provided input to the draft CASSCOM bill, paving way for review by the County Executive Committee members and approval by the County Assembly, thereby enabling full and legal operationalization of the CASSCOM mandate, including budget allocation by the County government. Various technical working groups was constituted in the December 6th, 2023, CASSCOM meeting, where CARE Kenya was nominated to sit in the Research, Extension and Capacity Building technical working group, alongside Research, academia and development partners.

Recognizing FFBS as 2030 strategic ambitions:

CARE Kenya, in their 2024-2030 strategy, enshrined FFBS as a key approach in implementation of programs under Food Water and Nutrition (FWN) pillar, alongside the VSLA model. The Projects using FFBS Approach in Kenya include CASCADE and the Danida Market Development Partnerships, (DMDP) with accumulative target of 18,000 smallholder farmers in VSLA and FFBS producer groups, in Nyandarua, Nakuru, Nairobi, Migori and Kakamega Counties.

Value chain coordination platforms:

Through CARE Kenya’s influence, the Homabay County Groundnut value chain development forum was constituted in June 2024, under the leadership of the County Agriculture Chief Officer. The first meeting was held on June 25th, 2024, inviting a representative of the Delish and Nutri (a private Peanut processing company) to explore modalities of acquiring clean seeds for ground nut farmers in Homabay County. A follow up meeting was held on June 26th, 2024, with leaders of 8 farmer cooperatives engaged in ground nuts value chain to deliberate on acquisition of clean groundnut seeds.

3.2.7 Perception on governance and management of the group

The governance and management of the groups has slightly improved over the past 2 years, as mentioned by 70% of the respondents, with 89%, in East Kamagak, followed by 72% in West Kasipul and 49% in Kagan. 47% of respondents from Kagan believe that the governance and management of the group they belong has greatly improved, compared to 10% in East Kamagak and 25% in West Kasipul. Slightly more women, 28% compared to 25% of men, believe that the governance and management of the group, has greatly improved. An equal proportion of men and women (70%) agreed that management of the groups have slightly improved.

General management, operations and governance among cooperative’s has increased over the past 2 years due to this project, due to capacity development of the cooperatives on management, operations and governance, offering guidance and advice to members and ensuring cooperative comply with cooperative act

Cooperative officer, Kagan

3.2.8 Current challenges facing the VSLA/FFBS

The study noted that 46% reported that their groups still lack cohesiveness, especially among Kagan groups, as mentioned by 84% of respondents, while 16% mentioned poor leadership. Further, 42% of the respondents from East Kamagak and 22% in Kagan reported that disputes are still a challenge to their groups. Based on sex disaggregation 46% women against 43% men feels that their groups lack cohesiveness, while 18% women compared to 11% men mentioned that their groups have poor leadership. 23% men and 28% women reported that disputes and lack of proper resolutions as a major challenge to their groups.

3.3 HOUSEHOLD INCOME, SOURCES AND ATTRIBUTIONS

IMPACT INDICATOR 1: % increase in net income of smallholder farmers (KES/annum)

The scaling up Farmers' Field and Business Schools in Kenya to address food, nutrition security and economic empowerment for vulnerable households in Homabay targeted to increase the annual income among the 1,200 project participants. At baseline, the households reported an average income of KES 25,207 (USD 195) per year, which improved to KES 36,697 (USD 284) per year, representing a 46% increase (Table 3).

Table 3: Proportion (%) increase in net income of smallholder farmers (KES/annum)

Net Household Income levels	Project Target (KES)	Impact (KES)	Change
% increase in net income of smallholder farmers (KES/annum)	25,207	36,697	45.6%

Income from salaried work continued to be the highest earner within the households, with an average of KES 157,875 (USD 1,223) per year, representing a 7% improvement from the baseline. Income from sales of agricultural crops recorded an average of KES 43,336 (USD 336), an increase of 84% from the average of KES 25,253 (USD 196) at baseline. Net income from casual labor related to agricultural activities increased by 112%, from KES 3,459 (USD 27) at baseline to KES 7,605 (USD 59) at impact evaluation. This increase in income was mainly due to the net income and not the number of people earning from this source. This shows that activities within the agriculture sector increased at household level, due to increased investment, creating more employment opportunities.

Youths and women through the project have been involved more in agriculture and this has increased manpower and hence better livelihood.

FGD, ONG'AMO

Fish sale, which was mainly in Kagan, generated an average of KES 144,000 compared to KES 80,247 at baseline, indicating a 79% increase. Sale of animal products increased by 86% from KES 21,536 to KES 40,071. The high improvement in income from sales of agriculture produce indicates that households are producing more from their farms.

3.3.1 Household income attribution

The household income attribution was determined based on three indicators. (1) Adoption of good agricultural practices (2) Market access and (3) reduction in cost of production. The proportion of those who attributed reduction in income due to production losses as a result

of poor agricultural practices and management, were 66%, translating to 23% reduction from the baseline of 89% (Figure 3). Further 46% of the respondents, 52% of men headed households and 44% of women headed households, confirmed that income from their farms improved due to improved market access and services, compared to 9% at baseline, representing a 37% improvement.

The study noted that 35% of the respondents has recorded increase in incomes as a result of reduction in production costs, compared to 2% at baseline, representing a 33% increase, with 47% being men headed households and 31% being women headed households. These results indicate that most of the households are now becoming more resilient, especially among the men headed households, due to adoption of good agricultural practices, reduction in cost of production, and access to better markets.

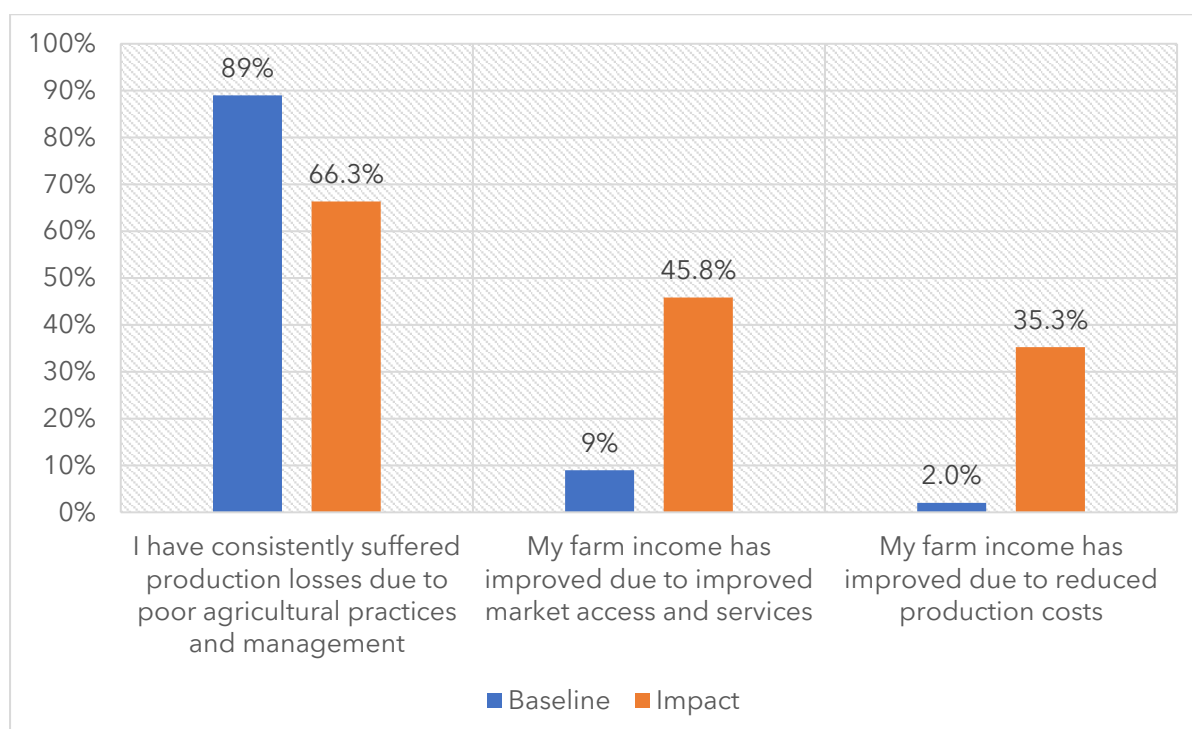


Figure 3: Household income attribution

3.3.2 Household income sources

The study noted that 91% of the respondents were sourcing their income from sale of agriculture products, indicating an increase of 34% from the baseline of 57%. Most of the respondents who reported sources of income from sale of agriculture products were 96% in Kagan, 94% in Kasipul and 83% in East Kamagak. The second major source of income was from the sale of livestock, as reported by 43% of the respondents, with 69% from Kagan, 48% from East Kamagak and 11% from West Kasipul. Petty trading/small business was a source of income for 25% of the respondents, with 24% from Kagan and 31% from West Kasipul. 19% sourced their income from provision of non-agricultural casual labor, with 26% from West Kasipul.

Sale of agricultural crops was a major source of income for 88% of women headed households compared to 98% of men headed households, while livestock sales was a major source of income to 42% of women headed household, compared to 43% of men headed households. Provision of casual labor related to agricultural activities provided incomes to

28% of women headed households, compared to 22% of men headed households. More men headed households, 28%, provided nonagricultural casual labor, compared to 15% of women headed households.

3.3.3 Household satisfaction with income

The study noted that 21% of the respondents were satisfied with their income compared to 39% who were not satisfied. The level of satisfaction has increased from 11% at baseline, to 21% at impact assessment, representing a 10% increase in level of satisfaction. This shows that most of the households have experienced increased income over the past 2 years, due to an increase in sale of agricultural products. Among those who were satisfied with the current income, 45% were from Kagan, 4% in East Kamagak while 15% were from West Kasipul. More women headed households, 22%, compared to 18% men headed households, were satisfied with their incomes. More men headed households, 31% were dissatisfied with their incomes. Generally, 46% of those who were satisfied with income were from Kagan.

3.4 HOUSEHOLD FOOD CROP PRODUCTION AND PRODUCTIVITY

IMPACT Indicator, Productivity: % increase in yield for smallholder farmers - Ground nuts and sorghum (Kg/acre)

The project, through participatory engagement with the producers and validation with the ministry of agriculture, selected two value chains to be promoted among the producers. These included Sorghum and ground nuts. A supplementary crop, Africa leafy vegetable, was also promoted. The two crops are also priority value chains being promoted by Homabay county.

Selection of Sorghum, Africa Leafy vegetables, and groundnuts was done based on consultations between CARE, farmers, and other key stakeholders. They were selected since they are adaptable to climatic condition of the area and availability of market.

FGD Rangwe

The project targeted to improve the yield by 30% by the end of the project. The impact assessment observed a 129% increase in ground nut productivity from 90 Kg/acre to 206 Kg/acre, while in sorghum, the productivity increased by 25%, from 225 Kg/acre to 282 Kg/acre, based on the 2023 long rains harvesting (Table 4).

Table 4: Changes in yield for smallholder farmers (Kg/acre)

Impact Indicator	Project Target %	Baseline (Kg/acre)	Impact (Kg/acre)	Change
% increase in yield for smallholder farmers - Ground nuts (Kg/acre)	30%	90	206	129%
% increase in yield for smallholder farmers -Sorghum (Kg/acre)	30%	225	282	25%

3.4.1 Household crop diversity

Households are growing diversity of crops, which include cereals, legumes and nuts. The proportion of household growing ground nuts has increased by 22%, from 53% at baseline to 75% at impact, while the proportion of those growing sorghum has increased by 39%,

from 32% to 71% at impact assessment (Table 5). The changes were associated with improved access to market, which motivated the producers, women headed households leaving the traditional norms associated with sorghum planting and increased technical capacity to manage the crops, due to trainings received by producers.

Africa leafy vegetable was the most planted crop during the long rains of 2023 (March - May) as reported by 84% of the respondents, with 91% in West Kasipul, 75% in Kagan and 85% in East Kamagak (Figure 4). This could be due to the production of crops under kitchen gardens, which this study noted that 84% of the household have them. Sorghum was planted by 51% of the respondents, with 65% in Kagan (Figure 4). The proportion of households growing ground nuts were 75% of the respondents-83% in East Kamagak, followed by 80% in Kagan and 62% in West Kasipul.

Table 5: Proportion of households planting sorghum and ground nuts

Value chain	Project Target %	Baseline	Impact	Change
Ground nut growing households	00%	53%	75%	22%
Sorghum growing households	00%	32%	71%	39%

The study noted that production of ground nuts, sorghum, and Africa leafy vegetables were predominantly cultivated by households headed by men. More men headed households, 77%, grow ground nuts compared to 72% of women headed households, while 53% men headed households cultivate sorghum compared to 49% women headed households. This could be associated with the traditions, norms, and culture associated with plant of sorghum seed.

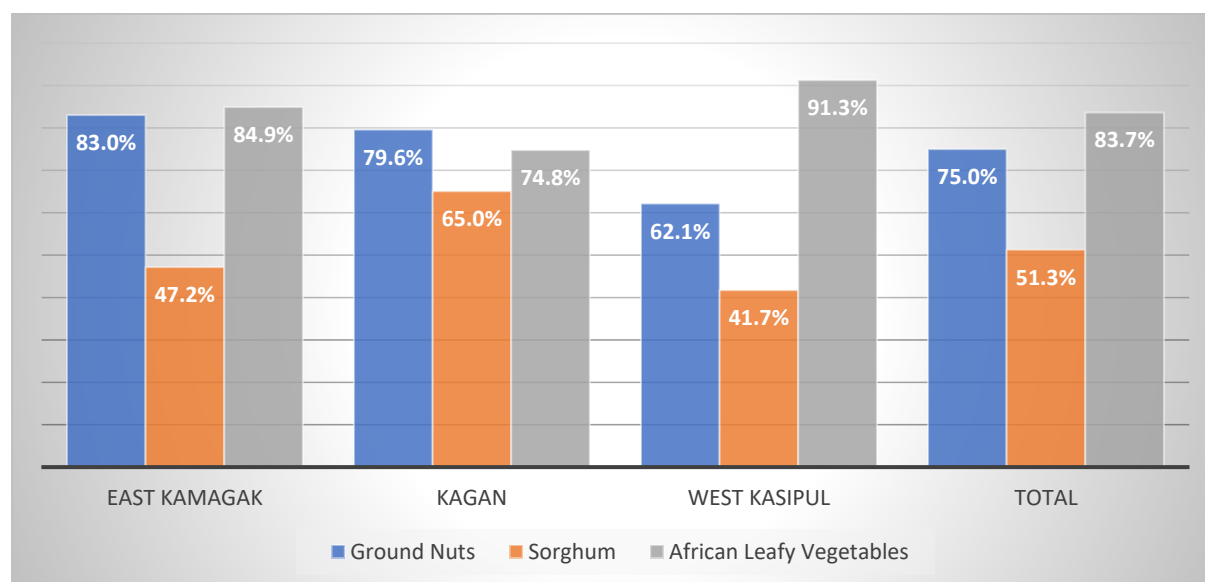


Figure 4: Proportion of household growing different crops in the targeted project locations

3.4.2 Challenges in crop production

Poor weather, characterized by poor rainfall, is the single most important challenge affecting households in the three wards, as mentioned by 93% of the respondents. Low rainfall equally affects both men and women headed households, with more 97% being

women headed compared to 92% men headed households. Poor farming skills affect 45% of the respondents, with 64%, in Kagan. Lack of tools and equipment and lack of quality certified seeds affect 43% of the respondents respectively.

Lack of adequate extension services and markets affect 30% and 29% of the respondents, respectively. Poor farming skills affect 48% of men headed households, compared to 40% among women headed household, while lack of tools and equipment affects 47% of women headed households compared to 42% of male headed household. Poor access to market equally affects both men and women headed households.

OUTCOME INDICATOR: % of targeted farmers and households who adopted gender transformative and sustainable agricultural practices

The proportion of households who have adopted at least 3 gender transformative and sustainable agricultural practices has increased from 59% to 76%, representing a 17% change at impact assessment (Table 6). The project applied farmer participatory research approaches to expose the participants to crop production technologies. Sixty FFBS/VSLA demo sites were established with six experimental plots to evaluate different ground nut varieties and planting methodologies (line and broadcasting) and different sorghum varieties (red and brown) with superimposed planting methods (lines and broadcast), manure application regimes, and seed rate.

Table 6: Farmers adopting gender transformative and sustainable agricultural practices

Outcome Indicator	Project Target	Baseline	Impact	Change
% of targeted farmers and households who adopted gender transformative and sustainable agricultural practices	70%	59%	76%	17%
# of demonstrations done	60	0	62	100%

3.4.3 Improved crop production technologies

The study noted that the use of improved seeds and inputs was the most adopted and practiced technology as reported by 70% respondents, of which 82% were from East Kamagak while 81% from Kagan. The proportion adopting the use of improved seeds and input was 83%, representing an increase of 28% from the baseline of 55%. The second most adopted and practiced technology was better harvesting techniques, as reported by 35% of respondents, with 53%, in East Kamagak. Those adopting better harvesting techniques increased by 153%, from the base of 14%.

Soil health and nutrient management is being practiced by 35% compared to 19% at baseline, indicating a 16% increase (Table 7). Other practices, which have been adopted included integrated pest management (29%), water conservation (29%), and cropping intensity (27%). The study further noted that women headed households’ adoption rates on most technologies were higher than men headed households. Women headed households adopting and practicing improved seed and input were 76% compared to 67% among men headed households. More women headed households, 43%, have adopted better harvesting practices compared to 31% male headed households.

Table 7: Crop production technologies adopted

Improved crop production technologies	Impact (%)	Baseline (%)	% Change
Seed/inputs	70.2	54.9	15
Better harvesting practices	35.3	14.0	21
Soil health and nutrient management	34.6	18.7	16
Diversified cropping	33.0	60.3	-27
Integrated pest and disease management	29.2	6.3	23
Water conservation and management	28.5	3.5	24
Cropping intensity	27.2	19.0	8

3.4.4 Sustainable agricultural production practices

The study noted that 83% of the respondents are currently applying sustainable agricultural production practices on their farm, with 98%, in East Kamagak, compared to 77% in West Kasipul and 73% in Kagan (Table 8). Compared to the baseline, the proportion of households who are practicing sustainable agricultural production practices has increased by 48% from 35% at baseline. Among the sustainable practices, crop rotation was the most practiced by 79% of the respondents, mainly in West Kasipul (96%) and East Kamagak (84%) compared to 72% who are undertaking composting, mainly in East Kamagak (88%) and West Kasipul (68%). 47% respondents reported to have adopted improved pest and disease management. Slightly more women headed household, 84%, are currently applying sustainable agricultural production practices on their farm compared to 82% among men headed households (Table 8).

Table 8: Proportion (%) of smallholder farmers adopting sustainable agricultural practices

	East Kamagak	Kagan	West Kasipul	Aggregate	Female	Male
Sustainable agricultural practices	98.1%	72.8%	76.7%	82.7%	84.1%	81.9%
Crop rotation	83.7%	54.7%	96.2%	79.1%	83.2%	76.7%
Composting	87.5%	53.3%	68.4%	71.7%	77.9%	68.1%
Improved pest and disease MGT	53.8%	24.0%	58.2%	46.5%	51.6%	43.6%
Supplemental small-scale irrigation	4.8%	33.3%	17.7%	17.1%	7.4%	22.7%
Crop rotation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

On specific technologies, 83% women headed households compared to 77% men headed households are applying crop rotation, while 78% women and 68% men are applying composting. Improved pest and disease management is being practiced by 52% women headed households compared to 44% men headed household.

OUTCOME INDICATOR: % producers adopting improved post-harvest management practices

The proportion of producers who have adopted/applied improved post-harvest management practices reduced by 27%, from 97% in baseline to 71% at Impact assessment, though it was above the project target by 1.4% from the target of 70%. 66% of the respondents agreed that the project has been helpful in sensitizing and training them on reducing post-harvest losses, with 80%, who agreed with this statement are in Kagan, 66% in East Kamagak and 53% in West Kasipul (Table 9). The study noted that 49% of the respondents have experienced post-harvest losses over the past 12 months, with 59% in

East Kamagak, 51% in West Kasipul, and 37% in Kagan. More women headed households (52%) are facing post-harvest losses than men headed households (47%). More respondents producing Africa leafy vegetables experienced post-harvest losses (59%), followed by ground nuts (58%), and sorghum (35%). Of sorghum producers in Kagan, 55% experienced losses in sorghum, while more respondents in East Kamagak (73%) reported losses in ground nuts than other locations.

Table 9: Producers adopting improved post-harvest management practices

Outcome Indicator	Project Target	Baseline	Impact	Change
% producers adopting improved post-harvest management practices	70%	97%	71%	-26%%

More women headed households, 36% compared to 34% men headed households, are experiencing post-harvest losses in sorghum, while 66% of women are experiencing losses in ground nuts as compared to 53% of men headed households. More men headed households, 61%, are experiencing losses in Africa leafy vegetables, as compared to 56% of women headed households.

3.4.5 Household Mitigation against product Waste/losses

The most common post-harvest practice being applied was drying of the products as reported by 78%, of which (87% were in Kagan, 78% in West Kasipul, and 68% in East Kamagak). Storage is done by 73%, (86% in Kagan), while sorting and grading is done by 72%, (75% in West Kasipul and 73% in Kagan). Other practices include threshing and shelling (30%), cleaning and winnowing (27%), washing and cleaning (17%) and transportation to the market (16%). Both men and women headed household undertake drying of the products, as mentioned by 78%, while more men headed household, 36% compared to 17% of women headed household, do threshing and shelling. More men headed household, 76% are storing their products compared to 67% women headed households.

3.4.6 Farm produce waste/losses among the selected value chains

Indicator: % of smallholder farmers who reduced farm produce waste/ loss

The study noted that 49% of the respondents have experienced post-harvest losses over the past 12 months, with 59% in East Kamagak, compared to 51% in West Kasipul, and 37% in Kagan (Table 10). More, 52% Women headed households are facing post-harvest losses than men headed as mentioned by 47%. Among the crops, post-harvest loss in Africa leafy vegetables was reported by 59%, followed by ground nuts by 58% and sorghum by 35% of the respondents.

Table 10: Proportion of smallholder farmers who reduced farm produce waste/ loss

Outcome Indicator	Project Target	Baseline	Impact	Change
% of smallholder farmers who reduced farm produce waste/ loss	20%	100%	49%	51%

3.4.7 Farm Produce Waste/Losses Reduced by 20%.

The study noted that farm produce waste or losses due to poor post-harvest management has reduced by 27%, from 43% at baseline to 16% at impact assessment (Table 11). In sorghum, product loss has reduced by 62%, from 55% at baseline, to 21% loss, while in ground nuts, the loss reduced from 30% at baseline to 17% loss at impact, translating to 43% reduction in post-harvest losses.

Table 11: Farm Produce Waste/Losses Reduced

Outcome Indicator	Project Target	Baseline	Impact	Change
Farm produce waste/losses reduced by 20%.	20%	43%	16%	-27%

Groundnuts: The study noted that on average, households produce 206 Kgs/acre of ground nuts in an area of 0.7 acres. Half of the produce (50%) is sold to the market, while 16% is consumed at home and 17% is lost due to poor post-harvest management, translating to 35 kg/acre compared to the total harvest. This means that a household is losing an average of KES 7,952 (USD 62) from post-harvest loss per acre, against the total income of KES 45,214 (USD 350) per acre. Significant losses were noted in West Kasipul (22%), followed by East Kamagak (14%), and Kagan (14%). Compared to the baseline, which recorded a post-harvest loss of 30%, the impact assessment reported a 17% loss, translating to 43% reduction in post-harvest losses.

We have been trained on how to store groundnuts. We only shell the quantity we want to consume or take to the market. This has ensured that groundnuts remain fresh for a longer period and are sold when the market price is high.

Kakoboko Women Group

Sorghum: In Sorghum, the study noted that on average, households produce 281 Kgs/acre of sorghum, in an average area of 0.6 acres. 72% of the harvest is sold to the market, while only 9% is consumed at home and 21% is lost due to poor post-harvest management, translating to 54 kg/acre compared to the total harvest (Table 12).

Table 12: Crop productivity, loss and sales

Variables	Ground nuts	Sorghum	Africa leafy vegetables
Area planted (Acre)	0.7	0.6	0.2
Kg/acre	205.7	281.7	1,168.1
Total Kgs Sold	103.8	116.5	48.9
% Sold	50.5	71.7	20.6
% Consumed at Home	7.7	9.2	71.0
Local price/Kg (KES)	219.8	96.0	33.1
Income/Acre (KES)	45,213.8	24,989.4	38,155.8
% product waste	16.9	20.7	9.3
Kgs Loss/Acre	35.4	54.1	104.9
Cost of Loss/Acre (KES)	7,951.4	4,970.4	3,443.1

This means that a household is losing an average of KES 4,970 (USD 38.5) from post-harvest loss per acre, against the total income of KES 24,989 (USD 193.7) per acre. Compared to the baseline, which recorded a product waste/loss of 55%, the impact assessment has

reported a 21% loss, translating to 62% reduction in post-harvest losses. Significant losses were noted in East Kamagak (26%) followed by West Kasipul (20%) and Kagan (16%).

Africa leafy vegetables: In Africa leafy vegetables, the study noted that on average, households produce 1,168 Kgs/acre of Africa leafy vegetables in an average area of 0.2 acres. 25% of the harvest is sold to the market, while 71% is consumed at home and 9% is lost due to poor post-harvest management, translating to 105 kg/acre compared to the total harvest. This means that a household is losing an average of KES 3,445 (USD 29.7) from product waste/loss per acre, against the total income of KES 38,156 (USD 295.8) per acre. No baseline data was collected on this product. Significant losses were noted in East Kamagak (11%) followed by West Kasipul (8.4%) and Kagan (8.4%).

We have been trained on how to properly store our produce in a well-ventilated room and bags, proper drying, and separation of the rotten from the good one. When transporting we look at the weather before embarking to minimize produce being rained on.

FGD, East Kamagak

OUTCOME Indicator: Income: Total agricultural production sold (disaggregated by market including local markets and certification

The study calculated the volume of sorghum and ground nuts produced and sold by targeted households. Ground nuts were sold by 75% (888 Households out of 1184 reached), while Sorghum was sold by 71% (840 HH) (Table 13). In total, in 2023, 92,174 Kgs of ground nuts, valued at KES 20.3 million (USD 157,054) were sold by 888 households. While 67% (61,756 Kgs) went to the local market, 10% (13,826 Kgs) was sold to neighbors, while 18% (16,591 Kgs) was sold collectively through groups.

Table 13: Total agricultural production sold (disaggregated by market including local markets and certification

Product	Volume (Kg) sold	Local MKT (Kgs)	Neighbors (Kgs)	Collective (Kgs)	Value sold (USD)
Ground nuts	92,174	61,757	13,826	16,591	157,054
Sorghum	97,935	65,616	14,690	17,628	72,882
Total	190,109	127,373	28,516	34,220	229,935

97,935 Kgs of Sorghum, valued at KES 9.4 million (USD 72,882) were sold by 865 households. While 67% (65,616 Kgs) went to the local market, 10% (14,690 Kgs) was sold to neighbors, while 18% (17,628 Kgs) was sold collectively through groups. The volume of products being sold collectively is still low (18%). There were no products which were sold as certified products

3.4.8 Reasons for product Waste/losses

Product rotting is a major cause of product waste/loss, as mentioned by 66%, mainly in West Kasipul. Product infestation by pests, such as weevils, was reported by 60% and infestation by diseases, such as fungi, was reported by 52%. Contamination during threshing was reported by 26%, while product falling during transportation was reported by 22% of the respondents. Men headed household are mainly affected by product rotting,

as mentioned by 67% compared to 64% of women headed household. Women headed household are mainly affected by product infestation by pests, such as weevil, as reported by 76% compared to 50% of Men headed household. Product waste/loss during transportation because of falling was more reported by 27% men headed household (by virtue that transportation is mainly done by men) compared to 14% among women headed household.

3.4.9 Access to Agricultural Extension service

OUTPUT INDICATOR: # of producers trained through FFBS

OUTPUT INDICATOR: # of County Govts adopting FFBS as their extension model

The study observed that 68% of the respondents, mainly in East Kamagak (78%), 44% in Kagan, and 42% in West Kasipul confirmed that access to agricultural extension services has slightly improved, while 29% confirmed that it has greatly improved, especially 44% in Kagan, while 3% indicated it has not improved (Table 14). More women headed household (58%) confirmed that access to trainings has improved compared to men (49%), while 23% of men headed household agreed that the access to extension services has greatly improved compared to 21% of women headed household. 99% of the respondents find the extension services useful to improve their agricultural production. Slightly more women headed household, 79% compared to 74% among the men headed household agreed that extension services are useful to Improve their agricultural production.

The project targeted to reach 1,200 participants through trainings in different areas of crop production. The study observed that training reached 1,305 participants, representing 9% above the project target. This means that there were non-members or indirect participants who were reached through trainings.

Table 14: Producers trained through FFBS and county governments adopting FFBS as an extension model

Output Indicator	Project Target	Impact	Change
# of producers trained through FFBS	1,200	1,305	9%
# of County Govts adopting FFBS as their extension model	1	1	100%

Through sensitization and training of the extension staff, the Homabay was able to adopt the FFBS extension curriculum for capacity development targeting members of the VSLA/FFBS producer groups.

3.4.10 Project participatory approaches in extension delivery

Extension staff from the ministry of agriculture: Members of the FFBS producer groups accessed trainings delivered by the Ministry of Agriculture staff from the ward and sub county level. Five extension staff were involved initially, reaching at least 2 groups per week. The staff were facilitated to provide the services, with trainings being done at the demonstration and experimental plots, at least once a week, from which they would observe growth rates, pest, and disease pressure. Other trainings delivered included soil and water conservation and post-harvest management.

I was involved by CARE and JAM in setting up demo sites for FFBS with the farmers, training the farmers and guiding them during the FFBS cycles. I was also involved in the

supervision of the projects and mobilizing farmers for field days which were attended by different stakeholders.

MOA, Oyugis

Community resource persons (CRP): The project leveraged the training offered by the Ministry of Agriculture staff by involving the Community Resource Persons (CRPs), who reached at least 5 groups (at least 100 members of the VSLA/FFBS producer groups). The project considered several factors when recruiting the CRPs, which included education levels, being a member of the VSLA/FFBS producer groups and experience in community work. The key roles of the CRP were (1) Mobilize the groups whenever there are activities by CARE, JAM or when the extension staff was coming for the training; (2) Mentorship of the groups on VSLA as part of internal fund management; (3) ensure the group members are practicing the good agricultural trainings delivered at the demonstration sites on their farms; (4) Manage gender dialogue sessions in targeted groups. The CRPs were, therefore, instrumental in ensuring members of the VSLA/FFBS producer groups were applying the technologies at their farm.

3.4.11 Proportion of participants accessing agricultural extension services

The evaluation noted that 77% of the respondents have received agricultural extension services-with 91% in East Kamagak, 82% in Kagan, and 57% in West Kasipul. The proportion of those who accessed extension services has increased from 75% at base line to 77% at impact assessment, representing a 3% improvement.

More women headed households, 81% of the respondents, have received extension services compared to 75% male headed households. Specifically, 97% men headed households, have received crop management training, compared to 95% of women headed households, while 56% of the men headed households have received training on livestock management, compared to 51% women headed households.

The study noted that 96% of the respondents have received extension services on crop management practices while 53% of the respondents have received extension services on crop marketing of which, 56% were men headed households compared to 46% female headed households. On livestock production, 54% have received extension services on livestock management, with 71% in Kagan, 59% in East Kamagak and 22% in West Kasipul. Extension on veterinary services have reached 11% of the respondents, with 14% in Kagan.

3.4.12 Training areas received by the project participants

The extension staff from the MoA and JAM staff delivered several trainings to the participants. Crop production trainings reached 86% of the respondents, while soil sampling and testing reached 61% (78% in Kagan compared to 62% in East Kamagak). This was done in collaboration with the cooperatives and Ujuzi Kilimo. Post harvest management reached 61%, with more in Kagan (84%), while tractor hire services reached 76%, mainly in Kagan. Training on gender transformative reached 44% of the respondents, with 53% in Kagan, and soil and water conservation, reached 44%, with 42% in East Kamagak.

The study noted that 83% of the women headed household, accessed training on crop production, compared to 87% men headed households, while 65% accessed training on soil sampling compared to 58% among the men headed households. Post harvest training reached more women, 65%, compared to 58% men, while tractor hire services, reached

more men, 58% compared to 24% of women headed households. In the past 12 months, 72% of the respondents have received training on gender transformation (91% in East Kamagak, 63% in Kagan, and 62% in West Kasipul).

3.4.13 Access to farm input services

The study noted that 92% of the respondents have accessed farm input in the past 12 months. More men headed households (79%) compared to women headed households (69%) have accessed inputs, in the past 12 months. Most of the respondents who accessed the inputs got them from agrovets, as mentioned by 75%, while 48% accessed them from the local open-air market. Government have been able to reach 24% of the respondents, with (60%) in West Kasipul, while NGO such as CARE, has been able to reach 20%, with 37% in West Kasipul.

3.4.14 Access to soil testing services

CARE- Ujuzi Kilimo partnership: While soil testing was not planned for this project, in the cause of project implementation, CARE and its partner, JAM noted that crop yields were reducing, due to poor soil health, based on the preliminary assessment. In partnership with UJUZI Kilimo, the project introduced a rapid soil testing system, which provided advisory services to farmers. The services were domiciled at the cooperative.

The scale of soil testing in the project areas: The study noted that 27% of the respondents have sampled and tested their soils (34% in Kagan, 20% in West Kasipul, and 27% in East Kamagak). More male headed households (31%) have tested the soils compared to women headed households (21%). The study noted that 92% of the respondents have tested their soils through the partnership between Ujuzi Kilimo and CARE, while county government has reached 5%. Other NGO have reached 8% while Kenya Agricultural and livestock research organization (KALRO) has reached 7%. The study observed that 93% of the households headed by men had tested their soil through Ujuzi/CARE partnership compared to 88% among the women headed households.

Challenges affecting soil testing: The cost of soil testing is affecting 85% of the respondents, while lack of skill in soil sampling is affecting 30% of the respondents. Those who are not aware of the availability of the service were only 11%, indicating that the project invested in sensitization of the community on the soil testing services. Women were more aware of the soil testing services (92%) as compared to men (89%). Most of the respondents, 94%, agreed that the groups and cooperatives were influential in helping them access soil testing services. Given that none of the respondents indicated that they don't want their soils to be sampled, this provides an opportunity for scaling up in future and presenting a value proposition to this group. The cost of sampling and testing affected more households headed by women (92%), compared to households headed by men (82%). Lack of skills affected more men, 38%, compared to 13% of women.

3.4.15 Access to tractor hire services

CARE - Hello Tractor partnership: The efforts by the project to enhance market engagement among the producers were impeded by low production levels, which was contributed to by late land preparation and use of poor rudimentary tools in land preparation. This was contributed by use of rudimentary tools, such as hand hoes, during land preparation. Levels of mechanization were low, with few farmers owning ox-plough. In partnership with Hello Tractor, the project introduced tractor hire services, which was

expected to be domiciled at the cooperatives. While at the time of the evaluation none of the cooperatives had procured the equipment, cooperatives from neighboring wards, such as Kochia, were infiltrating the targeted wards, providing tractor services. For a cooperative to own a tractor from Hello tractor, they must show that they have 1,235 acres available for the service. Booking agents were identified and trained on Hello tractor app for mobilizing potential customers and registering them for the services.

Scale of farm mechanization: The study therefore interrogated to what extent the households have mechanized their farms, especially on primary land preparation, in the past 12 months. The study noted that 19% have accessed the services with 28%, in Kagan (This location is neighboring Kochia ward, where a cooperative has been able to get a tractor from Hello tractor and is serving farmers even those across the boundaries), compared to 24% in West Kasipul and 6% in East Kamagak. The study noted that slightly more men headed households, 24%, have accessed tractor services compared to 11% of women headed households.

Sources of tractor services: Those who accessed tractor services mainly got from come and go tractors services (Those who come during land preparation season and migrate to other locations when the demand decreases. Chances are that some of them could be from Hello tractors) (38%) and Hello tractors (38%). Respondents from East Kamagak only accessed tractor services from Hello Tractor. Neighbors owning tractors served 22%, while the county government served 20%. The study noted that women headed households were mainly accessing tractor services from come and go (42%), compared to 38% of men headed households and Hello tractors (50%) compared to 35% of men headed households. Men headed households mainly access tractor services from their neighbors and county government, while women headed households in East Kamagak (100%) totally rely on access to tractor services from their neighbors.

3.4.16 Challenges affecting tractor service access

Insufficient tractors available to provide land preparation services is a major problem, affecting 78% of the respondents, more so, in West Kasipul, as reported by 89%, and Kagan by 83%. High cost of tractor services is affecting 54% of the respondents, in West Kasipul, while having small pieces of land is an impediment to 20% of the respondents, with 42% in West Kasipul ward. Women headed household are mainly affected by insufficient number of tractors available (58%) compared to 84% men headed households, while cost of hiring affects 50% of the women headed household compared to 55% of the men headed households.

3.4.17 Access and perception on changes in market access

The study noted that 83% of the respondents had access to markets services in 2023, with more men headed households (88%) accessing markets than women headed households (74%). The study further noted that 44% of the respondents agreed that access to markets has slightly improved, compared to 39% who mentioned that access to market has moderately improved. Only 6% of the respondents mentioned that access to market has greatly improved while 2% felt that access to market has worsened while 10% said it has not improved. More women headed households, 48% felt that access to markets has slightly improved compared to 42% among the men headed households, while slightly more men, 40%, felt that it has moderately improved compared to 36% of women. Slightly more than half (53%) of the respondents mentioned that the FFBS project has supported

them in improving access to markets, with 76% in East Kamagak. The FFBS project/cooperatives have supported more of the women headed households, 60% compared to 49% of men headed households, probably because most of the groups have a high proportion of women membership in them.

3.4.18 Collective action in product marketing

The establishment of the three cooperatives was to facilitate product aggregation and collective action for market access. There has been localized aggregation, especially for ground nuts, in which one of the cooperatives successfully collected and marketed 192 tons to Delish and Nutri limited through successful linkages. Discussions with Kenya Breweries Limited (KBL) are still at initial stages, and none of the cooperative has been able to sell sorghum products to KBL.

The study noted that sales of sorghum, ground nuts and vegetables are still taking individualistic tendency, as reported by 92% of the respondents. Most of those who sale as individuals are men headed households, as reported by 95% compared to 83% of the women headed households. Significantly more women, 18% collectively sold their farm produce, compared to 6% men headed households.

Perception and attitude of community members towards cooperative models is a major barrier that may affect business operation for the cooperative.

Wilberforce Agira, KAGAN

3.4.19 Preference for product marketing

The study noted that 67% of those selling their produce, do sell such products through the local markets and their neighbors (77% in East Kamagak, 69% in Kagan, and 55% in West Kasipul). 23% sell to their neighbors. The study noted that 55% prefer selling the produce to the local market and neighbors because of better prices, while 46% mentioned that the volumes of the product they produced, and sell were not enough to warrant exploring bigger markets. Further, 35% lack access to transport, while 22% are not aware of prices in the other markets for exploration. Chances of getting better prices was enticing more to men (49%) compared to women (29%), while in ability to produce enough to transport to bigger markets is affecting more women (39%) compared to men (23%).

3.5 HOUSEHOLD FOOD SECURITY AND NUTRITION

IMPACT INDICATOR: % increase in HH dietary diversity

The project invested in improving household nutrition by investing in systems for improved incomes, food production and access to markets. These were to be reflected through increased dietary diversity, increased Months of Adequate Household Food Provisioning and child nutrition.

Table 15: Household dietary diversity scores

Output Indicator	Project Target	Baseline	Impact	Change
% increase in HH dietary diversity	20%	48%	57%	9%
HDSD	0	3.0	5.0	2.0

Determination of the household dietary diversity was done based on 24-hour recall. The study noted that 57% of households are eating diversified diet, based on six main food

types, indicating an increase of 19%, from the baseline of 48% (Table 15). Households in the targeted project locations, faced at least 2 months of inadequate food provision.

3.5.1 Perception on changes in food access

The study noted that 74% of the respondents confirmed that access to food in their households has slightly improved in the past 2 years, especially in East Kamagak, as reported by 90% of the respondents (71% in Kagan and 60% in West Kasipul). Only 16% agreed that it has improved very much (21% in Kagan and West Kasipul). More women (82%) confirmed that access to food has slightly improved compared to men (68%), while more men (21%) agreed that it has improved very much compared to women (7%). With the slight improvement in food access, 66% of the respondents eat at least 3 meals per day, while 30% are eating 2 meals per day. Slightly more men headed households are eating 3 meals a day, as reported by 69%, compared to 63% among the women headed households. More women headed households (33%) are eating 2 meals a day compared to men headed households (29%).

3.5.2 Main source of food for your household

In the past year, a significant number of households have been accessing food from their own production, as reported by 92% respondents, while only 7% were buying food, indicating that production has improved at household level. More men headed households (95%) were sourcing food for household consumption from their farms, compared to women headed households (86%). More women headed households, 14% were buying foods as compared to 4% among the male headed households.

3.5.3 Household food diversity index (HDDS)

Household dietary diversity was determined among the households to measure food diversity. The study noted that households are eating at least 5 different types of foods across all the locations. There was no difference among women (5.28) and men (5.32) headed households based on how diversified diets they were consuming. Most of the households, 99% eat cereals which include Ugali, millet, bread, while 88% eat vegetables such as tomatoes and Sukuma wiki, among others. Fruits such as pineapples, passion, mangoes are taken by 36% (39% in East Kamagak, 37% in West Kasipul, and 32% in Kagan). Legumes are consumed by 26% (30% in West Kasipul). Meat is consumed by 24% of the households (25% in West Kasipul, 24% in Kagan, and 24% in East Kamagak). Only 13% eat eggs, with

in West Kasipul (26%). Women headed households are taking more of fruits, as reported by 44% compared to 31% among men, and legumes are more consumed by women, as reported by 30% compared to 24% men. Slightly more men headed household are eating meat, as reported by 25% compared to 23% among the women headed households.

Type of foods consumed by household members has improved over the past two years as result of trainings on balanced diet supported by the project and increased food production at household level.

FGD, GONGO Cockrel, Kagan

3.5.4 Proportions of households with children below 2 years

The study observed that only 10% of the respondents have a breast-feeding child of 0-2 years, with, 16% in West Kasipul. More household headed by men, 8% reported to have

children below 2 years who were breastfeeding, compared to 6% among households headed by women. Women headed households with breastfeeding children below 2 years were found in Kagan and West Kasipul, as reported by 12%.

3.5.5 Confidence in food preparation by care givers

Determination of the level of confidence among the respondents when preparing food for their children showed that 73% of them were very confident (100% in East Kamagak, 70% in Kagan, and 73% in West Kasipul). 18% were confident, while only 9% were not confident. Generally, all women headed households (100%) were confident to very confident when preparing food for their children, compared to 87% among the households headed by men.

3.5.6 Difficulty giving different types of food to their children

The respondents were asked if they are facing any difficulty giving different types of food to their children each day. While 36% felt that it was averagely difficult, 32% felt it was not difficult, while similar proportion (32%) said it was difficult. 68% of the households therefore reported that it was not difficult to averagely difficult to provide different food to their children- 71% of households headed by women compared to 67% of households headed by men. This indicates that food access has improved from the farms and households are not facing any challenges feeding their children with diverse types of food at household level.

3.5.7 Establishment of Kitchen gardening

The study noted that 84% of the respondents own a kitchen garden (87% in West Kasipul, 83% in East Kamagak, and 82% in Kagan). More male headed households (88%) have established kitchen gardens, compared to women headed households (76%). Compared to the baseline survey, the proportion of households having kitchen garden has reduced from 96% to 84%, representing a decrease of 13%. This could construction of houses, within the homestead, reducing the area for Kitchen gardening. Kitchen gardening has been promoted by the project as part of improving nutrition. The Ministry of Agriculture staff have also been instrumental in training of these household on nutrition, which include preparation and cooking of the products. This has increased consumption of vegetables, mainly from household production.

OUTCOME Indicator: % of households consuming vegetables from household production

The project targeted increasing household nutrition through promotion of production and consumption of vegetable (not those purchased from the market). The study noted that all respondents consumed the vegetables they produced in 2023, representing a 4% increase from 96% at baseline (Table 16).

Table 16: Households consuming vegetables from household production

Improved crop production technologies	Target	Baseline	Impact	Change
% of households consuming vegetables from household production	20%	96%	100%	4%

Data analysis on production of Africa leafy vegetables are presented in this report. It noted that Households produce an average of 1,168 Kgs/acre of Africa leafy vegetables in an

average area of 0.2 acres. 25% of the harvest, is sold to the market, while 71% is consumed at home, while 6% is lost due to poor post-harvest management, translating to 105 kg/acre compared to the total harvest.

3.6 HOUSEHOLD LIVELIHOOD AND RESILIENCE

IMPACT INDICATOR: % change in livelihood resilience for FFBS Households

The coping strategy index reduced by 48%, from 33 Coping strategy Index (CSI) to 17 CSI. At both baseline and impact assessment, the households reported a lower food insecurity, which ranges 0-50 on average. The study noted that household vulnerability didn't change over the past 2 years, with a slight insignificant change of 0.69% (Table 1). Households reported to be food secure for an average of 10 months in a year, with the month of April and May being the most food insecure months in 2023. These are months following planting in March/April with nothing on the farm to harvest. Most households therefore rely on the market for food. High cost of education, inflation (increased cost of supply), high cost of health, and food insecurity were cited as the most important vulnerabilities by the respondents.

Table 17: change in livelihood resilience for FFBS Households

Impact Indicator	Project Target	Baseline	Impact	Change
% change in livelihood resilience for FFBS Households (Coping strategy Index - CSI)	20%	33	17	-16%
Household vulnerabilities	0	29.1	29.3	0.69%
Months of inadequate food provision	0	0	1.98	100%

3.6.1 Household coping strategy index (CSI)

The study applied the Coping strategy index, which is a tool to measuring food insecurity among the households. This was undertaken during focused group discussions. The indicator measures the household behavior, which includes people behavior, when they cannot access enough food. A standard set of five individual coping behaviors that can be employed by any household, were applied. These included: eating less-preferred foods (with a weight of 1.0), borrowing food/money from friends and relatives (with a weight of 2.0), limiting portions at mealtime (with a weight of 1.0), limiting adult intake (with a weight of 3.0), and reducing the number of meals per day (with a weight of 1.0). Borrowing food or relying on help from friends or relatives has significantly reduced by 71%, from 6.1 to 1.7 (Table 18). Limiting portion size at mealtime reduced by 56%, while restricting consumption by adults for small children to eat reduced by 57%, from 12 to 5.0.

Table 18: Household Coping strategies

Coping strategies	Baseline (Weighted score)	Impact (Weighted score)	% Change
Rely on less preferred and less expensive foods?	5.0	6.3	25
Borrow food, or rely on help from a friend or relative?	6.0	1.7	-71
Limit portion size at mealtimes?	5.0	2.2	-56
Restrict consumption by adults for small children to eat?	12.0	5.2	-57
Reduce number of meals eaten in a day?	5.0	1.7	-67
Total Coping strategy index	33.0	17.1	-48

Generally, the coping strategy index reduced by 48%, from 33 to 17. At both baseline and impact assessment, the households reported a lower food insecurity, which ranges 0-50 on average. However, reliance on less preferred and less expensive food as a coping strategy was adopted by most of the households, scoring an index of 6.3, with a 25% increase from the baseline of 5.0. Limiting portion of what they eat during the months of food insufficiency is being practiced by 70% of the households (93% in Kagan, 65% in West Kasipukl, and 53% in East Kamagak). As part of coping strategy due to reduced food availability, 48% reduce the number of meals they eat per day, especially 51% in East Kamagak

Further analysis indicated that 30% of the households purchase or borrow on credit, while 29% reduce non-food household expenditures. Male headed household limit the portion of food they eat, as reported by 73%, compared to 66% among female headed households, while those who reduce the number of meals eaten per day, were more among the women headed households, 56% compared to 43% among male headed households. FGDs indicated that food prices have increased in the recent past, and most of the households have not harvested given that they recently planted their fields.

3.6.2 Household vulnerabilities

The study noted that education is the major source of household variability as mentioned by 64% of the respondents, with respondents reporting education as a major vulnerability reducing from 62% at baseline to 59% at impact assessment, representing a 3% decrease. Within the wards, 65% in East Kamagak, 63% in Kagan, and 64% in East Kamagak). The proportion of households who mentioned food insecurity as a challenge were 45%, which has reduced by 13% from the baseline of 52%, indicating that more households are becoming more food secure. This could be due to increased food availability y. Further, 48% are vulnerable to increased costs of basic supplies, while 47% are vulnerable to access to health services, which they mentioned is becoming costly.

Reduced employment opportunities and trade opportunities are affecting 13%, which increased by 17% from the baseline of 12%. Generally, those in trade have been facing challenges in terms of the cost of goods and taxation implemented by both national and county governments. 26% were vulnerable to a lack of access to farming land. Male headed households were most vulnerable to education, due to increasing cost of education, as reported by 69% compared to 64% among women headed households. FGD indicated that fee for education at household level is paid for by men. More women, 46%, are vulnerable to food security compared to 43% men headed households, and more women, 50% were vulnerable to health compared to 45% men.

3.6.3 Months of adequate food provision

The study noted that 64% of the respondents' experienced some months in 2023 in which they didn't have enough food to meet their household needs, with in Kagan (82%), followed by East Kamaga (60%), and West Kasipul (52%). Slightly more male headed households (66%) experienced months with inadequate food supply, compared to women headed households (62%). Months of adequate food security revealed that households in the targeted project locations, faced at least 2 months of inadequate food provision (Indicating at least 10 months of food security).

The months of April (62%) and May (58%) had the highest proportion of households facing food insecurity. More women faced food insecurity in April (67%) and in May (63%) than

men headed households (59% in April and 56% in May). Kagan households were facing at least 3 months (9 Months of food security), while East Kamagak faced at least 1 month (11 Months of food security). Inadequate food provision of 3 months was noted among female (2.88) and male (3.03) headed households in Kagan (9 months of food security).

3.7 GENDER ROLES, DECISION MAKING AND VISIONING

SHORT TERM INDICATOR: % of women who are active users of financial services (disaggregated by informal and formal services).

The study noted that the proportion of women who are actively accessing financial services (loans and saving) by informal has increased by 64%, from 21% at baseline to 85% at impact (Table 19). Informal sources include VSLA and Merry go round. The proportion of those access from formal sources such as micro finance and banks (savings and loans) increased by 1%, from 3% at baseline to 4% at impact assessment.

Table 19: Women accessing formal and informal financial services

Indicator	Target	Baseline	Impact	Change
% of women who are active users of financial services by informal	0	21%	85%	64%
% of women who are active users of financial services formal services).	0	3%	4%	1%

The study noted that 72% of the respondents' accessed loans through different sources while 88% saved in the past 12 months. More women headed households, 78% are accessing credit compared to 69% men headed households, with women, 82%, source their loans from informal sources such as VSLA groups, while 19% source from Merry Go round, and 7% source from farmer self-help groups.

Formal sources of credit serve few women, with commercial banks and MFI reaching only 1.4% respectively, while Mobile Money Service Providers, reach 4.3% of women headed households. 81% of women headed households are saving, with slightly more 87%, saved in VSLA compared to 82% of men saving in VSLA. It was noted that 34% women also save in farmer groups.

Access to Financial services: There has been a slight improvement in access to financial services over the past 2 years, within the targeted areas, as mentioned by 73% of the respondents. Those who agreed that access to finance services has slightly increased in West Kamagak (88%), followed by 73% in East Kasipul, and 57% in Kagan. Further analysis indicated that 16% felt that access to financial services has improved much, while 11%, mainly 13% from East Kasipul felt, that it has not seen any improvement. More women, 80% compared to 69% men, agreed that access to finance has slightly improved, while more men (20%) agreed that it has improved much. 11% of men compared to 10% of women agreed that access to finance has not improved.

We have been trained on how to save through groups in VSLAs where members make savings when we meet every Monday and are able to access loans at a lower rate of 1%.

FGD, Kagan

Household Saving culture: In the past 12 months, 88% of the respondents have saved their earnings, with a high proportion from Kagan, represented by 91%, compared to 84%

in East Kamagak and 89% in West Kasipul. More men, 92%, saved in the past 12 months compared to 81% among women. 83% who are saving, saved in VSLA, with 96% in Kagan, compared to 89% in East Kasipul and 64% in West Kamagak. 22% save in other groups, with 25% in West Kasipul, while 11% save through mobile money service providers. Slightly higher number of women headed households save in VSLA as represented by 87% compared to 82% among the male headed households. Women were also seen to be saving in other groups which are not VSLA, as represented by 34% compared to 16% men. Further, it was noted that men save through mobile money, as represented by 13% compared to 8% women headed households.

Financial/Credit Access among project participants: The study noted that 72% of the respondents' accessed loans in the past 12 months, with 88% in Kagan, followed by 80% in West Kasipul and 48% in East Kamagak. More women, 78%, accessed loans compared to 69% of men in the past 12 months. VSLAs were the main source of the loans to 83% of the respondents, with (98%) from Kagan, compared to 87% in West Kasipul and 47% in East Kamagak. More women, 82%, accessed loans from VSLAs compared to 75% among men. Merry go round reached 11% of the respondents, while mobile money services reached 8%, of which 9% male accessed credit compared to 4% among the women headed households.

Household allocation of the borrowed money: The loans accessed by the respondents were mainly used to invest in business and/ or farming activities as reported by 62%, with 82% in East Kamagak, compared to 68% in West Kasipul and 45% in Kagan. 54% of the respondents used the loan on basic services such as health, with 77% in Kagan, compared to 48% in West Kasipul and 22% in East Kamagak. 22% used the loan on buying food, while 21% used it in agribusiness activities, while only 5% used it in improving shelter. Women invest their loan on businesses and or farming activities as mentioned by 56%, compared to 64% male headed households, while more men invested the loan on basic services such as health, as mentioned by 57% respondents. The study further noted that 24% women invested the loan on purchase of food compared to 21% male headed household, while slightly more men, 22% compared to 20% women, invested in agribusiness activities.

OUTCOME INDICATOR: % of women FFBS producers accessed need-based market information

Market information is important in making rational decisions on where to sale products from the farm, or access inputs or products for sale. The study noted that 83% of women are accessing need-based market information. This is a 186% increase from the baseline of 29% and a 185% increase from the project targets (Table 20).

Table 20: Women FFBS producers accessed need-based market information

Outcome Indicator	Project Target	Baseline	Impact	Change
% of women FFBS producers accessed need-based market information	30%	29%	83%	54%

3.7.1 Market participation based on gender

Against the increased proportion of women accessing market information, the study noted a low non-significant participation in sale of product compared to men, with 95% of male

headed households selling their farm produce compared to 83% women headed households. A lower proportion of women headed households, 18%, collectively sold their products, compared to 6% among men headed households, indicating potential for the cooperatives to invest in market information targeting women. The study noted that 67% of the respondents sell their products individually (no collective marketing) targeting local markets, empowering the local traders with market information will help disseminate the same to the producers for decision making. Slightly above 53% of the respondents mentioned that the project has supported them in accessing markets, of which 60% were from women headed households while 49% were from male headed households.

3.7.2 Women Producers with Control over Productive Resources

OUTCOME INDICATOR: % of women producers with control over core set of productive resources (land, inputs, tools)

Control over productive assets/production resource (Main HH income) earner: The study noted that 61% of the men have control over production resources compared to the 60% at baseline, indicating an improvement of 2% increase, while 52% of the women have the same control, compared to the baseline of 32%, indicating a 63% increase (Table 21).

Table 21: Women producers with control over core set of productive resources

Outcome Indicator	Project Target	Baseline	Impact	Change
% of women producers with control over core set of productive resources (land, inputs, tools)	20%	32%	52%	20
% of women producers with control over household budget	15%	50%	74%	24%

Control over HH Budget (Household financial budget): The study noted that 74% of women participate in decision making roles on usage of household finances, compared to the baseline of 50%, indicating a 48% increase, while 52% men led in decision making on the same, compared to a baseline of 34%, indicating a 53% improvement.

OUTCOME INDICATOR: % of women producers participating in decision making at HH level (production, marketing, financial)

Women's participation in decision making regarding agricultural production has improved by 34%, from 46% to 62. Their participation in decision making on household income has improved by 59% from 37% to 59%. Women's participation in decision making regarding product marketing has improved by 40%, from the base of 45% to 63%, while their participation in decision making on household expenditures, has improved by 6%, from 50% to 53% (Table 22).

Table 22: Women producers participating in decision making at HH level

Outcome Indicator	Project Target	Baseline	Impact	Change
% of women who have actively participated in household decision-making in agricultural production	15%	45.6%	62%	16%
% of women who have actively participated in household decision-making in Marketing	15%	45%	63%	18%

% of women who have actively participated in household decision-making in use of household income.	15%	37%	59%	22%
% of women who have actively participated in household decision-making in Household expenditures	15	50%	53%	3%

This evaluation considered women to have been empowered when they participate in household decisions alone or jointly with someone else.

Table 23: Women participation in household Decision making

	East Kamagak	Kagan	West Kasipul	Aggregate
Decisions regarding Major household expenditures	58%	25%	77%	53%
Decisions regarding use of household income who is it that normally takes the decision	58%	47%	72%	59%
Decisions to borrow most of the time	56%	44%	70%	56%
Decisions making power over revenue from crop sale	57%	37%	81%	58%
Decisions regarding Food crop farming, who is it that normally takes the decision?	58%	49%	79%	62%
Decision making power over crop marketing	57%	53%	78%	63%
Input Women have in decisions about the use of income generated by the household?	58%	41%	56%	52%
Input Women have on decisions over household's assets	59%	38%	50%	49%

Decisions regarding Major household expenditures: The analysis observed that when decisions were made regarding major household expenditures, 53% of women indicated that they either make the decision alone or together with their spouses (77% in West Kasipul, 58% in East Kamagak, and 25% in Kagan) (Table 23).

Decisions regarding use of household income who is it that normally takes the decision: When decisions regarding the use of household income, 59% women indicated that they either make the decision alone or together with their spouses or another person within the household (72% in West Kasipul, 58% in East Kamagak, and 47% in Kagan).

Decisions to borrow most of the time, revenue from crops: When decisions to borrow was being made, 56% women either alone or together with their spouses or another person within the household, with 70%, in West Kasipul. When decisions were made concerning revenue from crop sales, 58% of women decided either alone or together with their spouses or another person within the household.

Women have been encouraged to actively engage in their farms and running of households. They have been trained on modern farm technologies and how to save in groups through VSLAs where they can borrow and contribute in running households.

FGD, East Kanagak

Decision on food crop farming and marketing: When decisions were made on food crop farming/agriculture production, 62% of the women decided either alone or together with their spouses or another person within the household (79% in West Kasipul, 58% in East Kamagak, and 49% in Kagan). When decisions were made concerning crop marketing, 63%

of the women either alone or together with their spouses or another person within the household (78% in West Kasipul, 57% in East Kamagak, and 53% in Kagan).

For women headed households, the breaking of norms around sorghum has allowed them to grow sorghum hence an additional food crop and source of income.

FGD, AIMO Women group

3.7.3 Women participation leadership and decision making at formal and informal level

OUTCOME INDICATOR: % of women in leadership positions at group level

OUTCOME INDICATOR: % of women and girls who have actively participated in formal (government-led) and informal (civil society-led, private sector-led) decision-making spaces.

The study observed an 86% increase in proportion of women holding leadership positions in VSLA/FFBS producer groups and cooperatives, from the base of 16% to 30% (Table 24). On the other hand, the proportion of women and girls who have actively participated in formal (government-led) and informal (civil society-led, private sector-led) decision-making spaces, has increased by 98%, from 50% at baseline to 99% at impact assessment.

Table 24: Women and girls who have actively participated in formal and informal decision-making spaces

Outcome Indicator	Project Target	Baseline	Impact	Change
% of women in leadership positions at group level	15%	16%	30%	14%
% of women and girls who have actively participated in formal and informal decision-making spaces.	15%	50%	99%	49%

Women's participation at cooperative level in leadership, decision making and participation in elections has increased, necessitated by training on gender equity. However, cultural belief that men should be above women on leadership is still a barrier, to women inclusion in leadership.

Cooperative officer in Kagan ward

3.7.4 Women in Leadership Positions

The study noted that 43% of the respondents hold leadership positions within the groups (VSLA/FFBS producer groups and the cooperatives), of which 52% were men, while 40% were female.

Table 25: Proportion of Women in leadership

	East Kamagak	Kagan	West Kasipul	Aggregate	Female HH	Male HH
Hold any leadership position	46.2%	38.8%	44.7%	43.3%	40.2%	51.8%
Chairperson/Assistant chair	26.5%	45.0%	30.4%	33.3%	30.4%	20.5%
Secretary/Assistant secretary	24.5%	25.0%	32.6%	27.4%	30.4%	10.8%
Treasurer/Assistant treasure	28.6%	15.0%	17.4%	20.7%	27.2%	3.6%
Organizing secretary	8.2%	10.0%	4.3%	7.4%	3.3%	8.4%
Supervisory/Committee	6.1%	5.0%	8.7%	6.7%	2.2%	8.4%

When compared to the baseline, the proportion of men holding leadership position increased from 9% to 52%, representing 477% increase, while that of women increased from 30% from 16% representing 86% increase over the past 2 years. Most of women, 30%, hold chairperson positions, and secretary positions, while 27% hold treasurer positions. Less than 5% hold organizing secretary (3%) and supervisory committee positions (2%).

OUTCOME INDICATOR, GENDER: Women participation in formal (government-led) and informal (civil society-led, private sector-led) decision-making spaces.

3.7.5 Women and youth participation in voting

The study noted that 99% of the respondents confirmed that women are able to vote in the selection/election of new leaders/board members of the cooperative/group, while 98% confirmed that youth are able to vote in the selection/election of new leaders/board members of the cooperative/group. It was noted that 99% of the respondents agreed that the cooperative or VSLAs/FFBS producer groups to which they belong actively involve women in the decision-making processes (100% in Kagan, 99% in East Kamagak and West Kasipul) (Table 26).

Table 26: Participation in formal and informal decision-making spaces

	East Kamagak	Kagan	West Kasipul	Aggregate
Are women able to vote in the selection/election of new leaders/board members of the cooperative/Group	99.1%	100.0%	99.0%	99.4%
Are Youth able to vote in the selection/election of new leaders/board members of the cooperative/Group	99.1%	99.0%	97.1%	98.4%
Does your cooperative/VSLA/FFBS actively involve women in the decision-making processes	99.1%	100.0%	99.0%	99.4%

The project has put in place systems such as community resource persons to spearhead transformative gender inclusion at household and group levels. Community resource persons were involved in gender dialogue, which was effective in initiating breaking the norms and attitudes. Women group in Aimo indicated that they can now plant sorghum seeds even though they are from households without husbands. In the past 12 months, 72% of the respondents have received training on gender transformation. With 91% in East Kamagak, compared to 63% in Kagan and 62% in West Kasipul.

4.0 PROJECT COHERENCE

4.1 Internal coherence

The project of improving food and nutrition security and economic resilience of vulnerable smallholder farmers, through a Gender transformative Farmer Field and Business School (GTFFBS) approach, is aligned to the recently unveiled CARE International 2030 Vision for Kenya, contributing to reaching the 5.5 million people by 2030. More so, the project has contributed towards the achievement of three ambitions as out lined in the Vision 2030: (1) Ambition 3, that envisions to transform the way CARE work with Kenya’s thriving private sector, embracing enterprise and adopting a strong market-based mindset throughout.

The partnership with KICKSTART, UJUZI Kilimo and Hello tractor was a game changer, providing opportunities for mechanization, improving soil health, and diversification of the

production systems. (2) Ambition 1, which envisions a transformed Kenya's grassroots feminist movement, through powerfully gender transformative approaches within and across our programs. The gender dialogues at group and household levels have been able to break the societal norms, allowing women to participate in economic activities.

Lastly (3) Ambition 4, which envisions a resilient society that will actively adapt to climate dynamics. Access to improved seeds, introduction of irrigation agriculture and market access are some of the interventions that the project helped build resilience to the community. As part of the Food, Water and Nutrition Security (FWNS) pillar, creating dialogue at county level through creation of value chain technical working groups will strengthen grassroots climate advocacy and build resilience within the community.

4.2 External coherence

National Agriculture sector strategy: This Agricultural Sector Transformation and Growth Strategy aims at developing and transforming the agricultural sector in order to achieve what established by Article 43 of the Constitution that states that Every person has the right to be free from hunger, and to have adequate food of acceptable quality". This project is contributing to the 3 anchor pillars: (i) increase small-scale farmer, pastoralist and fisher-folk incomes: The project has invested in capacity development and exposure of the farmers to climate resilient technologies through the demonstration plots. Adoption of these practices has increased, which has led to annual income by 46%. (ii) increase agricultural output and value add: Through the project's introduction of quality improved sorghum and ground nut seeds and capacity development, yields have improved (iii) increase household food resilience. The project has therefore not only contributed to the country development but to the global goal of leaving no one behind, as embedded within the sustainable development goal.

External coherence: Homabay county agriculture strategy: Homabay county integrated development plan (CIDP) 2023-27 envisions a healthy and Wealthy County Living in Harmony with the Environment. The Agriculture Rural and Urban Development (ARUD) Sector has prioritized agriculture extension, breed improvement, regulated and quality control of inputs and services in the sector, with the overall mission of improving livelihoods of the people of Homabay County through the promotion of sustainable, competitive, and innovative agriculture, livestock development, blue economy, fisheries, research development, and sustainable land management. By working closely with the county government through the ward and subcounty staff, the project was aligned to the vision and mission of the county government of Homabay.

External coherence: Sall Family Foundation strategy: Sall Family Foundation supports transformative change at the nexus of the environment, public health, and community resiliency. They recognize that good health and healthcare is essential to improving all outcomes in a person's life and that in order to help communities control their own fate, they need support to sustainably improve their incomes, security, nutrition and surrounding environments, with the communities at the center. Through this project, the Sall Family Foundation contributed to building resilience to climate change, women's empowerment; and technology innovation. Investing in food production, through application of viable technologies has enabled households to improve sorghum, vegetable, and ground nut yields, availing nutritious food to the household, and increased disposable income for on-

farm investment, food, health, and child education. The Sall Family Foundation has therefore empowered the community to become resilient.

5.0 PROJECT RELEVANCE

This section discusses the relevance of the activities undertaken in the project improve food and nutrition security and economic resilience for vulnerable scale farmers through a gender transformative farmers' fields and business school approach.

Participants need assessment: The baseline survey undertaken identified key challenges that the households in these communities were facing. Most of the households lacked resilience to adapt to climate change, their income levels were low due to poor yields, they had poor skills, and lacked exposure to new technologies with potential to increase yields. There was therefore a need to establish centers of excellence through which members could coalesce, share experiences, and get exposed to new technologies. The introduction of the FFBS approach was instrumental and relevant as centers for technology diffusion.

Need assessment was conducted to identify the needs of community members and through project interventions those needs and priorities were addressed.

Cooperative office, Kagan Ward

Relevant value chains: The project focused on sorghum and ground nuts, which were selected in a participatory manner, in consultation with the Ministry of Agriculture staff. The two value chains were also relevant and key priority crops to the county of Homabay, as outlined in the current 2023-27 CIDP. They were selected because they were widely grown, doing well in the local agroecology and are also widely consumed by the local community. Apart from their enterprise potential, the selected crops also boost the food security and nutrition of the local population. The crops were therefore relevant to the community, as a key pathway to moving them out of poverty.

Transformative gender approaches: Women's participation at farm and group levels were low, due to local norms and cultures. This was impeding women's empowerment and removing them through community dialogue was relevant. For example, traditions associated with planting didn't allow widows to plant sorghum against its economic potential. Women were not prominent in decision making at both household and group levels. Interventions that invested in gender transformative approaches, which were informed by Gender Power Analysis Assessment, were therefore relevant to the women within this community, to enable women's participation in decision making at both household, group and cooperative levels.

Access to finance: Access to finance was a challenge mainly among women within the community. Financial services were inaccessible, as the interest rates for loans from the commercial banks were out of reach to many women. Most of the commercial banks were located far from the village, making women walk for long distances, adding pressure to the limited time they already have on their farm. The establishment of the VSLA among the 62 groups was therefore relevant as part of internal fund mobilization, enabling women to access cheap loans, within the village.

Technology innovation: The community members were using poor tools in land preparation making farm work take longer against the weather changes. Vegetable

production could only happen during the rainy seasons as households lack capacity to provide supplementary irrigation.

Households are now growing more vegetable by use of irrigation, therefore there is availability for sale throughout the year. Households are now growing diverse varieties of vegetable unlike before the project, when we only grew kales that have a short harvesting period.

FGD, AIMO Women group

Sorghums and ground nut yields had started going down due to lack of judicious use of organic fertilizer without the knowledge of the soils. Soil health was therefore becoming a challenge. The partnership with Hello Tractor mechanizes land preparation, inclusion of Ujuzi Kilimo in introduction of rapid soil testing technology, and introduction of KICKSTART pumps for pumping water for irrigation were relevant to these community, as part of building resilience to climate change.

Extension model: The project adopted a unique extension model, which included the Ministry of Agriculture extension staff and Community Resource Persons. This was to address changes associated with technology transfer, which is impeded by fewer number of extension staff available to a high number of farming community members. FFBS facilitated capacity building of the extension staff to farmers through its curriculum model. After trainings, the CRPs monitored the farm level implementation of the trainings. Women were finding it easy to reach the training sites as the FFBS approach was delivered near their homes. This approach was therefore relevant to the community as part of attitude change and adoption of best practices.

The components of the curriculum included Agri-preneurship, financial literacy, Nutrition and Gender equality. This curriculum improved the quality and content of what we were initially training farmers on.

Duncan Omondi Ooko, MOA, Kagan

6.0 PROJECT SUSTAINABILITY

Extension staff participation in the project: The Scaling Up Farmers' Field and Business Schools in Kenya to Address Food, Nutrition Security and Economic Empowerment for Vulnerable Households Project in Homabay County has established infrastructure and systems for continuation of technical capacity building and retention in future. The delivery of trainings through the extension staff, building their capacity on policy objectives and goals, sustainable agricultural practices, research and innovation, extension services, and infrastructure development based on the FFBS curriculum will ensure continuity post project. The greatest challenge will be on facilitation, given that the project was facilitating their travel and subsistence. Given the cash challenges at the counties, there is potential for discontinued delivery of such services to the community members without a project support.

Involvement of Community Resource Persons: The recruitment, training, and deployment of the CRPs has developed a pool of local service providers within the community to deliver trainings on sustainable agriculture and mentorship of the VSLAs. They have been drawn from the community and therefore, we don't envision high movement out of the village. They will be point of contact especially among the new farmers

on key issues. There is a need for the CRPs to come together and form a local service provider institution, that can offer valued extension services pegged at a price. As an association or a company, they will have a voice and support each other in provision of their services. Examples exist of successful CRPs organizing themselves to provide costed services, such as one promoted by Ripple Effect in Homabay.

Strengthening CASSCOM as a platform for policy discussions: Before the project started, institutions that would have brought the stakeholders together at the county level were not active. The project in partnership with other organizations such as Practical Action, has been able to jumpstart and strengthened CASCOMM operations. So far, the project has supported two engagement meetings. A Homabay ground nut technical working group has been created within the CASCOMM, chaired by JAM representative, with membership from the county (Ministry of Agriculture, Ministry of Cooperatives, and Director of Irrigation, including other stakeholders. Through such technical working groups, policies to unlock value chain development will be successful. Coordination of programs within the county will be sustained post the project.

Establishment of farmer institutions: The project started with the establishment of the VSLAs, which have been successful in mobilizing internal funds at household levels, and community members now have a source of credit, which is cheaper than formal options. The introduction of the FFBS approach has created an opportunity as centers for technology diffusion through demonstrations and capacity development. These sites will remain within the community as a learning point. The establishment of cooperatives to help in marketing farm produce, with registration of members affiliated to the FFBS/VSLA will sustain market access. So far, the cooperatives have signed a supply contract for 197 tons of ground nuts to Delish and Nutri, a private peanut processing company. The cooperatives have established income streams in (soil testing, tractor booking and hiring of Kickstart pumps). The establishment of these farm-owned institutions will always bring the community together now and in future for collective action. The project closure at this stage when most of the cooperative are just forming, with nascent market linkages, immature leadership, has the potential for relapse. We recommend a project extension, focusing on market systems development.

We have been involved in the formation of cooperatives which will ensure farmers continue investing in the value chains introduced by the project to ensure they are able to sell and earn from that.

KII, Cooperative officer

Creation of jobs along the value chains: Through crowding in of different partners such as UJUZI Kilimo, Kickstart and Hello Tractors, youth have a future. Currently, new jobs are being created at the cooperatives for product collection, packaging, and clerical work. Through Hello Tractors, tractor booking agents have offered job opportunities to the community. Future purchase of tractors by the cooperatives will create more jobs among the operators and support staff. The introduction of Kickstart money maker and Hip pumps, which can be hired, has created opportunities for the community to produce vegetables during the off season therefore creating sustainable income across the year. The soil testing through UjuziKilimo has created jobs for youths in soil sampling and sampling, earning commission and coordinating at the cooperative. Creation of jobs for the youths have

potential to reduce social vices within the community, building a responsible future youths. Scaling up these opportunities will ensure more youth getting involved.

We have started another project in sorghum with Cereal Growers Association (CGA) in all locations in our area and SHEP BIZ who are promoting groundnuts in the whole County. We are replicating the lessons and knowledge we have gained from this project.

Pamela Otina, MOA, OYUGIS

Sustainable Partnerships: The project has been successful in crowding different partners to achieve its goal. Its partnership with CARE USA brought in USD \$106,000, which has enabled Kickstart, Hello Tractor, and Ujuzikilimo to penetrate the locations. The funds have been used for sensitization, capacity development of booking staff, soil testing staff, and monitoring visits. Through partnership with the county government of Homabay, the county leveraged a total of KES 103,989.37 (USD 806.12), in-kind through staff-time who were offering training and monitoring of field demonstrations. Partnership with Hello Tractors has promoted mechanization, enabling small holder farmers to stop using rudimentary equipment for land preparation. The introduction of Kickstart pump has enabled expansion in vegetable production area and sustained household income, while Ujuzikilimo has been able to offer soil testing services, providing information on rapid soil fertility determination. After the project, these partners will continue with their operations.

Gender transformation: The project invested in gender transformative approaches, which were informed by Gender Power Analysis Assessment, with the overall objective of identifying negative social and gender norms that deter women’s participation in food production and market systems. This study was instrumental in designing gender dialogue, which was delivered by the community resource persons (CRP) at group level. Women have been empowered, are able to participate in elections at the group level, and their voices are being heard. There has been significant improvement in proportion of women making decisions in the use of household incomes, access to credit, and agricultural production. The project has empowered the women for the future change within the targeted community.

7.0 PROJECT MANAGEMENT EFFICIENCY

Catalytic leverage funding: The Scaling Up Farmers’ Field and Business Schools in Kenya to Address Food, Nutrition Security and Economic Empowerment for Vulnerable Households Project in Homabay County allocated budget was USD \$ 200,000, targeting to reach 1,200 project participants in the three wards (Table 27). The project was able to mobilize funding from other partners such as CARE USA, who leveraged the project as indicated below:

Table 27: Leverage of funds from different sources

Leverage fund source	Need for the investment	(USD)
County government	Time spent in extension	2,484
Farmers	Tractors hire services	20,267
Three (3) Cooperatives	Part payment by 3 cooperatives for tractor acquisition	3,523
Farmers	Purchase of 1.3 Tons of ground nuts seed	1,500
CARE US	Innovation fund: Soil testing, mechanization and irrigation	106,000
Sall Family foundation	Project activity funding	200,000

Total		333,774
Leverage		133,774
% Leverage		67%

The per-capita budget allocation per participant was projected to be USD \$ 166.7, which couldn't have been enough with additional investments. For the project to have been implemented without any leverage, a total of USD \$ 332,135 was required for 2 years. The leverage, which contributed to 40% of the total was well thought of and an innovative way of improving project implementation efficiency.

Project staffing, monitoring: The project was implemented in partnership with JAM, a local organization with presence in the region. The organization had a total of three full-time staff, while other staff such as the CEO, Monitoring and evaluation, and finance were charging fix time equivalent based on their time investment. CARE also had full-time staff, the project officer based in the field, while the project manager charged 70% of his time on this project. With only four (4) full-time staff, and with a total of 1,200 participants distributed across three (3) sparsely distributed wards, it could have been expensive to manage the project. In increasing the efficiency in project implementation, the project partnered with the county government staff at county level, who are only being paid KES 1,200 (USD 9.3) per visit (each extension staff was to visit 2 groups per week, translating to 10 groups per month), translating to KES 12,000 (USD 93) per month (The county staff are in the government payroll).

This is far below the living wage in Kenya of KES 16,500 (USD 128) per month, which could have been paid if the project would have employed a new staff. The engagement of the community resource persons (CRP) facilitated the mobilization, sensitization and monitoring of the project activities, which could have required project staff time investment. These investments have ensured value for money in project implementation.

Project Benefit cost ratio: The project strengthened the capacity of the participants, with vies to improve the sorghum, ground nuts and Africa leafy vegetable, to increase productivity and competitiveness. The expected benefit cost ratio of the action in a PPP model was 4.5. Meaning that for every dollar invested, farmers are generating USD \$4.5. Therefore, after 2 years, the beneficiaries are supposed to have generated USD \$ 900,247, which is 4.5 times the initial budget (Table 28).

Table 28: Project beneficiary outreach

Farmers Field and Business School (FFBS) Project: Outreach /beneficiaries												
Value chain	Target Wards in Homabay	No. of beneficiaries	Implementation partners					Estimated coverage - Area Total Area (acre)	Estimated potential impact (Per household incremental annual returns in USD)	Target group, beneficiaries - other classifi.		
			Civil society, Public Sector			Private sector				Small holders	Youth	Women (80%)
			JAM	KIC Kstart	HELLO tractor	UJUZI Kilimo	Farmers co-operative and VSLA					
Ground nuts	East Kamagak, West Kasipul and Kagan	1,184	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	592	442	1184	118.00	947
Sorghum	East Kamagak, West Kasipul and Kagan	1,184	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2,250	683	1184	118.00	947
Africa Leafy vegetables	East Kamagak, West Kasipul and Kagan	1,184	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	118	16	1184	118.40	947
Total		1,184						2,960	380	1184	118	947

- Every household will be involved in at least 2 value chains to ensure added /incremental incomes are able to improve their wealth, nutrition and resilience.
- Expected benefit cost ratio of proposed PPP model is 4.5, which is a recurring annual benefit in the hands of farmers post two years of interventions. The benefit for private sector companies involved is conservatively estimated (based on expansion in the volume of commodity trade) to be around 900 thousand USD \$.

Benefit cost ration calculation notes:

- **Ground nuts:** Annual Income: 1 acre x 192Kgs x 1.15/Kg x 2 Season = USD \$ 442/year
- **Sorghum:** Annual Income: 1.5-acre x 650Kg x 0.35/kg x 2 Seasons = USD \$ 683/year
- **Africa leafy vegetable:** Annual Income: 0.25-acre x 576Kg x 0.038/kg x 3 season/yr.,
- **Project returns per year:** Total income per farmer (380) for 2 years, = USD \$ 760 multiply with 1,184 project participants = USD \$ 900,247.
- **Project investment:** USD \$ 200,000.
- **Benefit cost ration:** (USD \$ 900,245/200,000) = 4.5

Joint Project planning, monitoring and cross learning: the project has put up systems for project activity monitoring and planning systems. On a quarterly basis, the project staff, the subcounty staff from Rangwe, Ranchuonyo, JAM staff would meet to review the project and agree on the workplan. Through this, project implementation was tracked, solving challenges and agreeing on the next quarter workplan and budget. Such meetings would happen at the field level or virtually, which was an efficient way of ensuring the project is on track. The project also has put in place joint monitoring visits, with participation of key stakeholders and partners, who include CARE, JAM, Hello Tractor, UJUZI Kilimo and Kickstart staff. Also included were county government staff. This was a 2-day activity, with day 1 for a field visit and day 2 a debrief and panel discussions. Through this initiative, partners were able to identify challenges and propose solutions, which was an efficient way of encouraging participatory project monitoring.

To promote learning within the cooperatives, the project invested in exchange visits. The cooperatives, Kagan farmers’ Cooperative Society Limited, Sino-East Kamagak Cooperative Society and West Kamagak Cooperative Society Limited were all taken to Siaya seed Cooperative Society for learning and exchange program. The vegetable producers were also taken to a Horticulture group, within the OLUCH Kimira irrigation scheme as part of an exchange visit. These activities were effective since it changed the perception of members towards their management and operations of cooperative.

8.0 PROJECT IMPACT

Improved Household income: The baseline study done before the project revealed that the household income was low, at KES 25,207 (USD 195.4), and couldn't support household expenditures. This was contributed by poor yields, as a result of poor technical capacity to manage the crops, poor access to market, which was demoralizing the producers, poor access to improved climate resilient crop seeds and finance. The introduction of the FFBS approach, which became centers for technology diffusions were important in skill development by the Ministry of Agriculture, JAM, CRPs, and CARE staff and exposure to new production technologies.

Improvement in household income is a result of trainings on sustainable agriculture practices supported by the project, access to market for farm produce through cooperatives and linkages to buyers such as Delish Nutri-care for groundnuts and East Africa Breweries for sorghum, access to financial services from Village Savings and Loan Associations, microfinance institutions, and cooperatives

FGD, GONGO Cockrel, Kagan

Exposure to new technologies at the demonstration sites has led to increased adoption of 28%, while yields of sorghum and groundnuts have improved by an average of 77%, due to better skills, better seeds, and improved access to finance. Sale of agriculture has now become a major source of income to 91% of the respondent, increasing by 60% from the baseline of 57%. Incomes at household level increased by 46%, improving disposable income that has enabled households to invest in education, health and food. Household vulnerability has reduced by 3%, while 21% of the households are now satisfied with their incomes.

Improved household nutrition: Low crop productivity and crop diversity were affecting food security and dietary diversity at household level. The project invested in access to improved seeds and better production systems that led to improved yields. The promotion of kitchen gardens provided vegetables for improved nutrition at household level. Consumption of vegetables has increased by 4%, from 96% to 100%, resulting from increased vegetable acreage as a result of off-season production as farmers have adopted supplementary irrigation systems supported by water pumps from KICKSTART. Members of the households have received training in vegetable production and preparation, as part of attitude change.

Access to food at household level has improved due to increased food production as result of sustainable agricultural practices supported by the project and ability of households to easily access funds from VSLA to support their dietary needs.

FGD Rangwe

These interventions have led to 92% of the households now sourcing food for household consumption from their own farms. Household dietary diversification has improved, with 57% eating more than 5 food types based on a 24-hour recall. These changes have been catalyzed by increased disposable incomes, improved food production systems at household level and the adoption of irrigation technologies that has enabled households to produce vegetables during off season.

Improved confidence level among women: The women within the selected communities faced a number of challenges, which was negatively affecting their participation along the production systems and decision making at both household and group level, due to social norms, lack of confidence, and negative stereotypes.

Women have been trained on leadership organized by CARE and other partners, encouraging them to take up leadership positions in cooperatives. Negative perception towards joining cooperative leadership is a major barrier we still face in bringing these groups on board.

KII, KAGAN

Kinda women group in Kagan was unable to participate in sorghum production due to traditions around planting. The group consists of widows only and no member is growing sorghum, this is because of the norms and traditional practices associated with planting and harvesting sorghum. Though the Kenyan constitution emphasizes one third of the leadership positions to be reserved for women, most women still shy away from such positions especially when men are vying for them. The project invested in gender transformative approaches, delivered through dialogues by the CRPs at household and group levels, which invested in changing attitude, behavior and norms.

Women's participation in decision making at household level has improved as result of trainings on gender mainstreaming this has enabled women to take over leadership positions.

FGD, Rangwe

The establishment of VSLAs enabled women to access finance to invest in small agricultural and non-agricultural related enterprises, as part of income generation. The promotion of kitchen gardens has enabled women generate incomes, while at the same time access nutrition foods for the family. The introduction of FFBS closer to the community has enabled women to attend trainings, reducing the distance to training locations. We have seen improved proportion of women in leadership positions at the cooperatives and groups by 86%, those who are able to make decisions at cooperatives and group level has increased by 98%. Women are now empowered, building their own social capital and contributed to the family and the community livelihood.

Resilience to climate change: The baseline survey indicated that the Coping Strategy index, which measures food insecurity, contributed by climate variability and economic shocks, has reduced by 48%. This indicates that most households are becoming resilient to climate variability and economic shocks due to project interventions. Interventions around improving soil health require knowledge on the soil characteristics, to make informed decisions, which was lacking before this project.

We have also been trained on modern farm technologies which has improved our output and through linkages to markets by the project, we have ready markets for our produce, hence earning income through agriculture and this has improved our income, improving our resilience to climate change

FGD, Ong'amo village.

Through partnership with UJUZI Kilimo, farmers are now sampling and rapidly testing their soils, providing information for soil health improvement (Soil Ph, soil amendments and integrated soil fertility management options). Soil information, coupled with adoption of integrated soil fertility management practices, has led to improved crop productivity and therefore incomes by 45%.

Community members have been able to mechanize their farming practices, especially during land preparation, thanks to CARE- Hello tractor partnerships. These have enabled households to expand land for crop production, plant early enabling crops to utilize the limited rainfed moisture. The introduction of KICKSTART water pumps has enabled vegetable production during the off season, ensuring income streams post rainfed crops season, making households resilient to economic shocks. Access to drought tolerant, early maturing crop seeds, with high yield potential, coupled with training on best agronomic practices has enabled the community to be resilient to climate change.

Yields for sorghum, groundnuts and ALV has tremendously improved after the project compared to before because, we have improved seed variety we have been introduced to by the project which has ensured we produce more.

FGD, ON'GAMO

8.0 CONCLUSIONS AND RECOMMENDATIONS

The key conclusions and recommendations are based on the evaluation questions, as outlined in the terms of reference and agreed upon at the inception meeting.

How well did the project met its purpose/objectives, including contribution to sustainability including greater economic empowerment, improved resilience among the beneficiaries?

Participatory and inclusive approaches: The project undertook a participatory and inclusive approach to its implementation, by engaging with the relevant government departments, private sector, and inclusion of Community Resources Persons and the community, generally, which has enabled them to achieve the project goals.

Rolling out sustainable extension approaches: The project has put in place a sustainable extension service delivery, through the government extension, based on the FFBS curriculum, driven by the extension staff in liaison with the CRPs. The CRP approach has created a base of elite that will be consulted in future on VSLAs, gender approaches and sustainable agricultural production. The CRPs have also been instrumental as tractor booking and soil sampling and testers, through which they get commission from the cooperatives. The exchange visit approaches by the cooperatives to Siaya seed and farmers to the Oluch Kimira Irrigation scheme with vegetable farmers, has promoted cross learnings, which will forever stay with the participants.

Internal fund mobilization through VSLAs: The promotion of the VSLAs has provided financial access to the members, especially women, who are now able to access low-cost loans that has enabled them to invest in agricultural production and Agri-based enterprises at farm level. Women are now able to make key decisions on household budgets and access to loan.

Potential innovations for scaling up: The inclusion of private sector partners such as UJUZI Kilimo, Hello Tractor, and Kickstart was an innovative initiative, that facilitated adoption of new technologies and mechanization at household level. Members can prepare their land on time, plant early, and plough more land for production, due to increased efficiency. As a result of the introduction of irrigation through partnership with KICKSTART, vegetable production has expanded due to access to supplementary irrigation equipment.

Gender transformation: approaches: The gender transformation approach was a unique initiative that promoted gender dialogues at household, group and cooperative levels and has been effective in breaking the barriers and norms that were impeding women's participation in economic activities, especially in the sorghum value chain. Women's voices are now being heard; they are participating in elections and are making decisions regarding agriculture production and income generated at household level.

Project management approach: The partnership with JAM, who is locally procured and understood the local context catalyzed the achievement of the project goals. CARE and JAM had also put in place systems that enabled projects to be managed effectively and efficiently, which included joint monitoring sessions to review milestones and plans. Working through JAM, and inclusion of the CRPs and extension delivery by the extension staff ensured value for money, through leveraging resources.

What lessons were learnt that can inform future projects: technical approach used, learnings and challenges, including reflection on institutional and policy engagement in the context of the project and how these learnings will be used

Sequencing of activities and their introduction methodology and approach: While the introduction of different approaches and innovations were important, the evaluation noted that the additionalities were not informed by learnings, cost benefit, and gap analysis. Different components such as tractor hire, soil testing, and irrigation access were superimposed into the project, which required Sequencing. For example, the irrigation kits, tractor hire, and soil testing would have come when the cooperatives have been established, registered, and training on governance and financial management undertaken.

More time needed for policy engagements: The project initiative to activate the CASSCOM was relevant. Against this the 2022 elections led to transition in leadership at the county, which delayed the planned activities. The two years of this project were therefore not enough for meaningful engagement at this level. We need to consider these dynamics at county level during programming.

Some norms are culture, and barriers take time or are difficult to break: The study noted that there are certain norms and cultures that take time to break to achieve a transformed gender participation. For example, there are rituals associated with sorghum seed planting, that affect women headed households. We should therefore consider these during project designs especially value chain selection, majorly targeting women headed households.

Sustainability at cooperative level: The project has introduced a number of income-generating activities that will be managed at the cooperative level. These include irrigation pumps, tractor hire services, product aggregation, and soil testing, which require financing.

The stage at which the project is closing is leaving the cooperatives with low capacity for resource mobilization. Most of the cooperatives are still at a nascent stage with low borrowing power. There is a need for the county government to link these cooperatives to existing programs from which they can access finances and expose them to impact investment fund options. The role of the department of cooperatives is still needed in building the capacity on governance and financial literacy among these cooperatives.

Commercializing CRP services: Though the sustainability of the CRPs was based on commission they get from tractor services and soil testing, there are soft skill delivery such as VSLA and gender dialogue sessions which the CRP have been trained on. The CRP need to establish a platform, through which they can provide the services in a coordinated way, attracting remunerations for the services provided.

What has happened because of CARE International funding that would not have otherwise happened:

Farmer Field and Business School approach (FFBS): The introduction of the FFBS approach, building on the VSLA groups was a game changer, never piloted within the locations before. The approach combined participatory on-farm research through the demonstrations, capacity development through extension staff, gender transformative action and nutrition promoted by the Community Resource persons, while at the same time building a foundation for sustainability through access to finance among the participants, to support scaling up the technologies post the demonstrations. This approach was inclusive, impactful as it influenced income changes at household level. This initiative acted as a trigger for livelihood enhancement among the 1,100 participants reached. We believe that without this initiative, the project couldn't have achieved its mandate.

Innovative innovations: The introduction of soil sampling and testing, irrigation and mechanization through partnership with private sector has been able to change community perception, that understanding the soil's health has potential for change in production. With mechanizations, we can plant early and increase production and with irrigation, they can gain income across the year. The interventions around innovations, which included sensitization, training and demonstrations have been able to create a system change within the community. Exposure to these innovations was very important, as part of buy in at cooperative, group, and household level.

Role of CRPs on gender transformation: Gender transformation has a potential challenge to roll out, especially in the context of a community, with multiple norms and cultural guidelines that have the potential to impact women's participation in economic activities. The recruitment, training and deployment of the community resource persons (CRPs), who were selected from the local community members was important, as they understand the norms, culture, and speak the same language, they are known in the community and are also affected by the same. CRP drove the gender dialogues, and we believe that the changes which have been reported around gender transformative approaches were based on this approach.

How CARE International applied practical programming tools to mainstream gender, social inclusion

The project undertook a Gender Power Analysis Assessment (GPA), with the overall objective of identifying negative social and gender norms that deter women's participation

in food production and market systems. This tool helped in the development of the intervention matrix which was able to change the knowledge, attitude, and practices among the community members, from the household to the groups, and cooperatives.

The participatory approach, which was driven by the CRPs, supported by the gender lead at CARE, was inclusive and all participants felt included in the process. The gender dialogue meetings, which were participatory in nature, were able to be bought in by all participants at all levels of the community.

The monitoring and evaluation processes that the project had put in place, including joint planning among the stakeholders and field visits was instrumental in identification of gender challenges and learnings which informed the project implementation. The focus on gender transformation was therefore kept on track.

Capture some of the less tangible/ measurable sides of the project impact such as how barriers have been broken down at household and community level, how mindsets have changed both for women and men towards improved resilience and livelihoods:

Seeing is believing approach: The project targeted a community with mixed education levels. The demonstrations embedded within FFBS were important in changing the attitude towards the production and management of the selected crops. This has been noted on the proportion of participants adopting new technologies, which couldn't have happened just by normal training.

Best agricultural practices (GAP) training: The incorporation of the extension staff from the Ministry of Agriculture was important as part of delivery of the training, based on the FFBS curriculum. Producers are usually confident when they get technical information from specialists such as the extension staff. This created interest and catalyzed the participation. The use of CRPs who were non-technical, and whose role was to monitor application of these practices at household levels helped keep the producer on their toes, always being reminded of what they need to do, and being responsible.

Gender training approaches: We have mentioned that some norms and cultures take time to change and need a different approach to break them. The promotion of sorghum in this project was expected to face some challenges with women headed households. The commercialization of the product and linkage to Kenya Breweries Limited (KBL), meant that the product will not be consumed at household level, where the norms prohibit in such a circumstance. This was therefore one way through which the barriers were broken within the women headed households, enabling them to participate in sorghum production.

Sustainable market linkages: The project invested in market linkages through bringing on board Delish and Nutri, and to some extent, KBL, whose contractual engagement was still under discussion at the time for evaluation. Some cooperatives have been able to sell 192 tons of ground nuts, to Delish and Nutri, which has already stimulated interest among the producers, to invest in production. The market has therefore created a pull for ground nuts products to the market, which has changed the perception of the producers to the market, since the previous belief was that markets are asymmetrical and full of inconsistencies, especially with demand and pricing.

ANNEX 1: Key Performance Indicators Summary

Category	Category	Indicator	Target	Baseline	Achieved	Change against Baseline
Impact	Income	% increase in net income of smallholder farmers (KES/annum)	0	25,207	36,697	45.6
Impact	Productivity	% increase in yield for smallholder farmers - Ground nuts (Kg/acre)	30%	90	206	128.6
		% increase in yield for smallholder farmers -Sorghum (Kg/acre)	30%	225	282	25.2
Impact	Resilience	% change in livelihood resilience for FFBS Households (This computes the average percentage of households adopting negative coping strategies when they cannot access enough food)	20%	33%	17%	-16%
Impact	Nutrition	% increase in HH dietary diversity	20%	55%	57.20%	2%
Impact	Gender	% increase in women in leadership positions	30%	16%	40.20%	24%
Outcomes	Income	Total agricultural production sold (disaggregated by market including local markets and certification)	30%	00	56.90%	57%
Outcomes	Income	% of smallholder farmers who reduced farm produce waste/ loss	20%	49%	100%	51%
Outcomes	Productivity	% of targeted farmers and households who adopted gender transformative and sustainable agricultural practices (proportion of targeted farmers and households who practices at least three improved practices/technologies)	70%	59%	75.60%	17%
Outcomes	Productivity	% producers adopting improved post-harvest management practices	70%	97%	71%	26%
Outcomes	Nutrition	% of households consuming vegetables from household production	20%	96%	100%	4%
Outcomes	Gender Equality	% of women FFBS producers accessed need-based market information	30%	29%	83%	54%
Outcomes	Gender Equality	% of women producers with control over core set of productive resources (land, inputs, tools)	20%	32%	52%	20%
Outcomes	Gender Equality	% of women producers with control over core set of productive resources (Budget)	20%	50%	74%	24%

Outcomes	Gender Equality	[14 WVL] # and % of women and girls who have actively participated in formal (government-led) and informal (civil society-led, private sector-led) decision-making spaces.	15%	50%	99%	49%
Outcomes	Gender Equality	% women with increased capacity to perform economic activity (a) agricultural production	30%	45.60%	62%	16%
Outcomes	Gender Equality	% women with increased capacity to perform economic activity (b) use of household income.	30%	36%	59%	23%
Output		# of direct participants reached	1,200	00	1,184	-1.3%
Output		# of Indirect participants reached	4,680	00	6,275	34.1
Output		# of counties where FFBS implemented	1	00	1	0.0
Output		# of new FFBS established by type	60	00	62	3.3
Output		# of producers trained through FFBS	1200	00	1307	8.9
Output		# of County Govts adopting FFBS as their extension model	1	00	1	1
Output		# of partnership formed with County/ national Govts/Pvt sector/NGOs	0	00	3	3
Output		# of PS actors and multilateral agencies adopting FFBS	0	0	1	1
Output		# of policy analysis conducted	0	0	1	1
Output		# of joint visits organized to FFBS implementation sites with key actors	0	0	3	3
Output		# of meetings held with senior functionaries and policy makers	0	0	2	2
Output		# of presentations made in conferences/ events organised with media	0	0	3	3
Output		Total value of leveraged government funding (USD/ Kshs) (financial and non-financial)	0	0	KES 132,135 (USD 1,024.3)	KES 132,135 (USD 1024.3)
Short term		% of women who are active users of financial services by informal	0	21%	85%	64%
Short term		% of women who are active users of financial services formal services).	0	3%	4%	1%
Outcome		Farm produce waste/losses reduced by 20%.	20%	43%	16%	-27%

Annex 2: Key informant interviews

No.	Category	Name of Group	Category/Position	Name	Phone No.	Sub County	Ward/Location
1	KII	Ministry of Agriculture	Ward Agricultural Officer	Vivian Oyugi	0717616390	East Kamagak	East Kamagak Ward
2	KII	National Govt	Chief	Dismas Opinya	0712537968	East Kamagak	East Kamagak Location
3	KII	Ministry of Agriculture	Sub County Agriculture O	Pamela Otina	0740903120	Rachuonyo South Sub County	
4	KII	SINO-EAST KAMAGAK FARMERS	CHAIRPERSON	ENOS OWINO OUTA	0722491415	East Kamagak	
5	KII	SINO-EAST KAMAGAK FARMERS	SECRETARY	DINA OGWALO	0704294716	East Kamagak	
6	KII	SINO-EAST KAMAGAK FARMERS CO-OP	TREASURER	MARY ONG'OU	0714256499	East Kamagak	
7	KII	Ministry of Agriculture	Ward Agricultural Officer	Dancan O. Ooko	0756732652	Kagan	Kagan Ward
8	KII	National Govt	Assistant Chief	Esther	0720638004	Kagan	Gongo Sub location- Kagan
9	KII	Department of Co-operatives	Sub County Co-operative	Brightone Okal	0700031999	Kagan - Transferred to Suba North	Rangwe
10	KII	KAGAN FARMERS CO-OP	SECRETARY	WILBERFORCE OGIRA	0720318045	Kagan	
11	KII	Ministry of Agriculture	Sub County Agriculture O	Pamela Otina	0740903120	Rachuonyo South Sub County	
12	KII	Ministry of Agriculture	Ward Agricultural Officer	Janet Oswago	0720987596	West Kasipul	West Kasipul Ward
13	KII	National Govt	Chief	Joseph Mboga	0724736081	West Kasipul	South Koderia location.
14	KII	WEST KASIPUL FARMERS CO-OP	CHAIRPERSON	DAVID CHONI ABACH	0768851311	West Kasipul	
15	KII	WEST KASIPUL FARMERS CO-OP	SECRETARY	SECK OGUTU	0716410750	West Kasipul	
16	KII	WEST KASIPUL FARMERS CO-OP	TREASURER	HELLEN RWAKA	0729240055	West Kasipul	
17	KII	Ministry of Agriculture	Chief Officer	0720296698	Homabay Town	Wycliffe	Homabay County Hqs
18	KII	Ministry of Agriculture	Crops Officer	0101213605	Homabay Town	Wycliffe	Homabay County Hqs
19	KII	JAM	Project Officer	0721756151	JAM	Wycliffe	JAM Offices - Sikri centre
20	KII	CARE	Project Officer	0722908216	Oyugis	David	Oyugis - Homabay

Annex 3: Focused groups discussions

No.	Category	Name of Group	Category	Name	Phone No.	Sub County	Ward/Location
1	FGD	BONGU MILIMANI GROUP	Mixed group	Kenneth Ogweno	0714587850	Rachuonyo South	East Kamagak
2	FGD	Bidii Women Group	Widows group	MARY A. OYUGI	0704009916	Rachuonyo South	East Kamagak
3	FGD	Ling'ni kimiya	Women only	Peres Odiyo	0707671737	Rachuonyo South	East Kamagak
4	FGD	Gongo cockerels SHG	Mixed group	Wilberforce Ogira	0720318045	Rangwe	Kagan
5	FGD	Kakoboko 'D'	Widows group	Martha Nyakado	0729375982	Rangwe	Kagan
6	FGD	Aimo poultry	Women only	Alice Okwany	0725962266	Rangwe	Kagan
7	FGD	Irrigation group	Mixed group				
8	FGD	KINDA	Widows group	Immaculate Mboya	0114894790	Rachuonyo South	West Kasipul
9	FGD	Okelo kwe S.H	Mixed group	Seck Ogutu	0716410750	Rachuonyo South	West Kasipul
10	FGD	Siany w.g	Women only	Susan Atieno	0708260934	Rachuonyo South	West Kasipul
11	FGD	Community Resource Persons					