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KENYA HORTICULTURE COMPETITIVENESS PROJECT ANNUAL REPORT #3, 2012-2013



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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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1. EXECUTIVE SUMMARY

The Kenya Horticulture Competitiveness Project (KHCP), funded by the United States Agency for International Development (USAID), is working to increase the food security and incomes of 200,000 smallholder farmers through enhanced productivity, crop diversification, and improved market access. This is its third annual report, and highlights major achievements and activities for the period October 2012 to September 2013.

USAID-KHCP passed the halfway point this year and is currently meeting or exceeding targets for 70% of its 23 reporting indicators. In year three, the project saw its “farming as a business” approach deliver **gross margin increases between 22% and 106%** in key crops, thanks to a combination of technology adoption and structured market linkages. In response to the food safety concerns from the European Union regarding pesticide residues, USAID-KHCP **scaled up resources in standards compliance and traceability systems**. And the project’s leadership in developing the Applied Basic Agri-Nutrition Resource Manual and Toolkit, adopted by the Ministry of Agriculture and the Ministry of Health, is providing the springboard that will deliver practical nutrition awareness and skills training to more than 50,000 households in the coming year.

Highlights from the year include:

Overall

- To date, 147,964 farmers are benefitting from USAID-KHCP assistance, on target to reach the goal of 200,000 farmers over the life of the project, while land under new agricultural technologies has reached nearly 25,000 hectares, 21% above target.
- More than 15,000 women in Western Kenya have been trained on and subsequently implemented kitchen gardens to boost household diet and provide regular and independent cash incomes.
- A network of fruit tree nurseries and seed multiplication entrepreneurs are dramatically improving access to high-yielding clean planting material for more than 60,000 farmers.

Fruits

- Passion fruit production has evolved into a premium value sector involving 30,000 farmers planting 1,000 hectares per year supported through 40 commercial nurseries and achieving gross margins in excess of \$6,500 per hectare, nearly double any other horticulture crop.
- Banana nurseries provided 500,000 tissue cultured banana plants to 6,000 farmers covering 1,500 new hectares of banana growing area, while average bunch weight increased from 25 kilograms to 40 kilograms.
- In Kitui County, 1,300 mango farmers received certified quality mango rootstock and are contracted with KEITT Exporters to supply export grade mangos in the upcoming season.

Food Crops

- USAID-KHCPs partnership with KENFAP expanded capacity of 23 Irish potato seed producers to provide improved seed and extension services to 25,000 smallholders, leading to average yield increases of 60% from crops using clean seed.
- Sweet potato farmers experienced a 67% increase in gross margin since baseline, from \$589 to \$983 per hectare.
- Promotional campaigns highlighting the excellent taste and nutritional benefits of incorporating orange fleshed sweet potato into various flour mixes, crisps, doughnuts, chapattis and even juice reached more than 6,000 consumers.

Domestic Market Vegetables

- Water harvesting technology (and training) enabled more than 20,000 households in semi-arid regions to grow their own vegetables for the first time.

- Tomato farmers produced more than 46 million kilograms of tomatoes generating over \$16 million dollars in sales, while greenhouse technology enabled leading farmers to break the 100 MT per hectare barrier.

Export Market Produce

- Pioneering greenhouse tunnel technology for export pea production increased yields by 48% compared to open field production, and 98% of the crop grown under the tunnels was marketable, compared to only 15% of the crop grown in adjacent open fields.
- Through the adoption of extension packages involving soil analysis, fertilizer application, and precision planting under drip irrigation, 1,750 farmers contracted to supply French Beans to Meru Greens more than doubled both their production (from 400 to 1,000 kg per kilogram of seed) and their sales (from \$141 to \$352 per kilogram of seed planted).

Value Chain Coordination, Policy, and Marketing

- Nearly 5,000 farmers received KenyaGAP training while an additional 468 farmers received re-certifications for GlobalGAP under the Vegpro and WONI outgrower programs.
- USAID-KHCP is supporting localized market linkages in more than 20 counties through a network of 500 collection centers that encourage crop aggregation, improve postharvest handling, and in many cases have seen sustained improvements in pricing structures.
- Consistent leadership support helped the industry to overhaul the vegetable export compliance mechanisms involving tougher traceability systems and control of agrochemical application.
- During the year eight new value addition products ranging from banana crisps to sweet potato flour to dried indigenous vegetables are being launched at a commercial scale through Trade Fair participation in Nairobi and Germany.

Lessons Learned

- Collaboration with the USAID-FIRM project, developing appropriate finance packages for technology adoption, has been a win-win situation for all the stakeholders.
- Gender mainstreaming approaches need to be specifically tailored in line with cultural variations by region.
- Encouraging established groups to provide leadership opportunities for youth members has added business skills in marketing and value addition benefiting everyone.
- Laboratory multiplication of genetically pure material for indigenous varieties of cooking bananas remains a technical challenge.

Priorities for Next Year

- Ensuring that project collaboration with each County government is consistent, effective and result orientated.
- Scaling up project activities in Taita Taveta and Kericho Counties.
- Ensuring that all the nurseries and seed multiplication units are strongly positioned for future business growth and investment.
- Strengthening market linkages between local supermarkets and producer groups.

2. INTRODUCTION

2.1 PROGRAM DESCRIPTION

USAID-KHCP develops sound, agriculture-focused solutions to poor productivity, postharvest losses, malnutrition, lack of market access, environmental degradation, and the effects of climate change on vulnerable rural populations. The overall goal is to improve food security, nutrition, and incomes for 200,000 smallholder farmers, while building a highly competitive, inclusive horticulture industry that will contribute to the food security of *all* Kenyans.

To achieve these objectives, USAID-KHCP works to:

- **Enhance farm productivity** by providing training in crop production skills, innovative technologies, and farm business management.
- **Increase processing and value addition** by educating farmers and food manufacturers to improve postharvest handling, grading, processing, packaging, branding, and risk mitigation.
- **Advance marketing and trade** through linking smallholders to local and export markets and providing technical assistance in standards certification and compliance.
- **Develop the business and policy environment** by stronger linkages among growers, processors, exporters, policy makers, and other stakeholders, to make the Kenyan horticulture industry more competitive.
- **Improve family nutrition** by integrating basic food safety and hygiene alongside training in food preparation and a diversified diet into every rural household impacted under the project.
- **Empower women and youth** by creating more income generating opportunities and jobs along the value chain and improving access to resources and decision making equality.
- **Protect the environment** by training farmers in natural resource management, pest and disease management, safer use of pesticides, afforestation, integrated soil and water management.

2.2 IMPLEMENTATION STRATEGY

To enhance the competitiveness and sustainability of the horticulture industry, USAID-KHCP partners with more than 40 public and private sector organizations, coordinated through the Government of Kenya, to deliver comprehensive technical and marketing services to farmers. The project is based on an **intensive extension methodology** in which project technicians visit their client farmers every week to provide targeted, hands-on technical assistance. Because farmers are more likely to adopt new practices if they see the benefits first-hand, USAID-KHCP uses demonstration sites – established on lead client farms, or those of farmer groups or agribusinesses – to illustrate the effects of program techniques and technologies.

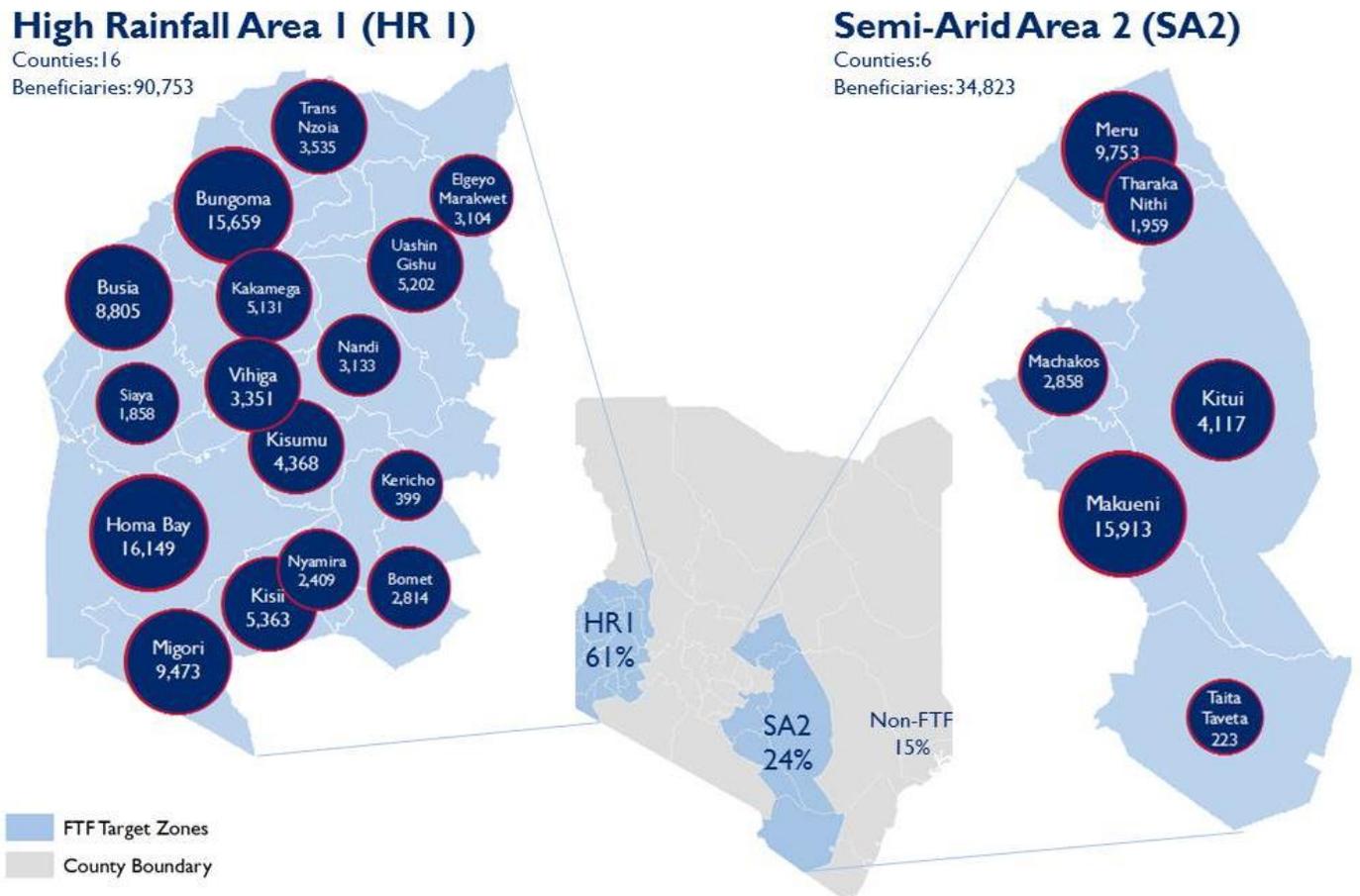
Much of this extension is carried out by local partners, including commercial partners and NGOs, who also receive hands-on training in improved extension services for smallholders. In this way, USAID-KHCP ensures that its tens of thousands of rural clients not only see short-term gains, but also build the necessary skills and knowledge to continue to succeed after the program is finished.

In line with the United States government's Feed the Future (FTF) strategy in Kenya, the project has prioritized eight critical crops within the horticulture value chain: sweet potato, potato, passion fruit, mango, banana, tomato, peas, and beans.

2.3 GEOGRAPHIC COVERAGE

USAID-KHCP continues to align activities geographically in the 22 focus counties within the Feed the Future zones of influence designated as High Rainfall 1(HR1) and Semi-Arid 2 (SA2). These operational areas lie within the four provincial boundaries of Eastern, Nyanza, Rift Valley, and Western. The map below illustrates the number of project beneficiaries per county supported by USAID-KHCP.

Figure 1: USAID-KHCP Beneficiaries by County



Note: The 15% of beneficiaries located outside of the Feed the Future target zones received project assistance prior to USAID/Kenya's re-alignment with FTF geographic areas.

2.4 FARMERS IMPACTED BY THE PROJECT

To date, USAID-KHCP is working directly with 147,964 farmers and is on target to reach the goal of 200,000 farmers by the end of the project in February 2015. These farmers are adopting good agricultural practices that significantly increase both yields and income and enable them to compete in the global marketplace. Through a combination of on-farm demonstrations and field days, farmers are learning to address fundamental technical challenges such as soil and water management, irrigation infrastructure, new crop varieties and technology trials, and compliance with international standards.

Figure 2: USAID-KHCP Beneficiaries by Year, Compared to Target Beneficiaries



2.5 IMPLEMENTING PARTNERS

USAID-KHCP provides technical assistance and training to smallholder farmers through more than 40 local partnerships. In the public sector, the project collaborates closely with the Ministry of Agriculture, Livestock and Fisheries (MOALF), Horticultural Crops Development Authority (HCDA), Kenya Agriculture Research Institute (KARI), Kenya Plant Health Inspectorate Service (KEPHIS), and others. USAID-KHCP is also an active participant in the National Task Force on Horticulture as part of its contribution to the National Horticulture Policy under the Agriculture Sector Development Strategy and the Comprehensive African Agricultural Development Program (CAADP).

As both public and private sector partnerships are integral to long-term sustainability, USAID-KHCP continues to collaborate with numerous Kenyan government agencies, donors, local and international organizations, and private sector firms as shown in Table I.

Table 1: USAID-KHCP Partners

National Government	Private Sector	Development Partners	NGOs
Agricultural Sector Development Support Programme (ASDSP)	Blue Rhino Consult (BRC)	AIDS, Population and Health Integrated Assistance Plus	Act Change Transform (ACT)
ATC- Various	Canken International	Alliance for a Green Revolution in Africa (AGRA)	Anglican Development Services
Horticultural Crops Development Authority	Crop Nutrition Laboratory Services	DANIDA	Africa Harvest Biotech International
Kenya Agricultural Research Institute (KARI)	Dryland Seeds Limited	EU-COLEACP	African Medical and Research Foundation (AMREF)
Kenya Bureau of Standards	Earth Oil	Food and Agriculture Organization of the United Nations (FAO)	Agricultural Technologies and Information Program (ATIP)
Kenya Industrial Research and Development Institute	East African Growers (EAGA)	GIZ	Anglican Church of Kenya-WRCCS
Kenya National Bureau of Statistics (KNBS)	Equatorial Hortifresh	HortCRSP - Horticulture Collaborative Research Support Program	Animal Draft Power Programme (ADPP)
Kenya Plant Health Inspectorate Services (KEPHIS)	Farm Concern International	International Fund for Agricultural Development - Smallholder Horticulture Marketing Programme	Appropriate Rural Development Program (ARDAP)
Ministry of Agriculture, Livestock, and Fisheries	Fingalee	International Potato Center	Business Initiatives for Survival and Eradication of Poverty
Ministry of Health (MOH)	Finlays	Japan International Cooperation Agency (JICA)	Christian Impact Mission
Ministry of Labour and Social Security (MOLSS)	Fresh Produce Exporters Association of Kenya (FPEAK)	Kenya Red Cross Society (KRCS)	Community Mobilization Against Desertification (C-MAD)
Ministry of Trade	Green Zone Agencies	Land-O-Lakes	Community Research in Environment and Development Initiatives (CREADIS)
National Irrigation Board (NIB)	Kakuzi Limited	Small-scale Horticulture Development Project (SHDP)	Farm Africa
Pest Control Product Board (PCPB)	KEITT Exporters	SNV Netherlands	Good Neighbours Community Programme
	KENGAP	Technoserve	KENAPOFA
County Government	Kenya Flower Council	The United Nations Children's Fund (UNICEF)	Kenya National Federation of Agricultural Producers
22 County Governors	Mace Foods	USAID- Financial Inclusion for Rural Microenterprises (FIRM)	Kenya Rainwater Association (KRA)
	MAERSK Limited	World Food Programme	One Acre Fund
	Meru Greens		Pwani Projects Development Consultants
	Monsanto		Ukamba Christian Community Services
	Oserian		Vision for Economic Empowerment in Africa (VEEMA)
	Quality Systems Management		
	REMPAI		
	Siboti Foods		
	Sunripe		
	Syngenta East Africa		
	VEGPRO		
	Wilmar Agro Ltd		
	WONI Exporters		

3. PRODUCTIVITY AND FOOD SECURITY

3.1 TECHNOLOGY ADOPTION

USAID-KHCP enhances horticultural productivity by working with local partners to establish demonstration sites for the provision of training and technical assistance to smallholder farmers. To date, in collaboration with local partners, USAID-KHCP has established 873 demonstration directly benefitting smallholder farmers. Through these demonstration sites, farmers have learned modern farming practices and technologies such as drip irrigation, raised beds, shade nets, new varieties, greenhouses, and integrated pest management. Table 2 below shows the numbers hectares under new technology promoted through the project:

Table 2: Technological Adoption

Technology Type	Number of Hectares Under New Technology
Crop Genetics	17,075
Pest Management	23,110
Disease Management	0
Soil-related	21,595
Irrigation	5,778
Water Management	255
Climate Mitigation	2
Other	24,169
Total with One or More Technologies	24,642

Technology is a key driver for reducing production costs, improving crop yields (productivity), and increasing farm incomes. The project commissioned a detailed survey targeting a total of 1,200 farmers selected at random across all 22 Feed the Future counties. The survey methodology employed the “whole farm approach” to data collection to collect accurate information on the following key performance indicators:

1. Demographic information on the individual household and farm
2. Crop production costs covering seeds, fertilizers, agrochemicals, hired labor, and rented machinery
3. Quantity of sales and quantity of crop consumed in the household
4. Prices calculated from the value of sales divided by the quantity of sales
5. Gross revenues per crop calculated from price multiplied by production volume
6. Cropping history and planted areas and levels of technology adoption
7. Crop gross margins calculated from the net revenue divided by the area planted

The productivity results from the survey, covering 7 crops, have been summarized in Table 3 below.

Table 3: Crop productivity Summary for October 2012 - September 2013

Crop	Average Productivity (kg/ha)	Gross Margin (US\$/ha)	Cost of Production (US\$/kg)	Unit Price (US\$/kg)
Passion Fruits	14,149	6,983	0.14	0.63
Tomatoes	13,713	3,824	0.09	0.37
Sweet Potatoes	7,255	983	0.04	0.18
Bananas	16,734	3,122	0.03	0.22
Potatoes	13,633	1,672	0.06	0.18
Peas	6,504	3,283	0.22	0.72
Beans	4,839	1,999	0.22	0.64

Note. The figures in the table above are derived from a complex statistical mix of weighted averages and therefore the figures do not simplistically cross-compute from one column to the next.

Individual crop performance factors are discussed in more detail in the productivity section. The project conducts historical trend analysis on three “proxy” crops to assess the impact of technology and extension services over the life of the project as shown in Table 4.

Table 4: Gross Margins for 3 Proxy Crops (\$/ha)

Crop	FY 2010	FY 2013	Change from Baseline
Passion Fruits	5,735	6,983	22%
Tomatoes	1,856	3,824	106%
Sweet Potatoes	589	983	67%

3.2 TROPICAL FRUITS

3.2.1 Mango

USAID-KHCP's priority interventions in mango production this year included:

- *Effective and timely pesticide spray programs to control seed weevil*
- *Biological control methods to reduce levels of fruit fly damage*
- *Enhancing contractual agreements between farm groups and exporters*
- *On-farm grading and packing to improve quality control at source*

The “Kenya Mango Commodity Business Plan 2012-2022” prepared by the International Trade Center in collaboration with the Fresh Produce and Exporters Association of Kenya (FPEAK) presents a stark summary of the challenges facing the mango sector. While the combination of investment in new plantings and rejuvenation of older plantations is predicted to increase the national crop from 600,000 metric tons (MT) in 2013 to 878,000 MT by 2017, current levels of postharvest losses of mangoes are 40% of the total production due to a combination of disease and pest infestation (anthracnose, fruit fly, and seed weevil). The domestic market, which consumes 98% of the crop, is characterized by low prices for farmers with brokers capturing most of the margin. Additionally, the plan highlights that mango juice processors in Kenya typically operate at capacity levels of only 40%, despite strong international demand for processed mango pulp and concentrate. Consequently, much of the overall mango harvest is wasted. Exports of fresh mango remain negligible at 2% of the total production, equivalent to an estimated 10,000 MT for 2013, despite the existence of international markets like the Arabian Gulf where the Kenyan “Apple” variety of fresh mango is sought after for its taste profile. The Kenya Mango Commodity Business Plan recommends interventions aimed at achieving universal pest control and a national network of collection centers to reduce postharvest losses to 25% of the overall mango crop by 2022.

In March 2013, USAID-KHCP formed two new partnerships with leading mango exporters to provide added resources for farmers in the core mango producing regions of Kitui, Machakos, and Makueni counties.

Key highlights from the last year include:

Launch of Kitui county mango plan. USAID-KHCP has partnered with KEITT Exporters, one of Kenya's biggest mango exporters, to establish a mango nursery in Kitui to enable farmers to access certified quality rootstock for new plantings. More than 1,300 farmers have been contracted to supply export and local grade fruit in the coming season through a new collection center where they will pack on-site into 4 kilogram (kg) export cartons, thereby minimizing waste and reducing transport costs. With 14 demonstration sites already completed, farmers are receiving training in grafting, pruning, pesticide spraying and pheromone trapping for fruit fly control.



Photo by Fintrac Inc.

Use of pheromone trap in mango IPM

3.2.2 Passion Fruit

USAID-KHCP's priority interventions in passion fruit this year included:

- *Commercializing certified seedling nurseries promoting improved varieties*
- *Improving water management and investing in drip irrigation*
- *Promoting more structured marketing systems*

USAID-KHCP provides extensive technical assistance and marketing services throughout the passion fruit value chain for key production areas in Kenya. This includes both low- altitude production of yellow passion fruit destined mainly for the juice processing market, as well as high-altitude production of purple passion fruit for fresh and export markets. National farm-gate sales in 2012 involving approximately 30,000 farmers were Ksh 2.5 billion (\$294 million), 62% of which took place in the four counties of Uasin Gishu, Elgeyo Marakwet, Embu and Meru.¹ Market demand for purple passion fruit has been very strong throughout the year, with excess demand for both premium and standard grade fruit in the European Union (EU) and Ugandan markets, resulting in prices ranging from Ksh 50/kg to Ksh 70/kg (\$0.50-\$0.82). The cold weather in the Eldoret area delayed the traditional crop flush in September that kicks off the main marketing season in Uganda, and prices hit an exceptional high of Ksh 120/kg (\$1.41) for several weeks.

Climatic factors have played an important influence on the rate of diversification into new areas such as Molo, Narok, Trans-Mara, Machakos, Makueni and Kajiado. In June, more than 250 new farmers in Siaya County suffered severe crop damage from hailstorms and the general overreliance on rain-fed production remains a major obstacle across the country. Cost benefit trials with shade net protection and drip irrigation to address these challenges are underway.

Key highlights from the last year include:

- **Expansion of nursery capacity is encouraging new plantings.** USAID-KHCP's priority intervention is the provision of high-quality, disease-free seedlings from more than 30 commercial nurseries that are registered with HCDA and certified by KEPHIS. The nursery system also provides an effective and sustainable hub for delivering extension services and technical assistance for the adjacent farming communities. The nursery system has enabled

¹ Horticulture Crops Development Authority (HCDA) Horticulture Validated Report 2012

more than 1,000 hectares of new passion fruit plantings during the past year with a total investment value of Ksh 164 million, of which 75% was purple varieties and 25% yellow varieties. A shift towards more plantings of yellow passion fruit is underway in both Western and Eastern Kenya, driven by new investments in processing capacity and the easier propagation system for yellow passion fruit that does not require grafted seedlings.

- **Income per hectare increases by 22%.** Improved agronomy and significant on-farm investment maintains purple passion fruit's position as the top smallholder cash crop in terms of value, with farmers achieving an average net income per hectare increase of 22% in 2013, over the 2010 baseline. However, it is not a miracle crop – the high levels of inputs and technical skills make it a challenging venture for first-time growers and gross margin levels still vary significantly by region. The period of ten months from planting to first harvest places a big financial strain on growers, so the project is encouraging banking institutions to develop and offer tailor-made loan packages to passion fruit farmers. Even for the few growers with disappointing yields below 7,000 kg/hectare per year, the crop still provides the highest level of income per unit area which is critical in areas with low levels of available land.
- **New market linkages reduce investment risks for farmers.** The project has increased the number of year round buyers of fresh passion fruit who are offering seasonal and fixed-price contracts to farm groups and consolidators to supply both their regional and international customers. USAID-KHCP cost-sharing investments in collection centers and quality-awareness campaigns are encouraging price stability, financial loan packages, and farm investment for passion fruit.

Table 5: Passion Fruit Productivity for 2013

	Units	FY 2013
Area planted	Hectares (Ha)	841
Total production	Kilograms (kg)	11,895,457
Quantity of sales	Kilograms (kg)	11,240,779
Value of sales	US\$	7,079,275.42
Input costs	US\$	1,621,083
Average Productivity	kg/ha	14,149
Gross Margin	US\$/ha	6,983
Cost of Production	US\$/kg	0.14
Unit Price	US\$/kg	0.63

3.2.3 Banana

Banana production constituted 38% of the total value of fruit production in the country during 2012, with sales of 1.4 million MT generating Ksh 23 billion in revenues to smallholders. Meru County is the number one producer of bananas in Kenya, accounting for 40% of the national value for the banana crop. Although the number of hectares under banana production decreased during the past year, both average yields per farmer and value increased by 16% and 3% respectively.²

According to the HVR 2012, this was due to adoption of superior varieties, availability of clean planting materials from TC technology, innovative post harvest handling and linking farmers to buyers.

USAID-KHCP's priority interventions in banana during the reporting year impacted more than 24,000 farmers in Meru, Tharaka Nithi, Bungoma, Busia, Kakamega, Vihiga, Nyamira, and Kisii. *Priority interventions include:*

²HCDCA Horticulture Validated Report 2012

- a) *Promoting tissue culture technology and improved varieties through local nurseries*
- b) *Improving basic agronomy skills and extension services to increase bunch weights*
- c) *Consolidating marketing infrastructure through collection centers*

Due to high levels of disease, particularly the spread of *sigatoka*, farmers are replacing older, unproductive, banana plantations. The initial set of 20 demonstration plots established by USAID-KHCP in 2012, each comprising more than 50 tissue culture plants, has educated farmers on the advantages of tissue culture technology in both disease resistance and increased production.

During the reporting period, 18 nurseries supported by USAID-KHCP have supplied an excess of 500,000 tissue culture plants of predominantly sweet varieties, leading to 1,500 hectares of new plantings from 6,000 farmers. The introduction and positive reception of tissue culture bananas by farmers has led to increasing demand for tissue culture plantlets over the last twelve months. Last year's annual report highlighted widespread concerns of slow adoption rates for tissue culture technology and disappointing sales of plantlets by laboratories. Now, demand is so high that laboratories are struggling to keep up, and are now considering investments into adding additional capacity for plantlet production.

Despite the increasing demand for tissue culture technology, general knowledge on the practice of using suckers to establish banana orchards, with the spread of pests and diseases, remains low in target counties. In certain counties, government agencies are still officially promoting the use of suckers for banana orchard establishment, because of historical misgivings about tissue culture technology due to unreliable supply and cost. Therefore the bulk of the project activities are concentrated on maximizing productivity and income from the established plantations to increase awareness of the benefits of switching to tissue culture bananas from the traditional method of using suckers. The main highlights are as follows:

- **Basic agronomic practices can double bunch weights.** The banana production guidelines developed by USAID-KHCP and KARI are currently backstopping the extension services received by 24,000 farmers in Meru, Tharaka Nithi, Kisii, Nyamira, Kakamega, Bungoma, and Busia. Yields and gross margins are rising steadily because of practical, field-based training addressing the agronomic challenges of poor crop nutrition, stunted growth in waterlogged soils, chocking of banana bunches, and rotting of leaves through Fusarium wilt. As a result, bunch sizes are steadily increasing, from a baseline of 25 kg towards an average of 40 kg, with the best farmers consistently achieving 60 kg.
- **Changing from bunch to kilogram marketing.** The brokerage system of buying bunches on the roadside is the culmination of a traditional low-input/low-output approach to banana production, characterized by postharvest losses that range from 30% to 50%. The USAID-KHCP partnerships are at the forefront of the switch to precision harvesting and kg-based pricing structures with retailer incentives and premiums linked to quality, shelf-life, and taste.

Table 6: Banana Productivity for 2013

	Units	FY 2013
Area planted	Hectares (ha)	439
Total production	Kilograms (kg)	7,345,921
Quantity of sales	Kilograms (kg)	5,968,729
Value of sales	US\$	1,308,453
Input costs	US\$	239,639
Average Productivity	kg/ha	16,734
Gross Margin	USD/ha	3,122
Cost of Production	USD/kg	0.03
Unit Price	USD/kg	0.22

3.3 FOOD CROPS

3.3.1 Sweet Potato

USAID-KHCP is currently working with 25,766 sweet potato farmers representing 54% of the targeted 48,000 farmers.

Priority interventions during the year have included:

- *Promoting sustainable vine multiplication business models*
- *Collaborating with KEPHIS to roll out the national vine multiplication protocols*
- *Improving crop yields through water management and irrigation investment*
- *Maximizing the advantages of the orange fleshed varieties for processing*
- *Stimulating supermarket and consumer awareness through sales promotions*

The technical collaboration between the Ministry of Agriculture extension services, USAID-KHCP, KARI, and KEPHIS is delivering a solid platform of best practice technical trials and “farming as a business” recommendations for specialized vine multiplication growers. The collaboration has led to the availability of a wider range of new varieties, including white, orange, and yellow flesh types. The varieties are now disseminated through 28 active vine multiplication sites which provide regular and reliable quantities of planting material on-demand to neighboring communities. The investments being made by these entrepreneurs in their farm business is being supported by a matching contribution of drip irrigation systems in Homa Bay County from USAID-KHCP partners like ADPP and C-MAD to ensure full independent sustainability going forward.

Clean planting material has catalyzed improved yields and farm incomes for smallholders, particularly in the major sweet potato growing areas of Homa Bay, Migori, Bungoma, and Busia counties. Although sweet potato was once traditionally viewed as a low value crop, Table 7 below shows that it is quite viable as a fully commercial cash crop.

Table 7: Sweet Potato Productivity for 2013

	Units	FY 2013
Area planted	Hectares (ha)	3,054
Total production	Kilograms (kg)	22,157,380
Quantity of sales	Kilograms (kg)	20,477,106
Value of sales	US\$	3,636,266
Input costs	US\$	932,511
Average Productivity	kg/ha	7,255
Gross Margin	USD/ha	983
Cost of Production	USD/kg	0.04
Unit Price	USD/kg	0.18

Throughout the year, the project has refocused the promotion of orange flesh varieties as a key processed ingredient in an expanded range of fortified foods. Market reality has shown that the orange flesh varieties remain a small part of the wholesale market sector, still accounting for less than 10% of total sales. Although consumers are appreciative of the nutritional advantages from these new varieties, other factors of cooking time, taste, and traditional preferences help maintain the dominant fresh market share for the white and yellow flesh varieties.

Despite strong market demand in Europe for orange flesh sweet potato, the export pilot project supported by the project met with mixed results. Research trials with a leading agricultural exporter and KARI, assisted through technical training with experts from Honduras and UK, demonstrated the potential to produce and harvest yields of 18 MT per hectare of orange flesh sweet potato. The

new agronomic practices have contributed to the 67% improvement in gross margins from \$589 per hectare in 2010 to \$983 per hectare in 2013. Trial shipments by air to customers in France generated considerable interest. However, the domestic market prices provided more attractive returns to farmers than the international commodity pricing levels for sea-freighted sweet potato.

3.3.2 Irish Potato

The potato industry in Kenya is second in importance to maize in terms of national food security crops, involving 800,000 farmers planting on 143,325 hectares. In 2012, these farmers produced 2.9 million MT with a value of Ksh 50 billion (\$588 million). From 2012 to 2013, the area under potato production and volume of output increased by 14 percent and 19 percent respectively, largely in response to the Maize Lethal Necrosis Disease (MLND).

Priority interventions in Irish potato include:

- a) *Improving farmers access to locally available certified seed*
- b) *Scaling up adoption of good agronomic and postharvest practices*
- c) *Strengthening the capacity of potato growers associations*

USAID-KHCP's strategic interventions in potato are being delivered through a partnership with the Kenya National Federation of Agricultural Producers (KENFAP) and the subsidiary Kenya Potato Farmers Association (KENAPOFA) impacting 8,562 farmers. KENFAP has membership in 42 counties with 60 area branches drawn from farmer groups, apex commodity associations, cooperative societies, and corporate farming entities. The complimentary private-sector partnership with Syngenta in Meru and Uasin Gishu counties is delivering a package of technical resources to more than 1,500 farmers in line with the priority interventions. Highlights from this year include:

- **Professional seed multiplication provides excellent returns on investment.** KENFAP expanded the capacity of 23 seed multipliers in the counties of Bomet, Meru, and Uasin Gishu, with timely linkages to suppliers of basic seed such as KARI, Oserian Ltd, and Kisima Farm. Some 40 best practice demonstration sites are providing a comprehensive package of improved seed, agronomy, and extension services at farm-level, which is producing excellent improvements in productivity and farm income as shown in Table 8 below.
- **Effective advocacy harmonizes national policy.** The capacity building support for KENFAP and KENAPOFA provided by USAID-KHCP has been instrumental in the following initiatives.
 - Enforcing the regulations under Cap. 319 for a standardized bag size with a maximum weight of 110 kg. Given the trend of the “extended bag” pushing weights in excess of 160 kg, this initiative on its own, if fully implemented, would improve farm returns by 31%.
 - Increasing KENAPOFA membership from 2,600 to 5,900 during 2013.
 - Benchmarking the Kenyan industry against international competitors through the hosting of the 9th African Potato Association Conference in July 2013 bringing together more than 220 scientists, researchers and industry experts.
 - Developing a draft Potato Manual in collaboration with KARI and CIP for launch at a national Potato Crop Forum in November 2013.
 - Monitoring the phytosanitary variety trials for imported seed.

Table 8: Irish Potato Productivity for 2013

	Units	FY 2013
Area planted	Hectares (Ha)	1,459
Total production	Kilograms (kgs)	19,889,447
Quantity of sales	Kilograms (kgs)	19,078,723

Value of sales	US\$	3,411,783
Input costs	US\$	1,116,956
Average Productivity	kg/ha	13,633
Gross Margin	USD/ha	1,672
Cost of Production	USD/kg	0.06
Unit Price	USD/kg	0.18

3.4 DOMESTIC MARKET VEGETABLES

3.4.1 Tomato

Tomato is the most important of the three mainstream local market vegetables that USAID-KHCP supports, the others being cabbage and kale. Across the country, a total of 397,000 MT of tomato was produced in 2012 from 18,612 hectares with a total sales value of Ksh 12.8 billion.

Priority interventions in tomato during the year include:

- a) Rolling out innovative seedling technology targeting 100,000 growers
- b) Improving basic agronomy skills and productivity for outdoor crops
- c) Upgrading greenhouse production with high-technology systems



Photo by Fintrac Inc.
Titus Wawiria the farm manager in the Londiani Horticultural Centre of Excellence admires the green house tomatoes.

Successful tomato production is based upon a clear sales and marketing plan, including selecting a variety suitable for the specific agro-ecological zone and production system. Tomato production has become a major business and is the vegetable of choice wherever and whenever farmers have access to reliable water. Influencing all of the wholesale markets throughout the country, tomato production generates income and employment in the form of small-scale kitchen gardens right up to large-scale commercial plantings for processing into paste. Greenhouse production has continued to gain momentum with its ability to bridge the glut season and produce yields of up to three times the average for outdoor production.

USAID-KHCP, in collaboration with some 20 local partners, established more than 500 demonstration sites for building farm capacity in local market vegetable production. On-site training events and 146 field days have reached 125,576 farmers; featuring hybrid varieties, basic open-field agronomy, drip irrigation, and crop nutrition. This technical progress is driven by feedback from supermarkets and wholesale buyers encouraging well organized farmer groups with the ability to make consistent deliveries at stable prices of improved varieties with better quality and taste, and longer shelf life with less wastage.

Key highlights from the last year include:

- Changing planting systems with the first million new seedlings.** The strategic partnership with Syngenta East Africa Ltd is transforming the traditional approach to raising seedlings for high value crops of tomato and capsicum. A network of eight Horticultural Training Centers is providing extension services to 7,943 farmers as well as incubating 52 high-technology seedling nurseries targeting a youth mentorship program in the local community. These business start-up units have provided the first one million seedlings worth Ksh 6,248,775 (\$73,515). Germination rates commonly exceed 90%, compared to 45% in normal outdoor bed systems, thereby reducing the cost of seed by half and improving crop uniformity. The business model is to provide farmers with pre-ordered high-quality seedlings to ensure they meet the planting programs demanded by their contracts with local supermarkets. The next stage of the process is already underway to consolidate the entrepreneurs technical and business skills, while rolling out the technology to suitable production clusters in other counties.



Photo by Fintrac Inc.
Rotich Wesley inspects kale seedlings grown in the Londiani Horticultural Centre of Excellence.

- Greenhouse tomato yields break through the 100 MT per hectare barrier.** USAID-KHCP is at the forefront of the technological innovations converting greenhouse tomato and capsicum production to a system of polypots. This system uses soil free of the fusarium and bacterial wilt diseases that plague conventional production. The infrastructure alone is only part of the high-yield blueprint, which also demands precise control and application of soil nutrients and organic matter, water, chemicals, fertilizer, and micro-climate. The results can be spectacular with crops in continuous production for nine months and total yields from leading producers exceeding 100 MT/hectare with ambitions to improve by another 30% in the coming year.

Table 9: Tomato Productivity for 2013

	Units	FY 2013
Area planted	Hectares (ha)	3,423
Total production	Kilograms (kg)	46,940,624
Quantity of sales	Kilograms (kg)	45,183,335
Value of sales	US\$	16,752,531
Input costs	US\$	4,315,284
Average Productivity	kg/ha	13,713
Gross Margin	USD/ha	3,824
Cost of Production	USD/kg	0.09
Unit Price	USD/kg	0.37

3.5 EXPORT MARKET PRODUCE

3.5.1 Peas and Beans

French beans and peas (snow pea and sugar snap varieties) account for 58% of the total vegetable export volumes from Kenya and 62% by value. Exports of French beans in fresh or processed forms are a \$143.9 million industry in its own right, and have become synonymous with Brand Kenya in the international marketplace. French beans and peas are the bread and butter for more than 40 exporters who, in turn, contract more than 40,000 farmers. Last year proved very challenging with serious issues of pesticide residues and increased phytosanitary controls causing delays, additional costs, and forcing a complete reorganization of traceability systems. This topic is dealt with in more depth in the Standards and Compliance section (5.2) of the report.

USAID-KHCP's priority interventions in peas and beans include:

- a) Increasing use of low-cost drip irrigation for bean production
- b) Introducing tunnel technologies for pea growers
- c) Diversifying the production base into new counties
- d) Introducing microfinance packages for inputs and capital investment

French bean production is concentrated in the three counties of Muranga, Kirinyaga, and Meru, which account for 25%, 15% and 12% of total production volumes respectively. USAID-KHCP interventions have expanded from Meru to Machakos county (which combined provide 15% of total production volumes³) to include new areas of production in the North West, including Nandi, Bungoma, and Uasin Gishu counties.

Key highlights from the last year include:

- **Tunnel technology enables consistent pea production during wet weather.** The partnership with Vegpro Kenya Ltd has provided a consistent market for peas for more than 1,000 contracted outgrowers in the Mount Kenya region of Meru County. Since October 2011, 1,712 MT of peas have been sold generating farm sales of Ksh 95 million (\$1.12 million). A pea production trial in 18 mini greenhouse polytunnels equipped with drip irrigation has protected the crop from disease during extended periods of wet weather. Farmers have witnessed first-hand the reduced use of agrochemicals and extended harvest cycles that have contributed to the average yield increase of 48% compared to open field production. What's more, 98% of the crop grown under the tunnels was marketable, compared to only 15% of the crop grown in adjacent open fields. **Each tunnel generated average gross sales revenue of Ksh 30,745 (\$384), nearly a ten-fold increase compared to the Ksh 3,188 (\$40) average generated from the open field.** To accelerate the adoption of the tunnel technology, which requires a capital investment of Ksh 250,000 per unit, USAID-KHCP is working closely with the USAID Financial Inclusion for Rural Microenterprises (FIRM) project to roll out suitable finance packages from banks and microfinance institutions.



Photo by Fintrac Inc.

The project continues to support technological innovation through the combination of low-cost drip irrigation and greenhouse tunnels resulting in improved yields and pea quality,

The representative productivity results from the total of **3,901** pea farmers supported under the project are summarized in Table 10 below.

³ Horticulture Validated report 2012

Table 10: Peas Productivity for 2013

	Units	FY 2013
Area planted	Hectares (ha)	358
Total production	Kilograms (kg)	2,326,416
Quantity of sales	Kilograms (kg)	2,277,495
Value of sales	US\$	1,640,478
Input costs	US\$	501,398
Average Productivity	kg/ha	6,504
Gross Margin	USD/ha	3,283
Cost of Production	USD/kg	0.22
Unit Price	USD/kg	0.72

- Low-cost drip irrigation improves returns for bean farmers.** With support from the USAID-KHCP partnership with Meru Greens, bean production has quadrupled in Meru and Tharaka Nithi counties from 2 MT per week under freelance farmers to 8 MT per week using 1,750 contracted out growers. Through the adoption of an extension package involving soil analysis, fertilizer application, and precision planting under drip irrigation, farmers have increased bean production from 400 kg to more than 1,000 kg per kilogram of seed, with notable improvements in quality. Meru Greens contracts beans for processing into glass jars for export by sea freight to customers across Europe. With the price of beans steady at Ksh 30/kg (\$0.35/kg) farm sales have more than doubled from Ksh 12,000 (\$141) to Ksh 30,000 (\$352) per kilogram of planted seed.

The representative productivity results from the total of **11,753 bean farmers** supported under the project are summarized in Table 11 below.

Table 11: French Beans Productivity for 2013

	Units	FY 2013
Area planted	Hectares (ha)	552
Total production	Kilo grams (kg)	2,672,625
Quantity of sales	Kilo grams (kg)	2,588,371
Value of sales	US\$	1,651,534
Input costs	US\$	601,211
Average Productivity	kg/ha	4,839
Gross Margin	USD/ha	1,999
Cost of Production	USD/kg	0.22
Unit Price	USD/kg	0.64

4. CROSS-CUTTING THEMES

4.1 GENDER

USAID-KHCP's gender integration strategy is quickly increasing opportunities in commercial agriculture that promote income generation and increase food security for both sexes. Technologies have been introduced to help women increase production (and therefore income from sales), decrease workloads, and enhance the food and nutrition security of the entire household. These technologies include drip irrigation, seedling nurseries, and improved access to more reliable water supply for irrigation. Female farmers and entrepreneurs are also targeted with technologies to scale up value-added processing activities in order to meet local and export market demands. This, in turn, enables women to improve on product quality, gain access to new markets, and increase their household incomes.

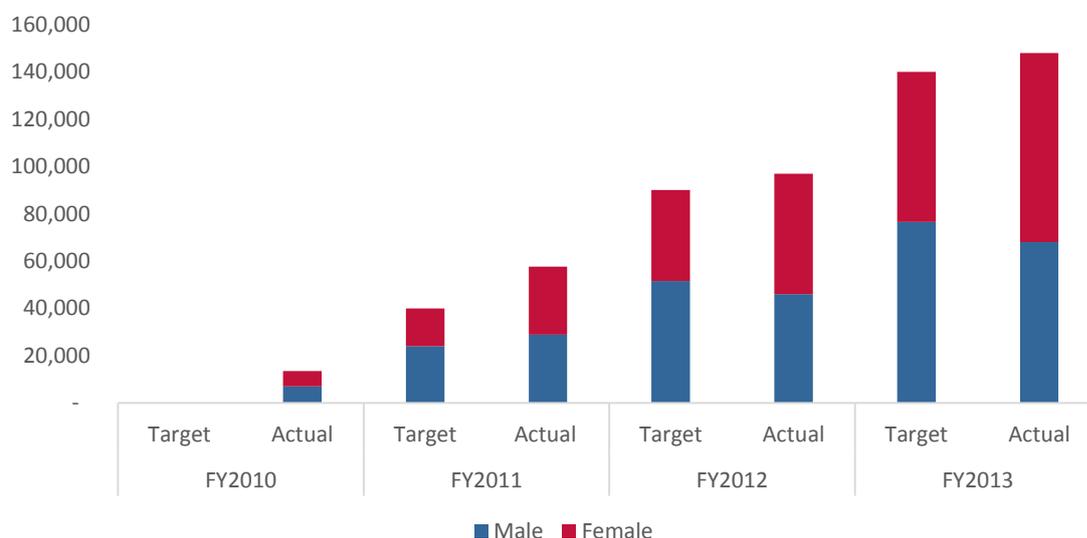
Since the start-up phase of the project in 2010, which involved 6,439 female farmers, the project outreach to female farmers has grown incrementally as shown in Figure 3 below. During the reporting period, the number of women participating at various levels of project activities increased by 59% from 50,808 to the cumulative total of 82,973 females (representing 56% of total project beneficiaries).



Photo by Fintrac Inc

USAID-KHCP is now impacting 82,973 women farmers with new technologies and improved decision-making opportunities.

Figure 3: Farmer Beneficiaries by Gender, Compared to Targets



The project approach to gender integration is to challenge the status quo in many rural communities where women's and youth's access to land and capital are serious factors restricting full participation in the local economy. One example of this affirmative action approach is the partnership with Farm Concern International which has been directly tackling these challenges at the community level in 7 counties in the Western part of Kenya, as summarized in Table 12 below.

Table 12: Gender and youth involvement within the FCI partnership

PARAMETERS	STATUS	PERCENTAGE
1. Number of farmers	26,821	
2. Number of women farmers	16,198	60.4%
3. Number of youth farmers	6,736	25.1%
4. Number of women in leadership	1,884	37%
5. Number of youth in leadership	742	14.6%
6. Number of women with kitchen gardens	9,014	
7. Number of women buyers	81	
8. Number of youth buyers	30	
9. Number of women in IGA	12,155	

The promotion of kitchen gardens proved to be an effective strategy in developing alternative income generating activities for women while also providing a convenient and effective entry point for nutrition education. A total of 15,023 kitchen gardens received technical and extension support from Farm Concern International during the year. Sample mapping of 455 of these kitchen gardens in August 2013 found that majority of the kitchen gardens (62.9%) were established between January to September 2013.



Photo by Fintrac Inc.

A demonstration of a key holder kitchen garden for African Leafy Vegetables in Busia County.

USAID-KHCP was able to disseminate nutrition messages to a larger audience through radio messages and by leveraging on partner organized village trade fairs and other forums.

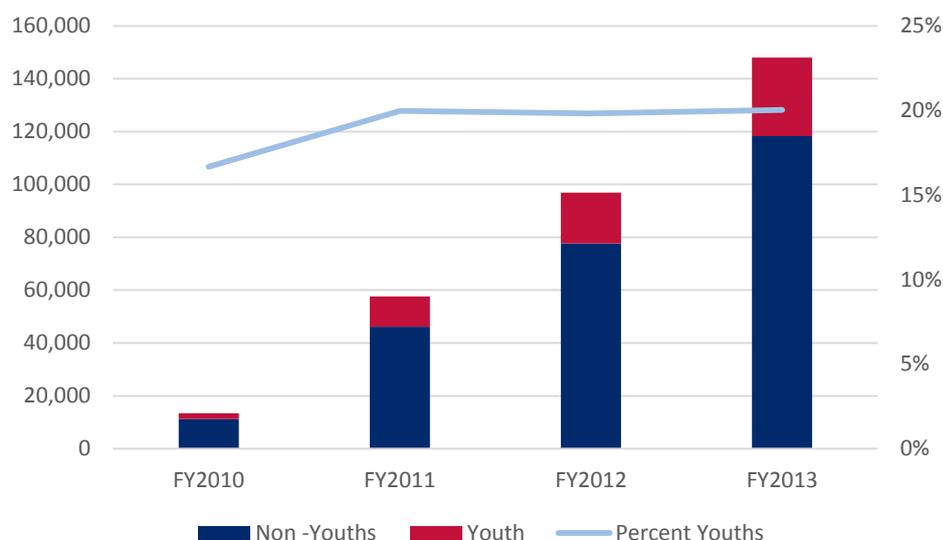
4.2 YOUTH

USAID-KHCP prioritizes youth participation as an important driver of sustainability and competitiveness, empowering them as entrepreneurs through trainings in leadership, marketing, and business skills. Technical assistance concentrates on building practical skills in commercial production, value addition and processing, and nursery management.

“We are working to empower our people by producing high quality seed. Before this, we recycled local seed and continuously got poor quality low harvests. You can notice improvements on the farms around just by looking at the crop.”

-Matthew Kipsum, youth farmer,
Londiani Kericho

Since 2010, the youth involved in the project has increased steadily from 2,243 farmers to more than 30,753 young men and women in 2013, making up 21% of the total KHCP farmers (52% female). The graph below shows the increase in the number of youth in proportion to the other smallholders from the start of the project in 2010 to 2013.

Figure 4: Youth Beneficiaries

21-year-old university student pays his fees using income from potatoes



Photo by Fintrac Inc.

Matthew Kipsum is one of the youth farmers with whom the project is working. He expects to increase his earnings more than tenfold this season, from Ksh 20,000 (\$235) to Ksh 175,000 (\$2,058). *“Before, I used to harvest less than average quality seed and get 10 bags from my half acre piece of land. Now I get 70 bags from the same land and the quality is premium,”* noted Kipsum. This improvement is mainly from using quality seed and adopting plant spacing techniques and other good agricultural practices he learned from the project. Kipsum is among 8,562 farmers who have been receiving technical assistance and training from KENFAP and his earnings enable him to both support his mother and pay his university fees.

4.3 NUTRITION

The highlight of the year was the national launch event for the *Applied Basic Agri-Nutrition Manual and Toolkit*, developed jointly between USAID-KHCP, the Ministry of Health and the Ministry of Agriculture, Livestock and Fisheries. The official endorsement of the manual by the Permanent Secretaries from both ministries, and its adoption as a working practice by the respective field staff, will ensure an integrated approach to delivering agri-nutrition training to a wide range of agricultural communities. Since the launch event, as part of the national Scaling Up Nutrition (SUN) initiative, the Ministry of Labour and Social Security and Services has added its weight of mobilization resources to the consortium of partners that are utilizing the manual as part of the Train the Trainer approach to delivering practical nutritional skills and awareness targeting every household in Kenya. These partners include USAID-Aphiaplus, World Vision Kenya, World Food Program, Kenya Red Cross, GIZ, FAO, among others.

USAID-KHCP has selected the African Medical Research Foundation (AMREF) as the main implementing partner for the phase one roll-out in the 16 counties of Makueni, Machakos, Meru, Nandi, Uasin Gishu, Bomet, Bungoma, Kakamega, Vihiga, Busia, Kisumu, Siaya, Homabay, Migori, Kisii, and Nyamira. So far the project has:

- Enhanced the support and leadership of 1,180 county leaders and stakeholders through sensitization forums on the manual and toolkit held in 16 counties
- Reached more than 15,300 households in Machakos, Kisumu, Bungoma, Busia, Kakamega, Nyamira, Kisii, and Migori counties with training in nutrition, kitchen gardens, technologies, value addition, and food preparation.
- Trained 860 county experts through a series of Train the Trainer (ToT) programs and developed their county action plan which will enable the project to supply more than 17,200 households with nutrition information as well as cooking and kitchen garden demonstrations.
- These master trainers have been supplied with a manual and toolkit to help them cascade the training to community health workers, extension officials, and other stakeholders within their areas of operation.
- Printed a total of 2,600 applied basic agri-nutrition manuals and 750 toolkits to cascade the nutrition information and training to a target of 50,000 households across the country during the next year to reach more than 300,000 people;
- Printed 250 monitoring and evaluation booklets to help the project collect nutrition training and impact data.



Photo by Fintrac Inc.

Lucy Jaju feeds her son Francis Ochieng nutritious kale and brown ugali at her home in Sigomere, Homa Bay County.

4.4 CAPACITY BUILDING AND ORGANIZATIONAL DEVELOPMENT

USAID-KHCP provides a comprehensive package of marketing, technical, and organizational development skills training to all of its partners to ensure sustainability and continuity of impact with farmers after the project has finished. Organizational capacity assessments (OCA) were conducted in May 2013 for ten selected implementing partners. These assessments involved 100 people drawn from the board, staff and management teams representing different areas in the organization. The assessment scope included governance, leadership and team dynamics, administration, organizational management, financial management, human resources, project development, public relations, and performance management. The consolidated average score for all ten partners was 64%; with the individual organization scores ranging from 56% to 73%. Project support is targeting the priority areas of governance and human resources through draft policy manuals, implementation guidelines for the boards, development of strategic plans, and enhanced supervisory skills training.

In summary, as a result of the capacity building initiatives, out of the targeted ten organizations;

- 60% of the organizations are revising/developing their board manual
- 40% are developing their resource mobilization strategies
- 60% are reviewing/developing their HR manuals
- 30% are reviewing/developing their strategic plans/business plans

A new capacity building partnership with a certified public accountancy firm will work with 16 USAID-KHCP implementing partners to strengthen their financial systems to enhance accountability. Components include the installation of accounting software, definition of a comprehensive chart of accounts, and high levels of staff training and subsequent mentorship over a 12-month period, including periodic audits.

4.5 PUBLIC-PRIVATE PARTNERSHIP COLLABORATION

USAID-KHCP supported a range of public-private partnership initiatives as summarized by the table below showing the funds allocation by category.

Category	Total Amount (Ksh)	%
Crop & value chain forums	421,600	5%
Export vegetable & marketing forums	2,414,390	31%
Seed forums	831,479	11%
Nutrition materials & events	3,106,875	40%
Communication strategy & branding	984,900	13%
Totals	7,759,244	

Highlights from this year are as follows:

- Coordinated three crop value chain analysis workshops through the Agriculture Sector Development Support Program (ASDSP) to define priority interventions in the potato, banana, and passion fruit sectors.
- Linked more than 220 pea and bean farmers with a leading exporter, East African Growers, as a result of the two export vegetable forums held in Nandi and Bungoma counties.
- Supported four export compliance forums for vegetables and fruits focusing on pesticide residue issues and international quality standards that have involved more than 1,000 participants drawn from exporters, input suppliers, government agencies, county officials, representatives from the media, and other development institutions such as COLEACP and FAO.
- Sponsored three potato and banana forums focused on seed supply and planting material jointly with the MOALF, KEPHIS KARI, stakeholders and smallholder farmers.
- Provided sponsorship support to the Triennial African Potato Association (APA) Conference that attracted 290 delegates, including leading scientists and research experts coming from Africa, USA, South America and India, coordinated through the International Center for Potato Research (CIP). USAID-KHCP supported a trade booth for KENFAP, KENAPOFA, Oserian Development Company, Lachlan Agriculture, and Crop Nutrition Laboratory Services and organized a successful sweet potato field day to showcase applied technologies at grassroots level.
- Supported the two counties of Makueni and Meru during their World Food Day celebrations whose theme was "sustainable food systems for food security and nutrition."

4.6 NATURAL RESOURCE MANAGEMENT (NRM)

Specific control measures on natural resource management are developed through the USAID-KHCP environmental monitoring and mitigation plan and associated report. The key elements of the plan cover the following areas:

- Technical assistance, training modules and capacity building workshops
- Pesticides, fertilizer, new agricultural productivity technologies, and propagation materials

The specialized environmental emphasis on agrochemical management is covered under the project's pesticide evaluation report and safer use action plan (PERSUAP).

The following activities have taken place for environmental conservation and climate change mitigation:

Table 13: USAID-KHCP Conservation Activities

Environmental and Climate Change Issues	Mitigation Measures
Pesticide misuse <ul style="list-style-type: none"> • Purchase of incorrect pesticide • Poor disposal of used containers • Poor pesticide transportation • Poor pesticide storage • Mixing and dispensation 	<ul style="list-style-type: none"> • 16 major training activities on GAPs, safe use of pesticide • 3 workshops on maximum residue levels (MRL) with all major stakeholders held • 17 internal auditors trained for implementation of KenyaGAP • 23 lead auditors trained for official evaluation farmers on KenyaGAP protocol • Field visit and evaluation by USAID on PERSUAP implementation • 1,199 farmers trained on pest control and pesticide choice and safer use of pesticides. • Farm records checked for pesticide use and verification done that they are being used, stored and containers disposed of properly • Demonstration of pesticide storage, fabrication of simple pesticide stores • Training on knapsack calibration and proper spraying
Unreliable reduced rainfall <ul style="list-style-type: none"> • Drought and loss of crop • Semi-arid region land cultivation • Cutting of trees 	<ul style="list-style-type: none"> • 115 new water reservoirs dug for rain water conservation • Water reservoirs equipped with dam lining to prevent water seepage and covered with shade nets to reduce evaporation • 235,589 trees planted • More than 1,199 farmers trained on water conservation measures including drip irrigation, mulching and early planting • Introduction of micro-sprinkler irrigation technology
Excess rainfall <ul style="list-style-type: none"> • Crops that do not do well in heavy rainfall or overhead rain / water application 	<ul style="list-style-type: none"> • Installation of small holder greenhouse tunnels for peas and tomatoes • Training farmers in greenhouse management • Enhanced drainage and terracing. • Farmers using raised bed for growing crops
Soil erosion <ul style="list-style-type: none"> • Loss of soil fertility and biodiversity • Siltation of water bodies • Contamination of rivers, streams • Destruction of aquatic life 	<ul style="list-style-type: none"> • Planting 235,589 agroforestry trees on slopes and as a cover crop • Enhanced drainage and terracing • Contour farming
Fertilizer misuse <ul style="list-style-type: none"> • Ground water pollution due to excess application of fertilizers • Poor storage and transportation • No established soil nutrition programs • Improper application techniques 	<ul style="list-style-type: none"> • Promote and train farmers on low-cost soil testing • 4,098 farmers in Nyanza, Western and Rift valley were trained on soil analysis, soil testing and proper application of fertilizers • Enhancement of lime availability through the agrovets • Training farmers and encouraging composting • Use of vermi-composting using earth worms encouraged • Integrating livestock and horticulture
Introduction, proliferation and distribution of infected or inappropriate planting material <ul style="list-style-type: none"> • Distribution of pest and diseases (pesticide usage reduced) 	<ul style="list-style-type: none"> • 28 nurseries established and registered by HCDA to supply clean planting materials mainly passion fruits, mangoes, and avocado. • 10 of these nurseries have been evaluated and certified by KEPHIS for supplying clean planting materials • Farmer groups trained on clean seed certification procedures and nursery management and on pesticide usage and pest scouting • 20 trainers trained on integrated pest management • Sweet potato vine multiplication manual developed by KARI • Demonstration of seed potato multiplication through KENFAP • Installed nurseries for hybrid vegetable seed production with Syngenta East Africa.
Unsustainable water use <ul style="list-style-type: none"> • Illegal extraction of water from rivers, dams, canals and wells • Inefficient irrigation systems • Poorly maintained irrigation systems 	<ul style="list-style-type: none"> • Collaboration with Department of Agriculture and Ministry of Water and Irrigation to ensure farmers acquire and respect water abstraction permits and laws. • Introduction of drip irrigation and micro-sprinklers technology • Training on irrigation equipment and systems maintenance
Processing and value addition activities <ul style="list-style-type: none"> • Energy conservation • Waste and contamination 	<ul style="list-style-type: none"> • 5 solar driers fabricated and installed. • 14 companies/ microprocessors groups trained on energy conservation and waste management, recycle and reuse • 18 new products certified by Kenya Bureau of Standards • 6 postharvest manuals developed and used to train farmers • 10 site assessments done

5. VALUE CHAIN COORDINATION, POLICY AND MARKETING

5.1 POLICY

USAID-KHCP plays an important role in shaping and supporting government policy through its participation in the National Task Force on Horticulture and its associated leadership of the Development Partner Coordination Forums. The policy-based initiatives include:

Economic Partnership Agreement. USAID-KHCP support for FPEAK and the Kenya Flower Council builds their capacity for advocacy and lobbying government on behalf of exporters. One key intervention of both associations is to put pressure on government to ensure that the Economic Partnership Agreement (EPA) with the EU is signed before the October 2014 deadline. This will ensure that Kenyan horticulture exports will continue to enjoy duty-free access to the EU market.

Fertilizer policy analysis: To strengthen the private sector influence on the government's fertilizer policy, USAID-KHCP supported Crop Nutrition Laboratory Services to participate in a regional think-tank in Arusha, Tanzania on the fertilizer policy and marketing strategies in Africa. Hosted by the International Fertilizer Development Centre, participants were drawn from Mozambique, Zambia, South Africa, Tanzania, Uganda, Rwanda, Kenya, Nigeria South Sudan and Ethiopia.

EU phytosanitary charges: In May 2013, the European Commission proposed that member states recover the full cost of official controls, which would likely see a steep rise in charges for mandatory phytosanitary checks. The UK and EU authorities are already charging non-controlled premium rates for maximum residue level testing on Kenyan vegetables. Once again FPEAK is at the forefront of representing the interests of the Kenyan exporters to fight against this rising tide of regulatory costs and prevent trade barriers.

Stakeholder consultation on the Agriculture, Fisheries and Food Authority Act (AFFA). In October 2013, HCDA and USAID-KHCP brought together stakeholders to discuss implementation of this new legislation, due to come into effect in January 2014. The Act makes fundamental changes to the regulatory system by amalgamating key agencies, including KEPHIS, HCDA, and PCPB, under a single command structure.

Impact of Devolution. Under the leadership of USAID-ABEO, the project is strengthening linkages with county governments in all 22 focus counties to inform and contribute to policy forums. Focus is on ensuring that value chain strategies and resource allocation policies recognize and sustainably expand the economic growth potential of the horticulture sector.

Kenyan Horticulture Industry Global Competitiveness Study. Static prices, rising costs, depressed European markets, logistics constraints, and population growth are just some of the key factors being analyzed by USAID-KHCP within a definitive study of the competitive state of industry. The assessment includes some 8 core value chains, more than 20 mature and emerging markets, and more than 10 benchmarking countries, and will identify strategic recommendations at policy level to enhance future prospects for growth and investment. The draft study report will be released in December 2013 and forms part of the Competitiveness Conference agenda scheduled for early 2014.

5.2 STANDARDS AND COMPLIANCE

Since January 2013, the export horticulture industry in Kenya has been subjected to increased controls on maximum residue levels of agrochemicals (MRLs) into the EU market, particularly affecting pea and bean exports, with 10 percent of incoming shipments subject to random testing. The Horticulture Competent Authority Structure (HCAS), as illustrated in figure five, is chaired by KEPHIS and has been consistently supported by USAID-KHCP and COLEACP.

This private-public sector collaboration has been coordinated through a series of high-level forums raising awareness among exporters and input suppliers and defining a comprehensive series of regulatory and compliance measures to improve the following areas:

- On-farm pesticide selection, purchasing, storage, application, and recordkeeping by farmers and outgrower schemes with exporters taking much greater responsibility for enforcement.
- Upgraded pesticide registration and distribution procedures and more stringent monitoring of pesticide quality by the Pesticides Control Products Board.
- Rigorous enforcement of traceability systems and registration of all outgrowers by HCDA to minimize interference by unlicensed brokers or briefcase exporters.
- A comprehensive independent program by HCDA and KEPHIS targeting 8,000 samples of export and local market fruit and vegetables to assess compliance with pesticide residues, budgeted at \$2 million per annum.
- Suspension of export licenses for companies subject to an EU notification of excess MRL and a thorough audit of compliance systems before license reinstatement. Since March 2013, a total of 31 export licenses have been suspended (some for periods up to 5 weeks) which has been a game-changer in terms of forcing exporters to invest in compliance infrastructure and protocols or risk losing their business and market share for good.
- A summary of the notifications sent from the EU to Kenya showing samples with pesticide residues that exceed the maximum permitted limit is shown in the two graphs below. The two graphs show that the level of interceptions continues to be a serious issue in terms of satisfying the EU authorities that the Kenya phytosanitary systems justify the removal of the sampling program.

Figure 5: HCA structure and roles

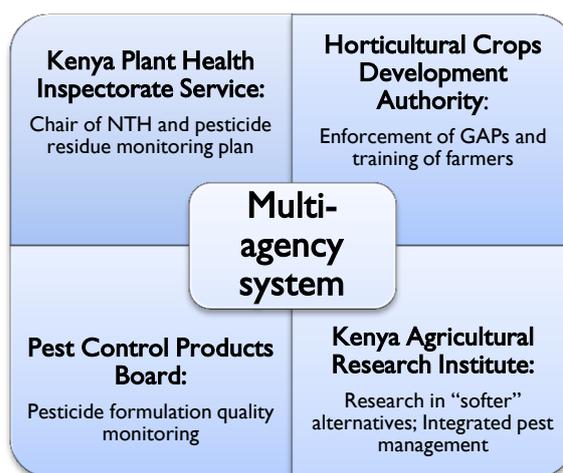


Figure 6: MRL Notifications, Jan - August 2013

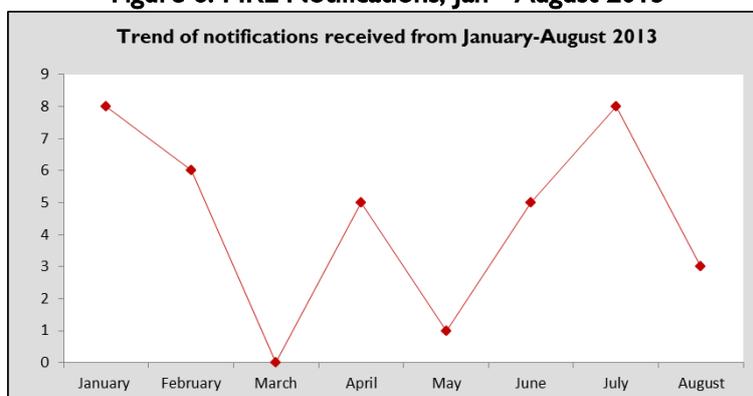
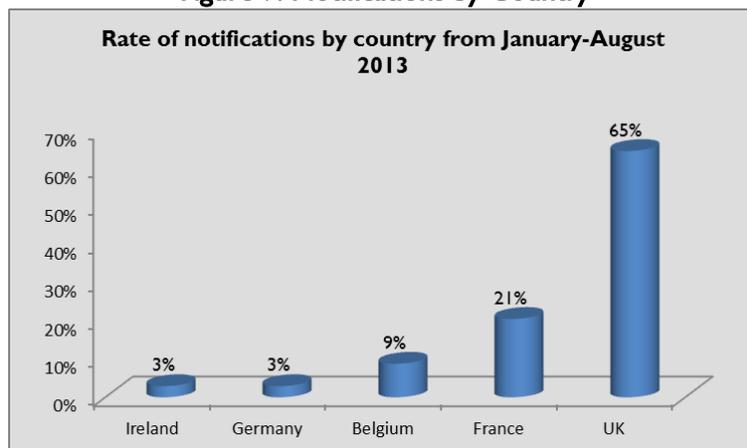


Figure 7: Notifications by Country

The pesticide residue issue has had a significant impact on the independent farmers who used to sell to exporters via brokers. They have found themselves with no assured markets after exporters restricted their procurement to registered out-growers schemes only. The commercial impact has been mixed and complex. On the one hand, anecdotal discussion with those exporters, heavily reliant on smallholders, has suggested that export volumes of peas and beans have gone down by 25% - 35% from 2012 levels. Other exporters, who mainly produce from larger commercial farms, have seen a consequential increase in orders to fulfill temporary shortfalls of supply into the market. However, the financial impact of the MRL sampling program has been a serious detriment to the industry's competitiveness. The sampling program in the EU causes delays, extra cost for each sample (up to £474 or \$762)⁴ and the consequential loss of value from an interception where the entire shipment is dumped.

Other activities in the area of standards and compliance include:

- a) KenyaGAP training has been provided by USAID-KHCP partnerships and the FPEAK panel of experts to 4,988 farmers in Thika, Meru, Sagana, Matuu, Kibwezi and Mwea with an additional 468 farmers re-certified to GlobalGAP under the Vegpro and WONI outgrower schemes. Forty one professional staff successfully passed the auditors training courses at the Horticulture Practical Training Center, alongside the sixteen staff who participated in integrated pest management (IPM) course designed for advanced technicians.
- b) The 4th annual workshop on OECD quality standards for fruits and vegetables in Eastern Africa attracted 38 participants from Kenya, Uganda, Tanzania, Zambia, Democratic Republic of Congo, Burundi, Rwanda, Ethiopia, and Zambia. The technical support provided by the German Federal Agency for Agriculture and Food provided valuable insight into the planned integrated quality inspection systems which will be coming into force throughout the European Union.

5.3 MARKET INFORMATION SYSTEMS

The National Horticulture Market Information System (NaHMIS), under HCDA's leadership, is finally taking shape. The NaHMIS is collating, consolidating, and integrating all credible sources of market information through a common digital platform to improve domestic accessibility to real-time business information and improve linkages with selected reference databases. USAID-KHCP is facilitating the consultancy survey that is conducting an in-depth technical assessment of the existing knowledge management systems to inform the NaHMIS design work going forward.

⁴ Directorate General for Health Consumers in the EU

Throughout the year, USAID-KHCP released 7 market news bulletins to more than 10,000 direct subscribers, which were also made available through the Horticultural News website to an estimated audience of 1.7 million interactive members of the public. Sharing content with other media sources including Biashara Leo, Food magazine, Eurofruit, and the Fresh Produce Journal continues to broaden project visibility. Market analyses covering Dubai, Muscat, Jeddah, and commercial case studies for smallholder summer flowers, pulses, and passion fruit, have been disseminated to the industry. Maersk Logistics invited USAID-KHCP to participate in a promotional video highlighting the refrigerated sea freight of mangoes and avocados with KEITT Exporters in Kenya, which has subsequently been aired on television in four African countries, including repeat showings in Kenya.

USAID-KHCP has contributed to the printing of 550 copies of the Horticulture Validated Report for 2012, which is developed annually by HCDA and the Ministry of Agriculture for use as a policy planning tool at national and county levels.

5.4 COMMERCIAL NUTRITION

Commercial Nutrition



USAID-KHCPs emphasis on sustainability is taking serious form with the strengthening of the commercial nutrition processors. Farmers now have consistent regular outlets for their products where they do not have to worry any more about the surplus production during the bumper harvests. Their products are being preserved through various value addition processes and released to the market without the pressure of oversupply. Nineteen active food processing companies under the partnership continued to benefit from technical support, capacity building, trainings, new product development, Packaging, Standard certifications, Market promotion and linkages 8 have been highlighted below.

PROCESSOR	PRODUCTS	KHCP INTERVENTIONS & IMPACT
Huruma women group	OFSP flour, fortified porridge flour, pumpkin flour and seeds, dried cowpeas & cowpeas flour, sorghum flour, cassava flour, baobab seeds, dried ALVs	Drying capacity has increased from less than 50kgs per day to 250kgs per day Intervention: solar dryer
Kasambani women group	OFSP flour, Dried ALVs, dried cowpeas, sweet potato/wheat flour baked products	Increased drying capacity to 250kgs/day in a hygienic environment. The group used to dry their produce under a tree Intervention: solar dryer
Utithiri women orphan child support group	Dried Amaranth and popped amaranth, dried African leafy vegetables, dried mangoes	The group used to dry their produce under a tree and the capacity has increased from 30kgs to 250kgs per day. Intervention: solar dryer
Nyangorora Banana processors	Banana crisps, Dried bananas, Banana flour	Have registered over 1,200 farmers and more than doubled their crisps processing capacity. New packaging has attracted markets like Uchumi and Nakumatt supermarkets Intervention: Deep fryer, Banana crisps packaging and a solar dryer
Sweet N Dried	Dried ripe bananas, dried mangoes, banana flour, sweet potato flour, arrowroot flour, pumpkin flour, pumpkin seeds	Have increased their drying capacity from 80kgs to 330kgs/day and lowered the cost of processing by avoiding the cost of taking their produce for milling 25kms from the factory Intervention: Hammer mill and Solar dryer
Siwongo processors	Orange fleshed sweet potato flour, dried orange fleshed sweet potato chips	Increased processing capacity to over half a tonne per day and lowered the cost of production by saving the cost of transport of products for milling 20kms from the factory Intervention: hammer mill
Azuri Health Limited	Sweet potato flour, dried fruits, nutrirporridge flour	New packaging and Market promotion Introducing new product to the market is expected to more than double sweet potato flour sales and increase market for microprocessors like Siwongo processors
CREADIS	OFSP flour, orange fleshed sweet potato products like doughnuts, crisps and mandazis	solar dryer and now working on setting up a bakery Have introduced orange fleshed sweet potato products to Bungoma market and is setting up a factory which will be doing half a ton of ofsp products per day. Intervention: solar dryer and now working on setting up a bakery

“Over the period we have greatly improved through the support offered to us by the USAID-KHCP project. We have achieved tremendous growth both at the processing plant and the increased markets. The Sweet N Dried company has impacted on 250 farmers so far created job opportunities to the local community.”

Mercy Mwende,
Director, Sweet N Dried Enterprises



Gakii and Mercy from Sweet N Dried prepare sliced bananas for drying in their solar drier in Kajuki Village, Chuka, Igamba-Ng'ombe, Tharaka Nithi County.

6 new products were developed in 2013: including fortified flours, Azuri Health sweet potato new pack flour and pumpkin flour and seeds. Fortified flours include Nurture Family, Nurture junior from Stawi Foods and Fruits and ICO Health flour.

5.5 TRADE PROMOTION

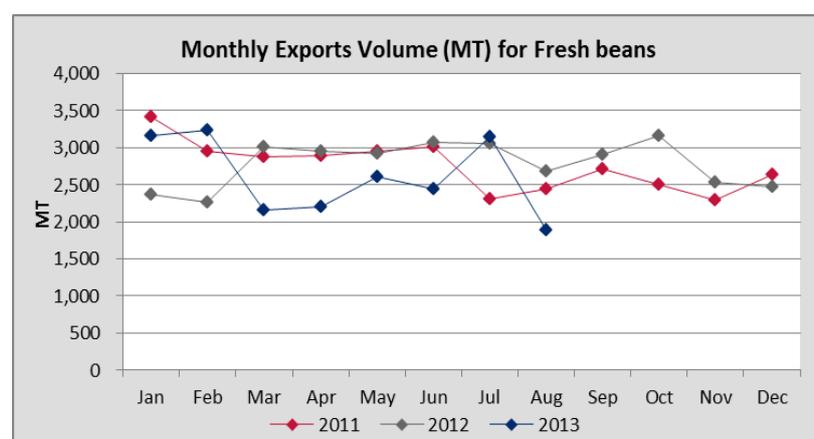
The fresh bean export industry had an annual turnover of Ksh 9.8 billion (\$115 million) in 2011. Comparing the aggregate volume and value of fresh beans exports in the first eight months of 2013 against the same period in 2011, the trend indicates a 9% drop in volume and a 15% drop in value. The detailed analysis is presented in the tables and graphs of volume and value below.

Fresh beans export trend

Monthly trend on Fresh beans Export Volume (MT)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	3,417	2,944	2,882	2,896	2,956	3,008	2,300	2,447	2,703	2,499	2,296	2,632	32,979
2012	2,374	2,264	3,017	2,949	2,917	3,067	3,048	2,675	2,902	3,154	2,528	2,469	33,365
2013	3,163	3,235	2,159	2,197	2,599	2,437	3,147	1,882					20,820

Source: Kenya National Bureau of Statistics and Compiled by USAID-KHCP



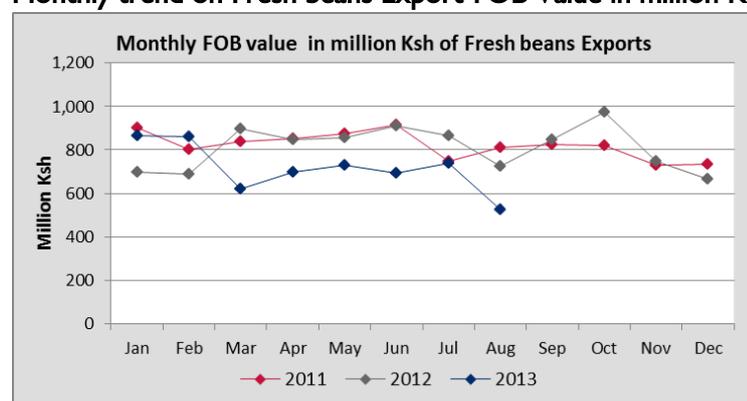
Source: Kenya National Bureau of Statistics and Compiled by USAID-KHCP

Table of Monthly trend on Fresh beans Export FOB Value in million Ksh

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	901	801	840	850	874	913	745	811	825	819	727	735	9,841
2012	696	690	895	847	856	910	866	725	848	974	746	664	9,719
2013	863	859	619	697	731	691	740	525					5,725

Source: Kenya National Bureau of Statistics and Compiled by USAID-KHCP

Monthly trend on Fresh beans Export-FOB Value in million Ksh



Source: Kenya National Bureau of Statistics and Compiled by USAID-KHCP

The fresh pea export industry had an annual turnover of Ksh 2.5 billion (\$29 million) in 2011. Comparing the aggregate volume and value of fresh pea exports in the first eight months of 2013 against the same period in 2011, the trend indicates a 22 percent drop in volume and a 58 percent drop in value. The detailed analysis is presented in the tables and graphs of volume and value below.

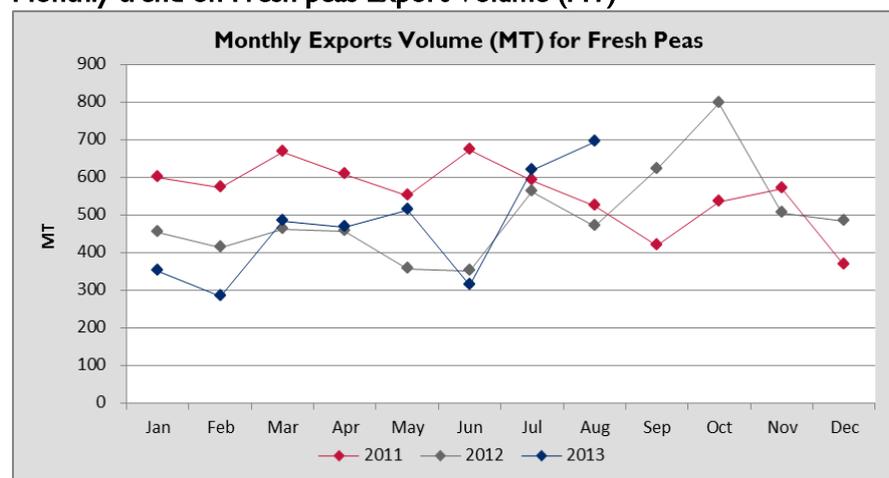
Fresh peas export trend

Table of Monthly trend on Fresh peas Export Volume (MT)

year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	599	571	668	608	549	673	593	522	419	535	569	366	6,672
2012	454	413	461	456	355	351	562	469	620	797	506	484	5,925
2013	352	283	483	467	514	313	618	694					3,723

Source: Kenya National Bureau of Statistics and Compiled by USAID-KHCP

Monthly trend on Fresh peas Export Volume (MT)



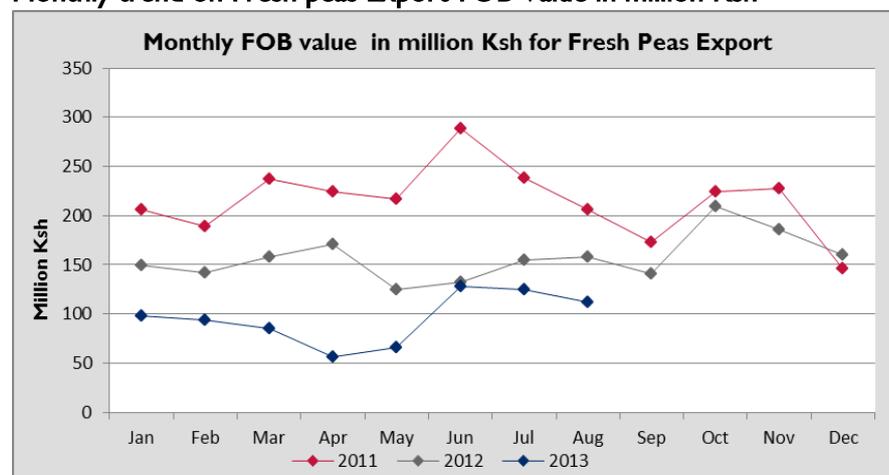
Source: Kenya National Bureau of Statistics and Compiled by USAID-KHCP

Table of Monthly trend on Fresh peas Export FOB Value in million Ksh

FOB Value	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	206	189	237	224	217	288	239	206	173	225	228	146	2,578
2012	149	141	158	171	124	132	154	158	141	209	186	160	1,885
2013	98	94	85	57	65	129	125	112					766

Source: Kenya National Bureau of Statistics and Compiled by USAID-KHCP

Monthly trend on Fresh peas Export-FOB Value in million Ksh



Source: Kenya National Bureau of Statistics and Compiled by USAID-KHCP

5.5.1 Marketing

Market linkage initiatives have scaled up in Western Kenya with more than 12,000 farmers participating in the commercial village models, developed through the partnership with Farm Concern International. Farmers receive training in agribusiness and production planning, recordkeeping, price negotiation, and investment analysis. This is backed up by direct linkages to local traders and wholesalers *at planting time* to encourage the farming as a business approach to sales, rather than the traditional dependence on ad-hoc brokers. USAID-KHCP is supporting similar localized market linkages in more than 20 counties through a network of some 500 collection centers that encourage crop aggregation, improve postharvest handling, and in many cases have seen sustained improvements in pricing structures.

More than 6,000 consumers interacted with the exciting promotional campaign events held in supermarkets and open-air markets in Busia, Bungoma, Makeni, and Machakos counties. These events highlighted the excellent taste and nutritional benefits of various flour mixes, crisps, doughnuts, chapattis and even juice that incorporated orange fleshed sweet potato. Feedback from the shoppers is guiding new promotional tools for use with other campaigns in 2014.

Leading retail buyers from Fresh'N'Juici, Naivas Supermarket, Uchumi Hypermarket, Mugoya Vegetables and Zucchini Greengrocers were the Guests of Honour at the Sweet Potato Marketing Forum organized by USAID-KHCP in Kisumu in February 2013. Wholesale buyers from six local trading markets provided an alternative volume-based perspective on sales opportunities and varietal preferences. Participating partners included the Provincial Directors of Agriculture from Western and Nyanza regions, and nutrition experts from the Ministry of Public Health and Sanitation.

The Kenya International Agricultural Trade Fair held in Nairobi during September provided the perfect opportunity for USAID-KHCP to showcase the opportunities for value added processed products using natural horticultural ingredients to an audience of local, regional, and international exhibitors, not to mention the 50,000 visitors per day at peak times. Nine partner demonstrated, cooked, tasted, promoted, and sold a colorful range of flours, cakes, crisps, food ingredients, juices, and dried products. One of the partners called Sweet N Dried so impressed a delegation from JICA that they have been selected for an exchange visit to Japan in November.

Breaking News



New market opportunities from German Trade Fair

“Exhausted but very encouraged” was the feedback from Margaret Komen, Managing Director of Mace Foods Ltd, and Sylvia Mbaabu, Marketing Information Systems Manager for USAID-KHCP, on their arrival back in Nairobi after participating in this year’s Anuga Trade Fair in Germany from October 5th -9th 2013. The Mace Foods booth acted as the springboard to increase long-term orders with core customers for its range of premium quality sun-dried chilly, produced entirely by more than 1,500 smallholder farmers in Kenya. In addition, by successfully competing in the “Fine Foods” category with 3,542 of the 6,777 exhibitors, Mace Foods received promising enquiries for the new range of natural value-added food products from some of the 155,000 visitors from 187 countries. The biggest competitive edge of the dried fruits on display by Mace Foods was the lack of sugar additives and bleaching agents like sulphur dioxide.

Leading food-ingredient importers, distributors, spice-mixers, health food chains and ethnic shop owners made enquiries on product profiles, pricing and trial shipments. There was significant number of enquiries from buyers in new emerging markets including Egypt, Algeria, South Africa, UAE, Latvia and Russia among others. Specific inquiries for potential new business and priority follow up included:

- Pricing and logistics inquiries for dried vegetables by a company that supplies food to the Africa Union armed forces;
- Inquiry from a South Korean company on 2,000MT annual supply of sweet potato flour for starch manufacturing;
- 30MT annually of dried tropical fruits to the USA;



Margaret Komen, Mace Foods Director discussing new products with potential buyers at the Anuga Food Fair 2013 in Germany.

The 30th MacFrut Exhibition held in Italy from September 25th – 26th 2013 provided the opportunity for USAID-KHCP to benchmark Kenya’s fruit and vegetable sector against the displays of product from 819 exhibitors from five continents. The emphasis on fruit technology highlighted the challenge from top competitors such as the mango plantations in Brazil who now offer year-round supply through varietal selection and crop management. Sophisticated packaging machinery from Spain demonstrated the ability to grade, package, and label individual fruits, protected from bruising and deterioration.

ANNEX 1: FINANCIAL SUMMARY

The financial summary in Annex 1 summarizes USAID-KHCP expenditures from project inception through September 30, 2013. Total funds expended during the past fiscal year (October 1, 2012 through September 30, 2013) were \$6,913,606. A balance of 39% of the total contract funding is remaining. Of the current obligation, 15% of the funding remains. Financial summary submitted as separate attachment.

ANNEX 2: USAID-KHCP INDICATOR PERFORMANCE AGAINST TARGETS

	Indicator	FY '13					Units
		Baseline	FY11	FY12	Target	Actual	
1	Number of rural households benefiting from USG interventions		41,052	84,021	140,000	147,964	Households
	Males		20,347	40,100	76,500	68,219	
	Females		20,705	43,921	63,500	79,745	
2	Gross margin per unit of land, kilogram, or animal of selected product						US\$/Hectare
	Passion Fruit (Purple)	5,385		13,816	13,500	6,983	
	Tomato	1,739	4,067	3,062	3,500	3,824	
	Sweet Potato	553	629	1,036	1,600	983	
3	Number of farmers and others who have applied new technologies or management practices as a result of USG assistance		44,708	43,068	126,000	104,453	Farmers
	Males		21,592	26,232	57,960	51,644	
	Females		23,116	16,836	68,040	52,808	
4	Number of hectares under improved technologies or management practices as a result of USG assistance		6,079	14,763	20,397	24,642	Hectares
5	Number of technologies or management practices in one of the following phases of development: Phase III: made available for transfer as a result of USG assistance		9	4	2	2	Technologies / Management Practices
6	Number of individuals who have received USG supported short-term agricultural sector productivity or food security training				50,000	62,471	Individuals
	Males				23,000	28,726	
	Females				27,000	33,745	
7	Number of stakeholders implementing risk-reducing practices/actions to improve resilience to climate change as a result of USG assistance				112,000	103,288	Producers
	Males				51,520	51,228	
	Females				60,480	52,060	
8	Value of incremental sales (collected at farm-level) attributed to FTF implementation				11	27	US Million
	Passion Fruit (Purple)				4	7	
	Tomato				5	17	
	Sweet Potato				2	4	
9	Value and volume of exports of targeted agricultural commodities as a result of USG assistance				11,524	9,485	US Thousand
					3,746	3,825	MT
	Passion Fruit				209	188	US Thousand
					182	156	MT
	Peas				1,618	1,070	US Thousand
					357	455	MT
	Beans				9,632	8,174	US Thousand
					3,154	3,151	MT
	Tomatoes				64	49	US Thousand
					50	58	MT
	Sweet Potatoes				2	5	US Thousand
					2	5	MT

	Indicator	FY '13					Units
		Baseline	FY11	FY12	Target	Actual	
10	Number of people trained in child health in nutrition				45,000	7,299	Individuals
11	Number of new fortified products introduced by commercial partners				4	6	Fortified Products
12	Volume and Value of processed ingredients for nutritionally enhanced products				420	164	MT
					313,366	205,057	USD
13	Percent change in Household Dietary Diversity Score (HDDS)				8%	Available in Dec 2013	Percent
14	Value of new private sector investment in the agriculture sector or food chain leveraged by FTF implementation				4	3.83	US Million
15	Numbers of Policies/Regulations/Administrative Procedures in each of the following stages of development as a result of USG assistance in each case:						Policies
	Stage 1: Analyzed		1	5	1	3	
	Stage 2: Drafted and presented for public/stakeholder consultation						
16	Number of public-private partnerships formed as a result of FTF assistance		33	5	5	28	Partnerships
17	Score, in percent, of combined key areas of organization capacity amongst USG direct and indirect local implementing partners				50%	64%	Percent
18	Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG assistance		1,194	2,400	3,000	4,532	Private Enterprises, etc.
19	Proportion change in number of women in leadership positions in partner producer groups				45%	50%	Percent
20	Number of women's organizations/associations assisted as a result of USG supported interventions		585	1,214	1,600	2,066	Associations
21	Women's Dietary Diversity: Mean number of food groups consumed by women of reproductive age				6	Available in Dec 2013	Food Groups
22	Proportion of female participants in USG-assisted programs designed to increase access to productive economic resources				0.45	0.54	Proportion
23	Proportion of target population reporting increased agreement with the concept that males and females should have equal access to social, economic, and political opportunities				No target New indicator	2.93 out of 5	Proportion

ANNEX 3: FY13 WORK PLAN

	Activity	Targets	Q	Q	Q	Q	Results
		Year 3	1	2	3	4	Year 3
1	Project Administrative Activities						
	Communications & Reporting						
1.1	Project Newsletters	12	14	13	12	12	51
1.2	Success Stories	4	0	1	0	1	2
1.3	Market News Information Services	12	0	1	3	3	7
1.4	Quarterly Reports	3	0	1	1	1	3
1.5	Annual Reports	1	1	0	0	0	1
1.6	Annual Work plan	1	1	0	0	0	1
1.7	Final Report	0	0	0	0	0	0
2	Monitoring & Evaluation						
2.1	USAID Regional M&E/staff field visits	18	1	16	10	10	37
2.2	M&E System developed installed and supported	25	5	13	22	11	51
2.3	Baseline Data report completed for new indicators	2	0	1	0	0	1
2.4	Crop productivity survey data collections	4	0	3	1	2	6
2.5	Progress review with USAID	3	0	5	0	2	7
2.6	Mid-Term evaluation	1	0	0	0	0	0
2.7	Partner trainings in M&E methodology	60	15	14	22	14	65
2.8	Indicator data verification through RDQA	5	1	13	6	3	23
3	Productivity Enhancement and Food Security						
3.1	Partner sub-grant awards developed	10	0	6	0	1	7
3.2	Demonstration plots operating	1,400	124	200	364	185	873
3.3	Technical assistance field visits	15,000	1,986	1,517	1,594	1,461	6,558
3.4	Agricultural productivity field days	220	20	32	28	66	146
3.5	Crop production guides produced/updated	10	1	1	0	6	8
3.6	Crop budget developed	5	1	4	0	6	11
3.7	Training workshops held (GAPs, irrigation etc)	45	7	9	15	13	44
4	Natural Resource Management						
4.1	Capacity building for environmental monitoring and mitigation	8	0	3	8	3	14
4.2	PERSUAP review and/or Updates	1	0	0	0	1	1
4.3	Project support for agroforestry/tree planting	5	0	6	3	1	10
4.4	Climate change analysis or workshop participation	5	0	1	5	1	7
5	Value-Addition & Post Harvest Handling						
5.1	Review of micro- and commercial processing activities	20	0	11	5	5	21
5.2	Processing/value-added feasibility studies	4	0	0	2	5	7
5.3	Technical assistance visits at factory/client sites	50	0	24	20	10	54
5.4	STTA assistance provided	2	0	0	0	1	1
5.5	Training workshops held (standards, HACCP, etc.)	8	7	2	4	2	15
5.6	Processing/value-added technical manuals	6	0	5	2	4	11
5.7	Value-added/nutritional products developments	2	0	1	2	3	6
6	Value Chain Coordination, Marketing and Trade						

	Activity	Targets	Q	Q	Q	Q	Results
		Year 3	1	2	3	4	Year 3
	Promotion						
6.1	National Crop Forums	2	0	2	2	2	6
6.2	Support for MIS and market linkages	75	18	22	26	23	89
6.3	MIS training /workshops/seminars held	10	1	1	1	5	8
6.4	Market analyses for crops/value added products	10	0	3	2	5	10
6.5	Value chain studies	3	0	1	0	2	3
7	Business Environment & Institutional Capacity-Building						
7.1	Participation in National Taskforce on Horticulture	3	1	1	1	2	5
7.2	Horticulture Industry Competitiveness Forums	2	0	1	1	1	3
7.3	Support for wholesale marketing systems	2	1	1	1	1	4
7.4	Capacity building in international & domestic standards	15	0	5	11	8	24
7.5	Participation in workshops in standards compliance	10	4	7	6	3	20
7.6	STTA support in capacity building & bus. environment	2	0	0	0	2	2
7.7	Strategic analysis of industry policies and constraints	4	1	1	2	1	5
8	Gender						
8.1	Gender ToTs	5	3	3	2	7	15
8.2	Gender needs assessment	8	0	5	0	16	21
8.3	Gender case Studies	2	0	1	0	0	1
8.4	National Stakeholder events on Gender	3	0	0	0	0	0
8.5	Gender Training materials	5	1	0	0	4	5
8.6	Gender perceptions survey completed	1	0	0	0	1	1
9	Youth						
9.1	Youth ToTs	3	0	3	2	7	12
9.2	Youth Needs assessment	4	0	5	0	4	9
9.3	National Stakeholder events on Youth	2	1	0	0	0	1
9.4	Youth Training materials	5	4	0	0	4	8
10	Nutrition						
10.1	Nutrition ToTs	5	2	0	5	16	23
10.2	Integrated Nutritional Framework developed	1	1	0	0	1	2
10.3	Nutrition-related capacity building activities	40	4	21	77	16	118
10.4	Nutrition Partnership developed	5	1	2	2	16	21
10.5	Nutrition-related trainings	60	22	30	45	16	113

ANNEX 4: GRANT ALLOCATION AND DISBURSEMENT SUMMARY

Subaward	Dates	Budgeted	Expended	% Spent	Balance	% Balance
PF 01 Wilmar Agro Ltd	10/21/10-9/30/13	\$477,850	\$477,850	100%	\$0	0%
PF 02 Pwani Projects Development Consultants (PPDC)	10/21/10-9/30/13	\$301,000	\$264,147	88%	\$36,853	12%
PF 03 Sunripe 1976 Ltd	10/21/10-9/30/13	\$254,325	\$230,446	91%	\$23,879	9%
PF 04 Dryland Seeds Company	10/21/10-9/30/13	\$169,107	\$148,080	88%	\$21,027	12%
PF 05 Business Initiatives for Survival and Eradication of Poverty (BISEP)	10/21/10-9/30/13	\$294,574	\$226,467	77%	\$68,107	23%
PF 06 Ukamba Christian Community Service (UCCS)	10/21/10-9/30/13	\$216,323	\$213,146	99%	\$3,177	1%
PF 07 Agricultural Technologies & Information Program (ATIP)	10/21/10-9/30/13	\$156,977	\$78,597	50%	\$78,380	50%
PF 08 Animal Draft Power Programme (ADPP)	10/21/10-9/30/13	\$499,260	\$410,881	82%	\$88,379	18%
PF 09 KENGAP	10/21/10-9/30/13	\$199,216	\$126,496	63%	\$72,720	37%
PF 10 Good Neighbours Community Programme (GNCP)	10/21/10-9/30/13	\$422,134	\$410,443	97%	\$11,691	3%
PF 11 Mace Foods	4/20/11 - 3/31/14	\$366,546	\$210,602	57%	\$155,944	43%
PF 12 VEEMA	4/20/11 - 3/31/14	\$343,395	\$183,733	54%	\$159,662	46%
PF 13 Canken International	4/20/11 - 3/31/14	\$388,705	\$279,143	72%	\$109,562	28%
PF 14 Blue Rhino Consult	4/20/11 - 3/31/13	\$362,887	\$340,975	94%	\$21,912	6%
PF 15 KENFAP	4/20/11 - 3/31/14	\$485,305	\$173,530	36%	\$311,775	64%
PF 16 Kenya Rainwater Association (KRA)	4/20/11 - 4/30/14	\$507,239	\$406,025	80%	\$101,214	20%
PF 17 CREADIS	4/20/11 - 3/31/14	\$440,469	\$285,940	65%	\$154,529	35%
PF 18 Africa Harvest	4/20/11 - 9/30/14	\$440,428	\$242,297	55%	\$198,131	45%
PF 19 WONI Exporters	4/20/11 - 3/31/14	\$270,838	\$119,128	44%	\$151,710	56%
PF 20 VEGPRO	4/20/11 - 3/31/13	\$264,150	\$246,570	93%	\$17,580	7%
PF 21 Syngenta	9/21/11-8/31/14	\$588,743	\$268,519	46%	\$320,224	54%
PF 22 ACKWRCCS	9/21/11-8/31/14	\$466,795	\$200,536	43%	\$266,259	57%
PF 23 ARDAP	9/21/11-8/31/14	\$565,484	\$280,301	50%	\$285,183	50%
PF 24 Siboti Foods	9/21/11-8/31/14	\$298,765	\$2,617	1%	\$296,148	99%
PF 25 Earth Oil	9/21/11-8/31/14	\$349,514	\$263,286	75%	\$86,228	25%
PF 26 FPEAK	5/9/12-12/31/14	\$950,183	\$335,806	35%	\$614,377	65%
PF 27 Monsanto		\$210,295	\$0	0%	\$210,295	100%

PF 28	Green Zone Agencies (GZA)	1/20/12-2/28/14	\$346,381	\$304,202	88%	\$42,179	12%
PF 29	Community Mobilization Against Desertification (C-MAD)	1/20/12-2/28/14	\$315,038	\$236,389	75%	\$78,649	25%
PF 30	Crop Nutrition Laboratory Services (CNLS)	1/20/12-9/30/13	\$392,723	\$257,485	66%	\$135,238	34%
TF 01	Real Impact	4/20/11-3/31/13	\$321,102	\$296,535	92%	\$24,567	8%
TF02	Public Private Partnership	5/1/13- 4/30/14	\$261,965	\$31,975	12%	\$229,990	88%
TF 03	Micro Processors	2/12/13-2/31/13	\$338,592	\$6,848	2%	\$331,744	98%
SC 01	Analysis Strategies	11/1/10-2/28/15	\$46,121	\$46,121	100%	\$0	0%
SC 02	TNS Research	3/16/11-3/16/12	\$180,963	\$175,058	97%	\$5,905	3%
SC 03	Dr. Alice Mwangi	5/3/11-7/31/11	\$39,078	\$39,068	100%	\$10	0%
SC 04	Streamlined Solutions Ltd	9/16/11-12/31/11	\$88,600	\$72,110	81%	\$16,490	19%
SC 05	QSM	9/16/11-8/31/13	\$470,735	\$152,009	32%	\$318,726	68%
SC 06	AS&A	9/16/11-2/29/12	\$158,035	\$158,035	100%	\$0	0%
SC 07	Farm Concern International	9/16/11-8/31/14	\$598,580	\$396,236	66%	\$202,344	34%
FPC 09	East African Growers Ltd.	2/7/13-10/31/14	\$431,777	\$102,280	24%	\$329,497	76%
FPC 11	Keitt Exporters Ltd.	2/7/13-6/30/14	\$205,889	\$129,642	63%	\$76,247	37%
FPC 12	Meru Greens Horticulture	2/7/13-10/31/14	\$351,204	\$104,132	30%	\$247,072	70%
FPC 13	Equatorial Hortifresh Ltd.	2/7/13-10/31/14	\$305,806	\$93,932	31%	\$211,874	69%
FPC 14	ACT	4/1/13-1/31/13	\$266,746	\$64,548	24%	\$202,198	76%
FPC 15	AMREF	5/1/13-7/31/14	\$620,954	\$79,035	13%	\$541,919	87%
Total			\$16,030,796	\$9,171,202	57%	\$6,859,594	43%

GRANT BUDGET STATEMENT	Amount
Total grant budget	18,000,000
Approved Subawards	16,030,796
Unassigned Balance	1,969,204
Balance from county realignment	950,741
Total available balance	2,919,945

ANNEX 5: SNAPSHOT



SNAPSHOT

Kenyan Vegetable Export Business on the Path to Recovery

Provision of innovative technical solutions key to Kenya's competitive export advantage



Photo by Fintrac Inc.

Martha Maingi, an export farmer in Kibiriichia in Meru County inspects her peas grown in the greenhouse tunnel.

"I don't have to be persuaded about this (greenhouse) technology. I have witnessed with my own two eyes about their importance and value. Through the tunnels, I'm earning ten times more compared to the open field."

- Martha Maingi, export farmer.

Telling Our Story
U.S. Agency for International Development
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<http://stories.usaid.gov>

Over the last three decades, the Kenyan vegetables export business has built its reputation and commercial success with peas and beans as the flagship products. The sector has experienced tough times in 2012 due to a rapid rise in production costs, depressed prices in the major European markets, lack of procurement discipline by farmers and exporters, and the vulnerability of crops grown in open fields facing drought, excessive rainfall, and pests and diseases, which limit crop yields and quality. Despite these economic pressures, overall exports of vegetables (primarily peas and beans) only declined by 2.6 percent from Ksh 31 billion (\$379 million) in 2011 to Ksh 30 billion (\$369 million) in 2012.

In recent months, however, the situation has worsened. The European Union has increased the level of surveillance checks due to the perception of increased food safety issues from agrochemical residue levels. As a result, Kenyan exporters have moved away from smallholder sourcing, and Kenyan exports have declined significantly. For instance, bean sales have dropped by 25 percent in January 2013 compared to January 2012, according to the Fresh Produce and Exporters Association of Kenya (FPEAK) and the Fresh Produce Journal.

The USAID-funded Kenya Horticulture Competitiveness Project (KHCP) partnership with FPEAK is responding with a program of farm infrastructure development at the Horticulture Practical Training Centre (PTC) in Thika. The support for PTC's vegetable, fruit nursery, and flower units is delivering skills training to 15,000 farmers over the next two years. An additional 50,000 farmers are being trained on agrochemical compliance to international standards in good agricultural practices through a network of eight "Mini-PTCs" across the country.

The project has also partnered with Vegpro (K) Ltd, a major exporter of vegetables, fruits, and flowers to Europe. Through this partnership, Vegpro is rolling out greenhouse tunnels and drip irrigation trials in pea production for 600 contracted outgrowers around the Mt. Kenya region. The tunnels, which minimize the usage of agrochemicals and increase the crop life cycle, have shown average yield increase of 48 percent compared to open field production. What's more, 98 percent of the crop grown under the 0.98 ha tunnel was marketable, compared to only 15 percent of the crop grown in open fields due to damage from hailstorms and disease infection. Each tunnel generated an average gross income of Ksh 30,745 (\$384) compared to only Ksh 3,188 (\$40) from the open field. To accelerate the adoption of the tunnel technology, USAID-KHCP is working closely with the USAID Financial Inclusion for Rural Microenterprises (FIRM) project to map the best options for finance packages suited to farmer's cash flow.

Through these public-private partnerships and training centers, USAID-KHCP is increasing smallholders' ability to compete in the global marketplace while helping the Kenyan vegetable export industry get back on track during the second half of the year.

USAID-KHCP Snapshot March 2013



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SNAPSHOT

Potato Proves a Hit for Farmers in Kenya

Quality seeds and postharvest technologies improve farmers' yields and incomes



Photo by Fintrac Inc.

Janet Koech, a member of Mwangaza Farmer Group harvests potato in Tiroto, Bomet County. The USAID-KHCP's supported demonstration sites have produced a range of crop yields ranging from 9.9 up to 29 MT per hectare, more than three times the national average.

“Kenya’s population is projected to exceed 60 million people by 2030. This is why the government is encouraging public-private partnerships to scale up potato production as a way of improving food security and income for farmers.”

*— Dr. Romano Kieme, Permanent Secretary,
Ministry of Agriculture*

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Potato is Kenya’s second most important food crop behind maize, involving more than 790,000 smallholder farmers producing 2.9 million metric tons (MT) across 123,000 hectares (Horticulture Validated Report, 2012). The industry generates approximately Ksh 46 billion (\$561 million) in sales every year. Despite its importance, the potato sector is performing below expectation. Outdated production technology – in combination with small farm sizes and poor rotations – results in low yields and high prevalence of pests and disease. Varietal research is slow and restricted to the public sector, and supply of clean seed is sufficient for less than five percent of national demand.

In response, the USAID-funded Kenya Horticulture Competitiveness Project (KHCP) is supporting the potato sector revival through a strategic partnership with the Kenya National Potato Farmers Association (KENAPOFA), with umbrella support provided by the Kenya Federation of Agricultural Producers (KENFAP). Through its membership of 10,400 smallholder farmers growing 3,350 hectares of potato, KENAPOFA is an influential player in the sector, responsible for over Ksh 1 billion (\$12 million) of sales from its members.

For instance, in the last year, USAID-KHCP has provided 5,617 farmers with training in agronomy, while farm sales from more than 1,000 hectares of commercial crops have reached Ksh 214 million (\$2.6 million). Through its current work in Bomet County, USAID-KHCP has helped expand an earlier initiative with the Kenya Agricultural Research Institute (KARI), Ministry of Agriculture (MOA), and the International Potato Center (CIP) on market linkages with Deepa Industries, a leading processor using potatoes to make crisps (potato chips). The company has since increased monthly purchases of 110 kg bags of potato from 400 to 900 bags from 300 contracted farmers. Average income per grower has increased by 11 percent from Ksh 40,500 to 45,000 (\$494 to \$549) per month.

The project is delivering technical solutions to potato production for farmers in Meru County. A package of clean seed and essential crop protection products provided through the partnership between Syngenta and Kisima Farm, a leading commercial seed producer in the country, is expected to have a direct mutual benefit with the USAID-KHCP potato partnership with KENFAP. Other initiatives to address seed availability are being undertaken through a bilateral agreement between the Kenyan and Dutch Government that allows the importation of foundation seed under strict phytosanitary procedures.

USAID-KHCP continues to provide business advisory services to leading private sector agribusiness organizations to encourage more investment into the seed sector. The project is also supporting national policy by providing technical input to the Roots and Tubers policy spearheaded by MOA. The policy is aimed at providing a more pragmatic framework to enhance public-private partnerships and investment throughout the crop cycle.

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