



KENYA ACCELERATED VALUE CHAIN DEVELOPMENT PROGRAM

Financial year 2016/2017, first quarter, progress report

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ACRONYMS AND ABBREVIATIONS

AHADI	Agile and Harmonized Assistance for Devolved Institutions
AL2	Arid Lands
AVCD	Accelerated Value Chain Development
BCC	Behaviour change communication
CIP	International Potato Center
CHWs	Community health workers
CHEWs	Community health extension workers
DTC	Drought tolerant crops value chain
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 Association
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	National Nutrition Health Program Plus
NRT	Northern Rangelands Trust
ODK	Open Data Kit
OEG	Office of Economic Growth
PREG	Partners 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 - 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 chain (root crops -potato and sweet potato, 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 Zones of influence (ZOI) in Kenya. This is the first quarterly progress of the 2nd report that covers the period from 1st October to 31st December 2016.

Qualitative impacts

The period is the short rains in the country, which unfortunately were below normal, causing prolonged drought in most parts of the country. Several program activities were, therefore adjusted to support coping strategies. Pastoralists were trained on planning for grazing and drought monitoring and awareness; fodder producers to increase fodder production and good pasture management; establishment of fodder sites which will be used for the next stage of progressive training of farmers, which will include pasture management, harvesting-hay and seeds, storage and utilization. Policy dialogue on climate change adaptation, disaster risk reduction and rangeland Management were undertaken in Turkana involving county directorate of livestock, natural resource management and PREG partners.

A key milestone attained under the dairy component during the quarter was increasing local availability of ECF vaccine by identifying four distributor agents and agreeing on a vaccine delivery model involving the distributor, agents and vaccinators. This organized market has attracted other players such as Sidai to engage in ECF vaccine distribution. In addition, there was increased use of improved forages with 20 new bulking sites established and more than 100% more investment in fodder planting. Farmers also established their own fodder using planting materials from the bulking sites. This is expected to result in more returns to farmers and also improve the nutrition status of target populations.

Triggered by AVCD efforts, NGOs and cooperative societies are now promoting FTAI as evidenced by Kikima dairy culminating to 211 affiliate farmers inseminating 276 cows by the end of the quarter. OSIEPE Practical Action – a CBO in Kisumu County also led the construction of 13 crush pens, mobilized and sensitized farmers on FTAI resulting in over 300 cows exposed to the FTAI technology. This is a proxy that shows that FTAI is effective and also services will be sustainable. Support was also provided to both formal and informal milk marketing groups to enhance milk bulking and marketing with respect to brand development and entry into potential markets. A total of 19 agents were linked to 3 agro-vets in SA2 in an effort to enhance access to inputs.

In the root crops components, the impact of good seed has been well demonstrated by the fact that targets for seed multiplier gross margin targets can be doubled USD 1,500/ha to USD 3,094/ha in one season. Despite this high rate of seed sales, decentralized seed multipliers (DSM) invested approximately half (12.55 tonnes) in the second compared to season one (25 tonnes) for certified seed as starter material to further multiply. This was mainly because rainfall is more reliable in season one than in season two and the seed multipliers were testing the market demand before investing more. The gross margin value is expected to change after the retained seed is harvested in season two and also as yields increase due to use of improved varieties. Late planting and low rainfall reduced the average yield of potato on average by about 25 percent during the reporting period.

To improve commercialization of OFSP farming, commercial villages were set up and linked to group marketing that is likely to attract traders. Linkages were also made between OFSP root producers and the 3 wholesale traders and roots are now sold in markets such as Naivasha, Eldoret, Limuru and Wangige.

Drought tolerant crops performed much better than other crops in all mandate counties. In Siaya, where SRs 2016 was near normal season for sorghum and green grams, the only legume harvested was green gram. It was also found that successful production of sorghum is possible in HR1 without fear of serious

bird damage as had been thought by local farmers. The variety of sorghum under promotion, IS 24029 seems to have some level of resistance to bird damage and is also very much preferred in the local dish “ugali”

Lessons Learnt

Despite the perception that pastoralists are low adapters of fodder production technologies, it was observed that there is a great demand for skills and knowledge on fodder production among many pastoralists and farmers in the ASAL counties as more farmers requested for support in establishing sustainable fodder production. It has also emerged that engaging and training CHWs and the CHEWs to be at the frontline of working with pastoralists on nutrition issues is very effective in ensuring a wider reach as well as creating change.

In the dairy value it has emerged that it is possible to leverage significant contribution and good will from communities to implement project activities. For example in many places, community members met the cost of construction of crush pens that are for the administration of FTAL. It has also been learnt that it possible for VDBAs to make homemade dairy meal for commercialization. This would be quiet useful to farmers to alleviate the challenges of accessing to dairy meal for their animals

One of the limitations for the private sector (financial institutions, equipment and input suppliers) support to support dairy cooperative societies is poor governance. There program is therefore supporting the cooperative society to improve their governance and sourcing for guarantee schemes.

Due to logistical challenges and limited skilled personnel that can support the breeding interventions, the project has learnt that it is more effective to undertake small doses of FTAL but on a continuous basis contrary to the initial plan of massive FTAL activity.

In the drought tolerant crops it was realized that there was very low germination of groundnut seed that was imported from Malawi, hence the need for seed germination tests before issuing seed to farmers. In order to improve on the groundnut seed available, groundnut seed producers should be carefully selected and at least 20 kg of seed advanced to 10 farmers in each ward to check for effectiveness.

It has also been realized that when farmers get seed on time, they allocate more resources in terms of land and labor. This was evident with farmers who used their saved seed and those supported by One Acre Fund which provided seed very early.

Quantitative impact

Generally the value chains exceeded the targets set for the quarter despite some challenges which delayed implementation in some cases. Targets were not met for number of firms receiving technical assistance; organizations that applied technologies; and number of children under two years (0-23months) reached with community level nutrition interventions. The last two were new indicators and so collection of data had not been streamlined by all the AVCD program components. The table below highlights the targets and achievements made during the reporting period.

Table 1: Topline Indicator Achievements.

Indicator	Indicator Name	Targets Qtr 1	Achieved Qtr1
EG. 3.1	Number of households benefitting directly from USG interventions under Feed the Future	12,204	16,742
EG.3.2-18	Number of hectares of land under improved technologies or management practices with USG assistance (RAA) (WOG)	882	5,479
EG.3.2-17	Number of farmers and others who have applied improved technologies or management practices with USG assistance (RAA) (WOG)	13,386	18,065
EG.3.2-1	Number of individuals who have received USG supported short-term agricultural sector productivity or food security training (RAA) (WOG)	9,662	15,373
EG.3.2-20	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	184	166
EG. 5.2-1	Number of firms receiving USG-funded technical assistance for improving business performance	50	7
HL.9-4	Number of individuals receiving nutrition-related professional training through USG-supported programs	798	532
HL.9-2	Number of children under two years (0-23months) reached with community level nutrition interventions through USG-supported	2,700	5,515

Nutrition

Across the AVCD program components, 1,567 trainers were trained in agri-nutrition. The trainers are expected to cascade key agri-nutrition messages to the communities through community dialogue meetings and mother to mother support groups at the sub-county and ward levels and hence increase uptake of skills and the impact on nutrition. In the next quarter, there will be more nutrition activities at the household level since most of the time was spent on training the trainers at the County and Sub-county levels who have also trained their lower cadre staff mandated to work at the community/household level. The trained trainers sensitized 8,401 producers in Makueni reaching approximately 5,473 children below 5 years.

Constraints and Opportunities

The main constraint experienced during the reporting was the prolonged drought. In the livestock value chain which is in A3 zone, major activities were not fully implemented. In the dairy value chain, establishment of improved forages across both HR1 and SA2 ZOI was hindered and poor pasture development resulted in most dairy businesses continuing to receive depressed milk volumes.

For the drought tolerant crops staff changes within ICRISAT posed a challenge as they did not have personnel for monitoring and evaluation, communication and nutrition activities. The recruitment process to fill these positions started and is expected to be completed by the end of the next reporting period.

Despite the constraints, fodder and forage establishment offered great opportunities for farmers to grow and conserve feeds for their dairy animals despite the drought. In the potato value chains, production of potato cuttings or early generation seed presents a viable business opportunity for youth.

In addition production of rooted potato cuttings is quite profitable, and does not require large expanses of land which is often a challenge for youth.

In the OFSP value chain market opportunities were identified in products that appeal to different tastes. Root samples were submitted to Norda industries and Tropical Heat for trials in making OFSP crisps, which are acceptable by rural and urban people and can be marketed through the super markets.

Subsequent Quarter's Work Plan

In the next quarter – January to March 2017, livestock value chain activities will focus on training for capacity development, and support to mitigation on the impact of drought. The dairy value chains will implement all planned activities as the impact of drought was minimal. The staple crops value chains will focus on harvesting, marketing and preparing the farmers for the next rainfall season.

Financial report

AVCD program had an approved budget of USD 18,685,979 for executing 2016 and 2017 activities with livestock component two years' total budget of USD 6.1 million, dairy component budget of USD 3.8 million, root crop's component budget of USD 2.9 million, Drought tolerant crop budget of USD 3.2 million and Program Management budget of USD 2.6 million. As at December 2016 the overall program expenditure was USD 8,594,959 which is a cumulative burn rate of 46%.

The livestock component overall burn rate was at 47%. The program management secretariat had a burn rate of 37%, dairy Value chain 41%, root crops and drought tolerant crops value chains' 44% and 60% respectively.

2 KEY ACHIEVEMENTS (QUALITATIVE IMPACT)

2.1 Management, Monitoring and Evaluation

During the reporting period, the program management secretariat was occupied with preparation of the second year annual work plans and budgets, finalizing the AVCD nutrition strategy; and monitoring and evaluation activities. The following activities were accomplished in the period of October to December 2016:

- Finalizing impact pathways for each value chain
- Finalizing the program nutrition strategy
- Implementation of the ICT based farmer tracking, monitoring and evaluation platform
- Preparation of the fourth quarter report
- Preparation of the 2nd year annual work plan and budget
- Monitoring and evaluation field visits to SA2 and HR1

2.2 Livestock Value Chain

The reporting period is the short rains season, when the pastures are expected to start flushing. Since the meteorological department had predicted that rainfall will be below normal, the AVCD value chain focused on training pastoralists on planning for grazing, and monitoring. The program conducted training in three conservancies in Marsabit country and held awareness meetings in Nasuulu, Nakuprat-Gotu. Oldonyiro, Nasuulu, Nakuprat and Leparua conservancies. In the same efforts to prepare for the anticipated drought situation fodder producers in Marsabit and Garissa County were trained on good agricultural practices to increase fodder production and good pasture management. Approximately 16 acres were planted with suitable grass species (*Cenchrus ciliaris* and *Eragrostis superba*). The project provided farmers with 460 kg fodder seeds of the two species for them to establish 20 acres of fodder. The sites established will in future also be used for the next stage of progressive training of farmers, which will include pasture management, hay-harvesting and seeds, storage and utilization. It is anticipated that these efforts will enable the beneficiaries to better cope with the prevailing drought situation.

In Turkana Country, policy dialogue on climate change adaptation and disaster risk reduction and rangeland Management, involving county directorate of livestock, natural resource management and PREG partners implementing NRM activities identified issues that need to be addressed during the anticipated drought period. In addition, consultation with Marsabit County directorate of veterinary services concluded that veterinary clinical and extension runs were viable and sustainable and could help improve delivery of veterinary services in Turkana as well as reduce drug misuse and thwart sale of counterfeit drugs.

2.3 Dairy Value Chain

The dairy component of the AVCD program attained a major milestone with respect to ensuring local availability of ECF vaccine. Lack of the ECF vaccine has been causing high losses to farmers and discouraging uptake of improved dairy cows. During a stakeholder meeting held in November 2016, four distributor agents were identified and a vaccine delivery model involving the distributor, agents and vaccinators was mutually agreed. A pricing mechanism outlining how the margins will be shared among actors and the actual price to be charged to farmers was agreed (see the link <http://avcd.wikispaces.com/Dairy+Value+Chain>). This is major achievement to which is creating a ripple effect of attractive other distributors of the ECF vaccine to the region. Courtesy of the AVCD initiative Sidai – another distributor authorized by the DVS has moved to cash in on the demand for the vaccine that has been generated by AVCD initiatives.

Emerging from the stakeholder meeting and having established a reliable distributorship of the vaccine each of the vaccinators that had earlier been trained by the program were given targets of the number

of animals that they need to have vaccinated by the end of the 2nd quarter of the second year of the project implementation.

With regard to fodder and feed, the program established 20 new bulking sites for improved varieties of fodder in Vihiga County. Existing 54 VBDA's have been scaling up from the initial 80 "tumbukiza" holes up to 200 holes, and additional households also established their own plots of fodder using planting materials from the bulking sites bringing the number of households who adopted improved forages during the reporting period to 2,322.

In the next quarter each VBDA's will be aiming at owning plots with 270 holes, which would produce enough Napier grass to feed one dairy cow for an entire calendar year. Desmodium seeds were distributed to 128 VBDA's to intercrop with Napier grass to address the protein gap that is prevalent among smallholder dairy farmers and which compromises milk yields. As a result of these efforts, a number of farmers now have varying acreage of their land under improved varieties of Napier grass, desmodium and dual purpose sweet potato varieties.

With regard to accelerated breeding, a total of 1,476 farmers in SA2 and HR1 benefited from Fixed Time Artificial insemination by the program during the reported period. After realizing the importance of Fixed Time Artificial Insemination (FTAI), NGOs and cooperative societies have taken to supporting the application of the FTAI technology on their own. One of these is Kikima dairy which has supported 211 affiliate farmers to inseminate 276 cows using the AVCD promoted technology. The program also supported OSIEPE Practical Action – a CBO in Kisumu County which oversaw the construction of 13 crush pens which are being used for FTAI. The CBO subsequently mobilized and sensitized farmers on FTAI culminating in over 300 cows being exposed to the FTAI technology during the reporting period. In order to fast-track the breeding initiative and hence reach out to areas that have limited coverage of AI services, the dairy component distributed 6 Ayrshire bull calves to VBDA's in Busia and Homa Bay counties.



Having realized the importance of collective action in scaling out proven technologies, the dairy component also stepped up mobilization of farmers into dairy interest groups (DIGs). By the end of the quarter, 5,659 farmers in HR1 counties had been mobilized into 319 groups that are formally registered. During the reporting period, peer farmer trainers (PFTs) attached to these DIGs conducted training on savings and credit mobilization as a means of empowering households to mobilize resources for uptake of improved dairy technologies. Kikima dairy in SA2 was also supported to commence activities leading to revival of the rural farmers Savings and Credit Cooperative Organization (SACCO) to enhance access to affordable credit by farmers.

With regard to marketing the dairy component is working with cooperative societies, to strengthen their capacity in strategic planning, management, branding so as to be more efficient and competitive. In this regard the program is collaborating with the county governments and other development partners¹ to position Kikima Dairy (Makueni County) and Maziwa Taita Dairy (Taita Taveta County) as milk processing centers. AVCD program supported the development of a strategic plan that will steer the businesses of milk bulking and marketing especially with respect to brand development and entry into potential markets for both businesses. In total, the program has 9 dairy businesses² collecting milk from 2,100 smallholder farmers. This culminated into development of business plans to support growth of the 9 businesses. Additionally, five dairy cooperatives in HR 1 were supported to develop business plans that are currently being finalized. The AVCD program also supported the development of policies and

¹ Kenya Agricultural Value Chain Enterprises Project (KAVES) has supported Kikima Dairy to refurbish their business premises in readiness for processing while KAPP has facilitated acquisition of processing equipment to Maziwa Taita Dairy

²These businesses include Kikima, Makueni, Kathonzwani, Kilala, Mukuyuni and MaziwaTaita Dairy Cooperatives, Makueni and Mwatate Milk traders associations.

procedures manuals for use by 6 dairy cooperatives³. These manuals incorporate streamlined accounting and finance systems and effective policies and procedures for running the dairy.

In addition to working with formal milk marketing institutions, the program is also working with informal milk marketing groups in order to help them grow and become part of the formal institutions. In this regard AVCD program also initiated linkages between Mwatate milk traders association in Taita and Desley Holdings (an equipment supplier) who will supply a batch pasteurizer on credit; so that the association meets the KDB requirement that all milk has to be pasteurized before retailing. The platform shall provide an avenue for the association members and other milk traders in the vicinity to pasteurize their milk more efficiently at a fee before retailing.

With regard to enhancing access to inputs and services by smallholder households, AVCD supported, Kikima Dairy in SA2 to invest in an agro-input store for provision of dairy inputs to members based on a check off system. In addition the second phase of student consultancy program that drives the ANM process of linking rural people with input supplies in urban areas was initiated during the reporting period. The 6 graduate student consultants were inducted at the Chandaria Business Innovation and Incubation Centre (CBIIIC) and will be attached to private and cooperative owned agro-input businesses to spearhead the implementation of the ANM. During the reporting period the project also facilitated training of 19 agents that were then linked to 3 agro-vets in SA2 under the ANM approach. The 19 agents support approximately 750 farmers.

2.4 Staple Value Chains

The staples value chains comprises of potatoes and orange fresh sweet potatoes as root crops (RC); and sorghum, pearl millet, finger millet, pigeon pea, green grams and ground nuts as drought tolerant crops (DTC). While each of the crop can be said to be a value chain on its own, they are grouped into staples because of the similarities in various stages of the value chain development. However in view of the differences in their utilization and ecological requirements the root crops and drought tolerant crops are described separately.

2.4.1 Root Crops

2.4.1.1 Potato

During this period 11 seed multipliers sold all their harvested seed potato produced in season one (April to August 2016) that was intended for sale. To maximize on their investment in seed, 89 seed multipliers retained harvested seed from season one to further multiply in season two (October 2016 to February 2017). Season one seed was harvested in July/August and purchased by ware potato farmers (the majority of potato VC beneficiaries) in September/October 2016, with ware potato harvests from seed multiplier seed expected to begin January 2017.

Despite this high demand and rate of seed sales, decentralized seed multipliers (DSM) invested approximately half (12.55 tonnes) in season two compared to season one (25 tonnes) for certified seed as starter material to further multiply. This was mainly because rainfall is more reliable in season one than in season two and the seed multipliers were testing the market demand before investing further.

Rainfall was below normal in both seasons of the year, impacting potato yields of DSM of North Rift and VPA. The yield obtained in all mandate counties was about 75% of the normal yield and learning farms were seriously affected by the drought conditions.

During the reporting period the first round of rooted potato cuttings were distributed to four DSM and 32 VPAs. Harvest is expected to begin in January 2017. With the performance observed in cuttings production, it is expected to have an order of 100,000 cuttings for this upcoming season. If cuttings technology is adopted this will significantly contribute to alleviating seed potato shortages and meeting demand in Kenya. Additionally, when producing seed from cuttings, farmers will now purchase elite material, equivalent to basic seed (third generation seed) which under the current system in Kenya is what seed merchants purchase to multiply a further season or two to produce certified 1 (C1) or certified 2 (C2) seed. Currently, DSM and VPA further multiply this C1 or C2 seed, meaning they currently provide

³ Kikima, Makueni, Kathonziweni, Kilala, Mukuyuni and Maziwa Taita Dairy cooperatives

farmers with fifth to sixth generation seed. Farmers purchasing elite material is highly compatible with farmer saving seed on farm systems.

2.4.1.2 Orange Fresh Sweet Potatoes

The use of the net tunnel, a technology that facilitates village based vine multipliers to maintain clean planting materials was well received. All the 16 vine multipliers harvested at least 3 times from the net tunnel and used the basic seed to produce quality declared material in open fields. A total of 20 model farms were established across the four project counties (Bungoma, Busia, Homa Bay and Migori). These farms are being used to train root producers on the need to adhere to good agronomic practices for proper productivity. Each of the model farms hosted at least 1 field day that brought together farmers from the ward.

A total of 293 farmers purchased vines for production of at least 1/8 of an acre of OFSP. This is a key behavior change achievement as the norm in Western Kenya is that vines are freely distributed among farmers. To sensitize farmers on commercialization of OFSP farming, commercial villages were set up and linked to group marketing that is likely to attract OFSP traders.

To improve nutrition knowledge and practice at HH level three behavior change communication materials (1 training card and 2 posters) were developed. These are being used in community-based nutrition trainings to enhance the diversity of OFSP-based diets. At present 660 community groups containing 10-15 childcare givers are continuing with thematic trainings. In addition a study on consumer acceptability of varied family and complementary feeding foods based on OFSP has been completed. The study clearly indicates wide acceptance of OFSP based foods both among rural and urban residents. The results of this study provide the much needed proof that OFSP has acceptable sensory properties. The results are being used in market promotional events and nutrition education through wide dissemination of the nutritious recipes. Over 400 consumers participated in the study.

To improve storage and marketing of OFSP roots, linkages between OFSP root producers and the 3 wholesale traders were established. Trading of roots started in markets such as Naivasha, Eldoret and the environs of Nairobi like Limuru and Wangige market- major distribution point for sweet potato. During November and December over 20 tonnes of roots entered these market. This is a critical milestone as previously these markets did not sale the OFSP. In addition a 6-tonne storage trial is at its 1 month of successful storage using solar power. This is the technology that will be up-scaled further in quarter 3 to assure large volumes expected from farmers can be cured and stored for slow distribution to both formal and informal markets when sweet potato are not in season.

During the Scaling up Nutrition- academia symposium, the OFSP value chain created awareness among over 250 professionals on the various ways OFSP can be integrated in normal family diets as well as in baby foods. This was lauded as innovative and the value chain was challenged to strive for availability of roots in the market for a wider consumption of the roots.

2.4.2 Drought Tolerant Crops

During the reporting period despite the prolonged drought situation the drought tolerant crops, performed much better than other crops in all counties of operation. In Siaya, where SRs 2016 was near normal season for sorghum and green grams, the only legume to be harvested was green gram.

General DTCs are well adapted to drought conditions and generally do better than other farmer preferred crops like maize and beans. In the HR1 during the SRs which is the minor season, DTCs should be preferred to other crops and farmers should be encouraged and sensitized through field days and barazas to increase the acreages of sorghum, green grams, finger millet and groundnuts over other crops such as beans and maize.

During the reporting period it was realized that successful production of sorghum is possible in HR1 without fear of serious bird damage as have been thought by local farmers. The variety of sorghum under promotion, IS 24029, seems to have some level of resistance to bird damage and is also very much preferred in the local dish “ugali”

2.5 Lessons Learnt

Despite the perception that pastoralists are low adapters of fodder production technologies, it was observed that there is a great demand for skills and knowledge on fodder production among many pastoralists and farmers in the ASAL counties as more farmers have requested for support to establish sustainable fodder production.

Participation in the National nutrition symposium provided an opportunity to showcase the importance of women empowerment and livestock in nutrition issues among pastoralists. Feedback from participants and the ideas gained in the conference be used to enhance implementation of the nutrition component. It has also been realized that engaging and training CHWs and the CHEWs to be in the frontline of working with pastoralists on nutrition issues is the most effective way of rolling out activities at the grassroots.

In the dairy value it emerged that it is possible to leverage significant contribution and good will from communities to implement project activities. For example in many instances, community met the cost of construction of crush pens for the administration of FTAI. It was also seen that it possible for VDBAs to make homemade dairy meal for commercialization. This would be quite useful to farmers to alleviate the challenges of accessing to dairy meal for their animals

One of the limitations of the private sector (financial institutions, equipment and input suppliers) to supporting dairy cooperative societies is poor governance. There program has therefore supporting the cooperative society to improve their governance and sourcing for guarantee schemes.

Due to logistical challenges and limited skilled personnel that can support the breeding interventions, the project learnt that it is more effective to undertake small doses of FTAI but on a continuous basis contrary to the initial plan of massive FTAI activity.

In the drought tolerant crops it was realized that there was very low germination of groundnut seed that was imported from Malawi, hence the need for seed germination test before issuing the seed to farmers. In order to improve on the groundnut seed available, groundnut seed producers should be carefully selected and at least 20 kg of seed advanced to 10 farmers in each ward to enable each seed producer plant at least 1/2 acre.

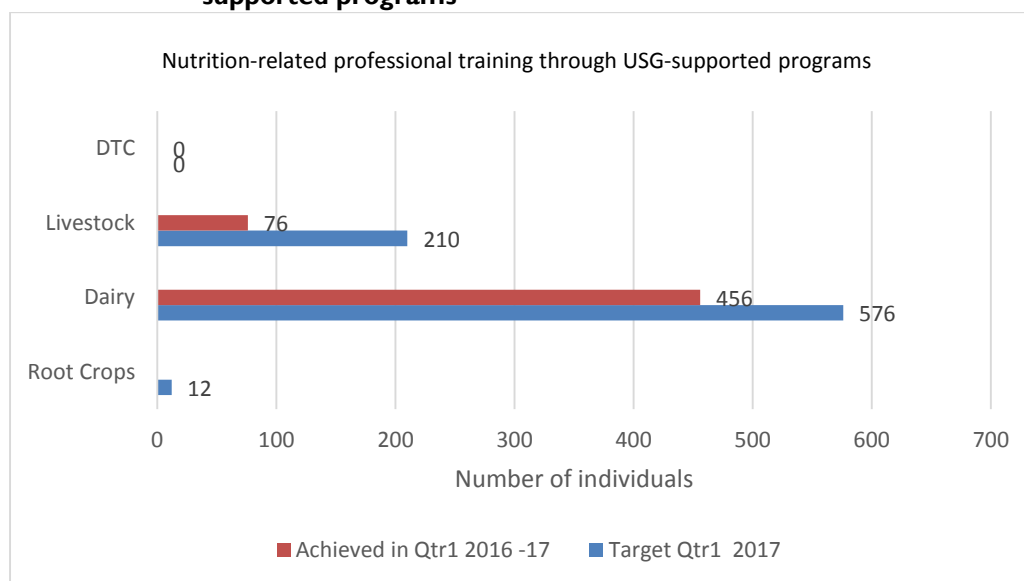
It has also been realized that when farmers get seed on time, they allocate more resources in terms of land and labor. This was evident with farmers who used their saved seed and those supported by One Acre Fund which provided seed very early.

3 KEY ACHIEVEMENTS (QUANTITATIVE IMPACT)

3.1 Topline Targets

Generally the value chains exceeded the targets set for the quarter despite some challenges which delayed implementation in some cases. Based on topline FtF indicators on targets for the year and achievements during the reporting period, a total of 4,000 new households were reached with new technologies. In the dairy value chain the technologies included improved breeding and animal health technologies as well as improved varieties of forages bringing the cumulative number of households reached to 15,200. During the reporting period, 1,400 households were provided with accelerated breeding services i.e. fixed-time artificial insemination (FTAI) and more than 2,000 households started using improved varieties of forages.

Figure 1: Individuals receiving nutrition- related professional training through USG supported programs⁴



The dairy component trained 400 community health workers and community health extension workers as trainers (ToT) in nutrition aspects.

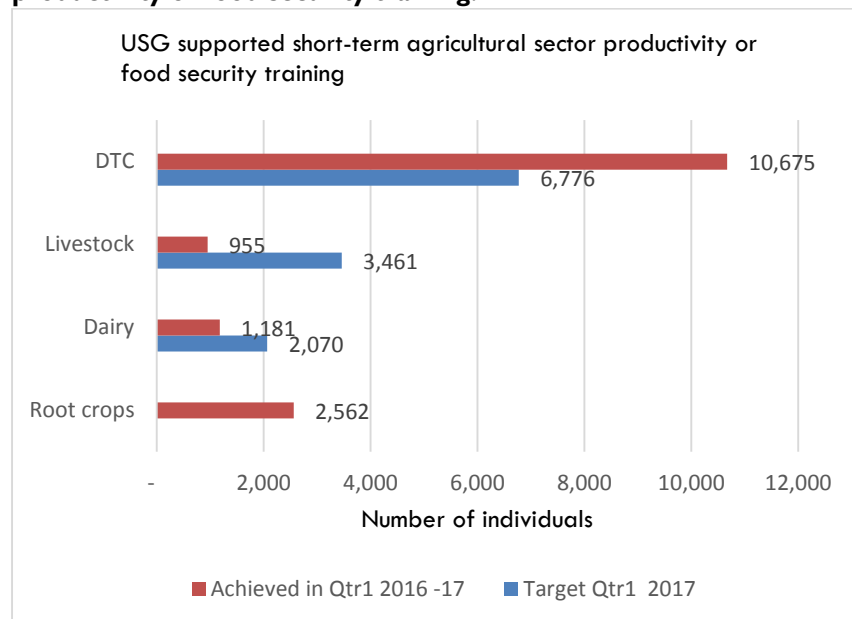
Under the DTC component, a total of 1,035 community health workers and community health extension workers from Siaya (500) and Tharaka (535) were trained in the health benefits of consuming DTC products. An additional 76 community health extension workers from Turkana and Isiolo were trained as trainers in Agri-nutrition under the Livestock value chain component. Furthermore, in Makueni 8401 farmers (2546 women) were trained by the trained trainers on the health benefits of consuming the DTC products and are expected to benefit 5,473 children below 5 years of age. The trained trainers are expected to train households using skills attained and set modules and also through community dialogue meetings and mother to mother support groups at the sub-county and ward levels. As such Agri-nutrition skills were imparted to a total of 302 community members from Isiolo through six community dialogue sessions in six community units that were linked to health facilities.

The Root Crops component trained 5,515 childcare-givers using a structured nutrition curriculum with the objective of enhancing maternal, infant and young child-feeding practices. The thematic areas in this curriculum included breastfeeding, infant complementary feeding, vitamin A nutrition, kitchen gardening, balanced diet/food groups, and nutrition during pregnancy. These trainings are supervised by 43 sub-county officers from the departments of public health and nutrition that were previously trained as

⁴ DTC and Root crops value chain components had not compiled their figures by the time of reporting

trainers in agri-nutrition. Training was targeted at families with a child aged 0–18 months or a pregnant woman to ensure that proper nutrition is provided during the first 1,000 days of life.

Figure 2: Individuals who have received USG supported short term agricultural sector productivity or food security training.

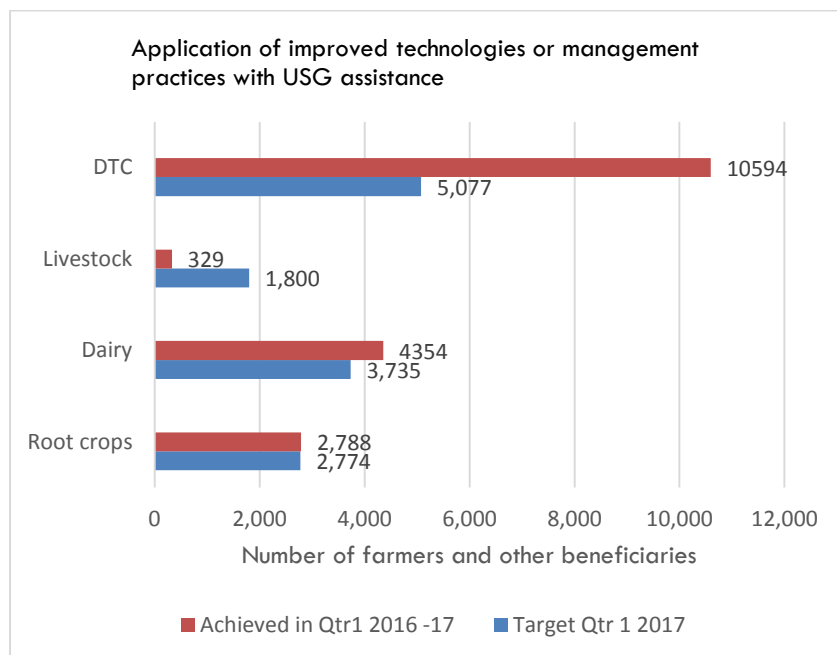


The DTC component also trained 10,550 farmers (7,814 women) from Semi-arid areas in agronomy and planting methods at seed distribution centers. The component also undertook training of 114 County extension and Meteorology staff (20 women) in better use of climate and weather advisories to improve on-farm management of DTC production.

A total of 593 farmers (365 women) were trained in various fodder production technologies including land preparation techniques, pasture establishment, reseeding and options for increasing fodder production per unit area. The Livestock Value Chain component facilitated the planting of 16 acres of fodder in Garissa, and established a 0.25 ha demonstration site for fodder seed bulking in Marsabit. A total of 209 members of Nasulu, Nakuprat –Gotu, Nanapisho and Naapu, were trained in wet season planning, peaceful coexistence and encroachment and 80 members of grazing committees of Songa, Jaldesa, Shurr and Melako conservancy were trained in wet season planning and pasture management.

In addition, the Livestock Value Chain component undertook training of 60 Core Innovation group members from Nakuprat-Gotu and Songa conservancy in: animal recording; selection of the bucks and rams through characterization of weight, length, and height; use of breeding and mating calendar; and the use of Famacha Cards in checking the level of Anemia.

Figure 3 Farmers and others who have applied improved technologies or management practices with USG assistance



The Root Crops component exceeded targets for seed multiplier gross margin targets which were set at USD 1,500/ha and realized an average of USD 3,094/ha after their first season of seed production. This gross margin calculation is based on the total cost of production, including the cost to produce the seed that was retained for further multiplication in season one, but does not include the production and value of sales of retained seed. The gross margin value is expected to change after the retained seed is harvested in season two and also as yields increase due to use of improved varieties.

One hundred and twenty four (124) seed multipliers including 8 youth were involved in seed production during the reporting period. The total value of sales from seed and ware potato from 111 of the seed multipliers (29 females) from the first season of production was USD 49,244 (12% of the total sales were by female multipliers) from 13.95 ha in the four intervention counties. Thirteen (13) seed multipliers did not sale as they retained 100% of their production for further multiplication.

Table 2: Gross margins obtained by seed potato multipliers.

	Total production (t)	Value of sales (USD)	Quantity of sales (t)	Cost of production (USD)	Area under production (ha)	Gross margin (USD)
Elgeyo-Marakwet	36.1	5,536	21.5	3,042	2.6	2,398
Association	11.4	2,377	9.8	1,287	0.7	2,114
Female	7.8	1,270	5.1	706	0.6	2,296
Male	16.9	1,890	6.7	1,050	1.4	2,740
Nandi	106.4	28,791	89.9	11,310	7.2	3,162
Association	0.7	37	0.1	273	0.2	(109)
Female	8.0	1,882	6.4	833	0.6	2,528
Male	97.6	26,873	83.3	10,204	6.5	3,299
Uasin Gishu	49.7	11,061	35.1	4,355	3.4	3,330
Association	2.2	849	1.9	173	0.2	4,162
Female	6.0	1,628	5.1	775	0.6	2,042
Male	41.5	8,585	28.1	3,407	2.7	3,506
Overall	192.2	45,389	146.5	18,708	13.2	3,094
Association	14.3	3,263	11.8	1,733	1.1	2,131
Female	21.8	4,779	16.6	2,313	1.7	2,336
Male	156.0	37,347	118.1	14,662	10.5	3,318

Average yields of 14.9 MT/ha were attained in the four intervention counties which were lower than the target yields for seed multipliers 20MT/Ha. The lower than expected yields were due to late planting in season one caused by delayed availability of certified seed for starter material as well as the shorter than anticipated rain season.

Table 3: Number of seed potato multipliers and value of sales in the four potato value chain interventions counties.

	No. of seed multipliers who sold seed and/or ware potato	No. of seed multipliers who sold seed	Area contributing to seed and ware sales (ha)	Value of seed sales (USD)	Value of ware sales (USD)	Total value of seed and ware sales (USD)
Men—total	79	51	10.88	25,918	14,425	40,343
Men—mean	N/A	N/A	0.14	508	244	511
Women—total	28	22	2.02	3,964	1,675	5,639
Women—mean	N/A	N/A	0.07	180	98	201
Association—total	4	3	1.05	2,070	1,192	3,263
Association—mean	N/A	N/A	0.26	518	397	815
Total	111	77	13.95	31,952	17,292	49,244

Nandi contributed 69% of ware sales, or USD 11,893 of the USD17,292 total.

A total of 1,600 bags (each 50kgs) of seed potato were sold to 370 farmers with an average of 4.3 bags per farmer which is sufficient to plant 0.11 ha implying that approximately 40.93 ha were planted with potato during the reporting period. This level of purchase by farmers is much higher than was anticipated as targets were set based on the assumption that each farmer would buy only one bag of seed. Generally multipliers sold seed at twice the price of ware potato i.e. USD 0.394/kg and USD 0.199/kg, respectively which makes seed multiplication a viable business and this is an indicator of sustainability of availability of improved potato seed varieties.

For sweet potato, the area under vine multiplication increased by approximately 2 acres during the reporting period. By the end of December 2016 about 1.8 million cuttings of improved varieties (Vita and Kabonde) were available for dissemination to root producers. Support was provided to vine multipliers in marketing their produce by installing signage to enhance accessibility especially by commercial root producers.

Vines were disseminated to 1,453 farmers in Bungoma and Busia counties. Though the rains were low, vine production was undertaken with irrigation and vines will be available by April 2017 in time for the long rains.

During the reporting period the DTC component supported the production and dissemination of improved seed. A total of 39,110 kg of seed of DTCs was accessed by farmers in semi-arid areas during the short rains from October to November 2016 of which 10,158 kg was foundation seed produced by the project and 28,952 kg was certified seed acquired from KALRO seed Unit, Katumani. The table below shows the details of quantities of seed by crop and county.

Table 4: Total quantity of seed (kg) accessed by farmers in Makueni, Kitui and Tharaka Nithi.

County	Green grams	Cowpea	Pearl millet	Pigeonpea	Sorghum	Total
Kitui	2,064	1,508	1,557	1,176	8,953	15,258
Tharaka Nithi	1,254	766	1,095	616	4,400	8,131
Makueni	1,370	700	8,45	1,666	11,100	1,5681
All Counties	4,688	2,974	3,498	3,497	24,453	39,110

The above seed was disseminated to approximately 10,594 beneficiaries out of whom 75% were female and 15% were youth in Makueni, Kitui, Tharaka Nithi and Elgeyo Marakwet Counties.

Table 5 Topline indicator targets and achievements for October to December 2016

Topline Targets and achievements											
Indicator	Indicator Name	Root crops		Dairy		Livestock		DTC		Total targets Qtr 1	Total achieved Qtr1
		Target Qtr1 2017	Achieved in Qtr1 2016 -17	Target Qtr 1 2017	Achieved in Qtr1 2016 -17	Target Qtr 1 2017	Achieved in Qtr1 2016 -17	Target Qtr 1 2017	Achieved in Qtr1 2016 -17		
IR1 Improved Agricultural Productivity											
EG.3.2-18	Number of hectares of land under improved technologies or management practices with USG assistance (RAA) (WOG)	251	66.13					631	5413	882	5479.13
EG.3.2-17	Number of farmers and others who have applied improved technologies or management practices with USG assistance (RAA) (WOG)	2,774	2,788	3,735	4354	1,800	329	5,077	10594	13,386	18065
EG.3.2-1	Number of individuals who have received USG supported short-term agricultural sector productivity or food security training (RAA) (WOG)	16	2,562	2,070	1181	800	955	6,776	10675	9,662	15373
EG.3.2-20	Number of for profit private enterprises, producers organizations, women's groups, trade & business associations and CBOs that applied organizational level technologies or management practices with USG assistance	167	160	17	6					184	166
EG. 5.2-1	Number of firms receiving USG-funded technical assistance for improving business performance			50	7					50	7
IR 8 Improved utilization of maternal and child health and nutrition services											
HL.9-4	Number of individuals receiving nutrition-related professional training thru USG-supported programs	12	0	576	456	210	76	0	0	798	532
HL.9-2	Number of children under two years (0-23months) reached with community level nutrition interventions thru USG-supported	2,700	5,515	360						3,060	5515

Table 6: Detailed Matrix of achievement per indicator.

INDICATOR TITLE:		Number of technologies or management practices under research, under field testing, or made available for transfer as a result of USG assistance (RAA)																									
INDICATOR NUMBER:		EG. 3.2-7																									
UNIT		DISAGGREGATE BY: Location, date and phase/stage																									
		Geographic Location					Activity Title							Date	Women	Men	N/A	Subtotal									
		Bomet					Phase 3: Crop genetics, cultural practices							October			2	2									
		Meru		Nandi	Uasin Gichu			Phase 3: Crop genetics							October			1	1								
		Bungoma	Busia	Homa Bay	Migori		Phase 3: Crop genetics - set-up of model farms (3 tech types - OFSP							December			3	3									
Number of technologies																										6	6
Totals																										6	6
Results:																											
Blank for target means information not yet available		Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period (30-Sept-17)			FY 2017 Target				
					Achieved			Target			Achieved			Target			Target			Target			Target				
		W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A		
Sex:																											
Women (W), Men (M), Not applicable (N/A)				0			4			3			6														
Bomet										0			2			2			0			0					
Bungoma										3			3			0			0			0					
Busia										3			3			0			0			0					
Elgeyo Marakwet										0			0			2			0			0					
Garissa										0			0														
Homa Bay										3			3			0			0			0					
Isiolo										0			0														
Marsabit										0			0														
Meru										0			1			2			0			0					
Migori										3			3			0			0			0					
Nakuru										0			0														
Nandi										0			1			2			0			0					
Turkana										0			0														
Uasin Gichu										0			1			2			0			0					
Wajir										0			0														

INDICATOR TITLE:		Number of individuals who have received USG-supported short-term agricultural sector productivity or food security training (RAA) WOG																						
INDICATOR NUMBER:		EG. 3.2-1																						
UNIT		DISAGGREGATE BY: Location, event, date and gender (FTFMS includes 'type of individual')																						
Number of individuals trained	Geographic Location					Activity Title					Date	Women	Men	N/A	Subtotal									
	Marsabit					Fodder production training					October	197	216		413									
	Marsabit					Animal productivity training					November	20	40		60									
	Isiolo					Fodder production training					October	31	149		180									
	Isiolo					Community training on agri-nutrition					October	79	223		302									
	Siaya					Agricultural sector productivity and food security training					December	20	5		25									
	Busia					Agricultural sector productivity and food security training					December	16	6		22									
	Makueni					Agricultural sector productivity and food security training					December	3,347	1,250		4,597									
	Kitui					Agricultural sector productivity and food security training					December	3,354	798		4,152									
	Tharaka Nithi					Agricultural sector productivity and food security training					December	1,115	725		1,840									
	Elgeyo Marakwet					Agricultural sector productivity and food security training					December	5	34		39									
	Homa Bay	Siaya	Busia	Kisumu	Migori	Training of Dairy farmers on improved fodder establishment, maintenance and feeding					October	601	414		1,015									
	Homa Bay	Siaya	Busia	Vihiga		Training Village Based Dairy Advisors on Livestock management and extension methodology (Refresher)					November	46	82		128									
	Homa Bay	Siaya	Busia	Kisumu	Migori	Training/Mentoring of Peer Farmer Trainers on improved animal management					November	14	24		38									
	Elgeyo Marakwet Uasin Gichu Nandi					Agricultural Sector Productivity & Food Security (ASP&FS)					October	938	1,466		2,404									
	Meru					Agricultural Sector Productivity & Food Security (ASP&FS)					November	21	49		70									
	Meru					Agricultural Sector Productivity & Food Security (ASP&FS)					November	8	24		32									
	Elgeyo Marakwet Nandi Uasin Gichu					Agricultural Sector Productivity & Food Security (ASP&FS)					December	14	42		56									
	Totals												9,826	5,547		15,373								
Results:																								
Blank for target means information not yet available	Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period			FY 2017 Target		
				Achieved			Target			Achieved			Target			Target			Target			Target		
	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A
Sex: Women (W), Men (M),	0	0		17,793	17,344		4,582	5,080		9,826	5,547													
Bomet							0	0		0	0													
Bungoma							0	0		0	0		21	14		12	8		12	8				
Busia							493	584		211	154		91	174		82	168		82	168				
Elgeyo Marakwet							1271	1274		415	607		187	227		0	0		97	117				
Garissa							140	60		0	0		140	60		140	60		140	60				
Homa Bay							70	160		158	121		91	174		82	168		82	168				
Isiolo							140	60		110	372		140	60		140	60		140	60				
Kisumu							70	160		4	8		70	160		70	160		70	160				
Kitui							493	584		3354	798		70	160		70	160		70	160				
Makueni							493	584		3347	1250		70	160		70	160		70	160				
Marsabit							140	60		217	256		140	60		140	60		140	60				
Meru							2	2		29	73		0	0		0	0		0	0				
Migori							70	160		156	93		91	174		82	168		82	168				
Nakuru							0	0		0	0													
Nandi							2	2		151	374		187	227		0	0		97	117				
Siaya							493	584		155	135		70	160		70	160		70	160				
Taita Taveta							70	160		0	0													
Tharaka Nithi							423	424		1115	725		0	0		0	0		0	0				
Turkana							0	0		0	0													
Uasin Gichu							2	2		391	561		142	172		0	0		97	117				
Vihiga							70	160		13	20		70	160		70	160		70	160				
Wajir							140	60		0	0		140	60		140	60		140	60				

INDICATOR TITLE:		Number of farmers and others who have applied improved technologies or management practices with USG assistance (RAA) (WOG)														
INDICATOR NUMBER:		EG. 3.2-17 N.B. Figures are not representative of the whole beneficiary population - they are activity-based recordings														
UNIT		DISAGGREGATE BY: Location, date and gender (FTFMS includes commodity' & 'actor type')														
Number of individuals	Geographic Location						Activity Title			Date	Women	Men	N/A	Subtotal		
	Makueni						Crop Genetics (improved DTC varieties)			December	3,390	1,194		4,584		
	Kitui						Crop Genetics (improved DTC varieties)			December	3,362	777		4,139		
	Tharaka Nithi						Crop Genetics (improved DTC varieties)			December	1,112	715		1,827		
	Elgeyo Marakwet						Crop Genetics (improved DTC varieties)			December	18	26		44		
	Marsabit						Vaccination			October	43	286		329		
	Bungoma						Model farms			October	5	3		8		
	Busia						Vine dissemination			December	491	328		819		
	Homa Bay						Vine dissemination			October	373	249		622		
	Migori						Model farms			October	2	2		4		
	Homa Bay	Vihiga	Busia	Kisumu	Migori	Siaya	Improved fodder and feed technology (Napier in tumbukiza, Brachiaria, Boma Rhodes)			October	1,034	1,288		2,322		
	Homa Bay	Vihiga	Busia	Kisumu	Migori	Siaya	Improved Livestock management Practices (Tick Spraying and Deworming)			October	226	260		486		
	Makueni	Vihiga	Kitui	Kisumu			Implementation of Fixed Time AI			December	882	607		1,489		
	Vihiga	Kisumu	Migori				Implementation of ECF vaccination			December	4	53		57		
	Uasin Gishu		Nandi	Bomet	Meru		Farmers applying improved technology			December	721	614		1,335		
Totals												11,663	6,402		18,065	

Results:

Blank for target means information not yet available	Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period (30-Sept-17)			FY 2017 Target		
				Achieved			Target			Achieved			Target			Target			Target			Target		
	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A
Sex: Women (W), Men (M), Not applicable (N/A)	0	0		16,128	19,711		5,539	7,847		11,229	6,836													
Bomet							90	110		7	79													
Bungoma							250	165		5	3		0	0		2250	1000		2500	1000				
Busia							818	858		833	894		145	270		2395	1270		2145	1270				
Elgeyo Marakwet							527	550		18	26		239	292		1049	1282		464	567				
Garissa							50	400		0	0		50	400		50	400		50	400				
Homa Bay							395	435		641	531		145	270		2395	1270		2645	1270				
Isiolo							0	0		0	0													
Kisumu							145	270		69	239		145	270		145	270		145	270				
Kitui							568	693		3375	789		145	270		145	270		145	270				
Makueni							568	693		3441	1354		145	270		145	270		145	270				
Marsabit							50	400		43	286		50	400		50	400		50	400				
Meru							104	127		697	527		239	292		1049	1282		464	567				
Migori							385	435		3	17		145	270		1395	1020		2145	1270				
Nakuru							0	0		0	0													
Nandi							104	127		6	1		239	292		1049	1282		464	567				
Siaya							568	694		180	298		145	270		145	270		145	270				
Taita Taveta							145	270		0	0		145	270		145	270		145	270				
Tharaka Nithi							423	423		1112	715		0	0		0	0		0	0				
Turkana							50	400		0	18		50	400		50	400		50	400				
Uasin Gishu							104	127		11	7		239	292		1049	1282		464	567				
Vihiga							145	270		788	1070		145	270		145	270		145	270				
Wajir							50	400		0	0		50	400		50	400		50	400				

INDICATOR TITLE:		Number of hectares of land under improved technologies or management practices with USG assistance (RAA) (WOG)																								
INDICATOR NUMBER:		EG. 3.2-18 N.B. Figures are not representative of the whole beneficiary population - they are activity-based recordings																								
UNIT		DISAGGREGATE BY: Location, date and gender of management (FTFMS includes commodity') - if 'association applied' shown under Joint																								
Number of hectares	Geographic Location					Activity Title							Date	Women	Men	Joint	Subtotal									
	Siaya					Crop genetic resources - improved varieties							December	443	249	to be confirmed	692									
	Busia					Crop genetic resources - improved varieties							December	184	156		340									
	Makueni					Crop genetic resources - improved varieties							December	1,275	448		1,723									
	Kitui					Crop genetic resources - improved varieties							December	1,356	328		1,684									
	Tharaka Nithi					Crop genetic resources - improved varieties							December	554	354		908									
	Elgeyo Marakwet					Crop genetic resources - improved varieties							December	27	39		66									
	Bungoma					Hectares under OFSP							December	0.50	1.27	1.77										
	Busia					Hectares under OFSP							December	2.71	2.17	4.88										
	Homa Bay					Hectares under OFSP							December	2.36	1.68	4.04										
	Migori					Hectares under OFSP							December	0.44	0.50	0.94										
	Elgeyo Mara	Uasin Gishu	Nandi	Meru	Bomet	Area under certified seed potato							October	10.8	41.0	2.2	54.0									
	Uasin Gichu		Nandi	Meru			Area under improved seed (potato rooted cuttings)							October	0.1	0.4	0.5									
	Totals												3,856	1,621		5,479										
Results:																										
Blank for target means information not yet available	Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period (30-Sept-17)			FY 2017 Target				
				Achieved			Target			Achieved			Target			Target			Target			Target				
	W	M	Joint	W	M	Joint	W	M	Joint	W	M	Joint	W	M	Joint	W	M	Joint	W	M	Joint	W	M	Joint		
Sex: Women (W), Men (M), Not applicable (N/A)	0	0		788	788	40,305	115	136	631	3,856	1,621	2														
Bomet							0.0	0.0	0.0	0.9	10.0	1.5	0.0	0.0	0.0	18	22	0	0	0	0					
Bungoma							0.0	0.0	0.0	0.5	1.3	0.0	0.0	0.0	0.0	55	55	0	110	110	0					
Busia							0.0	0.0	105.0	186.7	158.2	0.0	0.0	0.0	0.0	30	30	0	60	60	0					
Elgeyo Marakwet							28.8	34.0	105.0	27.7	42.6	0.4	0.0	0.0	0.0	28.8	34	0	0	0	0					
Homa Bay							0.0	0.0	0.0	2.4	1.7	0.0	0.0	0.0	0.0	40	40	0	80	80	0					
Kitui							0.0	0.0	105.0	1356.0	328.0															
Makueni							0.0	0.0	106.0	1275.0	448.0															
Meru							28.8	34.0	0.0	6.7	16.3	0.0	0.0	0.0	0.0	28.8	34	0	0	0	0					
Migori							0.0	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.0	40	40	0	80	80	0					
Nandi							28.8	34.0	0.0	1.8	6.7	0.2	0.0	0.0	0.0	28.8	34	0	0	0	0					
Siaya							0.0	0.0	105.0	443.0	249.0															
Tharaka Nithi							0.0	0.0	105.0	554.0	354.0															
Uasin Gichu							28.8	34.0	0.0	0.7	4.5	0.1	0.0	0.0	0.0	28.8	34	0	0	0	0					

INDICATOR TITLE:		Number of for profit private enterprises, producers organizations, water users associations, women’s groups, trade and business associations and community-based ...																						
INDICATOR NUMBER:		EG. 3.2-20																						
UNIT		DISAGGREGATE BY: Location, date and type of organisation																						
Number of organisations / groups / enterprises	Geographic Location					Activity Title							Date	Women	Men	N/A	Subtotal							
	Makueni	Taita Taveta		Kitui			Strategic and business planning for Makueni, Kathonzweni, Kilala, Mukuyuni and Maziwa Taita dairies; Corporate governance training for Kikima dairy							October			6	6						
	Elgeyo Marakwet		Meru	Nandi	Uasin Gishu		For profit private enterprises - selling seed							October			144	144						
	Bungoma					Expansion of seed vine multiplication area							December			4	4							
	Busia					Expansion of seed vine multiplication area							December			4	4							
	Homa Bay					Expansion of seed vine multiplication area							December			4	4							
	Migori					Expansion of seed vine multiplication area							December			4	4							
	Totals														166	166								
	Results:																							
Blank for target means information not yet available	Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period (30-Sept-17)			FY 2017 Target		
				Achieved			Target			Achieved			Target			Target			Target			Target		
	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A
Sex: Women (W), Men (M), Not applicable (N/A)			0			182			184			166												
Bomet									0			0			0			4			0			
Bungoma									9			4			0			0			0			
Busia									9			4			2			2			2			
Elgeyo Marakwet									22			22			0			0			0			
Garissa									0			0												
Homa Bay									10			4			2			2			2			
Isiolo									0			0												
Kisumu									2			0			2			2			2			
Kitui									1			0			1			1			1			
Makueni									1			5			1			1			1			
Marsabit									0			0												
Meru									55			56			0			0			0			
Migori									5			4			1			1			1			
Nakuru									0			0												
Nandi									36			39			0			8			0			
Siaya									1			0			1			1			1			
Taita Taveta									1			1			1			1			1			
Tharaka Nithi									0			0												
Turkana									0			0												
Uasin Gichu									31			27			5			10			5			
Vihiga									1			0			1			1			1			
Wajir									0			0												

INDICATOR TITLE:		Value of new private sector capital investment in the agriculture sector or food chain leveraged by Feed the Future implementation (RAA)																						
INDICATOR NUMBER:		EG. 3.2-22																						
UNIT		DISAGGREGATE BY: Location and date																						
Value of investment (USD)	Geographic Location						Activity Title						Date	Women	Men	N/A	Subtotal							
	Bomet	Elgeyo Marakwet	Nandi	Uasin Gishu			Value of Private sector investment						October			14,108	14,108							
	Totals													14,108	14,108									
Results:																								
Blank for target means information not yet available	Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period (30-Sept-17)			FY 2017 Target		
				Achieved			Target			Achieved			Target			Target			Target			Target		
	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A
Sex: Women (W), Men (M), Not applicable (N/A)			0			24,657			80,690			14,108												
Bomet									0			8,877			0			0			0			
Bungoma									0			0												
Busia									8,410			0			8,410			8,410			8,410			
Elgeyo Marakwet									1,250			664			3,125			938			938			
Garissa									0			0												
Homa Bay									8,410			0			8,410			8,410			8,410			
Isiolo									0			0												
Kisumu									8,410			0			8,410			8,410			8,410			
Kitui									8,410			0			8,410			8,410			8,410			
Makueni									8,410			0			8,410			8,410			8,410			
Marsabit									0			0												
Meru									1,250			0			3,125			938			938			
Migori									8,410			0			8,410			8,410			8,410			
Nakuru									0			0												
Nandi									1,250			3,776			3,125			938			938			
Siaya									8,410			0			8,410			8,410			8,410			
Taita Taveta									8,410			0			8,410			8,410			8,410			
Tharaka Nithi									0			0												
Turkana									0			0												
Uasin Gichu									1,250			791			3,125			938			938			
Vihiga									8,410			0			8,410			8,410			8,410			
Wajir									0			0												

INDICATOR TITLE:		Number of firms receiving USG-funded technical assistance for improving business performance (0)											
INDICATOR NUMBER:		EG. 5.2-1											
UNIT		DISAGGREGATE BY: Location, event and date											
Number of firms		Geographic Location					Activity Title	Date	Women	Men	N/A	Subtotal	
		Makueni	Taita Taveta			Kitui		Training on Agent Network Model to Lomastar, Pamtech, Kaiti, and Kitui Horticultural Growers agrovet- supported Agroverts to improve the distribution and retailing of quality inputs and animal health services, shop remodelling and training on customer service and distribution of order books and agents books	October			4	4
		Makueni	Taita Taveta					Makueni and Mwatate Milk traders Association trained and supported to develop market and business Plan, formalization and compliance of KDB approved quality standards. by Mak 5 Business Hub Ltd	October			2	2
		Kitui						Training on cataloguing and customer service management to shop attendants of Snow agrovet by Blue Eye Ltd	October			1	1
		Totals											7

Results:

Blank for target means information not yet available	Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period (30-Sept-17)			FY 2017 Target		
				Achieved			Target			Achieved			Target			Target			Target			Target		
	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A
Sex:																								
Women (W), Men (M), Not applicable (N/A)			0			N/A			50			7												
Bomet									0			0												
Bungoma									0			0												
Busia									5			0			5			5			5			20
Elgeyo Marakwet									0			0												
Garissa									0			0												
Homa Bay									5			0			5			5			5			20
Isiolo									0			0												
Kisumu									5			0			5			5			5			20
Kitui									5			2			5			5			5			20
Makueni									5			2			5			5			5			20
Marsabit									0			0												
Meru									0			0												
Migori									5			0			5			5			5			20
Nakuru									0			0												
Nandi									0			0												
Siaya									5			0			5			5			5			20
Taita Taveta									5			3			5			5			5			20
Tharaka Nithi									0			0												
Turkana									0			0												
Uasin Gichu									5			0			5			5			5			20
Vihiga									5			0			5			5			5			20
Wajir									0			0												

INDICATOR TITLE:		Number of children under two years (0-23 months) reached with community-level nutrition interventions through USG-supported programs (RAA)																						
INDICATOR NUMBER:		HL. 9-2																						
UNIT		DISAGGREGATE BY: Location, event, date and gender																						
Number of children	Geographic Location						Activity Title						Date	Girls	Boys	Unknown	Subtotal							
	Bungoma						Maternal infant and young child feeding nutrition education						November	584	390		974							
	Busia						Maternal infant and young child feeding nutrition education						November	1,165	778		1,943							
	Homa Bay						Maternal infant and young child feeding nutrition education						November	1,051	702		1,753							
	Migori						Maternal infant and young child feeding nutrition education						November	507	338		845							
	Totals													3,307	2,208		5,515							
Results:																								
Blank for target means information not yet available	Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period (30-Sept-17)			FY 2017 Target		
				Achieved			Target			Achieved			Target			Target			Target			Target		
	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A
Sex: Women (W), Men (M), Not applicable (N/A)	0	0		N/A	N/A		1,872	1,188		3,307	2,208													
Bomet							0	0		0	0													
Bungoma							405	270		584	390		405	270		250	250		920	400				
Busia							433	282		1165	778		433	282		278	262		948	412				
Elgeyo Marakwet							0	0		0	0													
Garissa							0	0		0	0													
Homa Bay							433	282		1051	702		433	282		278	262		948	412				
Isiolo							0	0		0	0													
Kisumu							28	12		0	0		28	12		28	12		28	12				
Kitui							28	12		0	0		28	12		28	12		28	12				
Makueni							28	12		0	0		28	12		28	12		28	12				
Marsabit							0	0		0	0													
Meru							0	0		0	0													
Migori							433	282		507	338		433	282		278	262		948	412				
Nakuru							0	0		0	0													
Nandi							0	0		0	0													
Siaya							28	12		0	0		28	12		28	12		28	12				
Taita Taveta							28	12		0	0		28	12		28	12		28	12				
Tharaka Nithi							0	0		0	0													
Turkana							0	0		0	0													
Uasin Gichu							0	0		0	0													
Vihiga							28	12		0	0		28	12		28	12		28	12				
Wajir							0	0		0	0													

INDICATOR TITLE:		Number of individuals receiving nutrition-related professional training through USG-supported programs (RAA)												
INDICATOR NUMBER:		HL 9-4												
UNIT		DISAGGREGATE BY: Location, event, date and gender (FTFMS includes 'type of training')												
Number of individuals	Geographic Location						Activity Title			Date	Women	Men	N/A	Subtotal
	Homa Bay	Vihiga					Agri-nutrition training of key staff of MOA of MOH to equip them with knowledge on applied agri-nutrition			November	361	95		456
	Isiolo	Turkana					Training of Trainers of CHEWS			October	38	38		76
	Totals										399	133		532

Results:

Blank for target means information not yet available	Baseline			Results in prior periods			This reporting period (31-Dec-16)						Reporting period (31-Mar-17)			Reporting period (30-Jun-17)			Reporting period (30-Sept-17)			FY 2017 Target		
				Achieved			Target			Achieved			Target			Target			Target			Target		
	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A	W	M	N/A
Sex: Women (W), Men (M), Not applicable (N/A)	0	0		N/A	N/A		561	237		399	133													
Bomet							0	0		0	0													
Bungoma							0	0		0	0		10	10		0	0		10	10				
Busia							45	19		0	0		55	29		45	19		55	29				
Elgeyo Marakwet							2	2		0	0													
Garissa							0	0		0	0													
Homa Bay							45	19		170	50		55	29		45	19		55	29				
Isiolo							150	60		12	28													
Kisumu							45	19		0	0		45	19		45	19		45	19				
Kitui							45	19		0	0		45	19		45	19		45	19				
Makueni							45	19		0	0		45	19		45	19		45	19				
Marsabit							0	0		0	0													
Meru							0	0		0	0													
Migori							45	19		0	0		55	29		45	19		55	29				
Nakuru							0	0		0	0													
Nandi							2	2		0	0													
Siaya							45	19		0	0		45	19		45	19		45	19				
Taita Taveta							45	19		0	0		45	19		45	19		45	19				
Tharaka Nithi							0	0		0	0													
Turkana							0	0		26	10													
Uasin Gichu							2	2		0	0													
Vihiga							45	19		191	45		45	19		45	19		45	19				
Wajir							0	0		0	0													

4 CONSTRAINTS AND OPPORTUNITIES

4.1 Opportunities

Given the ravaging weather effects that we have recently witnessed, the AVCD initiative on fodder and forage establishment presents opportunities for the farmers to grow and conserve feeds for their dairy animals for increased productivity and production of milk.

In the root crops value chains, there are tremendous opportunities in the production of rooted potato cuttings or early generation seed from rooted cuttings as an attractive business opportunity for youth. This is mainly because production of rooted potato cuttings is very productive, timely and profitable, and does not require large expanses of land which is often a challenge for youth to access land.

In OFSP, opportunities are emerging in preparation of common dishes that are acceptable to both rural and urban population, and marketing through whole sale traders. In this regard root samples have been submitted to Norda industries and Tropical Heat for trials in making OFSP crisps, which are acceptable by rural and urban people and can be marketed through the super markets.

4.2 Constraints

The main constraint experienced this reporting period across all value chains was the prolonged drought situation. The impact will be varied in the different value chains. In the livestock value chain which is in A3 zone, hardly any major activity was implemented to completion due to this impact.

In the dairy value chain establishment of improved forages across both HR1 and SA2 ZOI was seriously affected. Moreover poor pasture development mean that most dairy businesses continued to receive depressed milk volumes. Despite these challenges, the fodder work is being appreciated by VBDA's and farmers and we expect it to continue improving over the coming year. The project team has responded to the challenge by planning to re-stock Napier grass multiplication sites that did not establish well. Distribution of caliantra, desmodium and transplanting of brachiaria were also postponed to the next season (in the long rains) so that we stimulate success. The projects is also working with dairy businesses and in liaison with the county governments to facilitate dairy businesses' venture into commercial hay production through contract farming and by supporting the dairy cooperatives and agro-vets to develop commercial hay production business plans.

It also emerged that efforts to formalize milk marketing are hampered by limited presence of the regulator in some areas. The milk regulatory body (KDB) activities have generally focused on high production areas leaving traditional non-dairy zones unattended. When support is required from the regulator, it is not easily forthcoming and this compromises the final outcomes of some of the initiatives. AVCD-dairy is engaging KDB to develop support packages that are required by dairy cooperatives, processors and milk traders and whose effect would be felt along the dairy value chain.

In the drought tolerant crops, in addition to the challenges caused by the prolonged drought, constraints were encountered in monitoring and evaluation as well as communication and nutrition activities due to changes in staff within ICRISAT. This is being addressed by recruiting a new nutrition specialist for the program, assigning a new M&E and communication specialist.

5 PERFORMANCE MONITORING

AVCD program continued with efforts to streamline and improve project performance monitoring. Impact pathways for all the value chains were defined and further analyzed during the quarter. These articulate the theories of change for each value chain and will provide a basis for project monitoring and evaluation in addition to the FiF indicators. Impact pathways will be finalized during the next quarter and VC specific M&E plans will be developed.

The process of consolidating the program baseline report also started after all the value chain components had finalized their specific reports. Baseline data which provided initial information on the targeted population will enable the AVCD program monitor and track changes as well as provide a basis for comparison in assessing outcomes/impacts for the annual surveys. The consolidated baseline report will be finalized by the end of the next reporting period.

Efforts continued to set up the central database which will be the used for capturing and analyzing data both collected from regular performance monitoring as well as through the annual surveys. Standardized quarterly reporting templates were developed based on the USAID indicator performance table and all components have started using them for submitting data. The database will be the repository for all AVCD program related data.

The dairy component continued to deploy the monthly tracker tool to businesses in the SA2 ZOI. The monthly tracker is tailored for each type of business to track monthly parameters of revenue, customer service, costs and employment creation. This tool makes it easier to track the adoption of technology by businesses and also provides businesses with data for decision making.

A rapid appraisal of the social-economic status of vine multipliers was completed during the reporting period. This data will provide a basis for comparison in assessing outcomes/impacts and support attribution of changes in social-economic status of vine multipliers to the AVCD program.

Field visits were conducted to spot-check on project implementation and verify implementation of activities. Some of the key visits included:

- Vihiga County- follow-up was made on 200 farmers from 10 VBDAs in Hamisi Sub County and another 10 VBDAs in Vihiga Sub County who received cuttings of Napier grass. It was found that all sampled farmers received Napier grass cuttings and planted using the tumbukiza method in line with what was recorded in the VBDA logbooks.
- Busia and Homabay Counties- follow ups were made to check on rate of adoption of disseminated technologies. It was found that scaling up area under Napier grass varieties using the tumbukiza method. Initially most farmers perceived tumbukiza method of planting Napier grass as labor intensive and discouraging.
- Kiirua and Abothuguchi West networks in Meru. A sample of 180 potato farmers (recorded in VPA logbooks) were spot visited. Of 80 farmers visited in Kiirua, 85% were applying technologies trained such as good site selection, good spacing, fertilizer application and good first hilling.
- Abothuguchi West network, 100 farmers were spot visited and all harvested their 1 kg pack given to them by VPA. Seed potato production from 1 kg pack planted by farmers ranged from 15-18 kg and 89% of them said that they were planning to replant their harvest to multiply more seeds.

During the next quarter a schedule for quarterly monitoring visits will be developed. Efforts will be made to undertake cross project/joint visits as this will further enhance learning across all the AVCD program components.

6 PROGRESS IN NUTRITION

During the reporting period, AVCD participated in major nutrition events namely; the integrated nutrition conference organized by the Catholic Relief Services themed “**Role of private sector in improving nutrition**” this helped AVCD understand better engagement strategies with private sector for their participation in

the value chains at market level or product development. AVCD also participated in the national nutrition symposium organized by the Academia and Research Network of the Scaling up Nutrition (SUN) movement. In this event AVCD sponsored part of the symposium and also participated in oral/poster presentations, sessions chairing, and panel discussion and also exhibited its work for all the value chains. This symposium which was attended by government, universities, UN, CGIAR centers and NGOs enabled AVCD nutrition actors share and learn lessons to inform programing. The secretariat expressed need for AVCD to get more involved and support national government research priorities and document lessons to guide the country in Agr-Nutrition programming.

At value chain level, implementation continued along the agriculture-nutrition pathways (production, income and women's empowerment). The dairy value chain trained 456 community health workers and ward agriculture officers on agri-nutrition who in the next quarter will spearhead nutrition training to beneficiary households. The DTC conducted training for a total of 1035 CHVs and WAOs on agri-nutrition in Siaya and Tharaka Nithi who will then reach beneficiary households in the next quarter. In Makueni, the ToTs who were earlier on trained on Agri-nutrition sensitized a total of 8401 producers (2546 women) at household level. The topics covered were on household food security and dietary diversification with emphasis on improved family nutrition through the consumption of nutrient dense DTCs products and methods of diversifying the food utilization of DTCs. This sensitization reached 5473 children below the age of 5 years. On the other hand, livestock value chain trained 76(38M, 38F) Community Health Extension Workers (CHWs) as trainers (ToTs) on Agri-nutrition in Turkana and Isiolo Counties. The ToTs are expected to cascade key Agri-nutrition messages to the communities through community dialogues meetings and mother to mother support groups at the sub-county and ward levels and thus increase uptake of the skills and the impact on nutrition. A total of 302 (79 male, 223 female) community members in Isiolo were reached through six community dialogue sessions in six community units that were linked to health facilities. The dialogue sessions were facilitated by the CHWs and CHEWs with support from the County Nutrition Officer and the AVCD field Coordinator. The Roots value chain (OFSP) developed three behavior change communication materials (1 training card and 2 posters) for use at the community-based nutrition trainings to enhance knowledge on nutrition with emphasis on use of OFSP in various diets and dietary diversification across the lifespan. At present 660 community groups containing 10-15 childcare givers are continuing with thematic trainings highlighting nutrition in the first 1000 days. The OFSP component has also completed a study on consumer acceptability of varied family and complementary feeding foods based on OFSP. Results of the study that targeted 400 consumers indicate a wide acceptance of OFSP based food for both rural and urban residents.

In the next quarter, there will be more nutrition activities at the household level since most of the time has been spent in training the TOTs at the County and Sub-county levels who have also trained their lower cadre staff mandated to work at the community/household level.

7 PROGRESS ON GENDER

The AVCD program acknowledges the role of gender in agriculture and nutrition and therefore makes deliberate efforts to ensure gender mainstreaming in all its activities. In this regard, each value chain has a gender expert who guides this process. Women contribute 75% of farm production in rural Kenya and therefore to improve crop productivity, it is essential to empower them in order to improve their efficiency. Also women are the ones involved in household food preparation and care for children hence their income, workload and time use has to be taken into account; thus women are pivotal in achieving the AVCD objectives of increasing agricultural productivity and improving nutrition of the program beneficiaries.

The dairy component of the AVCD program identified the need for gender sensitivity in training of VBDAs especially on farm business planning. This is because decision making on some of the farm activities is determined by particular gender. This will be taken into account in designing appropriate gender training at various levels of project actors.

The DTC value chain sensitized communities to help them understand the importance of women involvement in project activities and deliberately targeted women. Out of the 10,594 producers who accessed improved DTCs seed varieties 74% were women. Also out of the 10675 producers who participated in short term agricultural sector and food security training, 73% were women. The DTC

value chain is also promoting use of threshers and shellers to help improve labor efficiency of women to reduce their work load and save time on farming activities. Analysis of DTCs value chain operations with a view to identify specific operations that cause challenges to women, will help the project find solutions to empower women to overcome those challenges.

The AVCD LC made deliberate effort to ensure that a significant number of women participated in the trainings conducted. In Garissa, Isiolo and Marsabit, women participated in fodder training and demonstrations; some of the fodder demonstration sites selected and used in Marsabit were female managed. In appreciation of the time and energy used by women in fetching firewood, fetching water and attending to other household chores- the AVCD program under the Agri-nutrition module trained CHVs and MTMSG members on the benefits of investing in energy saving stoves which have a potential of reducing fuel use, thus leading to savings on fuel, energy and money. They have been linked to the Ministry of Agriculture-Home economics department to further support them in this.

The potato value chain has identified and planned for gender mainstreaming in key activities with county government staff and farmers with the aim to understand the differences in women's participation in seed production and purchases. The OFSP component has ensured that in the selection of vine multipliers there is 50% participation of both gender. Participation of the most rural poor- where women are most affected-has been encouraged in nutrition education groups. Inclusion of men in nutrition education has also been purposely achieved by having a strong nutrition component at market promotional forums and at field days. Sweet potato is a female dominated crop; however, participation of men tends to increase at the stages of the value chain that are most profitable, e.g. vine multiplication.

8 PROGRESS ON YOUTH PARTICIPATION

The AVCD program realizes that youth engagement in Agriculture in the country has not been given due attention. Given that the average age of a Kenyan farmer is 60 years, and that the median age is estimated at 19 years, with 80% of Kenya's population being below 35 years, it is imperative that deliberate efforts are made to make agriculture attractive to the youth to have them participate more in our value chains. There is a negative perception of the sector by youth, they also lack access to; land, information and agricultural education, policy dialogue, credit and markets.

At value chain level however, the DTC encouraged the youth to provide thresher and sheller services to other farmers as a business. The LVC has involved the youth in fodder training and demonstrations. The Dairy value chain has encouraged the youth to participate in seed pulverization and provide pulverizer services to the farmers who need them. In the potato value chain, some of the Decentralized seed multipliers are youth.

In view of the importance of youth in agriculture, AVCD in the process of engaging a short term consultant to conduct a rapid assessment in all value chain components to establish the specific situation and make practical recommendations as a basis for a framework for guiding all the AVCD value chain interventions on how to ensure youth participation and the specific activities to be undertaken. With this assessment the AVCD expects to strengthen the youth component and specific activities at value chain level will be documented in the next reporting period.

9 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 location. In the drought tolerant crops value chain 114 county extension and meteorology staff were trained in all the 6 mandate Counties on use of weather and climate information to make on-farm management decisions to mitigate the impact of climate adversity. Farmers were also trained on the role of groundnuts in sustaining soil fertility in a cereal-legume intercrop systems to reduce the need for chemical fertilizers which pollute our water systems.

As a response to the prolonged drought situation this season the DVC has put in place strategies that will ensure that fodder establishment maximizes rainfall opportunities expected in the main rainy season. A

number of multiplication sites that are close to rivers, streams and swamps will be identified in time and developed such that by the time the rains come planting materials from such sites will be ready for dissemination to other beneficiaries. In addition, feed/fodder conservation will form an integral part of the farmer training planned in future so as to mitigate low production during dry periods.

10 PROGRESS ON LINKS TO OTHER USAID PROGRAMS

In the A3 Zone AVCD-LC participated the planning and holding of PREG Meeting in Turkana and Garissa counties with the Africa lead mission. The objectives of the meeting was to learn and document the progress made by PREG partners in the two counties by interviewing key informants and focus group discussions.

In the HR1 FTF ZOI USAID organized a learning event during which the AVCD dairy, drought tolerant crops and root crops components participated and identified opportunities for collaboration with other USAID programs. In particular, AVCD identified a number of households that had been reached with KAVES initiatives but who have not benefited from some interventions that are exclusively being implemented by the dairy component of the AVCD program. Further discussions have now been initiated between AVCD and KAVES implementing staff to agree on an approach that will ensure these beneficiaries are covered by the new interventions being rolled out by AVCD.

The dairy component of the AVCD program through one of the partners is also complementing efforts and activities by KAVES at Kikima dairy (Makueni County) and has set up clear objectives to avoid duplication of activities. In Taita Taveta County the project is also collaborating with Agricultural Sector Development Program (ASDP) to develop sustainable packages that support AVCD innovation in the dairy value chain.

11 PROGRESS ON LINKS WITH GOK AGENCIES

The AVCD program continued to work closely and enhance the capacity of GOK agencies in all the program components. During the reporting period, in A3 FTF ZOI, CHVs were trained to implement the food nutrition activities. AVCD nutrition specialists also participated in the Food and Nutrition Working group and the MIYCN working group meetings at the national level. In the Food and nutrition linkages working group, key issues discussed were the linkages between nutrition and social protection and how to embrace this at the county level, School feeding program policy, revision of the food composition tables and planning's for the national nutrition week and national nutrition symposium. In addition, AVCD-LC and County Departments of Environment, Pastoral Economy and Lands in Turkana conducted joint appraisals and consulted on ways to develop an institutional policy frameworks for community-based rangeland management and held one county policy dialogue on natural resource management.

In the HR1 and the SA2 ZOI, the dairy component of the AVCD program continued to work closely with the departments of livestock production and veterinary services at the county directorate of livestock across all the 9 counties. Both public animal health technicians and the private practitioners who are under the supervision of the directorate are at the forefront of the breeding and animal health interventions implemented by the program. During the reporting period, the project team held planning meetings with staff from HR1 counties to draw joint plans for implementation of FTAI and ECF vaccinations. These plans have now been integrated in the county work plans. Similar meetings are planned for the SA2 ZOI in the second quarter of year two of project implementation.

The project team is also working closely with the county governments in all intervention affecting dairy businesses including milk traders, dairy cooperatives, processors and input dealers. The following interventions were born out of the projects close collaboration with Government agencies:

- i. Entering into a Memorandum of Understanding with the County Government of Taita Taveta to support all dairy businesses willing to enter into debt financing with financial institutions via provision of bank guarantees.

- ii. Co-funding of AVCD activities in Kikima Dairy by the County government of Makueni in the establishment of a processing plant. The county has posted a staff in Kikima dairy to facilitate quality control programs. The county also provided motorbikes and milk chilling plants to Kathonzweni, Makueni, and Mukuyuni dairies as well as motorbikes for transporting milk.
- iii. The County Government of Makueni is supporting AVCD dairy FTAI Initiative by providing genetic material at a subsidized⁵ price to farmers.

The County Government of Kitui provided AI service providers and AI kits to dairy businesses and is collaborating with AVCD project to train more AI service providers.

In the drought tolerant crops components:

- County extension from Makueni, Kitui and Tharaka Nithi were trained and supported to train 10,550 farmer producers on planting methods and general agronomy of DTCs. The County extension were also involved in monitoring of the use of various agronomic practices by farmers;
- 114 County extension and Met staff were trained to train producers on use of climate and weather information to make on-farm management decisions to mitigate effects of drought
- Collaboration with County department of health assisted in the mobilization and TOTs for 535 Community Health workers (CHEWs) and 500 Community health Volunteers (CHVs). The TOTs trainers were facilitated to train 8401 producers on health benefits of DTCs based foods

The root crops value chain component supported KEPHIS on policy formulation regarding certification of sweet potato planting materials. The outputs of these consultations are among others, reduction of the price of basic seed and a draft guideline that is being presented to higher management level for review. The program also continues to offer training opportunity to county extension staff in the three departments (agriculture, nutrition and public health).

12 SUSTAINABILITY AND EXIT STRATEGY

The main strategy for sustainability and exit strategy is to closely work with relevant county government departments to create strong ownership and commitment, and leverage additional financial resources for implementation beyond project timeframe. In the A3 ZOI, AVCD LC endeavors to align the activities to county priorities, it is expected that the ministries the project works with will influence future county budgetary allocation. The project is also retooling critical frontline extension staff working in the specific project sites in all the counties. One of the challenges of engaging the frontline staff is under-investment in extension services by county governments but situation is expected to improve as counties prioritize livestock development. Where feasible, the project will seek collaboration with other development agencies working within the same communities it (AVCD-LC) is working with.

In HRI and SA2 ZOI, the dairy component made a first important step towards long term and sustainable local availability of ECF vaccine. Several vaccinators across the six counties – Migori, Homa Bay, Kisumu, Vihiga, Siaya and Busia who have been trained were linked with 3 distributor who introduced the vaccine in the region and other actors to agree on a long term distribution approach. These stakeholders agreed on the vaccine supply chain and the margins to be appropriated at each node of the supply chain as well as the price to be charged to farmers. Following this engagement, the trained vaccinators have intensified ECF vaccination across project sites and have attracted the interest of other distributors who have moved to cash in on the demand generated by AVCD initiative. By bringing together these actors along the vaccine supply chain to agree on a business model and by involving the regulator the project has ensured long term access by farmers to the ECF vaccine beyond the life of the project.

In the root crops value chain a sustainability plan and strategy is being developed so that seed multipliers act autonomously when ordering seed for starter material. Over the past two seasons, while DSM paid for the certified seed, the project organized and paid transportation. This upcoming season, DSM will be responsible for organizing and paying in part or whole the cost of seed transportation, the latter matter

⁵For AI services, farmers only pay KShs. 300 (USD 3) per insemination including cost of transport for inseminator. The county government's carters for the remaining cost.

to be resolved in consensus with county governments and DSM. Seed multipliers will also meet with suppliers of certified seed and rooted cuttings to make contacts.

13 SUBSEQUENT QUARTER'S WORK PLAN

Details of the activities planned for the next work are provided in the Annual Work Plan Matrix. In addition to routine program management, monitoring and evaluation, communication and knowledge management, and coordination activities, the program management secretariat will: support to establishment of milk chilling plants; and support the evaluation of value chains.

In the dairy value chain, while the work plan will remain very much the same as detailed in the annual work plan, activities on fodder establishment, FTAI, ECF vaccination will be intensified to compensate for the loss due to the prolonged drought situation in the country. During the next implementation period (January to March 2017), the value chain component will focus on the following key activities:

- i. Scale up the agent network model, identifying more agents and linking them and farmers to selected agro-vets for increased access to quality inputs and services.
- ii. Launch remodeled agro-input outlets and agent network models in SA2 ZOI
- iii. Implement strategies for increased uptake/use of improved forage and commercialization of the fodder value chain – focusing on establishment of forages by new farmers and expansion of area under improved forages by existing beneficiaries.
- iv. Collaborate with county governments to train and kit 30 new AI technicians across 9 counties to increase the density of AI service providers and bring down the cost of service provision. Special consideration will be given to young technicians (aged below 34 years).
- v. Intensify breeding interventions via FTAI and delivery of ECF vaccination technology.
- vi. Launch additional network of community livestock extension volunteers (VBDAs) in Nyakach sub-county, Kisumu County.
- vii. Initiate discussions for the convening of multi-stakeholder platforms in 3 counties.
- viii. Strengthening management and governance structures of producer organizations and dairy business hubs.
- ix. Strengthening capacity of community livestock extension volunteers through training.

The livestock value chains will also expedite implementation of all activities detailed in the annual work plan to catch up on the time lost due to delays in finalizing the restructuring of the activities.

In the staple crops value chains, the main activities in the next quarter will focus on monitoring the harvesting, marketing, and preparations of the next rainfall season. Activities for potato value chain will concentrate on training ware farmers in potato production and nutrition, while supporting seed multipliers in seed production and storage. Certified seed will be distributed for the third time and rooted cuttings will also be distributed to seed multipliers to promote this technology. Annual survey and data cleanup will be carried out in much and the process for establishment of potato cooperative societies will be finalized. Activities for sweet potato will concentrate on distributing vines, training lead farmers on GAP and training on diversified utilization, along with training for social and behavior. Deviations in the work plans during the last quarter are shown in table 7.

Table 7: Deviations in quarterly activities carried out

Planned Actions from Previous Quarter	Actual Status	Explanations for Deviations
Livestock Value Chain		
Training of CHEWS in Wajir and Garissa counties	Delayed	Delay in the approval of the work plan
Dairy Value Chain		
Launch of FTAI in Busia County	Delayed	Lack of sufficient collaboration on the ground to facilitate establishment of infrastructure
Convening of multi-stakeholder platforms	Delayed	Delays on the part of county governments who are key conveners
Training of AI technicians	Delayed.	Delays from the training providers arising from issues from the regulator.
Produce behavior change and communication (BCC) materials incorporating milk and other dairy.	Partially delayed	The BCC material have to be developed in collaboration with the nutrition department of the MOH
Drought Tolerant Crops Value Chain		
Training producers on use of weather and climate advisories to make farm management decisions	Partially delayed	This was rescheduled because the trainees need adequate time to prepare training materials
Training producers on nutritional benefits of drought tolerant crops	Partially delayed	Lack of transport as well as limited staff
Establishment of seed banks	Not done	Delays in finalizing CRA with partners
Linking farmers to reliable markets and initiate establishment of grain collection and marketing	Not done	Delays in finalizing CRA with partners
Agri-business training in EMC, Makueni, Kitui and Tharaka	Not done	A suitable trainer had not been identified
Root Crops Value Chain		
Business skills training for seed multipliers	Delayed	Final list of seed multipliers was not determined
Support selected seed multipliers to prepare business plans	Delayed	Final list of seed multipliers was not determined
Finalize PPP agreement with Norda	Delayed	Awaiting feedback from Norda on draft PPP agreement
Support infrastructure in postharvest storage among Norda farmer network	Delayed	Pending signing of agreement, but different storage designs are being evaluated

14 FINANCIAL REPORT

AVCD program had an approved budget of USD 18,685,979 for executing 2016 and 2017 activities with livestock component two years' total budget of USD 6.1 million, dairy component budget of USD 3.8 million, root crop's component budget of USD 2.9 million, Drought tolerant crop budget of USD 3.2 million and Program Management budget of USD 2.6 million. As at December 2016 the overall program expenditure was USD 8,594,959 which is a cumulative burn rate of 46%.

The livestock component overall burn rate was at 47%. The Program Management Secretariat had a burn rate of 37%, Dairy Value chain burn rate was at 41%, the Root Crops and Drought Tolerant Crops Value Chains' burn rates were 44% and 60% respectively as shown in the summary report table 1 below.

Quarterly expenditure pick up significantly in the fourth quarter of the first year and is now steady, and expected to rise in the second quarter of the 2nd year of the implementation of the program as shown in table 2.

Personnel cost was low at the beginning of the implementation of the program as most of the staff had not been recruited. This cost is now steady at about 20 percent. Supplies and services were high in the fourth quarter of the first year of implementation of the program because this is when procurement of motor vehicles was undertaken.

Table 8: 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-Oct-2016					To: 31-Dec-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 Report				Actual Received in Current Period				Total Received as of Current Report														
	CA				RP				RC				TC = RP + RC				%R = TC/CA										
Disbursements from USAID		25,000,000				7,500,000				8,030,000				15,530,000				9,470,000		62%							
SECTION B: EXPENDITURE																											
Reporting Lines	Value Chain																				TOTALS						
	PMS				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	1,033,256	402,851	630,405	39%	668,330	342,876	325,454	51%	1,338,072	727,269	610,803	54%	604,892	319,346	285,546	53%	624,003	414,955	209,048	66%	4,268,553	2,207,297	2,061,256	52%			
Development Partners	-	-	-	0%	1,557,944	341,545	1,216,399	22%	1,171,779	533,586	638,192	46%	816,501	179,308	637,193	22%	542,560	129,735	412,825	24%	4,088,784	1,184,174	2,904,610	29%			
Supplies & Services	1,129,000	408,315	720,685	36%	967,178	452,347	514,831	47%	2,552,883	1,111,306	1,441,577	44%	824,488	466,485	358,004	57%	1,321,900	950,885	371,015	72%	6,795,449	3,389,337	3,406,112	50%			
Equipment	-	-	-	0%	-	-	-	0%	-	-	-	0%	78,485	72,814	5,671	93%	90,000	6,988	83,012	0%	168,485	79,803	88,683	47%			
Operational Travel	113,740	30,461	83,279	27%	133,921	115,497	18,424	86%	246,794	103,972	142,822	42%	26,339	20,427	5,912	78%	184,555	145,163	39,392	79%	705,348	415,519	289,829	59%			
Institutional Overheads	341,399	125,894	215,506	37%	499,106	315,853	183,253	63%	796,429	371,430	424,999	47%	406,669	157,194	249,475	39%	332,845	227,700	105,145	68%	2,376,448	1,198,071	1,178,377	50%			
Lead centre passthrough	-	-	-	0%	-	-	-	0%	-	-	-	0%	137,869	56,650	81,219	41%	145,043	64,108	80,935	44%	282,912	120,758	162,154	43%			
GRAND TOTAL	2,617,395	967,520	1,649,875	37%	3,826,479	1,568,118	2,258,361	41%	6,105,957	2,847,564	3,258,393	47%	2,895,242	1,272,224	1,623,019	44%	3,240,906	1,939,534	1,301,372	60%	18,685,979	8,594,959	10,091,020	46%			
SECTION C: FUND BALANCE																											
UNSPENT DISBURSEMENTS (USD)									6,935,041																		

Table 9: Cash flow report and financial projections (Pipeline and burn rate)

ORGANIZATION NAME:												
PROGRAM:	Feed the Future - Accelerated Value Chain Developm											
CUMULATIVE REPORTING PERIOD:	1-Oct-2015	To:	31-Dec-2016									
Budget Category	Period:	Period:	YEAR 1- October 2015 to September 2016									
	Original Total Budget Estimates	Amendment # 1 Obligated Amount	(E) Quarter 1 Actual Expenditure	(E) Quarter 2 Actual Expenditure	(E) Quarter 3 Actual Expenditure	(E) Quarter 4 Actual Expenditure	Year 2 Quarter 1 Actual Expenditure	Year 2 Quarter 2 Projections	(F) CUMULATIVE Expenditure	BUDGET BALANCE	% Spent	
	Oct 2015 - Sept 2018	Oct 2015 - Sept 2017	Oct 2015 - Dec 2015	Jan 2016 - March 2016	April 2016 - June 2016	July 2016 - Sept 2016	Oct 2016-Dec 2016	Jan 2017-March 2017	Oct 2015- Dec 2016			
Personnel Costs	\$ 6,462,683	\$ 4,268,553	\$ 188,228	\$ 384,262	\$ 493,011	\$ 639,776	\$ 527,826	\$ 687,085	\$ 2,207,297	\$ 2,061,256	52%	
Development Partners	\$ 7,582,511	\$ 4,088,784	\$ -	\$ 10,048	\$ 191,739	\$ 509,460	\$ 472,927	\$ 968,203	\$ 1,184,174	\$ 2,904,610	29%	
Supplies & Services	\$ 6,374,969	\$ 6,795,449	\$ 157,568	\$ 319,900	\$ 678,294	\$ 1,320,079	\$ 953,213	\$ 1,135,371	\$ 3,389,337	\$ 3,406,112	50%	
Equipment	\$ 504,696	\$ 168,485	\$ 289	\$ 71,874	\$ 651	\$ -	\$ 6,988	\$ 29,561	\$ 79,803	\$ 88,683	47%	
Operational Travel	\$ 949,413	\$ 705,348	\$ 17,337	\$ 58,645	\$ 128,882	\$ 110,271	\$ 87,649	\$ 96,610	\$ 415,519	\$ 289,829	59%	
Institutional Overheads	\$ 2,921,760	\$ 2,376,448	\$ 44,777	\$ 135,075	\$ 219,010	\$ 418,172	\$ 389,028	\$ 392,792	\$ 1,198,071	\$ 1,178,377	50%	
Lead centre passthrough	\$ 203,968	\$ 282,912	\$ 2,079	\$ 35,726	\$ 12,612	\$ 16,722	\$ 14,281	\$ 54,051	\$ 120,758	\$ 162,154	43%	
TOTAL COSTS	25,000,000	18,685,979	410,278	1,015,530	1,724,199	3,014,480	2,451,912	3,363,673	8,594,959	10,091,020	46%	

Figure 4 Obligations Vs Current and projected expenditure

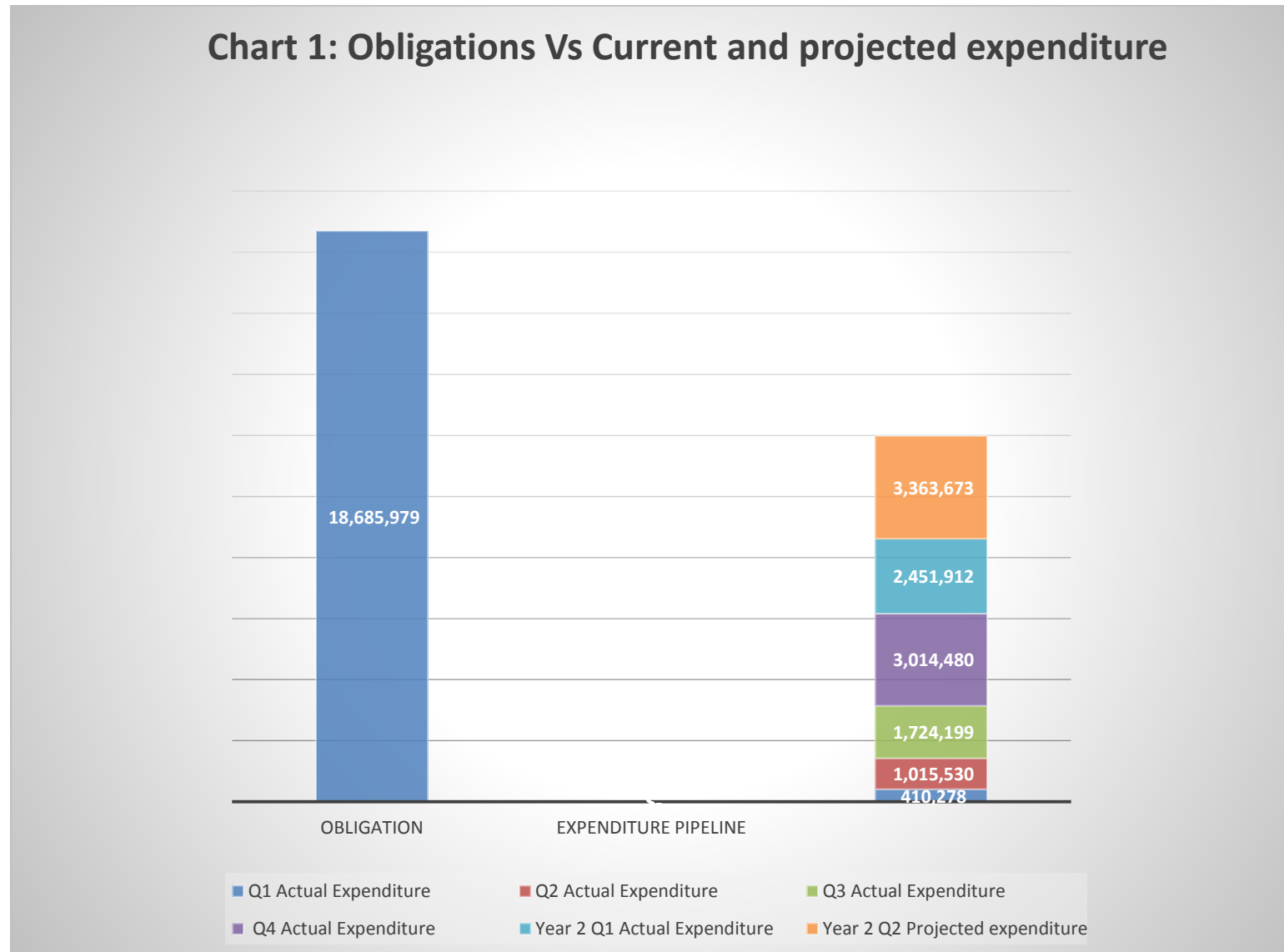


Table 10: Budget Vs Expenditure.

Obligation: USD 18,685,979

Cumulative Expenditure: USD 8,594,959

Obligation	1st Quarter Actual Expenditure	2nd Quarter Actual Expenditure	3rd Quarter Actual Expenditure	4th Quarter Actual Expenditure	Year 2 1st Quarter Actual Expenditure
<i>Total: 18,685,979</i>	410,278	1,015,530	1,724,199	3,014,480	2,451,912
Personnel Costs	188,228	384,262	493,011	639,776	527,826
Development Partners	0	10,048	191,739	509,460	472,927
Supplies & Services	157,568	319,900	678,294	1,320,079	953,213
Equipment	289	71,874	651	0	6,988
Operational Travel	17,337	58,645	128,882	110,271	87,649
Institutional Overheads	44,777	135,075	219,010	418,172	389,028
Lead centre passthrough	2,079	35,726	12,612	16,722	14,281

ANNEX 1. SUCCESS STORIES

1. From grass to glass, knowledge to upgrade: How Village- Based Dairy Advisors are transforming smallholder systems in Kenya

Just through feeding her cow on Brachiaria grass and proper maintenance, a smallholder farmer in western Kenya has improved her milk yield more than two-fold.

It's about 5:30 pm and Lilian Ochieng just heard her cows' loud moo — a sign that they want to be milked- Lilian confidently heads toward her cow pen.

Lilian, a smallholder in Siaya County in the western part of Kenya, puts down the bucket, guides one of her dairy cows to the milking pen and sits on a stool beside it. She washes her hands, then the cow's udder with warm disinfected water after which she dries the udder with a clean towel. She starts milking the cow as her last-born son watches on, maybe to learn a thing or two. “



Lilian Ochieng from Usaha village in Siaya County cleaning her cow's udder in preparation for milking (photo credit: FIPS/ Raymond Jumah)

This is the very cow that used to produce as low as five litres a day. Today I milk up to 13 litres a day,” she proudly says as she gently handles her cross- Guernsey dairy cow.

In 2014 when the cow calved, the farmer milked twice, at 6:30 am and 5:30 pm getting only 3 litres and 2 litres respectively. “Before I didn't routinely have my cow's health checked, I only invited the veterinarian when I had some extra money in my pocket or when I realized it had been long since it had been check,” she explains.

Back then, Lilian's cow would take 24 months between calving⁶, instead of the expected 12 months⁷ that a properly managed cow takes. “I never paid that much attention to my dairy cow, all I knew was that it needed to have a shed, feed on Napier grass and drink water once a day. There was no day I ever bought mineral salts for my dairy cows,” she says.

Many farmers in western Kenya commonly complain that they invest in dairy cows with huge expectations of increased milk productivity, only to milk far less than they expect. So what is Lilian's secret that has seen her milk production increase more than two-fold to 13 litres a day?

“The secret lies in proper feeding with improved fodder and supplements such as mineral salts as well as deworming, tick control and proper housing,” explains the smallholder farmer.

“I learnt this when I was trained as a Village-Based Dairy Advisor (VBDA), and now I am reaping the benefits!”

⁶ 15 months to come on heat plus 9 months of pregnancy

⁷ 3 months to come on heat plus 9 months of pregnancy

2. Leveraging peer learning among smallholders

The VBDA model is a private-sector led extension approach based on trained and commercially-oriented village dairy business advisors providing extension advice, while also acting as agents of input suppliers. This model not only maximizes on the power of knowledge sharing among farmers but also empowers farmers to intentionally reach out to others and extend their knowledge. Over 128 self-employed VBDA, including Lilian, have been recruited and trained in four counties of Siaya, Busia, Vihiga and Homabay.



This approach made accessible improved fodder varieties- such Brachiaria, disease-free Napier varieties, *Desmodium* and *Caliandra*- to the VBDA who also share the planting materials with other farmers.

“As a VBDA, I reach more than 100 farmers in a season. I provide them with planting material for fodder crops and offer spraying services to control the ticks.

FIPS VBDA Lilian Ochieng from Usaha village, Gem Sub County in Siaya County chopping the fodder grass brachiaria into smaller pieces to minimize waste

I also link the farmers with veterinary service providers so that they can also increase their milk production like me.”

VBDA have also empowered farmers to plant dual-purpose maize varieties which upon maturity provide both grain for the household and fodder for the cattle.

Out of the 13 litres of milk Lilian gets per day, she uses 4 litres to feed her calf, 3 litres for her home and sells the rest to farmers within the village.

Lilian records a total of KES 360 (USD 3.60) a day from selling the remaining 6 litres at KES 60 per litre. She saves most of the money for school fees and for treatment of the cattle.

Lilian keeps two dairy cows and a calf, on her 1-acre farm in Usaha village, Sidindi Ward in Siaya County. One of the dairy cows is incalf and not providing milk. She is hopeful that with her new knowledge her farm’s milk production will reach its full potential.

Farm Inputs Promotions Africa (FIPS-Africa) is an implementing partner in the dairy component of the Feed the Future Kenya Accelerated Value Chain Development Program (AVCD) whose goal is to increase milk production and productivity and to improve on household nutrition across 9 counties in Kenya.

3. Improving knowledge base for animal disease surveillance in pastoralist systems in Kenya

Among the numerous challenges that pastoralists face in their livestock production systems, animal diseases greatly affects not just their livestock productivity, but also their livelihoods as a whole. While pastoralists may have some knowledge on endemic livestock diseases that they have gained through historical exposure, in many circumstances their understanding on the causes of some of the diseases and methods of control are erroneous and detrimental



Livestock keepers admiring illustrations from a training manual (photo credit: ILRI)

. Huge losses from livestock diseases are incurred due to use of traditional methods of treatment and control, such as removal of lymph nodes, misuse of veterinary drugs and misconceptions about vaccination campaigns.

Due to nomadic nature of pastoralists systems, there is no consistent access to animal health service providers. Against this backdrop, the International Livestock Research Institute (ILRI) in collaboration with the county governments in the north eastern region of Kenya is working to equip pastoralists with skills on animal disease surveillance. Under the livestock component of the Feed the Future Kenya Accelerated Value Chain Development (AVCD) program, ILRI is implementing a three – tier train – a – trainer model to train veterinarians and community disease reporters on the symptoms of prevalent livestock diseases.



Ms. Paulina Natuko (standing) a Disease Surveillance Champion facilitating livestock disease recognition training for livestock producers in Napiekar, Turkana county (photo credit: ILRI)

The objective of this training model is to improve the knowledge base among the value chain actors on the diseases, their symptoms and how they are described at different levels. Using tailored manuals with pictures and illustrations for ease of recognition of these diseases, disease surveillance champions have been trained as trainers and trainers, who in turn have trained more than 1100 livestock keepers in Turkana County.

In addition to building the knowledge base, the three-tier train-a-trainer module will reinforce the existing a surveillance and disease control network involving the county veterinarians, community surveillance champions and the producers and market actors. This model has also facilitated interaction and linkages between community disease reporters, county government and livestock producers for improved disease surveillance and reporting. In addition, the model is building the capacity livestock producers to demand quality veterinary services.

4. No rain, no problem for sorghum farmers in Tharaka Nithi

Farmers in Tharaka Nithi constituency are expecting a bumper harvest of sorghum, millet, pigeon peas and green grams, despite less rainfall, as they planted drought-resistant crops.

This is after farmers received training from the Accelerated Value Chain Development Program, through The International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) to diversify from perennial crops such as maize to reduce hunger and poverty. ICRISAT breeding scientist Erick Manyasa said they have successfully trained farmers in Kitui, Makueni, Tharaka Nithi, Elgeyo Marakwet and Siaya.



ICRISAT breeding scientist Erick Manyasa and principal scientist Ganga Rao at a sorghum farm in Chiakariga, Tharaka constituency, where they have trained about 750 farmers to plant drought resistant crops. Photo credit: Dennis Deboned

Bumper harvest

"Farmers who have followed our advice, especially in Tharaka, are going to get a good harvest, as opposed to those who didn't," Manyasa said.

He urged farmers in Tharaka Nithi to plant traditional crops that do well in harsh climate, such as millet and sorghum. The scientist said residents should be encouraged to consume these crops in various forms including bread, noodles and cakes. Additionally, ICRISAT are working with the Kenya Agriculture and Livestock Research Organization to produce drought-resistant seeds. To ensure quality seed is available across the region.

"We have also trained farmers on good agronomics and farm management to ensure they get a good harvest, even if the rains fail," Manyasa said.

"Farmers who planted perennial crops such as maize did not get a good harvest due to poor rains that only lasted a month."

Better yields

In Chiakariga ward, which has 8,000 households and about 36,000 people, farmers planted 3,200 hectares of sorghum and expect to harvest 16 bags per hectare; millet 1,800 hectares, each to yield 10 bags; pigeon peas 1,600 hectares (each 5 bags), green grams 1,500 hectares (each three bags) and cow peas 250 hectares (each 5 bags).

Despite lower harvest than expected, farmers who planted maize on 1,800 hectares expect to harvest one bag per hectare, which is a low return compared to traditional high yield crops.

Food security

"Those who planted sorghum will benefit, as they will have more to sell than those who planted maize," Manyasa said.

"We want to emphasize that according to our research, farmers can use crops that withstand drought to enable food security."

Harun Mbogo, an agriculture extension officer, said 750 farmers have benefited from the program by receiving seeds of Gadam sorghum, green grams and finger millet. "They are very excited that the quality seeds have produced high yields and are climate-resilient," Mbogo said.

Market assistance

Due to poor research on traditional high value crops, farmers were unable to get good harvests. Mbogo added that they will link farmers to high demand sorghum markets.

The officer said traditional high-yield crops are of high nutrition compared to other crops. Sorghum trades at Sh50 per kilo, millet at Sh70, green grams at Sh80 and cow peas at Sh100, while maize retails at Sh15-Sh25 per kilo, meaning the farmers who planted traditional high yield crops are expecting to dance all the way to the bank due to good prices in the market.

"Traditional high-yield crops are making profits more than coffee and tea. I encourage farmers to try them out as they are even cheap to maintain," Mbogo emphasized.

"Many farmers in the county export pigeon peas to India, the global market is huge. Producing high-yield crops can lift a large number out of poverty," Ganga Rao, a principal scientist with ICRISAT, said. "We will introduce a new variety of ground nuts that can grow in 120 days. The variety can do well in the area."

With emerging climatic conditions drought tolerant crops with their high nutritious benefits and climate-resilient traits will be the smart food of the future, feeding farmers, the community and the continent.

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