FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

Accelerated Value Chain Development Program(AVCD)

2015/16 Annual Progress Report

February 2017
Grant Number USA-081

Prepared by: AVCD Program Management Secretariat (PMS)
International Livestock Research Institute
P.O. Box 30709 00100
Nairobi.

USAID
FROM THE AMERICAN PEOPLE

CGIAR Science for a food secure future
ILRI INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE
CIP INTERNATIONAL POTATO CENTER
ICRISAT INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS

Table of Contents

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

AHADI	Agile Harmonized Assistance for Devolved Institutions
AL2	Arid Lands
AVCD	Accelerated Value Chain Development
BCC	Behaviour Change Communication
CIP	International Potato Centre
DTC	Drought Tolerant Crops
DVC	Dairy Value Chain
ECF	East Coast Fever
ENV	Environment
FEAST	Feed Assessment Tool
FIPS	Farm Input Promotion Services
FTE	Full Time Equivalent
FTF	Feed the Future
GAIN	Global Alliance for Improved Nutrition
HI	Heifer International
HR	High Rainfall
ICRISAT	International Crops Research Institute for Semi-Arid Tropics
ILRI	International Livestock Research Institute
KALRO	Kenya Agricultural and Livestock Research Organization
KLMC	Kenya Livestock Marketing Council
LMAs	Livestock Marketing Associations
LRs	Long Rains
LSE	Livestock Systems and Environment
LVC	Livestock Value Chain
M&E	Monitoring and Evaluation
MIS	Market Information System
MOH	Ministry of Health
NHPplus	Nutrition and Health Program Plus
NRT	Northern Rangelands Trust
ODK	Open Data Kit
OEG	Office of Economic Growth
PREG	Partnership for resilience and economic growth
RCVC	Root Crops Value Chain
REGAL-AG	Resilience and Economic Growth in the Arid Lands – Accelerated Growth
REGAL-IR	Resilience and Economic Growth in the Arid Lands – Improved Resilience
SA	Semi-Arid
SCAO	Sub-County Agricultural Officers
SRs	Short Rains
TOT	Training of Trainers
UoN	University of Nairobi
USAID	United States Agency for International Development
USG	United States Government
VC	Value Chain
VDBA	Village Dairy Business Advisor
WAOs	Ward Agricultural Officers
ZOI	Zone of influence

1. EXECUTIVE SUMMARY

The Feed the Future Kenya Accelerated Value Chain Development (AVCD) program is implemented by the International Livestock Research Institute (ILRI), International Potato Centre (CIP) and International Crops Research for Semi-Arid Tropics (ICRISAT) with ILRI as the lead Center. The program comprises the livestock value chain, the dairy value chain and the staples value chains (root crops - potato and sweetpotato, and drought tolerant crops - sorghum, millet, finger millet, groundnuts, green grams and pigeon peas). Activities of the program are spread over 103 sub-counties within 21 Counties in all Feed the Future (FTF) Zones of influence (ZOI) in Kenya. This report covers the first year of implementation of the program, starting from 1st October 2015 to 30th September 2016.

All the value chain components have integrated extremely well with the County Governments and local development agencies, and activities have shown demonstrable impacts. For example in the Arid Lands (AL2) FTF ZOI the impact of the program is demonstrated by the increase in number of inquiries made to field staff on prices of animals in different markets from traders and producers. This demand has risen tremendously, possibility due to the sensintisation and training that that the program has given to the communities on prices and market information system In this zone, most activities focused on training of government and local development agencies personnel, and farmers on various technologies and innovation. In addition, some policies on livestock market management, supported by the program, were reviewed and debated by the Country Assemblies.

In the High Rainfall (HR1) and the Semi-Arid (SA2) FTF ZOI, the dairy value chain made considerable progress in deepening private sector engagement. Several management and marketing firms[1] were linked to dairy businesses to provide strategic planning, contract management, retail management and marketing services at negotiated and affordable rates to respective dairy businesses. Subsequently several dairy businesses[2] with thousands of active farmer clientele were supported to invest in business turnaround, growth and expansion strategies. Most of the activities of this component focused on training of county government and development agencies personnel and farmers, on the new technologies and innovations, artificial insemination of selected cows through Fixed Time Artificial Insemination FTAI), and vaccination against East Cost Fever (ECF).

The staples value chain also deepened engagements with the private sector in the development of seed systems. Examples of these engagements include Stokman Rozen Kenya (SRK), who produce cuttings for seed multipliers, a first wave in introducing the technology. SRK will invest in infrastructure to diversify and expand into commercially rooted cuttings. Genetic Technologies International Ltd (GTIL) began to produce rooted cuttings for starter planting material for their own seed production. Private sector agro inputs dealers and value addition companies also joined the program in order to link farmers, some as suppliers of inputs, PIC bags and fertilizers and others for contracting farmers.

Several lessons were learnt in the first year of program implementation in the various value chains. In the livestock value chain, it emerged that continuous engagement of the Livestock Marketing Association (LMA) through mentoring and coaching resulted into an increase in revenue and proper management of the livestock market. This was evident in Merille market of Marsabit County where mentoring and coaching of the LMA delivered over two months resulted in an increase of revenue collected by over 50 percent in August 2016 compared to the same period during the previous year.

It also emerged that the three-tier train-a-trainer model on syndromic disease recognition is an effective way of cascading knowledge to livestock producers. Pastoralists especially in Garissa County were willing to purchase veterinary drugs such as dewormers. The team will pilot ways of delivering these and other private services to the villages, these services could be provided together with other public animal health services such as vaccination. Other alternative ways of delivering these products include initiating vet runs to allow private agents to deliver the products to markets, animal watering points, etc. Interaction with the County Government staff indicated that despite the multiple projects that are implementing

[1] Rose Avenue Consulting Group, Selwood Consultants, Pristine Consulting House, House of Panache, Blue eyes, Mak 5 Business Hub and Dudu Squad

[2] These businesses include 5 dairy cooperatives, 1 processor, 5 ag input stores and 4 dairy trader associations

animal health activities in the region, there is little knowledge on the distribution of diseases in the SA2 ZOI counties. Furthermore, there are no guidelines on how interventions such as vaccination ought to be delivered. It also emerged that in most of the counties, there is both capacity and willingness by both the traders and the County Governments to invest in milk chilling and pasteurizing equipment. In Taita Taveta County the program is supporting a trader's association to move towards formalization by facilitating linkages with equipment, marketing and financial service providers.

The AVCD program surpassed targets for one of its topline indicators i.e. Number of individuals who have received USG supported short-term agricultural sector productivity or food security training by 34%. The program achieved 97 % of the target for the number of beneficiaries benefitting directly from USG intervention and 74 % of the targets for the number of farmers and others who applied improved technologies or management practices. Only 31% of the target for the number of hectares under improved technologies was reported because the more accurate figures will be derived from annual surveys. Similarly the nutrition targets for the year were not achieved because most of the activities were started late due to delays in recruiting the nutrition personnel. However, these activities are expected to speed up and catch up during the year.

The table 1 below highlights the targets and achievements for the topline indicators made during the first year of program implementation.

Table 1. Topline Indicator Achievements.

Indicator	Indicator Name	Targets Year 1	Achieved Year 1	%
FtF 01	Estimated number and percentage of FTF beneficiaries holding 5 hectares or less of arable land or equivalent units of livestock (Smallholders) (R)	62,500	60,380	97
4.5.2 (2)	Number of hectares of land under improved technologies or management practices with USG assistance (RAA) (WOG)	133,771	41,881	31
4.5.2 (5)	Number of farmers and others who have applied improved technologies or management practices with USG assistance (RAA) (WOG)	48,570	35,984	74
4.5.2 (7)	Number of individuals who have received USG supported short-term agricultural sector productivity or food security training (RAA) (WOG)	26,300	35,137	134
4.5.2 (42)	Number of profit private enterprises, producers organizations, women's groups, trade & business associations and CBOs that applied organizational level technologies or management practices with USG assistance	278	182	65
3.1.9 (1)	Number of people trained in child health and nutrition through USG-supported programs	12,847	2,286	18
3.1.9 (15)	Number of children under five years reached with community level nutrition interventions through USG-supported	24,704	13,006	53

The AVCD nutrition component is working along the three pathways- production, income and women's empowerment while acknowledging that production alone or increasing income of beneficiary households does not automatically translate to improved nutrition outcomes. The component carried out training on Agri-nutrition to address production, selection, preparation and consumption of nutritious diverse foods as well as on basic principles of nutrition. This training is done with focus on the agriculture-nutrition pathways with emphasis on dietary diversity and complementary feeding among other aspects to address micronutrient deficiency which is associated with stunting.

With regard to burn budget and burn rate, the program had an annual budget of $8.8 million, with livestock value chain component allocation of $2.9 million, dairy value chain component $1.8 million, root crop value chain component of $1.3 million, drought tolerant crop value chain component $1.5 million and program management secretariat $1.0 million. As at 30th September 2016 the overall program expenditure was $6,109,394 which is a burn rate of 69%. The burn rate for each value chain was: the livestock value chain component at 73%; dairy value chain component burn at 55%; root crops value chain component and drought tolerant crops value chain components at 69% and 84% respectively. The program management office had a burn rate of 63%. The low burn rate of the dairy value chain

component was due to the late start by implementing partners. However, this value chain component performed very well with regard to achieving their targets. The root crops value chain component also had a low burn rate due to delays of some activities by the implementing partners but its overall performance in terms of achieving targets was also satisfactory.

2. KEY ACHIEVEMENTS (QUALITATIVE IMPACT)

2.1 Management, Monitoring and Evaluation

As the lead implementing institution, International Livestock Research Institute greatly contributed to the speedy inception and implementation of the program. The institute allocated office space for the program management staff, mobilized support staff, and recruited the program management staff relatively fast. The institute also provided all support services to the program management secretariat to ensure that all management, monitoring and evaluation activities were accomplished on time. In addition to routine management, oversight and leadership of the program, the program management secretariat accomplished the following tasks:

- Establishment of the program management office
- Preparation of the mobilization work plan and budget
- Processed sub grant contracts to all implementing partners
- Procurement of all physical assets (motor vehicles, computers, etc.)
- Timely prepared quarterly reports, PAC and PMC meetings
- Recruitment of staff for the management and value chain components
- Prepared the Activity Monitoring and Evaluation Plan
- Prepared the Annual Work Plan and Budget for both first year and second year of program implementation
- Established an ICT based monitoring and system (Platform) for the program
- Coordinated baseline surveys and value chain analysis for all value chains
- Coordinated program launch events at county level
- Developed the program's nutrition strategy
- Developed the program's communication plan

In the second quarter of the first year, the program was officially launched in the High Rainfall (HR1) FTF ZOI in Kisumu. The program launch provided a good opportunity for the value chain components to interact with the country government officials and showcase the technologies and innovations that form the basis of the value chains development. Following these interactions, the county governments committed not only human resources but also their own financial resources to participate in the various value chain development activities.

2.2 Livestock Value Chain

The livestock value chain component was well integrated into the county government department of livestock development in all counties in AL3 FTF ZOI. The following were the key achievements made during the year, per specific objective of the component:

To enhance market access for pastoralists, ex-pastoralists and small traders

One of the main constraints to livestock marketing is lack of reliable and market information. To address this constraints, the program is supporting the process of establishing a computer based market information system. In this regard capacity needs assessments for Livestock Market Associations (LMA)

were completed in Wajir and Garissa Counties. The needs assessments were carried out in conjunction with Kenya Livestock Marketing Council (KLMC) and will be used to build the capacity of LMAs through training, coaching and tours. Based on the needs assessment, County Livestock Marketing Councils (CLMC) were trained on livestock market governance and leadership in Isiolo, Wajir and Garissa Counties.

In addition, collection and dissemination of livestock market information (price, volume, and number of stakeholders) started in 10 markets across the five AL3 FTF ZOI counties. Data is collected every market day and disseminated on Mondays and Fridays through the Jangwani FM radio station in Marsabit. Inquiries have started to be made by traders and producers to the radio staff asking specific information on prices offered for different grades in these two markets as well as information from other markets.

To increase livestock productivity for producers

One of the key constraints to livestock productivity is weak animal health service delivery system. To address this constraint, the program is supporting the development of a pluralist animal health extension service as indicated in the National Agricultural Extension Services Extension Policy (NASEP) – sessional paper number 1 Of 2011 In this regard the program is promoting, private-public sector partnerships in delivery of livestock vaccines and other drugs to producers. In this model a consortium of several partners/actors including the County Government veterinary authorities, REGAL IR, SIDAI Africa, private animal health assistants (AHAs) and community disease reporters (CDRs), was established to deliver vaccination against Contagious Caprine Pleuropneumonia (CCPP) and sheep and goat pox. This model worked out very well in Shimbirey ward, Garissa County, following an outbreak of CCPP. As part of strengthening the county disease surveillance team, over 50 community disease reporters and 25 agro-vets operators were trained in Syndromic diseases recognition in Garissa County.

Another NASEP approach to animal health service deliver is a multi-hub animal health service delivery approach. In this approach several stakeholders came together to deliver unique services during livestock disease control campaigns. This approach was implemented in Marsabit and Garissa and found to work well. In addition, trainer's manuals on syndromic disease recognition in cattle and small ruminants were developed and used to implement 'a three-tier train-a-trainer model' on syndromic disease recognition in all the counties. Mapping to provide the prevalence rates of anthrax disease in Wajir County was carried out. In addition, specialized training to the producers in the anthrax recognition was conducted to improve surveillance and reporting.

Another critical constraint to livestock productivity is disease outbreaks which end up killing a large proportion of animals at the same time. In this regard a study to assess the capacity of County Governments to host a real-time and web-based disease surveillance system was conducted in Marsabit and Isiolo counties. The study involved key informant interviews with the departments of livestock, and information and communication technology (ICT).

Furthermore, livestock productivity in the pastoral system is inhibited by lack of feed and fodder. To address this constraint, communities were trained on graze management, land use mapping, ecosystem processes and conflict resolution. This approach was implemented in *Nasuulu* community conservancy grazing committee members of Isiolo County and was found to work well. The training enhanced the capacity of the committee on management of the grazing land and in addition, a grazing plan was developed. In addition, the *Dedha* fodder and *Nakuprat-Gotu* fodder groups were sensitized on the available opportunities for commercial fodder production in Isiolo County. Frontline extension workers (FEWs) from the Department of Livestock production also attended the training.

All livestock value chain partners were trained on the use of the Feed Assessment Tool (FEAST) and Teckfit to design suitable fodder/feed intervention strategies and community feedback sessions were conducted

in *Nakuprat-Gotu* and *Songa* Community Conservancies in Isiolo and Marsabit Counties respectively. The feedback sessions were aimed at reporting back to livestock keepers on the findings of the baseline survey community meetings held earlier on small ruminants. A total of 130 community members participated in the process from *Songa* Conservancy (45); *Nakuprat-Gotu* (44) and *Dedha* community conservancy (41). In addition, training was conducted on pasture and fodder production mainly focusing on seed selection, land preparation, conservation agriculture, fodder planting and pre-planting preparations in all the five counties.

It has been proven that appropriate community based small ruminant herd management and breeding strategies can significantly increase the productivity of goat and sheep in the pastoral system. In this regard, AVCD is implementing a concerted program for community based herd management and breeding strategies among selected communities. Core-innovation groups (CIG) were selected and trained in all mandate counties. CIGs were selected in Isiolo and Marsabit and CIG members participated in an experiential learning visit to Nairobi Breeder's show, Isinya herd management group and ILRI's Kapiti farm. The learning visit exposed members to successful herd management and breeding programs in Kenya. In addition, CIGs in Marsabit and Isiolo were trained on core principles of better herd management, including identification of objective measures of herd quality.

Support for enhancement of the enabling environment for markets and communities

Another key challenge in livestock value chain development is the lack of policies and an enabling environment for market development and range land management. AVCD is therefore supporting the development of appropriate policies and legislation by county governments to facilitate livestock development. In this regard livestock technical staff and PREG partners' representatives were trained on policy cycle and policy dialogues in Wajir, Garissa, Isiolo, Marsabit and Turkana Counties. The training covered general scope of the policy analysis and formulation processes and as part of practice developed policy briefs from the existing National policies, aimed at lobbying and advocacy at both county and national levels. Sensitization forums for county assembly committee members of the ministry of agriculture, livestock and fisheries and relevant county government officials on the livestock sale yard bill was supported in the processing of the bill in the county assembly.

A livestock markets co-management bill underwent the second reading in the County Assembly of Isiolo and now awaits a community participation event as required by law. In Marsabit, the draft bill is in the final stages of analysis by a lawyer and a stakeholder meeting will be organized conducted to discuss the bill before it is tabled to the agriculture committee in the County Assembly.

With regard to range lands management, a national dialogue on policy frameworks for climate change adaptation, disaster risk reduction, rangeland management and governance was organized in conjunction with the National Drought Management Authority (NDMA). The dialogue was attended by senior national and County Government personnel as well as participants from civil society and research organizations. From the workshop it emerged that the political environment and development priorities of different County Governments vary greatly in the different counties. As result, different opportunities arose for improving the enabling environment in different counties. In the coming year, efforts towards improving the institutional environment for rangeland management will be concentrated in those counties that are readily available to collaborate and move quickly, while still taking steps to systematically advance work in the other counties.

Improved Nutrition status of Women and Children

The main approach of the AVCD nutrition component in the AL2 FTF ZOI is through both food accessibility and behavior change and communication. In this regard officers from the nutrition department of the

Ministry of Health (MoH), and those from the home economics department of the Ministry of Agriculture (MoA), in all mandate counties were trained as trainers on the applied agri-nutrition module (2013), which was designed jointly by the two ministries. The aim of the training is to equip the trainees with basic knowledge and skills on agri-nutrition, to enable them to further train others who will reach the communities to pass key nutrition messages to households; integrate nutrition and agriculture as a way of transforming beneficiaries from food security to food and nutrition security and promote improved nutrition through increased production and consumption of diversified safe foods.

The trained, trainers cascaded the acquired knowledge in agri-nutrition to producers through community dialogue sessions. In addition, training on hygienic milk handling practices was conducted in Marsabit County.

2.3 Dairy Value Chain

The dairy value chain component is being implemented in Siaya, Vihiga, Migori, Homabay, Busia, Taita, Taveta, Makueni, Kitui and Kisumu Counties. Immediately after inception the dairy value chain component embarked on reconnaissance of counties resulting in selection of 108 wards across 35 sub-counties, and buy-in from county governments and other stakeholders at county level. All field activities were started in HR1 within the first and second quarter and the program was officially launched in the third quarter. The program launch particularly had notable influence on partner engagements with a number of counties expressing interest to co-invest with the project in order to tap into the broad expertise that has been assembled by the AVCD program. Following these successful engagements, the dairy VC made substantial progress in: delivery of key technical interventions; developing grassroots-based models for enhanced extension reach and; collective action innovations aimed at enhancing access to milk markets and inputs and services.

After a successful launch in Migori and Homa Bay during the second quarter of the AVCD program, East Coast Fever (ECF) vaccination was extended to Kisumu, Vihiga and Busia counties. Contrary to concerns that uptake would be compromised by high cost borne by the farmers to access the vaccine; the project was overwhelmed by the surging demand especially in the counties where the vaccine was introduced. This underscores the fact that the disease was indeed a challenge to many smallholders in these regions. In Homa Bay for instance, the dairy component of AVCD program, through its partner FIPS-Africa mobilized an additional 542 cows whose owners are ready to pay for the ECF vaccine. The project reviewed its strategy in light if these developments and mobilized additional vaccine delivery system to forestall any disenchantment that may arise due to delayed delivery.

Significant progress was also made with respect to rapidly increasing improved cows through an accelerated breeding program based on fixed time AI (FTAI) technology. By targeting a large number of animals for estrous synchronization and particularly cows of indigenous breeds, the technology is preparing large sets of households to adopt improved dairy cows and thus enter the lucrative dairy value chain. In order to actualize this exercise, the dairy VC has offered refresher training on FTAI to AI technicians and launched the FTAI in the HR1 counties in all mandate counties.

The launch of the accelerated breeding program generated a lot of interest from county governments and subsequent support to program activities. In particular, Homa Bay County partnered with the project to launch similar breeding activities in the sub counties that were not covered. The county government constructed all the community crush pens, procured AI cold chain infrastructure and provided logistical support to trained AI providers who were conducting FTAI. Notably, the county government of Homa Bay committed to extending the benefits of accelerated breeding to sub-counties not covered by the AVCD

program. Additionally, the county government also dedicated to providing ECF vaccine at subsidized rates for calves that will be delivered via FTAI in order to secure the gains from accelerated breeding.

With regard to delivery of extension services, the program partners Farm Inputs Promotion Services (FIPS) Africa recruited 38 community livestock extension staff – village-based dairy advisors (VBDAs) previously selected from Busia and Homa Bay and 18 newly selected ones from Siaya County.

In preparation for the improved dairy animals the dairy value chain is also focusing on improved fodder production. In this regard the most appropriate varieties of Napier grass and dual purpose sweetpotato for farmers in the target counties were identified and are being distributed to farmers. Planting materials for these varieties of Napier grass were distributed to VBDAs in all mandate counties. All the VBDAs were trained on establishment of Napier grass plots using the "Tumbukiza" method (for improved productivity, soil health and resilience) and have subsequently supported other farmers in their villages to apply similar methods in establishing their own plots of Napier grass.

Towards enhanced access to inputs, the project engaged partners to establish the village agent network. The agent network model supports linkages between rural smallholder farmers and suppliers of quality dairy inputs and services. Six (6) business student consultants were recruited and attached to five agro input businesses that were investing in improved customer centric tactics. The student consultants were taken through an agro-vet simulation training session that is essential for setting up agent network models for dairy agro input businesses and dairy hubs.

One of the main achievements of the dairy value chain component was deepening of private sector engagement. During the reporting period seven (7) management and marketing firms[3] were linked to 15 dairy businesses to provide strategic planning, contract management, retail management and marketing services at negotiated and affordable rates to respective dairy businesses. Subsequently 15 dairy businesses[4] with active clientele of approximately 9,000 farmers were supported to invest in business turnaround, growth and expansion strategies. The dairy component further introduced innovations aimed at improving the performance of dairy businesses that buy and sell to smallholder dairy farmers. These included investments in contract management services resulting in new and more professional management of cooperatives and processors; retail and training services to milk traders and agro-vets in order to increase business efficiency, customer outreach and loyalty.

Another important highlight is the work that the dairy component undertook towards widening the network of farmers served by various input dealers and thus increasing uptake of productivity inputs. In pursuit of this, the dairy component partnered with Kenyatta University's Chandaria Business Innovation and Incubation Centre (CBIIC) student consultants to promote adoption of the Agent Network Model (ANM) for access to inputs and services. Selected agents under this model also catalyze establishment of buying clubs (BCs) for increased access to Artificial Insemination (AI) services (AI champions) and Herd Management Plan (HMP) for access to animal health services. During the reporting period, 23 farmer groups with a membership of 1,763 farmers were mobilized to adopt these models. These agents will eventually be linked to several agro-input dealers that are also being supported by the project to enhance their business orientation. So far, five (5) agro-input businesses serving an estimated 10,935 small holder farmers (35-40% of whom are dairy farmers) were linked to 3 marketing firms to facilitate investments in improved customer service (shop remodeling, advertising innovation and offers), customer service training and distribution services.

With regard to milk marketing, the role of the informal milk markets in these non-traditional dairy areas cannot be overemphasized. The AVCD dairy component is therefore working with milk traders to improve their capacity to comply with safety and hygiene requirements. During the reporting period, the program supported establishment of four (4) milk traders associations, comprising of 120 milk traders aggregating milk from 3,600 small holder dairy farmers across Makueni and Taita Taveta counties. These traders were taken through business development and compliance strategies. In collaboration with Kenya Dairy Board (KDB) the dairy component also facilitated dairy traders' activities towards attaining compliance with Kenya Dairy Board (KDB) and the Directorate of Public Health requirements for sale of safe milk.

[3] Rose Avenue Consulting Group, Selwood Consultants, Pristine Consulting House, House of Panache, Blue eyes, Mak 5 Business Hub and Dudu Squad

[4] These businesses include 5 dairy cooperatives, 1 processor, 5 ag input stores and 4 dairy trader associations

To improve the input supply system, the program is working towards operationalizing an e-voucher platform that will allow milk traders and farmers to access quality inputs and food grade containers on a credit scheme backed by a guarantee fund.

The dairy component is also strengthening capacity for long term delivery of key productivity enhancing technologies. During the reporting period, 57 Animal Health Attendants (AHAs) were trained on delivery of ECF vaccine and the dairy component is now in the process of identifying local agents to enhance distribution of ECF vaccine to trained vaccinators. The dairy component is also complementing accelerated breeding via Fixed Time Artificial insemination (FTAI) with innovative bull scheme targeting especially far flung location with limited AI services and high density of indigenous breeds. During the reporting period, 66 pure-bred bull-calves (Ayrshire and Jersey breeds) were ordered from Agricultural Development Corporation (ADC), Makongi Farm and Homa Lime to be raised by VBDAs for offering of bull-services in the future to farmers in respective villages.

The dairy component also continued to support community livestock extension workers to establish sites for multiplying planting material for key fodder crops. During the reporting period, new multiplication sites were established for Napier grass, brachiaria, caliandra and desmodium. Multiplication sites for brachiaria were successfully been established. During the reporting period, Brachiaria nurseries were established with 55kg of seeds in Siaya, Kisumu, Homa bay and Migori Counties and seedlings are currently being transplanted to bigger plots of between 1/8 to ¼ acre plots[5]. Additionally, 100kgs of Boma Rhode seeds were distributed to the hub leaders and the PFTs for direct planting in the field.

Three (3) additional producer organizations were identified in HR1 ZOI to be supported bringing to nine (9) the total number of producer organization (POs) in HRI counties. A total number of 4,655 smallholder farmers were mobilized into 233 dairy interest groups (DIGs) that will be supported to form dairy business hubs or linked to existing hubs. As part of the sustainability strategy, 72 hub management committee members and PFTs as well as 3,293 farmers were trained on leadership. Additional training activities involved experiential learning via exchange visits to Tanykina Dairy hub in Eldoret for 30 hub management committee members.

In pursuit of the nutrition objective, the AVCD dairy component initiated partnerships that will ensure the program reaches smallholder farmers and equips them with basic knowledge and skills on agri-nutrition. The programme established institutional partnerships bringing together the Ministries of Agriculture and Health, community based networks such as community health volunteers and mother-to-mother support group members. Through these engagements and using the applied agri-nutrition module, over 110 individuals from respective Ministries and organizations were trained as trainers across all the six mandate counties. The trainings provided a forum for the AVCD programme to integrate nutrition and agriculture as a way of transforming from food security to food and nutrition security. They also serve as a platform for discussing possible ways of promoting consumption of milk and milk products for improved nutrition. The trained personnel will be central in training other stakeholders in the community and linking the nutrition component to other activities involving smallholders across the dairy value chain. The trained personnel will also be instrumental in rolling out the behaviour change communication (BCC) protocol that is currently being developed by the dairy component of AVCD.

In addition to the BCC approach, the nutrition component of the AVCD dairy participated is designing the Baby Friendly Community Initiative (BFCI) manual and BFCI counseling cards. Recognizing that milk and milk products were not strongly addressed in the initial draft of BFCI documents, AVCD engaged the relevant authorities to ensure stronger emphasis on milk and milk products in the counseling cards. Once approved by the Ministry of Health, the revised BCC materials will be used in nutrition education and counseling to enhance behavior change in communities towards increased consumption of milk by households.

2.4 Staples Value Chains

The staples value chain comprises of root crops (potatoes and sweetpotatoes), drought tolerant crops (sorghum, pearl millet, finger millet, pigeon pea, green grams and ground nuts). While each crop can be said to be a value chain on its own, they are grouped into one because of the similarities in values stages

[5] Areas have been estimated by VBDAs.

of the value chain development. However, in view of the differences in their utilization and the two implementing CGIAR, the root crops and drought tolerant crops are described separately herein.

2.4.1 Root Crops

2.4.1.1 Potatoes

Potato value chain is covering 19 sub-counties in which potato production has highest potential in Meru, Elgeyo Marakwet, Nandi, Uasin Gishu and Bomet Counties. The main operational pathway of the potato value chain is the Decentralized Seed Multipliers (DSM) and Village Based Potato Advisors (VBPA). These form both the focal points for seed multiplication, inputs supply and frontline extension services. During the year over 600 potential Decentralized Seed Multipliers (DSM) and Village-Based Potato Advisors (VPAs), county extension staff, farmers, and members of civil society were trained in all mandate counties. In addition, several learning farms were established in all mandate sub-counties.

Another operational pathway of the potato value chain is the private-public partnerships. During the year, four public-private partnerships (PPP) were established by the potato component of the root crops value chain. Three of the partnerships will support increasing private sector engagement in the seed value chain through adapting cuttings as a fast-track technology for seed production to private sector. Cuttings reduce the time to the first field multiplication by 4–5 months and have double productivity. This not only increases gross margin, but also reduces the notification period required for first generation material from 5–7 months (depending on seed dormancy) to 2–3 months. SRK has invested in infrastructure to accommodate increased production. Genetic Technologies International Ltd (GTIL) is also expanding from screen house production of early generation seed potato to field production, while adopting cuttings as an alternative to mini-tubers for starter material. A third private sector agricultural company, Usomi, developed a business plan to start up certified production.

In addition to cost-sharing investments, the program provides close technical backstopping to ensure that cuttings and other forms of early generation seed are produced correctly with good quality standards. The project provided marketing/linkage support for private sector to sell cuttings to certified seed producers and decentralized seed multipliers (DSMs) and four seed multipliers were identified to produce seed from rooted cuttings for September/October planting.

At the other end of the potato value chain, the program is partnering with Norda Industries to improve the supply chain of quality processing tubers. The project supports the network of farmers Norda works with in Bomet County to access quality seed of processing varieties and good agronomic practices. Several field days were held that created overwhelming demand for seed potato from the DSMs. This provided the first local source of quality seed potato for farmers in the North Rift counties of Elgeyo-Marakwet, Nandi, and Uasin Gishu.

With regard to value addition and marketing the program is working with Norda Industries to improve the supply chain of quality processing tubers for potato chips (crisps) for the Urban Bites label. Norda recruited a full-time agronomist to support the network of farmers in Bomet that provides the company with processing potato. The company purchased 5 tonnes (t) of certified 'Dutch Robyn' seed potato from Kisima Farm to support the farmers in improving their yields and supply. Farmers in Bomet will now be contract farmers of Nordau, hence have an assured market for their potato.

At learning farms, the counties organize and host field days to showcase yield differences between different seed qualities and soil fertility regimes, and promote good harvesting practices, and ware potato farmer training. These events create overwhelming demand for certified and quality seed potato. Currently farmers are locally sourcing quality seed potato produced under a quality control system with technical backstopping from county Ward Agricultural Officers (WAOs) in the North Rift intervention counties (Elgeyo-Marakwet, Nandi, and Uasin Gishu). The field days are themed "Potato:

Better Seed, Better Crop, Better Yield," and farmers experienced the results of using quality seed and managing soil fertility.

WAOs provide the bulk of technical backstopping to decentralized seed multipliers in the North Rift counties. Through field visits and disease monitoring, all DSMs received guidance throughout the cropping cycle on good agronomic practices in seed production. From the regular field inspections WAOs were able to report on the disease incidence in the various DSMs' fields.

2.4.1.2 Orange Freshed Potatoes

The Orange-Fleshed Sweet Potato (OFSP) component of the Root Crops value chain is being implemented in ten sub-counties across Busia, Bungoma, Homa Bay, and Migori Counties. One of the key yield-limiting factors in sweetpotato production is the lack of clean planting material owing to infection of sweetpotato virus disease (SPVD). The operational to address this constraint is through rapid multiplication of planting material through tissue cuttings and vine multiplies in the net tunnels and the open. The net tunnels are simple screen houses, using low cost local material that can be well managed by farmers. In the report year, over 70 persons were trained in basic seed multiplication; several vine producers recruited and over 2 million tissue culture cuttings distributed to vine multipliers, Trainers who were trained on agronomy and nutrition aspects started cascading information to community level farmer groups. The public sector nutritionists and public health officers have also been trained on key agri-nutrition concepts focusing on maternal, infant and young child nutrition.

Farmer organizations groups dabbed 'commercial villages' has been initiated across all mandate counties to facilitate collective marketing of roots. Collective marketing is essential to assure smallholder farmer can consistently meet demand from traders. Further, collective marketing is expected to enhance famers' ability to negotiate for better prices while traders reduce on they cost of transportation to individual farmers whose produce is minimal.

2.4.2 Drought Tolerant Crops

The drought tolerant crops include: (i) sorghum, (ii) pearl millet, (iii) finger millet, (iv) pigeon peas, (v) cowpeas, (vi) green grams and (vii) groundnuts. The value chains component is being implemented in 15 sub-counties in Busia, Siaya, Elegeyo Marakwet, Tharaka Nithi, Kitui and Makueni Counties, with selected crops depending on ecological and social preferences. The program is focusing on sorghum, groundnuts and finger millet in Busia; sorghum and finger millet in Siaya; sorghum and groundnuts in Elegeyo Marakwet; sorghum, green grams, pearl millet, cowpeas and pigeon peas in Tharaka Nithi, Kitui and Makueni counties.

This program component was fully operational by the first quarter of the year. During the year, rainfall was below normal in both HR1 and SA2 FTF ZOI, causing depressed yields. Nevertheless, the farmers realized that having drought tolerant crops was a good insurance against food insecurity because there was anticipated crop failure in other crops. This prompted farmers in Siaya and Busia to increase the area under these crops for the SRs 2016, while reducing the area under maize.

The impact of the depressed rainfall was worse in SA2. In Makueni, Kati and Tarawa Nitti, farmers achieved about 5% sorghum harvest; 10% pearl millet; 40% green gram; and 70% pigeon pea (medium duration did better than long duration) due to very poor rains. In the short rains season. The harvest was slightly better in Tharaka Nithi than in Makueni and Kitui as the seasonal distribution was better there. The response from farmers was very high demand for pigeon pea (especially medium duration that produces the 1st crop in 4-5 months) and green grams for the SRs 2016 as the farmers perceive them as the best adapted to the harsh climatic conditions.

During the 4th quarter, 4 agro-vets in Siaya and Busia were linked to drought tolerant crops farmers to supply improve Purdue Improved Containers (PICs) bags as well as supply of Mavuno fertilizers which is popular for groundnut production. Linkages were also established with several actors in value addition and rural processing such Siaya Nut producers and processors cooperative, Rahuma Farmers Cooperative, Wamama Pamoja group, Better Food and Mama Luck shop. These are working out modalities of contracting drought tolerant crop farmers, hence provide an assured market.

To create awareness about health benefits of drought tolerant crop grains and products, the program has partnered with Community Health Department and Department of Education to implement TOTs which in turn will roll out the training to local households.

During the same period, in addition to continued linkage to traditional buyers in urban centers, the program has established linkages with 6 ECDs, 8 local grain traders and millers, 4 schools and two hotels in Siaya and Busia for the purpose of buying high quality grain from farmers. The program has also partnered with Farm Africa fast track implementation of market linkage activities.

2.5 Lessons Learnt

Several lessons were learnt in the first year of program implementation in the various value chains. In the livestock value chain, it emerged that continuous engagement of the livestock marketing association through mentoring and coaching resulted into increase in revenue and proper management of the livestock market. This was evident in Merille market of Marsabit County where mentoring and coaching of the LMA continuously within a period of two months resulted in an increase of revenue collected by over 50 percent in August compared to the same period the previous year.

It also emerged that the three-tier train-a-trainer model on syndromic disease recognition proved to be an effective way of cascading knowledge to livestock producers. Pastoralists especially in Garissa are willing to purchase veterinary drugs such as dewormers and so the team will be piloting ways of delivering these and other private services to the villages. These services could be provided together with other public animal health services such as vaccination. Other alternative ways of delivering these products include initiating vet runs to allow private agents to deliver the products to markets, animal watering points, etc.

Interaction with the County Government staff indicated that despite multiple projects that were implementing animal health activities in the region, there is little knowledge on the distribution of diseases in the SA2 ZOI counties. Furthermore, there were no guidelines on how interventions such as vaccination should be delivered.

With regard to range management, the presence of AVCD-LC's in the counties working on spatial land use planning created interest from other partners such as FAO. Possibilities for partnering, layering and sequencing activities with other initiatives are now being explored.

For effective behavior change communication (BCC) strategies in the operational area, a deep understanding of the current knowledge, attitude and practices with regards to maternal, infant and young child feeding needs to be explored and understood. BCC strategies need to be cognizant of the cultural norms of the communities and contextualize the strategies for better outcomes. BCC strategies should be designed towards the primary targets i.e. mothers, caretakers and the secondary targets who are key influencers in the community such as men, fathers, and mothers' in-law, mothers and CHWs

In the dairy value chain, the demand for fodder technologies such as Tumbukiza Napier grass and Calliandra tree was much higher than anticipated. The program therefore made arrangements to train more farmers and provide the requisite planting material for Napier grass and Calliandra seedlings in the second year.

It also emerged that in most of the counties, there is both capacity and willingness by both the traders and the county governments to invest in milk chilling and pasteurizing equipment. In Taita Taveta County the program is supporting a traders association to move towards formalization by facilitating linkages with equipment, marketing and financial service providers.

County Governments in SA2 ZOI put in place strategies to support investments by dairy businesses through provision of milk chilling and pasteurizing equipment, subsidized AI services and liquid Nitrogen tanks and motorbike for milk collection. However, this could create heavy dependence on county support thereby creating a challenge to sustainability. The program plans to work with county governments and influence them to re-direct subsidies towards co-investment with dairy businesses as well as buying down risks to support the businesses to acquire financing through setting up guarantee funds.

In the staples value chains, it was established that there are many local value addition SMEs in milling and blending and peanut butter processing but they cannot grow mainly because of tax policies that do not allow them to sell to super markets because of lack of Electronic Tax Register (ETR) machine. They need to have turnover of Ksh. 500,000 per month to get an ETR machine. The SMEs also need better business skills, to grow into viable business enterprises.

3. KEY ACHIEVEMENTS (QUANTITATIVE IMPACT)

During the year, the program achieved 134 % of the target in the number of farmers and others who have applied improved technologies or management practices with USG assistance; and 97 % of the target on the number of beneficiaries benefitting directly from USG interventions. This was a significant achievement in view of the fact that this was the first year of the implementation of the program. The program also performed well in the number of farmers and others who applied improved technologies or management practices at (74%) of the target; and the number of profit private enterprises, producers organizations, women's groups, trade & business associations and CBOs that applied organizational level technologies or management practices with USG assistance at 65% of the target. Only 31% of the target for the number of hectares under improved technologies was reported because the more accurate figures will be derived from annual surveys. Similarly the nutrition targets for the year were not achieved because most of the activities were started late due to delays in recruiting the nutrition personnel. However, these activities are expected to speed up and catch up during the year. Details of the targets reached during the year are given in the performance matrix table 2 and the narrative and graphic presentation hereafter.

FtF 01: Number of households benefitting directly from USG interventions

The program generally reached a total 60,380 beneficiaries against an annual target of 62,500 which represents a 97% achievement. This is a great achievement considering that this was the inception year of the program which largely involved developing systems, mobilizing communities and defining pathways. The shortfall was in livestock value chain and root crops value chains mainly due to late start.

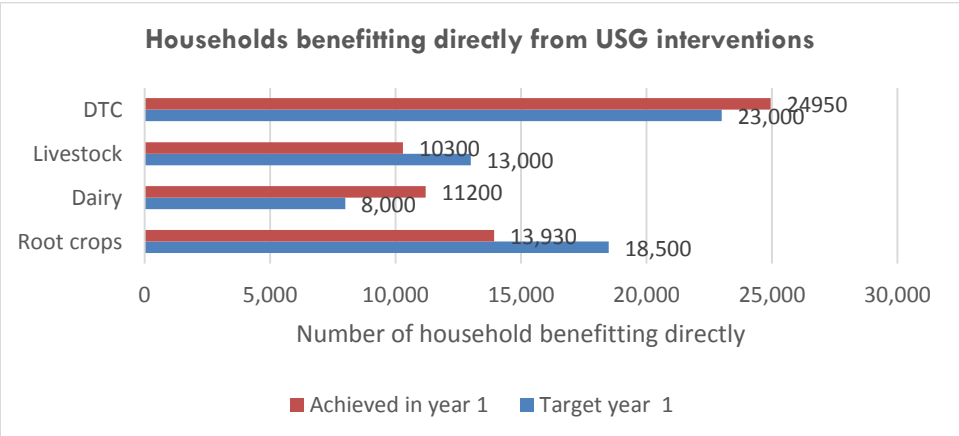

Figure 1: Number of households benefiting directly from USG interventions.

Dairy value chain surpassed the target for this indicator in year 1 because fixed time AI and ECF technologies were used as a community entry point strategy during mobilization of farmers. The DTC

value chain component also exceeded targets because their approach to farmer training was mainly through trained trainers (TOTs) who were able to reach more beneficiaries than expected.

4.5.2(2) Number of hectares of land under improved technologies or management practices as a result of USG support

Under this indicator, the achievement was generally below target though some activities were implemented. Key outputs included: 200 model farms that were established to demonstrate good agronomic practices for drought tolerant crops to farmers; Fourteen (14) learning farms, each of 1,000 m^2 by the Root Crops Value Chain (Potato); Dissemination of improved varieties by the DTC value chain component.

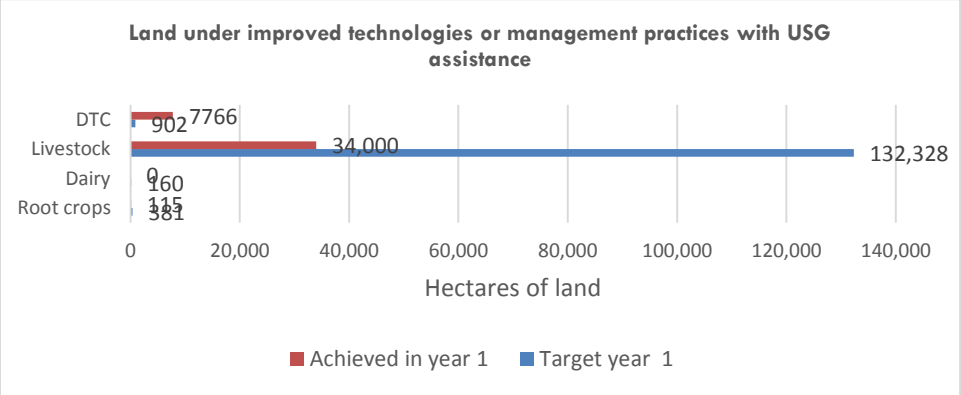

Figure 2: Land under improved technologies or management practice as a result of USG support

Most of the value chains expect to obtain a more accurate status of this indicator from the annual surveys that will be undertaken in 2017. However, the main reason for deviation from targets was due to drought that characterized most of the reporting period, and the fact that Livestock Value chain targets included Conservancies which are not included in the current update.

4.5.2 (5) Number of farmers and others who have applied improved technologies and management practices as a result of USG assistance

Approximately 75% of targets were achieved with an estimated total of 35,984 against a target of 48,570 using improved technologies.

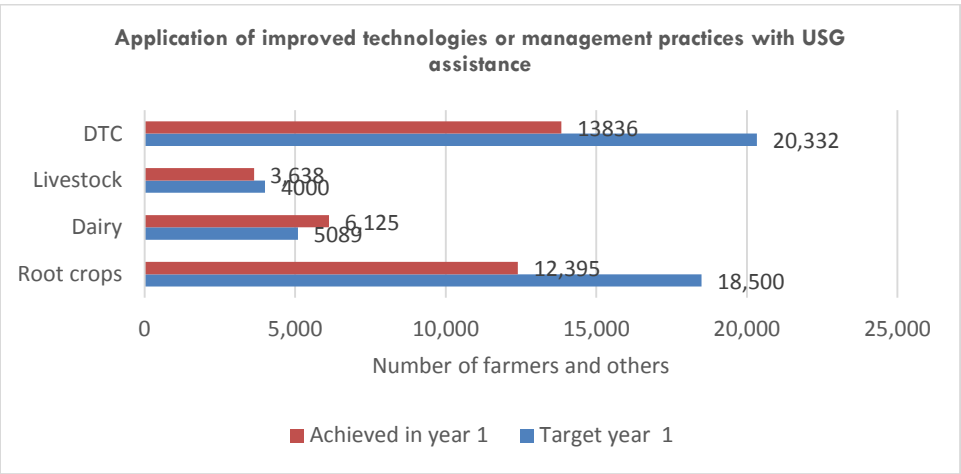

Figure 3: Number of farmers and others who have applied improved technologies and management practice as a result of USG assistance.

Similar to the total number of beneficiaries the main reason for not achieving the target is the long droughts which affected the extent to which farmers were able to invest in improved technologies. None the less, a number of activities were implemented all aimed at increasing the application of improved technologies. Some outstanding achievements included:

- ***DTC value chain***: 20 tons of certified groundnut seed imported from Malawi in 40kg bags which was repackaged and distributed to farmers in Siaya, Busia and Elgeyo Counties; 42 t of foundation and non-certified seed was produced in Siaya, Busia and Elgeyo Marakwet Counties; and 40 t of seed of drought tolerant was disseminated to farmers.
- ***The root crops value chain:*** undertook distribution of 6.3 tonnes of certified seed potato to the 36 trained Village Potato Advisors (VPAs) ; 6.4 ha of seed vines of OFSP were produced with an estimated number of 2.6 million cuttings vines sufficient to reach 13,000 beneficiaries; and 200 cuttings were provided to households for home consumption through kitchen gardening.
- ***Dairy value chain:*** Over 1,000 households used the ECF vaccine technology and another 2,000 plus households used the Fixed Time AI (FTAI) to upgrade breeds.
- ***Livestock value chain:*** A total of 244,055 small ruminants were vaccinated against PPR, CCPP and SGP for 1,322 households in Garissa and Marsabit counties. In addition, a total of 12,749 cattle for 188 households were vaccinated against the Lumpy Skin Disease (LSD) in Marsabit County; and 18,419 livestock (13,229 goats and 5,190 sheep) were vaccinated against CCPP and sheep goat pox (SGP).

Dairy value chain exceeded targets, but it should be noted that farmers whose cows accessed FTAI and ECF vaccination were all included in achievements. In this case a farmer may have been counted twice for having used both technologies. The root crops value chain was largely affected by the long drought as well as the fact that they are still in the process of raising awareness about buying vines to create behavior change. Generally a more accurate status will be obtained from the annual survey especially for the DTC value chain.

4.5.2 (7) Number of individuals who have received USG supported short-term agricultural sector productivity or food security training

Most of the value chains were involved in training to set the ground for implementation, hence the high achievement exceeding targets by 34% with about 35,137 individuals trained against a target of 26,300.

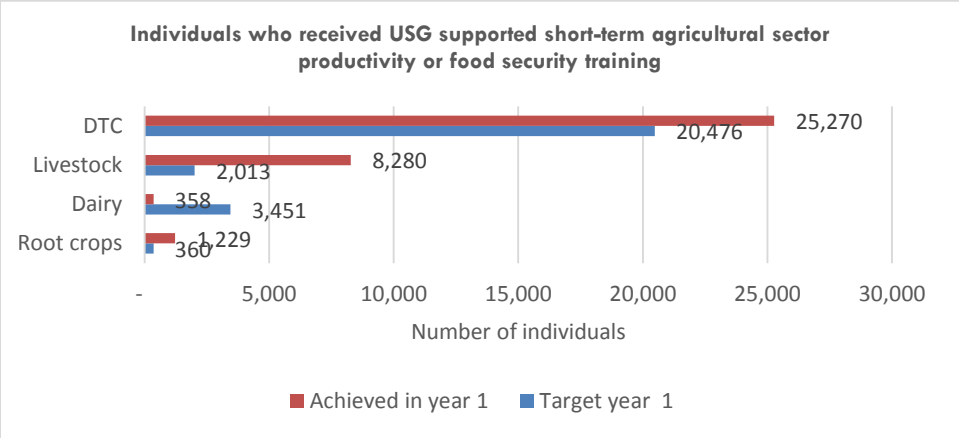

Figure 4: Individuals who received USG supported short-term agricultural sector productivity or food security training.

Though the level of achievement exceeded targets, there was some deviation from targets under specific value chains for the following reasons:

- The use of the training of trainers (TOT) model made it possible to reach a wider population of beneficiaries.

- Delayed sub-contracting of partners by the Dairy Value chain led to substantial late start of project initiation and launch of field activities. Most of the time was spent training trainers who are expected to roll-out the trainings during the second year of implementation.
- In some areas extension staff were not in place and were only posted towards the end of the reporting period which affected implementation of training activities by the Root Crops value chain.

4.5.2 (42) Number of for profit private enterprises, producer organizations, water users' associations, women's groups, trade and business associations and CBOs that applied improved technologies or management practices:

For this indicator the level of achievement was 65% with a target of 278 and achievement of 182. It should be noted that this indicator compounds many types of groups and so the level of application of improved technologies would be different. A more accurate status will be availed from the annual surveys.

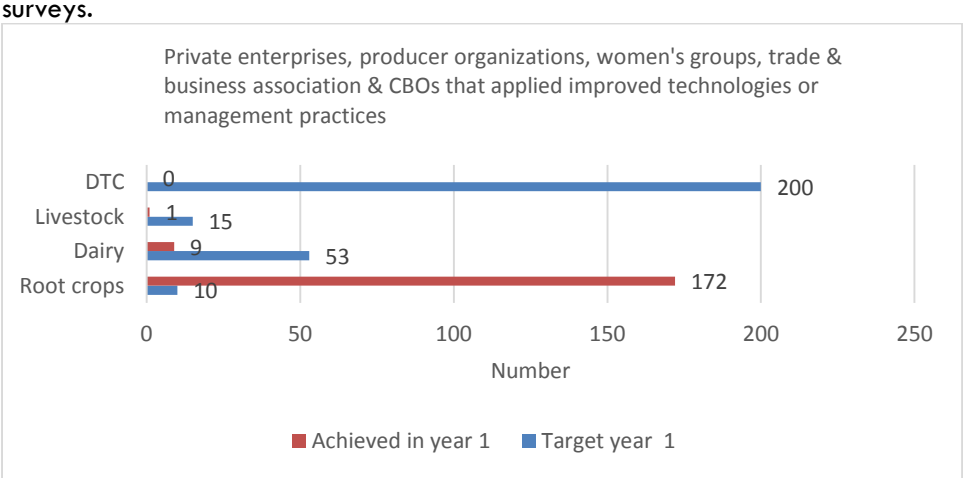

Figure 5: Private enterprises, producer organizations, women's groups, trade & business association & CBOs that applied technologies or management practice.

The main reason for the deviation is that DTC value chain did not collect routine monitoring data for this indicator and will use the annual survey to provide the status based on a representative sample of the different groups. Dairy value chain also did not achieve that targets because during the first year they mainly focused on mobilization and registration of members of groups-putting up structures, and preliminary preparations such as MoUs. Though training of groups started towards the end of the year, the application of promoted technologies did not take off immediately. The However the root crops value chain exceeded targets by 60% because more vine multipliers were established in order to ensure sustainability in terms of vine availability.

3.1.9 (1) Number of people trained in child health and nutrition through USG supported programs

Overall the program achieved only 18% of the targets mainly because DTC value chain reported all their training under the indicator 4.5.2 (7) on short-term agricultural sector productivity or food security training. The livestock and the dairy value chains did not achieve the targets for the year mainly because of under staffing.

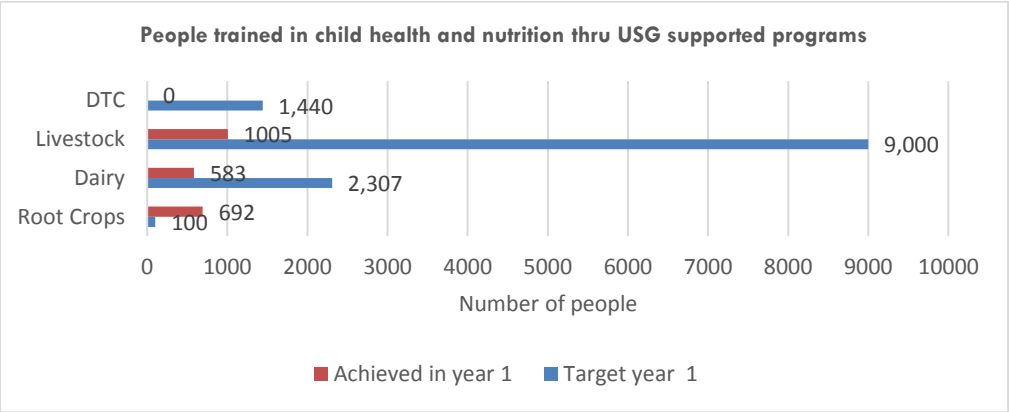

Figure 6: People trained in child health and nutrition through USG supported programs.

The root crops value chain exceeded targets (by 592 people) mainly because they did not only use County level health workers for TOTs as earlier envisaged but also Community Health Workers who were able to reach more people due to them being village based.

3.1.9 (15) Number of children under five reached by USG-supported nutrition programs

The number of children under five reached with nutrition programs was below target at 53%. The total numbers of beneficiaries achieved in this target were 13,006 children against a target of 24,704. Dairy value chain components, did not report any achievement mainly because only training of trainers was carried out and the actual training of caregivers will take place during the next implementation year.

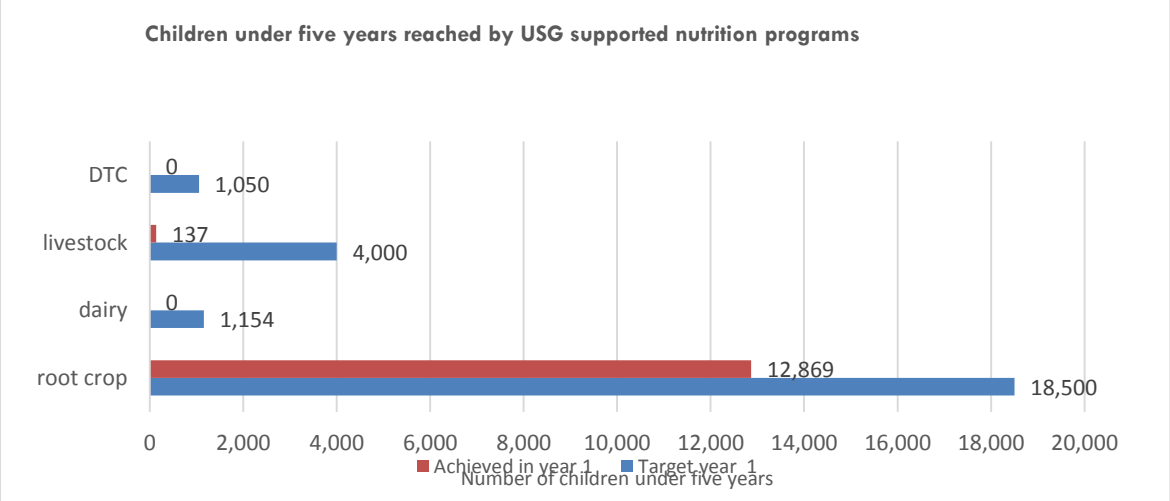

Figure 7: Children under five years reached by USG supported nutrition programs.

Root crops value chain was not able to start the training due to unavailability of planting material for the new sweet potato varieties. The Livestock value chain also did not achieve the annual targets on this indicate mainly because of late start and under staffing.

Table 2. Detailed matrix of achievement per indicator

INDICATOR TITLE:	Number of people trained in child health and nutrition through USG-supported programs (S)													
INDICATOR NUMBER#:	3.1.9(1)													
UNIT	DISAGGREGATE BY: location, event, date and gender													
	Geographic Location				Activity Title		Date		W		M		Subtotal	
	Migori, Homa Bay, Busia, Kisumu, Siaya and Vihiga				Training of ToTs on Health and Nutrition		June		39		21		60	
	Busia, Migori and Homa Bay Counties				Maternal/Child Health & Nutrition		June		50		64		114	
	Bungoma County				Maternal/Child Health & Nutrition		May		15		18		33	
	Marsabit and Isiolo Counties				Training of MoH Nutrition Department on Agri-Nutrition		June		33		23		56	
	Bungoma	Busia	Homa Bay	Migori	Training of health professionals on agri-nutrition		September		20		21		41	
	Bungoma	Busia	Homa Bay	Migori	Training of CHVs on Infant and Young Child Feeding		September		322		329		651	
	Siaya	Vihiga	Homa Bay	Busia	Training of health professionals on agri-nutrition		August		263		263		526	
	Taita Taveta	Makueni	Kitui	Kisumu										
	Turkana				Training of health professionals on agri-nutrition		July		23		7		30	
	Isiolo				Training of CHVs on Infant and Young Child Feeding		August		330		617		947	
							Totals:		1,095		1,363		2,458	

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target		Achieved	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M
Sex: Women (W), Men (M)	0	0	0	0	0	0	137	126	958	1,237	9,740	3,107	1,095	1,363
Bungoma	0	0	0	0	0	0	15	18	92	99			107	117
Busia	0	0	0	0	0	0	20	25	120	121			140	146
Homa Bay	0	0	0	0	0	0	24	27	128	128			152	155
Isiolo	0	0	0	0	0	0	21	7	330	617			351	624
Kisumu	0	0	0	0	0	0	8	3	47	47			55	50
Kitui	0	0	0	0	0	0	0	0	13	13			13	13
Makueni	0	0	0	0	0	0	0	0	8	8			8	8
Marsabit	0	0	0	0	0	0	12	16	0	0			12	16
Migori	0	0	0	0	0	0	23	23	81	81			104	104
Siaya	0	0	0	0	0	0	7	3	47	47			54	50
Taita Taveta	0	0	0	0	0	0	0	0	42	42			42	42
Turkana	0	0	0	0	0	0	0	0	23	7			23	7
Vihiga	0	0	0	0	0	0	7	4	27	27			34	31

INDICATOR TITLE:	Number of children under five reached by USG-supported nutrition programs (S)							
INDICATOR NUMBER#:	3.1.9(15)							
UNIT	DISAGGREGATE BY: location, event (for parents), date and gender							
	Geographic Location				Activity Title	Date	W	M	Subtotal
	Marsabit and Isiolo Counties				Training of MoH Nutrition Department on Agri-Nutrition	June	23	28	51
	Bungoma	Homa Bay	Migori		Dissemination of Vines	August	3,807	4,326	8,133
	Busia				Dissemination of Vines	July	1,874	2,292	4,166
	Turkana				Training of health professionals on agri-nutrition	July	36	34	70
	Marsabit				Maternal/Child Health & Nutrition (H&N)	August	20	28	48
						Totals:	5,760	6,708	12,468

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target		Achieved	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M
Sex: Women (W), Men (M)	0	0	0	0	0	0	23	28	5,737	6,680	11,427	13,277	5,760	6,708
Bungoma	0	0	0	0	0	0	0	0	1691	2070			1,691	2,070
Busia	0	0	0	0	0	0	0	0	1874	2292			1,874	2,292
Homa Bay	0	0	0	0	0	0	0	0	1297	1586			1,297	1,586
Isiolo	0	0	0	0	0	0	14	18	0	0			14	18
Kisumu	0	0	0	0	0	0	0	0	0	0			0	0
Kitui	0	0	0	0	0	0	0	0	0	0			0	0
Makueni	0	0	0	0	0	0	0	0	0	0			0	0
Marsabit	0	0	0	0	0	0	9	10	20	28			29	38
Migori	0	0	0	0	0	0	0	0	819	670			819	670
Siaya	0	0	0	0	0	0	0	0	0	0			0	0
Taita Taveta	0	0	0	0	0	0	0	0	0	0			0	0
Turkana	0	0	0	0	0	0	0	0	36	34			36	34
Vihiga	0	0	0	0	0	0	0	0	0	0			0	0

INDICATOR TITLE:	Number of public-private partnerships formed as a result of Feed the Future assistance (S)															
INDICATOR NUMBER#:	4.5.2(12)															
UNIT	DISAGGREGATE BY: location & date															
	Geographic Location		Activity Title		Date		N/A						Subtotal			
	Elgeyo Marakwet, Uasin Gichu, Nandi		Formation of Public Private Partnership		September		3						3			
						Totals:	3		0				3			
Results:																
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved			
			Achieved		Achieved		Achieved		Achieved		Target		Achieved			
	N/A		N/A		N/A		N/A		N/A		N/A		N/A			
Sex: Women (W), Men (M)	0										5 (total)		3 (total)			
Bungoma	0		0		0		0		0				0			
Busia	0		0		0		0		0				0			
Elgeyo Marakwet	0		0		0		0		1				1			
Garissa	0		0		0		0		0				0			
Homa Bay	0		0		0		0		0				0			
Isiolo	0		0		0		0		0				0			
Kitui	0		0		0		0		0				0			
Makueni	0		0		0		0		0				0			
Marsabit	0		0		0		0		0				0			
Meru	0		0		0		0		0				0			
Migori	0		0		0		0		0				0			
Nandi	0		0		0		0		1				1			
Siaya	0		0		0		0		0				0			
Tharaka Nithi	0		0		0		0		0				0			
Uasin Gichu	0		0		0		0		1				1			

INDICATOR TITLE:	Number of hectares of land under improved technologies or management practices as a result of USG assistance (RiA) (WOG)					
INDICATOR NUMBER#:	4.5.2(2)					
UNIT	DISAGGREGATE BY: location,technology, date and gender (N.B. should be by 'management' and include joint)					
	Geographic Location	**Activity Title**	**Date**	**W**	**M**	**Subtotal**
	Siaya, Busia, Makueni, Kitui and Tharaka Nithi	Planting of crops	Sept-Oct	905	358	1,263
	Elgeyo Marakwet, Uasin Gichu, Nandi and Meru	Crop genetics - Training and learning farms	February	0.94	0.94	2
	Siaya, Busia, Makueni, Kitui and Tharaka Nithi	Crop genetics - Planting of improved varieties	March	1,969	1,971	3,940
	Meru	Crop genetics - Planted certified seed potato	February	0.5	1	2
	Elgeyo Marakwet, Busia, Siaya, Makueni, Kitui and Tharaka Nithi	Crop genetics, cultural practices, soil fertility and conservation, disease management	June	3,084	3,636	6,720
	Elgeyo Marakwet, Uasin Gichu, Nandi and Meru	Crop genetics, disease management, cultural practices	April	2.3	11.4	14
	Busia, Bungoma, Migori, Homa Bay	Crop genetics, disease management, cultural practices	Apr-Jun	11.3	12.6	24
	Meru	Crop genetics, disease management	Apr-Jun	1.1	0.8	2
	Elgeyo Marakwet, Uasin Gichu and Nandi	Crop genetics, disease management	September	1.2	4.7	6
	Busia, Bungoma, Migori, Homa Bay	Crop genetics, disease management	September	34.6	22.2	57
	Isiolo	Working with conservancy grazing management committees	Jul - Sept	34,000		34,000
			Totals:	6,010	6,019	46,029

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target		Achieved	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M
Sex: Women (W), Men (M)	0	0	905.0	358.0	1,970.4	1,973.2	3,098	3,659	34,036.8	28.7	133,771		46,029	
Bungoma	0	0	0	0	0	0	5.8	8	10.5	6.3			16	14
Busia	0	0	47	39	350	351	320.5	319.5	10.4	8.3			728	718
Elgeyo Marakwet	0	0	0	0	0.38	0.38	634.1	1183	0.67	2.89			635	1,186
Homa Bay	0	0	0	0	0	0	0	0	9.1	5.9			9	6
Isiolo	0	0	0	0	0	0	0	0	34,000				34,000	
Kitui	0	0	395	99	447	446	746	745	0	0			1,588	1,290
Makueni	0	0	269	90	354	355	492	493	0	0			1,115	938
Meru	0	0	0	0	0.58	1.38	0.2	0.7	1.06	1.79			2	4
Migori	0	0	0	0	0	0	0.02	0.05	4.6	1.7			5	2
Nandi	0	0	0	0	0.19	0.19	0.5	6.8	0.45	1.81			1	9
Siaya	0	0	53	44	464	465	421	421	0	0			938	930
Tharaka Nithi	0	0	141	86	354	354	477	479	0	0			972	919
Uasin Gichu	0	0	0	0	0.29	0.29	0.5	2.9	0.03	0			1	3

Root crops did not extrapolate from seed sales so their 'area under' relates only to direct observation; DTC in continuous reporting double-counted area across gender for jointly managed

INDICATOR TITLE:	Number of members of producer organizations and community-based organizations receiving USG assistance (S)													
INDICATOR NUMBER#:	4.5.2(27)													
UNIT	DISAGGREGATE BY: location, event, date and gender													
	Geographic Location				Activity Title			Date	W		M		Subtotal	
	Migori, Homa Bay, Busia, Kisumu and Siaya				Management (financial, planning, HR, governance)			August	22		80		102	
								Totals:	22		80		102	
Results:														
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target		Achieved	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M
Sex: Women (W), Men (M)	0	0	0	0	0	0	0	0	22	80	6,945	8,505	22	80
Siaya	0	0	0	0	0	0	0	0	8	35			8	35
Homa Bay	0	0	0	0	0	0	0	0	4	15			4	15
Busia	0	0	0	0	0	0	0	0	2	6			2	6
Kisumu	0	0	0	0	0	0	0	0	6	17			6	17
Migori	0	0	0	0	0	0	0	0	2	7			2	7

INDICATOR TITLE:	Number of MSMEs, including farmers, receiving business development services from USG assisted sources (S)													
INDICATOR NUMBER#:	4.5.2(37)													
UNIT	DISAGGREGATE BY: location, event, date and gender													
	Geographic Location				Activity Title		Date		W		M		Subtotal	
	Kisumu, Siaya, Migori, Busia and Homa Bay				BDS - Dairy Hubs - capacity building		July		14		58		72	
	Kisumu, Siaya, Migori, Busia and Homa Bay				BDS - Sales Attendants		August		7		12		19	
	Kisumu, Siaya, Migori, Busia and Homa Bay				BDS - Dairy Hubs - governance		August		8		22		30	
							Totals:		29		92		121	
Results:														
Additional Criteria If other criteria are important, add lines for setting targets and	Baseline		Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target		Achieved	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M
Sex: Women (W), Men (M)	0	0	0	0	0	0	0	0	29	92	1,753	2,630	29	92
Siaya	0	0	0	0	0	0	0	0	8	37			8	37
Vihiga	0	0	0	0	0	0	0	0	0	0			0	0
Homa Bay	0	0	0	0	0	0	0	0	7	15			7	15
Busia	0	0	0	0	0	0	0	0	3	10			3	10
Taita Taveta	0	0	0	0	0	0	0	0	0	0			0	0
Makueni	0	0	0	0	0	0	0	0	0	0			0	0
Kitui	0	0	0	0	0	0	0	0	0	0			0	0
Kisumu	0	0	0	0	0	0	0	0	6	20			6	20
Migori	0	0	0	0	0	0	0	0	5	10			5	10

INDICATOR TITLE:	Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance (RiA) (WOG)					
INDICATOR NUMBER#:	4.5.2(5)					
UNIT	DISAGGREGATE BY: location,technology type, date and gender (N.B. Figures much higher than FTFMS as includes double-counting of farmers)					
	Geographic Location	**Activity Title**	**Date**	**W**	**M**	**Subtotal**
	Siaya, Busia, Makueni, Kitui, Tharaka Nithi	Planting of improved varieties	October	2,313	851	3,164
	Migori	Animal Health – ECF Vaccination	March	50	80	130
	Siaya, Busia, Makueni, Kitui, Tharaka Nithi	Crop genetics - Planting of Improved Varieties	March	16,585	10,162	26,747
	Elgeyo Marakwet, Uasin Gichu, Nandi and Meru	Crop genetics, disease management	March	30	46	76
	Elgeyo Marakwet, Uasin Gichu, Nandi, Meru, Bungoma and Busia	Crop genetics, disease management, Cultural practices	April - Jun	1,739	219	1,958
	Migori, Homa Bay, Kisumu and Vihiga	Delivery of animal health technologies - ECF	June	127	239	366
	Migori, Siaya and Vihiga	Delivery of livestock breeding services - FTAI	June	363	443	806
	Busia and Homa Bay	Delivery of livestock feeding technology	June	1,192	1,815	3,007
	Isiolo	Use of an incubator for commercial chick production	May	12	16	28
	Garissa	vaccination and animal health service provision	June	25	76	101
	Siaya and Busia	Crop genetics, cultural practices, soil fertility and conservation, disease management	June	2,247	2,089	4,336
	Makueni, Kitui and Tharaka Nithi	Crop genetics, cultural practices, soil fertility and conservation, disease management	June	2,816	1,253	4,069
	Elgeyo Marakwet	conservation, pest & disease management	June	441	1,940	2,381
	Elgeyo Marakwet, Uasin Gichu and Nandi	Post-harvest handling and storage	August	5	23	28
	Meru, Bungoma, Busia, Homa Bay & Migori	Crop genetics, disease management & cultural practices	Jun - Aug	7,479	2,854	10,333
	Siaya, Kisumu, Homa Bay and Migori	Improved fodder or forage	July	9	15	24
	Kisumu, Vihiga, Taita Taveta	Livestock management - AI	September	224	850	1,074
	Busia, Kisumu, Siaya and Vihiga	Livestock management - ECT - ITM	September	191	498	689
	Busia and Siaya	Crop genetics	September	4,289	2,560	6,849
	Marasabit	Livestock management - PPR & LSD vaccine / Marketing	August	440	868	1,308
	Garissa	Livestock management - PPR & LSD vaccine	August	249	656	905
			Totals:	40,826	27,553	68,379

INDICATOR TITLE:	Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance (RiA) (WOG)
INDICATOR NUMBER#:	4.5.2(5)

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target		Achieved	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M
Sex: Women (W), Men (M)	0	0	2,313	851	16,665	10,288	8,962	8,090	12,886	8,324	22,401	26,169	40,826	27,553
Bungoma	0	0	0	0	0	0	1254	63	1135	97			2,389	160
Busia	0	0	118	97	2452	1829	1755	2206	2796	1812			7,121	5,944
Elgeyo Marakwet	0	0	0	0	8	8	448	1955	1	7			457	1,970
Garissa	0	0	0	0	0	0	25	76	249	656			274	732
Homa Bay	0	0	0	0	0	0	690	891	1531	336			2,221	1,227
Isiolo	0	0	0	0	0	0	12	16	0	0			12	16
Kisumu	0	0	0	0	0	0	28	64	90	349			118	413
Kitui	0	0	989	247	3871	1993	1435	453	0	0			6,295	2,693
Makueni	0	0	718	180	3125	1610	952	371	0	0			4,795	2,161
Marsabit	0	0	0	0	0	0	0	0	440	868			440	868
Meru	0	0	0	0	12	28	3	14	2,117	1,573			2,132	1,615
Migori	0	0	0	0	50	80	178	270	872	179			1,100	529
Nandi	0	0	0	0	4	4	8	31	2	8			14	43
Siaya	0	0	136	111	4185	3209	1664	1141	3462	1807			9,447	6,268
Taita Taveta	0	0	0	0	0	0	0	0	65	356			65	356
Tharaka Nithi	0	0	352	216	2952	1521	429	429	0	0			3,733	2,166
Uasin Gichu	0	0	0	0	6	6	7	17	2	8			15	31
Vihiga	0	0	0	0	0	0	74	93	124	268			198	361

Note quarter 3 DTC completely changed because were double-counting all beneficiaries across different technologies!

INDICATOR TITLE:	Number of private enterprises, producer organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied improved technologies or management practices as a result of USG assistance (RiA) (WOG)					
INDICATOR NUMBER#:	4.5.2(42)					
UNIT	DISAGGREGATE BY: location, technology type, date and status (new / continuing)					
	Geographic Location	Activity Title	Date	New	Continuing	Subtotal
	Bungoma, Busia, Homa Bay and Migori	Net tunnel construction and dissemination of clean planting material (Vine multipliers)	January	16	0	16
	Migori, Homa Bay, Busia, Kisumu and Siaya	Management (financial, planning, HR, governance)	August	9	0	9
	Bungoma, Busia, Homa Bay, Migori	Potato seed multipliers				152
	Elgeyo Marakwet, Uasin Gichu, Nandi and Meru	Seed groups (4)				4
	Livestock value-chain	Conservancy				1
	(Note the red text entries were not reported in quarterly performance tables but are included in FTFMS)		Totals:	25	0	182

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target		Achieved	
	New	Cont	New	Cont	New	Cont	New	Cont	New	Cont	New	Cont	New	Cont
Sex: Women (W), Men (M)	0	0	0	0	16	0	9	16	0	25	278		25 + 157	25 + 157
Siaya	0	0	0	0	0	0	1	0		1			1	1
Homa Bay	0	0	0	0	4	0	1	4		5			5	5
Busia	0	0	0	0	4	0	1	4		5			5	5
Kisumu	0	0	0	0	0	0	5	0		5			5	5
Bungoma	0	0	0	0	4	0	0	4		4			4	4
Migori	0	0	0	0	4	0	1	4		5			5	5

N.B: seed multipliers and seed groups for root crop VC and conservancy for livestock VC not reported here (but in FTFMS)

INDICATOR TITLE:	Value of new private sector investment in the agriculture sector or food chain leveraged by Feed the Future implementation					
INDICATOR NUMBER#:	4.5.2(38)					
UNIT	DISAGGREGATE BY: location, investment type and date					
	Geographic Location	Activity Title	Date	N/A		Subtotal
	Elgeyo Marakwet	Investment area: genetics, disease, cultural practices & post-harvest handling	August	3,323		3,323
	Uasin Gichu		August	4,154		4,154
	Nandi		August	11,276		11,276
	Bomet		August	3,684		3,684
	Nakuru		August	2,220		2,220
			Totals:	24,657		24,657

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target (USD)		Achieved	
	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sex: Women (W), Men (M)	0		0		0		0		24,657		50,000		24,657	
Elgeyo Marakwet	0		0		0		0		3,323				3,323	
Uasin Gichu	0		0		0		0		4,154				4,154	
Nandi	0		0		0		0		11,276				11,276	
Bomet	0		0		0		0		3,684				3,684	
Nakuru	0		0		0		0		2,220				2,220	

INDICATOR TITLE:	**Number of technologies or management practices in one of the following phases of development:** **Phase I: under research as a result of USG assistance** **Phase II: under field testing as a result of USG assistance** **Phase III: made available for transfer as a result of USG assistance (S)**
INDICATOR NUMBER#:	**4.5.2(39)**

UNIT	DISAGGREGATE BY: location, technology type and date					
	Geographic Location	**Activity Title**	**Date**	**N/A**		**Subtotal**
	Elgeyo Marakwet, Uasin Gichu, Nandi and Meru	Technology type: genetics, disease, cultural practices &	Apr-May	3		3
	Bungoma, Busia, Homa Bay and Migori	Technology type: crop genetics	Apr-May	1		1
			Totals:	4		4

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target (USD)		Achieved	
Phase III	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sex: Women (W), Men (M)	0		0		0		4		0		1 (Phase 3)		4	
Elgeyo Marakwet	0		0		0		3		0				3	
Uasin Gichu	0		0		0		3		0				3	
Nandi	0		0		0		3		0				3	
Meru	0		0		0		3		0				3	
Bungoma	0		0		0		1		0				1	
Busia	0		0		0		1		0				1	
Homa Bay	0		0		0		1		0				1	
Migori	0		0		0		1		0				1	

INDICATOR TITLE:	Number of individuals who have received USG supported short-term agricultural sector productivity or food security training (RiA) (WOG)					
INDICATOR NUMBER#:	4.5.2(7)					
UNIT	DISAGGREGATE BY: location,event, date and gender					
	Geographic Location	**Activity Title**	**Date**	**W**	**M**	**Subtotal**
	Siaya, Busia, Makueni, Kitui and Tharaka Nithi	Training on planting methods and agronomy	October	3,986	1,657	5,643
	Elgeyo-Marakwet, Nandi, Uasin Gichu, Meru	Stagger plant six practical training sites for seed potato multiplier	November	0	6	6
	Elgeyo-Marakwet, Nandi, Uasin Gichu, Meru	Decentralized seed potato multipliers identified	November	24	86	110
	Isiolo, Marsabit, Wajir	Train producers on disease recognition and monitoring	March	34	105	139
	Siaya, Busia, Makueni, Kitui and Tharaka Nithi	Training on planting methods, seed production and DTC post-harvest	March	3,658	3,960	7,618
	Busia, Bungoma, Homa Bay, Migori	Training on vine multiplication	February	20	27	47
	Elgeyo-Marakwet, Nandi, Uasin Gichu, Meru	Seed potato multiplication training: technical and business	February	67	184	251
	Siaya, Busia, Makueni, Kitui and Elgeyo-Marakwet	ASP&FS Training	June	3,091	2,648	5,739
	Isiolo, Garissa, Wajir	Training of members of CLMC on governance and leadership	June	8	26	34
	Marsabit	Training on hydroponic fodder/feeds	May	4	26	30
	Marsabit	Training on small ruminant management	June	11	33	44
	Turkana, Wajir, Isiolo and Garissa	Training on policy analysis and dialogue	June	18	27	45
	Marsabit	Training of county livestock technical staff and selected PREG partners	June	3	26	29
	Turkana and Garissa	Training producers on syndromic disease surveillance	April	13	105	118
	Isiolo	Training of Mawazo poultry women group members and selected	May	22	0	22
	Isiolo	Training on small ruminant management, including breeding and	June	46	50	96
	Isiolo	Training selected producers on pasture management	June	1	14	15
	Elgeyo-Marakwet	Postharvest training	June	1	8	9
	Elgeyo-Marakwet	ASP&FS Training	June	2,147	2,315	4,462
	Nandi & Uasin Gichu	Postharvest training	June	4	16	20
	Meru	Crop genetics, disease management, Cultural practices	June	3	14	17
	Busia, Homa Bay and Siaya	VDBAs trained on fodder nursery establishment	June	14	21	35
	Migori, Homa Bay, Kisumu, Siaya and Vihiga	Service providers trained on FEAST	June	8	14	22
	Migori, Homa Bay, Kisumu, Siaya and Vihiga	Service providers trained on FTAI	June	3	50	53
	Elgeyo-Marakwet, Nandi, Uasin Gichu, Meru	ASP&FS Training	July	139	429	568
	Busia, Bungoma, Homa Bay, Migori	ASP&FS Training	July	59	105	164
	Migori, Homa Bay, Kisumu, Siaya and Busia	ASP&FS - Animal management & Improved productivity	August	14	27	41
	Busia, Homa Bay and Vihiga	ASP&FS - Animal Health, Cultural Practices, Extension Methodology	August	23	53	76
	Migori, Homa Bay, Kisumu, Siaya and Busia	ASP&FS - Education Tour or Exchange Visit	August	7	23	30
	Makueni, Kitui and Taita Taveta	ASP&FS - FEAST	August	2	11	13
	Migori, Homa Bay, Busia, Siaya and Vihiga	ASP&FS - ECF Vaccine	August	3	54	57
	Makueni, Kitui, Kisumu and Taita Taveta	ASP&FS - ECF Vaccine	August			0
	Siaya, Taita Taveta, Makueni, Kitui and Kisumu	ASP&FS - FTAI	July	4	27	31
	Siaya, Busia, Makueni, Kitui and Tharaka Nithi	ASP&FS Training	September	4745	1916	6,661
	Elgeyo Marakwet	ASP&FS Training	September	752	910	1,662
	Marsabit	Disease surveillance, milk hygiene & handling, fodder production	Jul-Sept	126	2649	2,775
	Garissa	Disease surveillance, fodder production	Aug-Sept	400	618	1,018
	Isiolo	Disease surveillance, fodder production, animal management	September	353	651	1,004
	Wajir	Disease surveillance, fodder production, small ruminants	Jul-Sept	738	660	1,398
	Turkana	Disease surveillance, fodder production, small ruminants	Jul-Sept	443	972	1,415
			Totals:	20,994	20,523	41,517

INDICATOR TITLE:	Number of individuals who have received USG supported short-term agricultural sector productivity or food security training (RiA) (WOG)
INDICATOR NUMBER#:	4.5.2(7)

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline		Results Achieved Reporting Period 31 Dec 2015		Results Achieved Reporting Period 31 Mar 2016		Results Achieved Reporting Period 30 Jun 2016		Results Achieved Reporting Period 30 Sept 2016		Total FY 2016 Target		Total FY 2016 Achieved	
			Achieved		Achieved		Achieved		Achieved		Target		Achieved	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M
Sex: Women (W), Men (M)	0	0	4,010	1,749	3,779	4,276	5,397	5,393	7,808	9,105	11,835	14,465	20,994	20,523
Bungoma	0	0	0	0	4	8	0	0	13	32			17	40
Busia	0	0	377	308	954	1,037	70	30	256	185			1,657	1,560
Elgeyo Marakwet	0	0	11	40	22	64	4,295	4,638	804	1,081			5,132	5,823
Garissa	0	0	0	0	0	0	2	92	400	618			402	710
Homa Bay	0	0	0	0	7	5	8	19	22	54			37	78
Isiolo	0	0	0	0	20	42	79	10	353	651			452	703
Kisumu	0	0	0	0	0	0	3	11	5	14			8	25
Kitui	0	0	1,440	360	675	730	481	141	1,629	501			4,225	1,732
Makueni	0	0	1,177	294	617	668	326	170	1,328	458			3,448	1,590
Marsabit	0	0	0	0	11	38	27	112	126	2,649			164	2,799
Meru	0	0	0	0	16	40	3	14	5	19			24	73
Migori	0	0	0	0	5	6	2	14	21	35			28	55
Nandi	0	0	5	13	7	26	2	8	25	63			39	110
Siaya	0	0	422	346	913	989	77	26	893	539			2,305	1,900
Taita Taveta	0	0	0	0	0	0	0	0	2	23			2	23
Tharaka Nithi	0	0	570	349	503	544	0	0	672	349			1,745	1,242
Turkana	0	0	0	0	0	0	11	69	443	972			454	1,041
Uasin Gichu	0	0	8	39	22	54	2	8	57	176			89	277
Vihiga	0	0	0	0	0	0	2	7	16	26			18	33
Wajir	0	0	0	0	3	25	7	24	738	660			748	709

DTC Q4 has changed since quarterly report as was incorrect at the time

4. CONSTRAINTS AND OPPORTUNITIES

4.1 Opportunities

During the field visits and interactions with the private sector and stakeholders, it emerged that there is great potential for most of the value chains to develop commercial agri-businesses in which the private sector is keen to play a key role, and for which the county governments are willing to allocate additional funds for agricultural development programs. For example, there is high demand for groundnuts that local production cannot supply even 20 percent of the requirement. Given this scenario, indigenous processors routinely import groundnuts from neighboring countries (primarily Malawi) and are forced to shut down their factories when they cannot source the nuts. Similarly, orders for pigeon peas and green grams from consumers in countries such as India are consistently unfilled. There is overwhelming support from county governments to embrace the market co-management model.

Within the root crops value chain, there are great opportunities for private sector participation in seed systems, marketing and agro-processing. With this in mind, the program is working with the private sector to invest in potato seed production through cuttings and to contract farmers to grow potatoes for processing. Within the OFSP value chain a private investor expressed interest in building a factory in Homa Bay to process sweet potato into flour and puree for a chain of supermarkets. The county government has already allocated land and the AVCD program is supporting the enterprise to ensure consistent supply and adequate storage of roots for the factory.

With the demand for milk rising so quickly that there is currently a national deficit and with a woefully underdeveloped dairy industry in the value chain target counties, the county governments are fast recognizing that investment in and development of this sector could prove a valuable pathway out of poverty. What they lack, however, is the technical capacity and knowledge to exploit this opportunity. The Dairy value chain seeks to enhance existing capacity within the administration and local farmers alike to realize the full potential of this opportunity. Similar opportunities exist within the livestock value chain and it has been recognized that with good community management, every segment of the society could gainfully participate in this industry, which remains one of the few viable in the target counties. Within this value chain, there are opportunities for multiple actors along the pathway, with some involved in keeping animals, others participating in fodder, feed production and employed as agro-vets and still others participating in post-harvest and value addition processes.

In the AL2 FTF ZOI it emerged that there are many opportunities for the program to leverage resources from other actors for animal health care delivery through innovative PPP models. Such partners include FAO and the World Bank funded Regional Pastoral Livelihoods Resilience Project (RPLRP) in Kenya, being implemented by the State Department of Livestock at the Ministry of Agriculture, Livestock and Fisheries (MoLAF).

The development of modern abattoir/slaughterhouses in the region provides an opportunity for a steady supply of fodder for livestock at the respective holding grounds, to ensure sustainable slaughter operations. This projected demand presents a business opportunity for fodder producers especially through the public-private partnership model. Subsequently fodder application of the Feed Assessment Tool (FEAST) would then be handy for the fodder producers.

In the dairy value chain there are many opportunities presented by the presence of many agencies mandate counties that target the same beneficiaries with complementary interventions. Besides the county government, various development partners supporting the dairy value chain in same counties present new opportunities for collaboration and synergies. In Vihiga County for instance, GIZ supported the establishment of chilling plants to a number of cooperatives besides establishing model farms. They are also supporting one CBO that is working with AVCD by equipping them with essential AI equipment. These initiatives will be of great complement to the AVCD breeding activities. There are also emerging opportunities to collaborate with Kenya Market Trust and USAID-KAVES to develop and support options for commercial hay production within

the HR1 counties. In the SA2 counties AVCD is also looking forward to working with USAID-KAVES to strengthen business orientation of commercial hay production entities that have been established in the counties.

There is a huge potential and opportunity to introduce mechanization across the DTC value chains production and post-harvest operations. To promote mechanized shelling/threshing of DTCs, the program will use groundnut shellers and multi-cereal threshers. There is high demand for smart foods and DTC VC has initiated interventions on nutrition and commercialization. There is scope for multi-sectorial planning and implementation involving MoH, MoA & MoE in all Counties.

In the potato value chain, there are opportunities for the private sector to play a greater role in marketing by linking the farmers with processors. In this regard, the program initiated discussions with David Hollier Kenya Ltd, a Kenyan company that arranges and provides support to potato farmers, while also organizing linkages and distribution to markets. The company entered into supply agreements with Norda Industries and Njoro Canning factory Ltd, and started discussions with Tropical Heat.

In the AL3 FTF ZOI, several counties are in the process of developing natural resource management, rangeland bills or policies and expect to move this to completion before the 2017 elections. AVCD-LC will support some of these counties to develop the policy and institutional instruments needed to move these county initiatives towards operationalization. In this areas there is opportunity also to leverage resources for animal health from other actors through the PPP model. Discussions are ongoing with FAO and other actors in Turkana and Garissa on joint activities through the PPP model.

In the HR1 and SA2 FTF ZOI, opportunities for new technologies and business development are emerging with the acceleration of value chain development. In the dairy value chain, it emerged that there are substantial business opportunities along the dairy value chain ranging from commercial fodder production to selling milk that farmers can venture into, hence resource poor smallholder farmers who do not have livestock can still benefit and earn incomes by producing fodder. There are also opportunities to exploit inherent social capital in emerging and existing collective action structures in order to mobilize resources that could aid poorer households to enter the dairy value chain.

4.2 Constraints

At the program management level, constraints were encountered in the process of preparations and negotiations of the Collaborative Project Agreements (CPA), with implementing centers and grant agreements with NGOs and national agencies as partners. Adjustments were however made on the work plan and stop gap measures were taken to deal with these delays.

Across the FTF ZOI, county extension services are under-resourced and lack adequate transportation and operating capital. From the field visits and interaction with County Governments, it has been realized that after devolution of agricultural and livestock functions, human and financial capacity has been seriously eroded to the extent that they cannot implement meaningful agricultural development activities. Even the capacity to development reasonable development plans is lacking. The AVCD program is therefore planning to assist by working with NGOs to support and train county government officers as much as possible. In addition, formalization and standardization of allowances for GoK (county and national staff) and modes of engagement with county governments has been initiated but will required for a more systematic approach.

Within the livestock value chain, it has been found that the majority of the agro-vet operators are not registered, and live with the constant fear that the government will outlaw them at any time. There is also widespread use of fake drugs, which enter Kenya as a result of long porous borders with neighboring countries. These drugs are sold very cheaply and the genuine agro-vet operators are not able to compete with them. The value chain plans to address this problem by training the livestock producers on the dangers of using fake drugs and introduce the agro-vets to the authorized suppliers and provide them with opportunities to promote their products among the livestock keepers, through market interventions.

In the dairy value chain, the main constraints arise from the fact that the counties that the program is focusing on are not traditional dairy zones. The dairy industry in these counties is therefore so poorly developed that milk supply is egregiously insufficient, leading to high prices. The low supply of milk and high farm gate prices make the region unattractive for private sector investment in marketing and processing. In addition, due to the high population of local breeds, infestations of tick-borne diseases such as ECF are endemic in the area.

In the process of implementation of some of the interventions in the daily value chain, it has emerged that the packaging of ECF vaccine is not appropriate for smallholders with small herds. The technical teams are addressing this challenge by mobilizing households to agree to put their herds together for vaccination. This will take some time, however, and it may not always be possible to get households to agree to this exercise. There are also fears that carrying out vaccination campaigns against ECF in SA2 counties, which border game parks, may reduce the effectiveness of the vaccine, given the resistance of ticks to the vaccine on some wildlife.

In the AL3 FTF-ZOI, the major constraint encountered during implementation is the vastness of the county in addition to poor road network which consumes lots of time during project implementation. Due to the sensitive nature of land issues, and especially fear of land grabbing, proposed project interventions in rain-fed pasture production in Isiolo have had to wait for community elders to undertake time consuming consultations among themselves and other stakeholders, including local political leaders, hence losing a whole rain season of rain fed pasture production.

Still with regards to milk marketing, governance challenges at the apex level of the dairy traders association (DTA) slowed down formalization and compliance of milk traders in target areas. In most cases, milk traders have not received much support from the DTA thus leading to formation of parallel associations to support traders in voicing their concerns with KDB. Efforts to formalize milk traders that are supported by the project was also compromised by lack of KDB presence in some of the counties such as Kitui and Makueni.

In both the drought tolerant crops and potato value chains, lack of private sector involved in seed production posed a serious constraint to the establishment of seed systems for some the crops such as ground nuts. It will therefore be necessary for the program to find ways and means of giving incentives to private sector to develop interest in these crops. The second challenge in this value chain was marketing infrastructure. While the production of these crop has not yet reached an optimal level, it is foreseen that there will be need for the program to put extra efforts in developing the pull side of the theory of change.

In HR1 and SA2 FTF ZOI erratic rainfall patterns affected the uptake of both improved crop varieties and forages by target beneficiaries in the HR1 and SA2 ZOI. Rainfall was unreliable and below usual levels, with severe effect in fodder activities. Some fodder crops such as Calliandra, Desmodium and Napier grass could not be distributed to all target areas on time or at all because of lack of sufficient rains. Other fodder multiplication sites were not established or were only partially established (e.g., 50% of Napier sites established in Siaya county and only some sweet potato sites in Busia and Homa Bay counties were established). As a result of these limitations, rate of expansion by farmers and VBDAs from initial plots was been constrained. However re-stocking of Napier grass multiplication sites that did not establish well and increasing the order for Napier grass will address the situation. The team also postponed the distribution of additional Napier grass and planting for Caliandra, Desmodium and transplanting of Brachiaria until rains return.

In addition to milk trader associations, CIGs and dairy cooperatives in SA2 ZOI are at nascent stage of development and this has presented challenges in finding financial institutions that would be willing to engage these young entities. Most financial institutions and equipment providers were unwilling to partner with them for credit facilities and issuance of equipment on credit.

In the staples value chains, there are leakages in the seed distribution systems causing a mismatch between the seed distributed and seed planted. To reduce this leakage the M&E team in each county should start recording names of beneficiaries and the amount of seed accessed at seed distribution centers.

With regard to potatoes, delays in seed certification by Kenya Plant Health Inspectorate Services (KEPHIS) and Kenya Agricultural and Livestock Research Organization (KALRO) was still causing delays in seed distribution. Such delays may cause late planting and consequently poor yields. The program is working to develop a seed system that will not be dependent on these organizations

5. PERFORMANCE MONITORING

Performance monitoring of the AVCD is based on the Results Framework (RF), the Activity Monitoring and Evaluation Plan. The Activity Monitoring and Evaluation Plan (AMEP), with all the indicators in accordance with the USAID template and guidelines were completed by first quarter of program implementation. The AMEP document was revised in the fourth quarter after the baseline surveys and value chain analysis were completed

The tool to carrying out monitoring and evaluation is the computer based Monitoring and Evaluation System/Platform. The development of this system, including programming, data capture, and development of screen shots has been completed and users are being trained.

Any person about whom data is collected for this project is issued with a beneficiary card, which contains information unique to that individual. During the process of issuing the card, minimal data is collected for this individual, enabling the project to build a beneficiary profile.

Some of the tools currently in use for continuous monitoring include log books, in which, for example, under the potato VC, seed potato sellers can enter the details of customers who have bought seed, including the minimum data required to compile a beneficiary profile and the amount of the commodity purchased. The dairy VC is also using log books to map beneficiaries to the VC technologies promoted by the VC. All of the data gathered regarding technology uptake and performance will provide valuable insight into the potential for the scaling up of the various technologies under all the VCs.

The dairy VC is using innovative methods for capturing data which represents information beyond the FtF indicators and is of interest to the VC partners and component implementing staff. For example, through its main partner in SA2 counties, the project has deployed an innovative data capture tool in Makueni, Kitui and Taita Taveta counties known as a monthly tracker to businesses. The monthly tracker is tailored for each type of businesses and it tracks monthly business parameters of revenue, customer service, costs and employment creation. It is also useful in tracking the adoption of technology/innovations/practices that have been introduced to respective businesses by the AVCD program. The tracker is also useful for business in data collection for internal decision making. In the same spirit VBDA will be issued with income books have been drafted and are being printed for recording of sales of inputs.

Activities for the performance monitoring include the biweekly reports, monthly reports, quarterly reports, monthly program management committee meetings, program advisory committee meetings, and regular field visits. The requisite reports were prepared as required although sometimes a little late. Program management committee was instrumental to the smooth running of the program. The program advisory committee was put in place in the last half of the year due to changes in the Ministry of Agriculture and Livestock Development, but since then it has been instrumental in policy oversight and linkage with the private sector.

All Value Chain components completed baseline surveys and the reports are on the AVCD and ILRI websites. A composite baseline survey report for the whole program revealed some interesting results as shown in table 3. below. For example, it is notable that in the demographic characteristics, over 80 percent of the population in AL3 had no formal education. It also notable that the gross margins of ground nuts were much higher than other drought tolerant crops though it is not consumed much by the farming community.

Table 3. Baseline study highlights

Indicator	Root crops		Dairy N=786	Livestock N=646	DTC N=570
	OFSP N=312	Potato N=342			
HH Demographic characteristics					
Household head male (%)	78.30	90.00	79.00	81.00	80.00
Household head female (%)	21.70	10.00	21.00	19.00	20.00
Formal education (%)	99.40	94.00	91.00	19.80	89.80
Average household size	4.50	4.00	5.00	6.00	5.40
FTF indicators					
Gross margin (USD)	0	184.00	70.00		
Camels				15.70	
Cattle				12.40	
Goats				6.70	
Sheep				4.50	
Groundnuts/peanuts					711.05
Pearl Millet					84.93
Finger Millet					145.06
Pigeon Peas					107.07
Green Grams					184.88
Sorghum					240.00
Value of sales (USD)	0	1,259.00			
Camels				934.00	
Cattle				693.00	
Goats				355.00	
Sheep				247.00	
Groundnuts/peanuts					138.86
Pearl Millet					37
Finger Millet					21
Pigeon Peas					36.82
Green Grams					230.15
Sorghum					29.54
Mean number of food groups consumed the previous day by women of reproductive age (15-49 years)	4.28	6.30	4.83	3.60	3.20
Mean quantity of nutrient rich value chain commodity set aside daily for home consumption (Kgs/litres)	0	N/A	1.40	1.64	
Groundnuts/peanuts (mt)					211.96
Pearl Millet (mt)					471.77
Finger Millet (mt)					88.25
Pigeon Peas (mt)					550.00
Green Grams (mt)					405.33
Sorghum (mt)					671.92

In addition, the all value chain components have carried a comprehensive mapping of the impact pathway, which are now available on the AVCD and ILRI websites.

6. PROGRESS IN NUTRITION COMPONENT

The AVCD program achieved major milestones in the nutrition component during this first year of implementation. It is noteworthy that a significant amount of time was spent in the first half of this period setting up structures and the personnel to manage the component hence there was a slow onset of field activities but there was a steady improvement in performance indicators towards the later part of the reporting period. A workshop was held in May that aimed at bringing together various nutrition actors in the country to discuss and share lessons and best practices in agriculture nutrition programing so as to inform the development of the AVCD nutrition strategy. This workshop that was well attended by representatives from

the government- Ministry of Agriculture, Ministry of Health and Ministry of Education showed the political will and support by government for this program. The other participants included representatives from the USAID Nairobi Mission, Universities, NGOs, UN agencies and USAID implementing partners.

Following the workshop, the Nutrition Strategy was developed and finalized during this reporting period. The strategy highlights the Agriculture Nutrition pathway that will guide the program implementation in achieving the AVCD nutrition goal of improving the nutritional status of women of reproductive age (15-49 years) and children 0-23 months of age. These pathways include; production, income and women's empowerment. The strategy acknowledges that production alone or increasing income of beneficiary households does not automatically translate to improved nutrition outcomes. It is a combination of these factors with nutrition education and nutrition social behavior change communication that will have greater impacts on diets and hence nutritional status. Nutrition impact pathways have also been developed to guide the logic and provide evidence along the AVCD nutrition pathways. Essentially the nutrition beneficiaries are those direct program beneficiaries who get supported with agricultural production and fall within the nutrition target criteria.

At the national level, the AVCD program engaged in various nutrition events and activities. In June AVCD joined the Academia and Research Network of the Scaling up Nutrition (SUN) Movement and continued to share and learn in the network. One of the key issues raised in this network is the need for AVCD to take up post-graduate students to research on some of the national nutrition research priorities which are also aligned within AVCD value chains for mutual benefit. For better coordination and leveraging within government, AVCD joined Technical working groups within the national nutrition coordination mechanism namely Nutrition Linkages Working group and Maternal Infant and Young Child Nutrition working group. In the same spirit, the program also became part of USAID implementing partners' Nutrition technical working group that discusses lessons and best practices in nutrition sensitive programing, for leveraging, layering and sequencing among USAID partners.

The nutrition component working along the pathways leveraged activities in the value chain interventions while using existing government structures and training materials. To contribute towards the nutrition objectives of increasing utilization of maternal child health and nutrition services as well as increasing access to safe diverse and nutritious foods, a total of 2,280 people were trained on agri-nutrition in all mandate counties against a target of 12,847 people. The training targeted County and sub-county government staff in the Ministries of Agriculture, Health and Education who were trained as Trainers of Trainers (ToTs). The ToTs mainly nutritionists, home economists and Early Child Development (ECD) teachers then cascade trained the lower cadres in the respective ministries. These lower cadres which included community health Workers, community health extension workers and ward agricultural officers are mandated to reach the communities at households.

The training used applied agri-nutrition module (2013) designed jointly by the MoA and MoH with support from USAID. Agri-nutrition addressed general household food and nutrition security, physical and economic access to food with topics covering production, selection, preparation and consumption of nutritious diverse foods as well as on basic principles of nutrition. Emphasis was on the first 1000 days of life, dietary diversity and complementary feeding to address micronutrient deficiency which is associated with stunting. Issues on maternal and child health nutrition and the need for preventive health services like micronutrient supplementation, growth monitoring and immunizations were covered in the training. Also sensitization on female energy expenditure, intra household food distribution and social cultural issues-taboos and beliefs-around food were addressed. A total of 13,006 children under five years of age were reached through their mothers/caregivers against a target of 24,704 with nutrition messages in all the value chains.

Acknowledging that social behavour change is key in ensuring consumption of diverse quality foods and utilization of maternal child health and nutrition services, and that it is a critical sub-pathway in the main nutrition pathways, various approaches were initiated for some value chains. A formative study was conducted for the staples value chain (DTC and OFSP) to establish the barriers and boosters to desired behaviors. The results of this study informed the Social Behaviour Change Communication (SBCC) approaches

to be used in given counties since the contexts at the counties are different. One of the approaches the DTC used is the Smart food Campaign that aimed at raising awareness on the health and nutrition benefits of DTCs and changing perceptions about the DTCs which are seen as foods for the poor and older persons. A national TV cooking show to show-case different appealing DTC recipes to contribute to their demand creation and to also increase opportunities for dietary diversity was produced. Airing of this show is expected to happen in the coming reporting period. The OFSP conducted a Knowledge Attitude and Practice survey whose findings will be used to inform the SBCC approach including materials in the next reporting period. The Dairy and Livestock value chains will conduct the formative research in the next reporting period.

The results of the baseline assessments indicated a wanting consumption of quality diets; the dietary diversity scores for women of reproductive age ranged between 2 and 3 foods groups against the recommended group of 9 foods across all the AVCD counties. Of concern was the very low score in Kitui County in which some sub-counties were getting as low a score as 1 food group. This is not strange in Kitui as the county has the highest rates of stunting at 46% against the national average of 26%. The dairy and DTC value chains work in this country where the increased productivity of these value chains along with nutrition education and behavior change communication is expected to reflect in positive nutrition outcomes.

Overall the nutrition component performed well in most of the indicators. In the coming reporting period activities will be at the community level and therefore more community outcomes and impact is expected in the next reporting period.

7. PROGRESS ON GENDER STRATEGY

The AVCD gender issues are addressed by each value chain component to 1) support greater access to and control over new technologies, resources, leadership, time and market opportunities among poor women and men engaged in the selected value chains in the AVCD Counties; 2) Improve household food and nutrition security outcomes and equality across household members for poor women and men- value chain actors and for consumers of more affordable and accessible value chains/commodities at household; 3) Enhance range and quality of choices for poor women and men in where and how to participate in targeted value chains due to positive changes in the gender norms and; 4) Expand capacity of value chain stakeholders to understand and integrate gender balanced approaches in AVCD implementation.

In program implementation gender balance was maintained in registration of participating farmers both in trainings and at farm level. In addition, a needs assessment was carried out for some value chains in order to identify opportunities for gender-based activities and focus including recognition of women's participation in appropriate activities.

In this reporting period, roots value chain completed a Knowledge Attitude and Practice (KAP) documentation where gender-related aspects were appraised. This information will be used to develop gender specific social, and behavior change communication messages.

The livestock value chain had widows as part of the criteria for inclusion in recruiting and contracting farmers to support in improving animal productivity through better community-based herd management. In providing business development services, women were part of the target and one poultry group of women was supported in acquisition of an incubator, business management training and in creating marketing linkages for their products.

To reduce the drudgery on women in fetching firewood AVCD is linking beneficiaries to energy saving technologies such energy saving *stoves* and fireless cookers through the ministry of Agriculture Home Economics section.

8. PROGRESS ON ENVIRONMENTAL MITIGATION AND MONITORING

The AVCD program takes deliberate measures to work with technologies and innovations that are responsive to environmental and climatic requirements of the specific locations. In the AL3 FTF ZOI, the training of county staff and communities on rangeland management and grazing plans is expected to reduce over grazing and enhance healing of the rangelands. Activities on rehabilitation of degraded rangelands have gained traction in conservancies, hill masses and riverine areas.

In HR1 and SA2 FTF ZOI, AVCD program is working with crops that are either drought tolerant or are suitable to a wide range of ecological zones. The drought tolerant crops and both environmentally sound and climate smart. In the same zone AVCD program is training of farmers on use of climate data to influence the timing for planting, various farmer operations, the crop rotation and intercropping system. While this training is continuing there are indications that farmers are doing drier planting in HR1 FTF ZOI a few days before onset of the rains and planting at the onset of the rains in SA2 FTF ZOI. Adoption of appropriate rotation and inter cropping system has not yet been recorded because it is still too early into the project implementation period.

In the dairy value chain, the program promotes the use of solar technologies for chilling milk in partnership with Inpsira Farms Ltd, a private enterprise with dairy solar powered solutions. During the reporting period, all agro-input dealers that are supported with shop remodeling also had to obtain clearance and authorization from public health and other government agencies.

9. PROGRESS ON LINKS TO OTHER USAID PROGRAMS

The AVCD program works closely with all relevant USAID programs in Kenya. Links have been established with NHPlus, KAVES, GAIN, KIWASH, REGAL-IR, RGAL-AG and the other PREG network IPs and are working out quite well. The Livestock Component of the AVCD program is working jointly with REGAL-IR and REGAL in the FTF A3 ZOI, to the extent that in the field AVDC LC is hosted by REGAL AG in counties where it operates. In the counties, linkages with USAID partners are carried out through monthly County PREG meeting and Joint quarterly PREG visits.

In order to enhance the potential of its nutrition component, the AVCD program initiated a work group comprising of the Global Alliance for Improved Nutrition (GAIN), the Nutrition and Health Program Plus (NHPplus), the Kenya Agricultural Value Chains Enterprises (KAVES) Project and the Kenya Integrated Water, Sanitation and Hygiene (KIWASH) Project. The working group has culminated to a standing committee of nutrition specialists the meets every month to deliberate on current issues.

Within the staples value chains, the drought tolerant crops component is working closely with One Acre Fund groups in Saia to promote groundnut-cereal cropping systems to improve system resiliency and sustainability. In Busier, the program is working closely with KAVES to market the improved storage PICs bags.

10. PROGRESS ON LINKS WITH GOK AGENCIES

Under the new constitution in Kenya, implementation of agricultural functions have been devolved to the county government, leaving the headquarters with only research, regulatory, and policy functions. It is therefore imperative for any development program to link with both the ministry headquarters and county governments, as well as government agencies there in. In AVCD, linkage with national government is through the Program Advisory Committee, where policy, research, and regulatory issues are identified discussed with national government officials for further action. The PAC was established only in the last quarter of the year under report and met only once. Policy and regulatory issues had not yet emerged for deliberations.

At county level the county governments are implementing partners on continuous basis. In the HR1 and SA2, County Government staff have been trained and are taking charge of implantation of program activities as the frontline with the farmers. In particular county extension have been instrumental in in mobilization and training of farmers in requisite crop production skills. The program is also using the Agricultural Training Centers for demonstration testing of the various technologies as they are being used by the farmers.

In the dairy value chain partners have entered into a Memorandum of Understanding with the County Government of Makueni to support AVCD innovations and the County dairy sector strategy in working with dairy businesses. Similar engagements also occurred between the partner and Kenya Dairy Board to support dairy traders towards compliance with set regulation and formalization including retailing of safe milk, use of recommended food grade containers for transporting milk, and pasteurized milk before sale. In addition the dairy value chain staff have signed MoUs with community livestock extension that enables them to use respective extension workers to mobilize farmers for the services provided by the service providers.

In addition to working with county government officers the dairy value is working closely with the Agricultural Sector Development Program (ASDP) supported by Sweden, which has good presence in the counties and is implementing several activities on dairy; the Kenya Dairy Board; and the Ministry of Health, which is implementing nutrition activities. County Government officials also are involved in farmer mobilization exercises, selection of frontline extension staff and training of farmers.

In the root crops the county government has taken the lead in potato value chain activities in Elgeyo-Marakwet, Uasin Gishu, and Nandi. In these counties the crops officers trained, and provided technical backstopping for the DSMs; supervised learning farms that were organizing and hosting field events (field days and ware potato farmer trainings); and seed distribution. Elgeyo-Marakwet County invested $39,650 through their own budget and the Agricultural Sector Development Support Program to complement AVCD potato activities in seed multiplication and supporting market linkages through investing in postharvest storage, promoting standard 50-kg packaging, and establishing uniform market prices at $0.20/kg. Nandi County invested $3,570 to complement potato value chain activities through capacity building and aiding certified seed distribution to DSMs.

In addition, the OFSP component is working closely with the Ministries of Health and Education on nutrition and behavior change issues. The Kenya Plant Health Inspectorate Service (KEPHIS) is involved in both potato and sweet potato in certification and the production of seeds and tissue-cultured materials.

In addition to county government officers, the Livestock value chain is working closely with the National Drought Management Authority (NDMA), which has relative capacity and presence in the A1 and A2 FTF-ZOI; the Rangelands Division of the Ministry of Agriculture Livestock and Fisheries and the Director of Veterinary Services (DVS). Subject matter specialists in these organizations are participating in field activities and training as much as required. The chief of the Rangelands Division in the Ministry of Agriculture, Livestock and Fisheries has participated in planning activities for the rangelands components of the projects and plans have been made for the participation of the Division in AVCD-LC activities. The involvement of the Division in the project activities is expected to strengthen the work and improve the enabling environment by facilitating connections to national policy and enhance the harmonization of county and national government policies and actions in this area. For example, the DVS has assisted in training 2,000 producers to improve surveillance of disease outbreaks, syndromic disease recognition and reporting; and has been working with LMAs to develop rapid response plans. The program supported the DVS in the analysis of the samples collected from active cases of the Camel Sudden Death Syndrome (CSDS) outbreak within in the A1 and A2 FTF ZOI, which have been analysed at ILRI.

In AL3 a MoU between ILRI and the National Land Commission was signed on 13October 2016. Links with county governments aimed at collaborating on developing institutional and policy frameworks at county level for rangeland management were strengthened at the national policy dialogue event held in September. County level dialogues are now being planned.

In all nutrition activities, front line home economists and community health workers from the county government are trained to be trainers of the farmers and pastoralists.

11. SUSTAINABLITY AND EXIT STRATEGY

The exit strategy for the program focuses on building human and physical capacity for the local institutions, Government Agencies and private sector to take over and continue with the activities of the program. All the value chain components have continued to engage well with these agencies. In the AL3 FTF ZOI, the PREG mechanism provides good opportunity for sustainability and exit strategy for the AVCD Program. In this regard, AVCD is participating in supporting the Counties and integrating activities into the Integrated County Development Plans (ICDPs), supporting training and providing resources to the county livestock staff. It is anticipated that most of the program activities will be taken over by the county government.

In the dairy value chain, besides the community livestock extension workers have been trained on various aspects of dairy husbandry and a number of AHAs were trained on delivery of ECF vaccine during the current reporting period. This is part of the long term strategy aimed at making the ECF vaccination service locally available. With regard to business development the program entered into an agreement with Kenya Market Trust (KMT) to support commercial hay production and community livestock extension workers are linked to private input suppliers such as Osho Chemicals under business arrangements that are expected to last beyond the life of the project thus sustaining improved access to inputs by farmers. Finally, the MSF approach that is built upon enabling private sector player to drive change in the dairy value chain remains a crucial sustainability strategy. The effort is aimed at introducing and crowding in private sector relationships that will prevail beyond the AVCD program.

During the reporting period the staples value chains, have trained several County Government staff on good agricultural practices, and monitoring crop performance. In potato value chain, VPAs in Meru County were trained to become self-employed seed multipliers and have been supported to create demand for their seed through farmer promotional packs. VPAs in Kibirichia and Nkuene networks started selling clean seed potato to their farmers, leading to increases in their income. Four VPAs have already started to make direct orders of seed potato from Kisima Farm, ordering 50 bags to sell onward to their farmers. (They would have ordered more seed potato if it had been available to purchase.) VPAs were linked to crop protection and fertilizer companies, and have started selling crop protection products and fertilizers to farmers, hence earning more income by offering a more complete service to their farmers. VPAs will continue to be linked to private sector partners to develop supply arrangements with the VPAs and network coordinators.

12. FINANCIAL REPORT

The AVCD program had an approved budget of $8.8 million for executing year 2015/2016 activities with Livestock component budget of $2.9 million, Dairy component budget of $1.8 million, Root Crop's component budget of $1.3 million, Drought Tolerant Crop budget of $1.5 million and Program Management Secretariat budget of $1.0 million. As at 30th September 2016 the overall program expenditure was US dollars, 6,109,394 which is a burn rate of 69% as shown in table 6.

During the year, the Livestock Component overall burn rate was at 73%. The Program Management Office had a burn rate of 63%, and Dairy Value chain burn rate was at 55%. The Root Crops and Drought Tolerant Crops Value Chains' burn rates were 69% and 84% respectively. The low burn rate of dairy value chain was because of the late start by development partners. However, this value chain components performed very well with regard to achieving the targets. The root crops value chain component also had a low burn rate due to delays of some activities by the development partners but its overall performance in terms of achieving targets was also satisfactory.

Table 4. Financial Report

PROGRAM FINANCIAL REPORT

ORGANIZATION NAME:	International Livestock Research Institute (ILRI)
PROGRAM:	Feed the Future - Accelerated Value Chain Development in Kenya
CURRENT REPORTING PERIOD:	From: 1-Jul-2016 To: 30-Sep-2016
CUMULATIVE REPORTING PERIOD:	From: 1-Oct-2015 To: 30-Sep-2016

SECTION A: INCOME

DISBURSEMENTS	EXPECTED AMOUNT (USD)	ACTUAL RECEIPTS FROM ILRI (USD)			UNDISBURSED AMOUNT	% RECEIVED
		Total Received as of Previous	Actual Received in Current	Total Received as of Current		
	CA	RP	RC	TC = RP + RC	UA = CA - TC	%R = TC/CA
Disbursements from USAID	25,000,000	5,000,000	2,500,000	7,500,000	17,500,000	30%

SECTION B: EXPENDITURE

Reporting Lines	Value Chain																				TOTALS			
	PMO				Dairy				Livestock				Root Crop				Drought Tolerant Crop							
	Amount Budgeted	Actual Spent	Balance	Burn Rate	Amount Budgeted	Actual Spent	Balance	Burn Rate	Amount Budgeted	Actual Spent	Balance	Burn Rate	Amount Budgeted	Actual Spent	Balance	Burn Rate	Amount Budgeted	Actual Spent	Balance	Burn Rate	Amount Budgeted	Actual Spent	Balance	Burn Rate
Personnel Costs	399,241	272,502	126,740	68%	313,355	273,856	39,499	87%	594,669	588,811	5,859	99%	282,395	234,977	47,418	83%	344,000	309,323	34,677	90%	1,933,660	1,679,467	254,193	87%
Development Partners	-	-	-	0%	752,690	183,475	569,215	24%	470,216	270,464	199,751	58%	400,001	127,573	272,428	32%	170,100	129,735	40,365	76%	1,793,007	711,247	1,081,759	40%
Supplies & Services	495,468	309,426	186,042	62%	446,101	307,821	138,280	69%	1,359,399	902,340	457,059	66%	364,330	352,607	11,724	97%	640,620	563,951	76,669	88%	3,305,919	2,436,144	869,775	74%
Equipment	-	-	-	0%	-	-	-	0%	-	-	-	0%	74,050	72,814	1,236	98%	-	-	-	0%	74,050	72,814	1,236	98%
Operational Travel	59,500	21,706	37,794	36%	105,800	85,859	19,941	81%	102,994	76,876	26,118	75%	12,813	14,596	(1,783)	114%	165,600	128,838	36,762	78%	446,707	327,875	118,832	73%
Institutional Overheads	143,131	90,545	52,586	63%	242,692	172,466	70,226	71%	379,092	275,774	103,318	73%	196,109	119,942	76,167	61%	168,783	152,238	16,545	90%	1,129,807	810,965	318,842	72%
Lead centre passthrough	-	-	-	0%		-	-	0%	-	-	-	0%	66,485	42,369	24,116	64%	74,455	28,514	45,941	38%	140,940	70,883	70,057	50%
GRAND TOTAL	1,097,340	694,178	403,163	63%	1,860,639	1,023,476	837,162	55%	2,906,370	2,114,265	792,105	73%	1,396,182	964,877	431,305	69%	1,563,558	1,312,599	250,959	84%	8,824,090	6,109,395	2,714,695	69%

SECTION C: FUND BALANCE

UNSPENT DISBURSEMENTS (USD)	1,390,605

Expenditure by development partners, who are the mainly the NGO's that are implementing the various activities with the implementing centers was the lowest against the budget, as shown in chart 1, because of delays in execution of the collaborative agreements, with the implementing centers. Personnel costs were below the budget due to delays in recruitment of staff. The low expenditure in supplies and services was mainly due to cost effectiveness in procurement and sourcing for items required for the program.

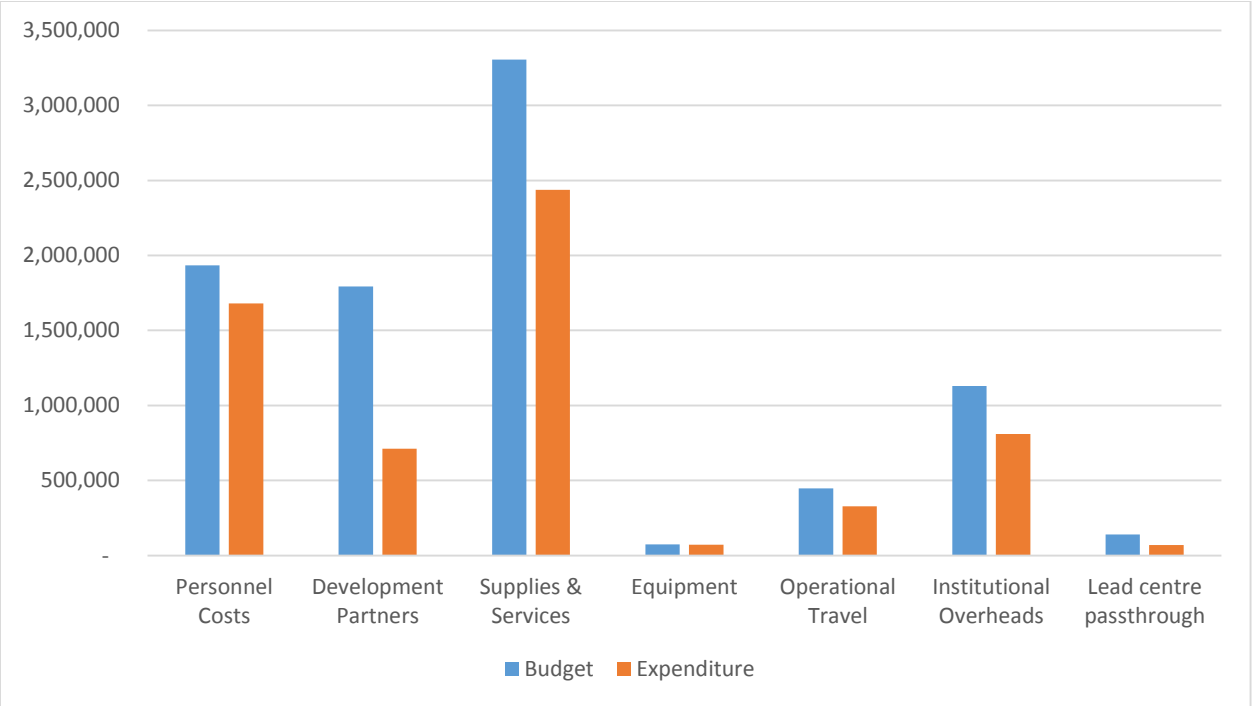

Figure 8: Expenditure Vs Budget per item

As would expected, the program expenditure start at a low rate in the first quarter of implementation at US dollars 410,278 but and picked up to US dollars 3,014,480 by the third quarter, as shown in table 9. The projected budget requirement for the first quarter of year 2 of implementation is US dollars 2,714,695 as shown in table 7 and the chart below.

Table 5. Cash flow and Financial Projections

ORGANIZATION NAME:	International Livestock Research Institute (ILRI)		
PROGRAM:	Feed the Future - Accelerated Value Chain Development in Kenya		
CUMULATIVE REPORTING PERIOD:	**From:** 1-Oct-2015	**To:**	30-Sep-2016

Budget Category	Period:	Period:	YEAR 1- October 2015 to September 2016							
	Original Total Budget Estimates Oct 2015 - Sept 2018	Amendment # 1 Obligated Amount Oct 2015 - Sept 2016	(E) Quarter 1 Actual Expenditure Oct 2015 - Dec 2015	(E) Quarter 2 Actual Expenditure Jan 2016 - March 2016	(E) Quarter 3 Actual Expenditure April 2016 - June 2016	(E) Quarter 4 Actual Expenditure July 2016 - Sept 2016	Year 2 Quarter 1 Projections Oct 2016-Dec 2016	(F) CUMULATIVE Expenditure Oct '09- March '10	BUDGET BALANCE	% Spent
Personnel Costs	$ 6,462,683	$ 1,875,660	$ 188,228	$ 384,262	$ 493,011	639,776	$ 601,973	$ 1,679,467	$ 196,193	90%
Development Partners	$ 7,582,511	$ 1,794,507	$ -	$ 10,048	$ 191,739	509,460	$ 559,336	$ 711,247	$ 1,083,260	40%
Supplies & Services	$ 6,374,969	$ 3,435,019	$ 157,568	$ 319,900	$ 678,294	1,320,079	$ 854,070	$ 2,436,144	$ 998,875	71%
Equipment	$ 504,696	$ 164,050	$ 289	$ 71,874	$ 651	-	$ 23,609	$ 72,814	$ 91,236	44%
Operational Travel	$ 949,413	$ 452,890	$ 17,337	$ 58,645	$ 128,882	110,271	$ 79,282	$ 327,875	$ 125,015	72%
Institutional Overheads	$ 2,921,760	$ 1,035,479	$ 44,777	$ 135,075	$ 219,010	418,172	$ 311,709	$ 810,964	$ 224,515	78%
Lead centre passthrough	$ 203,968	$ 66,485	$ 2,079	$ 35,726	$ 12,612	16,722	$ 35,493	$ 70,883	$ (4,398)	107%
TOTAL COSTS	25,000,000	8,824,090	410,278	1,015,530	1,724,199	3,014,480	2,465,472	6,109,394	2,714,695	69%

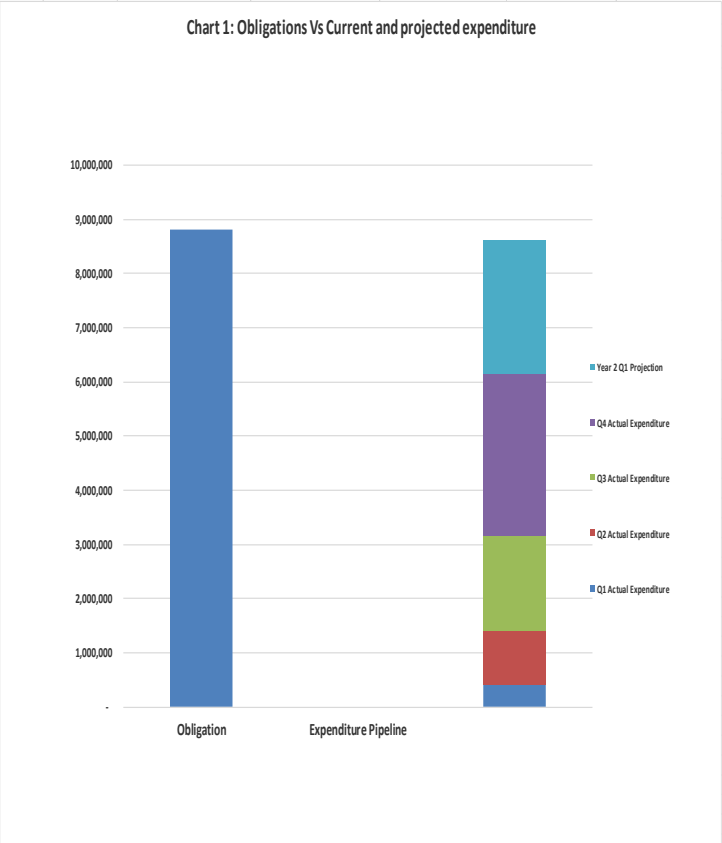

Figure 9: Obligations Vs Current and projected expenditure.

The Development partners did not capture any expenditure in the first quarter because it took some time to execute the collaborative grant agreements after the program was declared effective. There was also no

expenditure on equipment in the forth the quarter as would be expected because all procurement was done in the second and third quarter as shown in table 8.

Table 6. Budget

Obligation: $ 8,824,090
Cumulative Expenditure: $ 6,109,394

Obligation	1st Qtr Actual Exp	2nd Qer Actual Exp	3rd Qter Actual Exp	4th Qtr Actual Exp
Total: 8,824,090	***410,278***	***1,015,530***	***1,724,199***	*3,014,480*
Personnel Costs	188,228	384,262	493,011	639,776
Development Partners	0	10,048	191,739	509,460
Supplies & Services	157,568	319,900	678,294	1,320,079
Equipment	289	71,874	651	0
Operational Travel	17,337	58,645	128,882	110,271
Institutional Overheads	44,777	135,075	219,010	418,172
Lead centre pass-through	2,079	35,726	12,612	16,722

13. ADMINISTRATION

In the first and most of second quarter of the year most of the administrative activities focused on establishing the program management infrastructure, recruitment of staff, setting up the financial management system, and procurement of physical items. These were well achieved and by the field activities were started early enough to start registering beneficiary in the first quarter. All administrative activities planned during the year were well executed, in a timely manner albeit for some delays in procurement of vehicles and recruitment of some staff. These delays were managed through hiring of vehicles and engaging short term consultants.

The performance of all value chain components in terms of achieving the targets above average except the livestock value chain. It was therefore decided that this value chain component needed to be re-casted to focus more on technologies and innovations that have potential for impact and working closely with the local institutions and the government. The project document for this component was re-casted and approved by USAID for inclusion into the second year AVCD work plan and budget.

14. WORKPLAN OUTPUTS/OUTCOMES FOR 2017

In addition to routine program management, monitoring and evaluation, communication and knowledge management, and coordination activities, the program management secretariat will support the establishment of milk chilling plants; support the evaluation of value chains; and the development of a strategy to ensure youth participation in AVCD activities. Activities are planned to deliver specific outputs under each result and intermediate result of the program and the Feed the Future framework. The following are the specific outputs/outcomes expected from the activities planned for the second year:

A: Livestock Value Chain

1.1: Improved market management through co-management models supporting 15 innovation platforms and 30 LMAs

1.2: Enhanced market vibrancy through supporting 5000 individual/enterprises within and outside the livestock markets

1.3: Increased prevalence and use of market information systems to directly reach 25,000 traders and producers
2.1: Enhanced livestock value chain through improvement in the availability of and access to fodder and forage
2.2: Improved surveillance and control of diseases for increased livestock production and trade
2.3: Improved productivity through better herd management and innovative community based breeding of small ruminants working with 5000 producers
3.1: Increased home consumption of milk, with a 10% increase in the number of children regularly consuming milk throughout the year
3.2: Improved consumption of nutrient rich foods by women of reproductive age, with a 10% increase in consumption of milk and meat

B: Diary Value Chain

1.1: Enhanced stakeholder capacity via innovative extension approaches and business training
1.2: Dairy business hubs and innovative agro-vet models established in 75% of targeted sub-counties for improved access to inputs and services
1.3: Increased uptake of improved dairy technologies by 75% of the targeted households
1.4: Functional multi-stakeholder platform established for stakeholder engagement and policy dialogue
2.1: Business oriented and gender inclusive producer organizations (POs) and/or DBHs supported to increase farmer participation in milk markets
2.2: Increased number of private enterprises trading with farmers/farmer groups
2.3: Share capital schemes facilitated for 80 POs and business development services provided to increase access to finance
3.1: Increased partnership for aggregation and distribution of milk to enhance household access to milk
3.2: Nutrition training mainstreamed in project activities in order to leverage on increased dairy earning for nutrition benefits
4.1: More nutrition staff and other value chain actors trained on maternal and child health and nutrition

C: Drought Tolerant Crops

1.1: At least 500 small holder seed producers trained in seven counties to produce and disseminate quality
1.2: 50 collective Producer Marketing Groups organized and trained in group dynamics and organization management to ensure sustainability
1.3: 100 extension staff and 12,000 farmers trained in quality standards to meet market requirements
1.4: 420 model farms established with at least two crop management and 45,000 farmers trained.
1.5: 45,000 farmers trained in harvesting, drying, threshing and storage to ensure better storage of produce and Improved quality and minimized storage losses
1.6: 2 seed companies, 2 institutional seed units, 76 seed stockists engaged for production and delivery of quality seeds.
1.7: 360 farmers trained in using lifters, threshers and shellers to reduce drudgery
1.8: 612 t of various categories of seed produced both for cereals (80 t) and legumes (532 t)
1.9: At least 42 Community Seed Banks established for safe storage and improved seed access
1.10: At least two grain and two product market outlets (food, feed and malting) identified and developed targeting National, Regional and International markets
2.1: DTC value chains analyzed and upgrading strategies for small holder farmers developed.
2.2: 20 processors trained in rapid testing procedures for afflatoxin contamination detection
3.1: At least one major collection/aggregation centre developed in each county in collaboration with County Governments and other investors
4.1: Two SMEs per sub-county identified to develop new commercial highly nutritious products
4.2: Community FM Radio programs in all 6 Counties prepared and aired to target the 12,000 youth and children to create awareness of the nutritive value of DTCs
4.3: New DTC products promoted through the smart food business model
4.4: Smart Foods Website and social media platforms developed to influence nutrition behavior

4.5: 4200 women farmers and 4200 youth trained in diversifying products at household level to improve consumption and household nutrition
4.6: 12 local institutions engaged to include DTC food products in their menus
5.1: 8400 people trained on child health and nutrition through national health and nutrition programs
5.2: Improved consumption of nutrient rich food groups among 27,500 women of reproductive age

C: Root Crops (Potatoes)

1.1: Early generation seed production (mini-tubers, cuttings and first/second generation field tubers) increased by at least 200 tonnes annually

1.2: At least 150 decentralized seed multipliers (DSM) developed to annually produce sufficient seed potato for 2,000 ha and obtain gross margins of 1,500 USD/ha
2.1: Smallholder potato farmers obtain gross margins of at least 725 USD/ha through using quality seed potato
2.2: Famer capacity built to produce at least 25% of their seed needs through saving quality seed potato on-farm
3.1: Organized and coordinated market information for seed potato suppliers and ware potato market prices developed and implemented
3.2: High-quality seed of resilient potato varieties with market-preferred traits promoted through field days
3.3: At least 500 farmers linked to formal and informal markets
4.1: Improve diet diversity through increased expenditure on nutritious food among potato farmers

C: Root Crops (OFSP)

1.1: Productive, nutritious OFSP varieties introduced into new communities and farmer groups
1.2: Farmer access to quality planting material of nutritious, productive and farmer preferred OFSP varieties improved
2.1: OFSP and vitamin A material integrated into nutrition education and nutrition counseling capacity strengthened at health centers and schools among technical staff and community groups.
2.2: Options for diversified OFSP utilization, such as complementary baby food, adapted and scaled up and capacity strengthened for 18,000 households.
3.1: At least 3 technologies and practices to improve root storage adapted and disseminated
3.2: Gross margins and market availability of OFSP roots increased by at least 15% through strengthening of selected OFSP market chains, including to commercial processors

ANNEX 1. SUCCESS STORIES

1.1 Transformational village-based approach for potato productivity in Meru

Cyrus Bundi and his wife Lucy want what is best for their family. They have worked effortlessly to till their one acre of inherited land. For many years Cyrus would only get about 3 bags of potatoes from 1/8th of his land, this was enough for his family but he always wondered if he was getting the most from his land. Curiosity got the best of him and he decided to table his concerns to his neighbors. Over time they started to share experiences and tips. Little did he know that these questions would have the community electing him to be their Village Based Advisor (VBA). He underwent training on certified seed and planting techniques with support from AVCD root crops component and set up a model farm on his land to share knowledge and seed with his neighbors.

"With this certified seed and planting techniques I just harvested a ton (20 bags)! I am very excited, I just cleared more land to plant more!" said Cyrus as he looked over his freshly tilled plot. "We will sell 10 bags (50 kg each) of the seed to pay from our firstborn's third term fees, she is in Form 3," Lucy added. A critical role the VBA's play is to be the local seed multipliers. This provides seed to the local community's year round.

While more Kenyans are participating in farming, few of them have access to quality seed and farm management skills, many rural farmers find themselves unable to develop their farms into business because of lack of quality inputs and knowledge. Most farmers learn how to farm potatoes through observation. Their parents or neighbors were the local potato experts who taught them how to select varieties to grow and how the land would be prepared. They have do not know anything about the requirements or the good agricultural practices for the varieties that they grow.

Without proper training and resources to achieve their farming potential a large number of farmers will end up underutilizing both their land and efforts. By making a few changes, problems that contribute to low yields, soil degradation and disease outbreaks can be addressed at the farm level.

To plant one acre, 800 kg of seed potato is required. This is a huge constraint to small-scale farmers who have minimal incomes to hire extra labour or transport their produce to the market.

With the VBA approach Cyrus and Lucy like many other farmers in Meru, now know the varieties they are growing, the inputs they require, and the best agricultural practices that they can employ to maximize the yield of their potatoes. They are assured not only of sufficient potatoes for their food needs but also enough to sell and make money for domestic requirements.

1.2 Milk is the future

Romanus Babulare's Story

Romanus Babulare, a livestock farmer from Kajulu area in Kisumu County, has a large herd of more than 50 indigenous cattle, he has had the desire to acquire improved breeds but lack of access to high quality bull semen has held him back. "I have been exploring other options of acquiring improved breeds" commented Romanus, "Milk is good business, but we just don't know where to start in Kajulu."

The western region of Kenya is not a traditional dairy production area, although having significant resources that can support dairying. One of the challenges that hinder farmers' entry into this profitable industry is the use of local breeds of cattle with low productivity. Additionally, in most cases cattle in smallholder settings are predominantly 'multi-functional' used for various purposes such as pulling ploughs.

While most farmers in this region would like to engage in productive dairy farming and gain competitive advantage, they are not able to access improved high productive breeds of cattle. This is mostly due to the associated high costs of obtaining an improved breed and the delicate nature of improved breeds (high vulnerability to animal diseases).

While artificial insemination has been around for a long time, not many livestock farmers in the region have been using the service. The low demand for AI services is a result of a scarcity of improved dairy cows, which kept the cost of the service high for the few farmers interested in it and kept the profit margins low for the service providers. Together, an intervention to address this was

One solution is promoting accelerated breeding in smallholder farming systems through fixed-time artificial insemination (FTAI). FTAI technology involves synchronizing the reproductive cycles of clusters of animals through hormone therapy followed by mass artificial insemination. By targeting a large number of animals for oestrus synchronization, particularly cows of indigenous breeds, the technology ensures that large sets of households adopt improved dairy cows and enter the lucrative dairy value chain.

"The FTAI technology was very timely, with this subsidized support my animals will deliver improved dairy animals that will not only help me but my children's children!" commented Romanus. "This is really going to kick start the dairy farming in this village, now we can bulk our milk since our animals will grow together. I am excited!"

1.3 Strength in Seeds

About 25 years ago, Jonathan Maweu Mbai with his wife Jane Maweu settled in Matithini village in Makueni County, after migrated from the wetter and higher area of Kilungu. Powered with generational farming knowledge, they continued to use the same farming technologies they had used in the wetter Kilungu area. Sadly, they had repeated crop failure that it affected the food security for the family of 6. Change was needed. They ventured into other income generating activities just to get by, but they kept at their farming hoping that one day the land would be kind to them.

In October 2015, Maweu gained access improved drought tolerant seed. He planted sorghum, greengrams and pigeonpea on 1 acre of his 3 acres of cropped land. "By the end of February, I harvested over 270kgs of sorghum and greengrams!" Maweu commented, "But what really excites me is the improved pigeonpea. My traditional pigeonpea are only at the flowering stage, yet they were planted at the same time as the already harvested improved pigeonpea!", remarked Maweu, "My wife found a market in two hotels in Wote town, this has earned our family over Kshs 24,000!" Maweu expressed.

They don't just sell the harvest, the family eats about 1.5 kg of improved pigeonpea per day. "You know improved pigeon pea is the "meat" of Makueni people. I also thank my wife for finding a market, this has assisted our family's to meet our financial obligations," Maweu concluded. "Our plans for the next season, is to access enough improved seed to plant 2 acres of pure stand greengrams and 1 acre of sorghum and pigeonpea".

By using the improved seed system the families income has improved by 44% from Kshs 16,650 to Kshs 24,000 from the sale of improved pigeonpea, sorghum and greengram. From 1 acre of drought tolerant crops, Maweu's family could earn about Kshs 54000 – more than twice the income from previously earned maize and beans.

Underdeveloped seed systems and poor accessibility to seeds has been blamed for the low adoption of improved varieties released over the years in eastern Africa. To counter this, close to 3,500 Kenyan farmers were provided seeds of improved varieties of sorghum, finger millet, pearl millet, groundnut and pigeonpea.