USAID KENYA Accelerated Value Chain Development Program Potato Value Chain

FY 2019 YEAR I QUARTER 3 REPORT

I July-30 September 2019

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International Potato Center

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ACRONYMS

AVCD Accelerated Value Chain Development

BW Bacterial wilt

CG County government

CHV Community health volunteer

CIP International Potato Center

GAP Good agricultural practices

HH Household(s)

J2SR Journey to Self-Reliance

LFs Learning farms

MAs Monitoring agents

SRK Stokman Rozen Kenya

ToC Theory of change

ToT Training of trainers

WAO Ward agricultural officer

EXECUTIVE SUMMARY

Phase 2 of the potato component of the Accelerated Value Chain Development (AVCD) program, funded by the United States Agency for International Development, is replicating the phase I interventions in the two new counties of Bungoma and Taita Taveta. These are minor potato-producing counties in Kenya, hence general knowledge of good agricultural practices (GAP) for potato and accessing commercial seed is weak.

The theory of change (ToC) partly relies on recruiting more households (HH) to farm potato so that the benefits of the crop and its contribution to national food security can be realized, increasing the importance of potato in these counties. The interventions in Q3 continued from Q2 as they were season long, from April to August, addressing low productivity through an extensive farmer-training program, accompanied by seed distribution to raise awareness of the benefits of certified seed, and nutrition messaging.

To support the ToC, the potato value chain is promoting potato production and marketing in 19 nontraditional wards where potato is grown at a very low level or not at all due to the agro-ecology, and in 8 traditional potato-producing wards where potato is commonly grown due to conducive highland, high rainfall agro-ecology. Establishing learning farms (LFs) for training in GAP for potato are the focal points of agricultural and nutrition interactions with smallholder farmers, the target beneficiary.

Supporting seed system development continued, with the identification of a private seed business (Papa Taita) led by a philanthropist businessperson with a history of philanthropic business-oriented interventions in Taita Taveta county. Some 2,000 farmers were organized to supply milk to Brookside Dairy.

The county governments led planning and implementation of activities as part of the Journey to Self-Reliance (J2SR). Senior county officials participated in intervention advisory and planning meetings for agriculture and nutrition activities, 33 ward agricultural officer (WAOs) led training and monitoring of GAP training on LFs, and 27 sub-county nutritional technical county staff and 132 community health volunteer (CHVs) led agri-nutrition-messaging activities. The WAOs, nutritional departments, county staff, and CHVs know their roles in leading activity implementation.

Overall, the project has reached 7,786 beneficiaries of the targeted 8,000 for year I, among which 6,500 applied productivity-enhancing technologies, with 68% being women and II% youth. This was achieved through a four-module training in GAP for potato for 307 farmer groups led by WAOs on 82 LFs hosted by a progressive farmer or farmer group. Nutritional messaging accompanied GAP training at the LFs for the farmer groups.

As a result of applying GAP training with distributed seed, 33 farmers purchased 7 t of certified seed, which will be multiplied on-farm to 70 t—sufficient for 35 ha. Women representation exceeded the target of 40% largely as a result of their being more available and wanting to participate in the GAP training. The potato value chain is reaching youth through targeting youth-only farmer groups to participate in GAP training, and engaging youth as monitoring agents using the MEASURE tool to profile HH and collect continuous monitoring data.

With the overwhelming response in the counties for stronger support in potato, activities will proceed at a larger scale in season 2 than planned, thereby progressing into year 2 indicator targets.

I. BACKGROUND

Potato farming in Kenya supports approximately 800,000 largely smallholder farmers and another 2m people along the value chain as market agents, transporters, distributors, processors, vendors, retailers, and exporters. Despite low yields, the average gross margin of potato farming is \$720/ha, equivalent to an income of \$180/month compared with gross margin of \$550/ha, which is an income of \$92/month for maize. Doubling productivity would result in increasing gross margin to \$1,300–1,400/ha, which translates to monthly incomes of \$325–350/ha. With such an income, potato farmers can be food secure and out of poverty and graduate from subsistence to farming as business.

During the 3 years of phase I of the Accelerated Value Chain Development (AVCD) program, the potato value chain component of the program supported approximately 46,000 farming households (HH) with improved technologies to improve farm productivity and engage in market systems in Elgeyo-Marakwet, Meru, Nandi, and Uasin Gishu counties. The seed system initiated by transforming I50 progressive farmers into seed multiplier businesses, and three institutions are producing certified seed. To respond to demand for better coordinated marketing of potato, the project supported the formation and capacity building of five potato-marketing cooperatives to provide marketing, input, and production-support services to farmer members, in turn championing farming as a business culture among farmers.

Phase 2 of the AVCD potato component is replicating phase I interventions in the two new counties of Bungoma and Taita Taveta. These are not major potato-producing counties in Kenya, hence general knowledge of good agricultural practices (GAP) for potato and accessing commercial seed are weak. The theory of change (ToC) partly relies on recruiting more people to farm potatoes so that the benefits of this product and its contribution to national production can be realized, increasing the importance of potato in these counties.

To support the ToC, the potato value chain is promoting potato production and marketing in 17 nontraditional wards where potato is grown at a very low level or not at all due to the agro-ecology, and in 10 traditional potato-producing wards where potato is commonly grown due to conducive highland, high rainfall agro-ecology (Table 1, Fig. 1).

TABLE I. TRADITIONAL AND NONTRADITIONAL POTATO WARDS UNDER AVCD POTATO VALUE CHAIN

County	Sub-county	Ward	Traditional or Nontraditional Potato Agro-ecology
Taita	Mwatate	Chawia	Traditional
Taveta		Wusi/Kishamba	Nontraditional
		Bura	Nontraditional
	Voi	Ngolia/ Wogonyi	Nontraditional
		Sagalla	Nontraditional
	Taita	Mwanda/Mgange	Nontraditional
		Werugha	Traditional
		Wumigu/Kishushe	Traditional
		Wundanyi/Mbale	Traditional
Bungoma	Kabuchai	Mukuyuni	Nontraditional

¹ Ministry of Agriculture, Livestock and Fisheries. 2016. The National Potato Strategy, 2016–2020.

² ACDI-VOCA. 2012. Kenya Maize Development Programme II: Performance Evaluation.

County	Sub-county	Ward	Traditional or Nontraditional Potato Agro-ecology
		Chwele/Kabuchai	Nontraditional
	Mt. Elgon	Cheptais	Traditional
		Chepyuk	Traditional
		Chesikaki	Traditional
		Elgon	Traditional
		Kapkateny	Traditional
		Kaptama	Traditional
	Sirisia	Namwela	Nontraditional
	Tongaren	Tongaren	Nontraditional
		Milima	Nontraditional
		Naitiri/Kabuyefwe	Nontraditional
		Ndalu	Nontraditional
		Soysambu/Mitua	Nontraditional
	Webuye East	Mihuu	Nontraditional
		Ndivisi	Nontraditional
	Webuye	Misikhu	Nontraditional
	West	Bokoli	Nontraditional

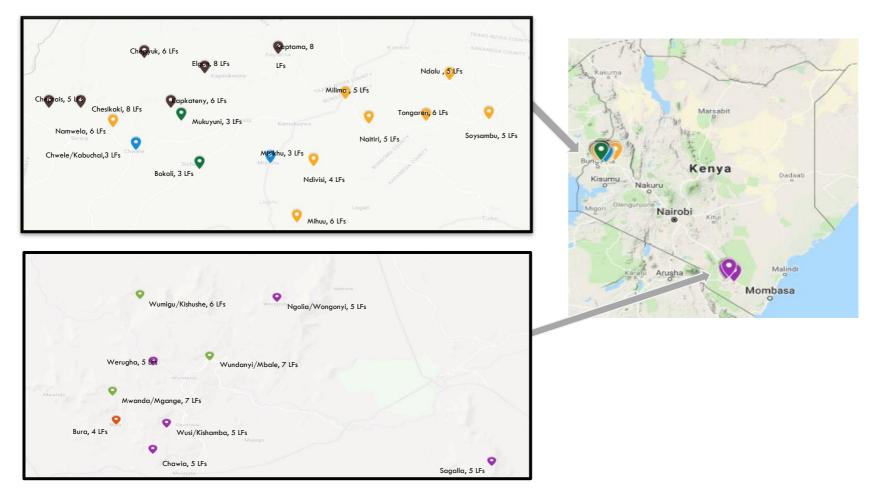


Figure I. Map of AVCD potato learning farms indicating number of farms per ward in Bungoma and Taita Taveta counties in year I.

2. KEY ACHIEVEMENTS (QUALITATIVE IMPACT)

2.1 PROGRESS BY OBJECTIVES

2.1.1 Objective I

Objective I focuses on agricultural and nutritional capacity development of rural farming HH. Through season-long training on learning farms (LFs) lead by the county, yields are targeted to increase by 50% for 8,000 smallholder farmers reached over year I as a result of applying productivity-enhancing technologies. County governments (CGs) will develop strategies to guide investment in the potato sector to complement AVCD interventions. Dietary diversity and infant and young child-feeding practices will improve following nutritional messaging.

The advanced draft of the Bungoma Potato County Strategy was reviewed with the county and National Potato Council of Kenya. A revised draft will be further reviewed.

Eighty-two LFs managed by a progressive farmer or farmer group were project activity focal points. Twenty-seven ward agricultural officers (WAOs) trained the farmers in farmer groups in a season-long GAP training over four modules: (I) site preparation and planting, (2) hilling, (3) disease and pest management, and (4) harvesting and storage. Numeracy was integrated into every session. Each of the 307 farmer groups received 38 kg of seed to apply the GAP training in their own collective plot. The 27 WAOs, with supervision from sub-county crops officers, pre-identified the farmer groups for their LFs, with targets of 40% women and 15% youth representation, with youth grouped into 17 youth-only farmer groups.

During harvesting at the LFs, trained farmers noticed the difference between good and poor hilling, recommended and low inputs, as well as varietal performance. They are committed to putting into practice the skills and knowledge gained at the LFs.

For season 2 covering the short rains of 2019 and starting in September/October, 33 WAOs (the same 27 previous ones and 6 new WAOs) from the same 27 wards have identified and registered 242 farmer groups. A total of 4,840 beneficiaries are projected and 60 LFs in preparation for the GAP training and agri-nutrition messaging (Table 2). The capacity of WAOs to implement GAP training and LFs was developed over season 1; they now have the capacity to lead this activity, along with good planning from CIP.

TABLE 2. POTATO VALUE CHAIN SEASON 2 LFS AND BENEFICIARIES

County	Sub-county	No. of Wards	No. of WAOs	Traditional/ Nontraditional Potato Ward	No. of LFs	No. of Farmer Groups	No. of Projected Beneficiaries
Taita Taveta	Mwatate	3	6	1/2	6	12	240
	Voi	2	4	0/2	4	8	160
	Taita	4	10	1/3	10	20	400
Bungoma	Kabuchai	2	2	0/2	3	14	280
	Mt. Elgon	6	9	6/0	17	86	1,720
	Sirisia	I	2	0/1	3	16	320
	Tongaren	5	6	0/5	П	52	1,040
	Webuye East	2	3	0/2	3	18	360
	Webuye West	2	3	0/2	3	16	320
Total		27	33	8/19	60	242	4,840

County staff involved in implementing AVCD field activities are impressed by the project interventions, which have proved that tuber yield in the traditional potato wards can double or even triple with the use of quality seed and applying GAP. According to the AVCD focal point coordinator for Bungoma county, farmers realized double yields at their seed plot of greater than 15 t/ha, up from the usual 7 t/ha. In nontraditional potato wards, the project has not only introduced potato but has also demonstrated the potential of crop diversification to include potatoes in such areas.

"The yields are quite encouraging so Tongaren sub-county, we can grow potato comfortably," remarked Rael Namai, WAO, Ndalu ward, Tongaren sub-county, after recording high tuber yields both at the LFs and the group plots. Tongaren is a nontraditional potato-growing sub-county (Fig. 2).



Figure 2. Posts from the AVCD Potato WhatsApp group. Left, sorting and grading of harvested potatoes at an LF in Mt Elgon Ward, Mt Elgon sub-county. Right, an LF in Machakha village, Soysambu/Mitua Ward, Tongaren sub-county, Bungoma county.

In Taita Taveta county, the project has had to reintroduce potato as most potato farmers abandoned the crop due to uneconomical yields as a result of recycling seed, which led to high incidence of disease, particularly bacterial wilt (BW). Access to quality seed, combined with comprehensive training, has revamped the crop in the county. The county appreciates the AVCD project as it has enabled extension officers to meet frequently with farmers. This was not possible before the project started.

Farmer groups used the seed plot technique to further multiply the certified seed distributed to the groups at the beginning of season I (long rains 2019) to apply the GAP training. Of the 307 farmer groups that received certified seed and GAP training, 292 were able to produce good quality seed which they will further multiply a second round during the short rains (project season I period). These farmers will have the choice of selling this harvest for fresh markets or keeping as seed for the following season if no disease symptoms are observed. The project will help WAOs conduct in-field technical backstopping of the seed crops for quality control.

The remaining 15 farmer groups were advised not to use the seed they harvested because BW was observed at their group plots. This is an important precaution to prevent BW from spreading further to other farms, demonstrating to group members that only good quality seed tubers should be used. This was also a wake-up call to the county on widely spread BW in the county, and thus the need for proper management if potato productivity has to be improved in the county.

The LFs were the site of nutrition messaging for the 307 farmer groups, having delivered seven sessions of nutrition messaging using AVCD-developed nutrition dialogue cards for 3,528 adults, with 375 children. Out of the farmers who turned up for nutrition training, 1,270 (36%) were new beneficiaries, whereas 2,258 (64%) had received training on GAP.

In this agri-nutrition-integrated value chain intervention, nutrition messaging by community health volunteers (CHVs) has been completed. These CHVs were trained by 27 sub-county nutritional technical county staff, trained in Q2 in training of trainers (ToTs) led by an AVCD nutritionist. The training covered the seven sessions of the AVCD nutrition dialogue cards. Each of the 132 (105 in Bungoma, 27 in Taita Taveta) trained CHVs was attached to two–four farmer groups who had been trained in GAP at LFs (Table 3).

TABLE 3. POTATO-FARMING HH REACHED WITH NUTRITION MESSAGES IN THE POTTAO VALUE CHAIN INTEGRATED AGRI-NUTRITION INTERVENTION

	Adults R	eached		Children under 23 Months			
County Male Female Total			Male	Female	Total		
Bungoma	837	1,904	2,741	166	198	364	
Taita Taveta	216	571	787	7	4	П	
Total	1,053	2,475	3,528	173	202	375	

Unfortunately, the majority of nutrition-messaging beneficiaries attended only one of the seven sessions (Table 4). As a result, the number of children under 23 months reached was low, as only those who attended two or more sessions contributed to the children reached. The nutrition-messaging approach will be refined for season 2 to ensure better attendance at all sessions.

TABLE 4. NUTRITION MESSAGING SESSIONS ATTENDED BY POTATO FARMING HH

No. of Sessions	No. of Beneficiaries				
	Bungoma	Taita Taveta			
I	1,661	743			
2	475	41			
3	268	3			
4	129				
5	95				
6	61				
7	52				
Total	2,741	787			

In season 2 of agri-nutrition messaging, 90 of the 132 trained CHVs will conduct nutrition messaging, targeting 4,000 and 840 adults in Bungoma and Taita counties, respectively.

2.1.2 Objective 2

Objective 2 focuses on seed system development by supporting two private sector seed companies to produce 400 t of seed annually. To increase access to good quality seed, especially by women and youth, farmer producer organizations will coordinate collective purchase of inputs to support use of certified seed, creating markets for the seed companies and resulting in increased yields of 25%.

The access to clean land in Taita Taveta county is highly limited. This makes it quite trick to produce seed following the current approach of several successive seasons of bulking seed. The apical cuttings technology is more compatible when land suitable for seed bulking is limited. Seed produced from apical cuttings is profitable after two seasons of multiplication, starting with 1,000 cuttings on 110

m². This requires about 0.25 ha for the second round of multiplication and will produce 4.5–6.5 t of seed potato. Farmers will produce 45–65 t of seed after a further season of saving seed on-farm, enough for 20–35 ha. This compares with the current practice starting from minitubers, which needs three seasons of bulking and eight times the area to be profitable.

A private sector seed company, Papa Taita, has been identified in Taita Taveta to invest in seed production for the county, producing cuttings in a screenhouse and seed tubers in the field. The potato value chain will support these investments by sharing costs to establish the nursery and starter material for cuttings and seed production, along with extensive capacity and market development.

Staff from Papa Taita went on a study tour to Meru county to observe how screenhouses for cuttings are constructed and the systems around cuttings. The potato value chain focal point for Taita Taveta and the Wundanyi WAO also participated in the study tour to see how cuttings are used in the field. This will be followed up by a technical training to produce cuttings, led by Stokman Rozen Kenya (SRK), a large-scale private sector producer of cuttings whose capacity was developed by CIP, one of the success stories from phase I of AVCD.

Papa Taita will use the cuttings for internal production of seed in the field and sell cuttings directly to farmers. To build the farmer market, AVCD potato value chain will train farmers to produce seed on-farm from cuttings, and provide a sample of cuttings to apply the training at home. This will involve farmer groups from the previous season 1 and upcoming season 2 trainings.

The farmers from season I all used certified seed to apply the GAP they acquired during the trainings in their individual and group plots. After observing the benefits of certified seed, combined with GAP, 33 season I farmers purchased 7 t of seed—enough for 0.1 ha/farmer under certified seed to further multiply as learned at the GAP training (Table 5). After one season of multiplication, the seed plot should produce seed for I ha for the following season.

TABLE 5. CERTIFIED SEED POTATO PURCHASES BY FARMERS AFTER TRAINING IN GAP AND POTATO VARIETIES

County	No. of Farmers	Unica (t)	Sherekea (t)	Shangi (t)	Dutch Robjyn (t)	Total
Bungoma	18	2	I	0	0	4
Taita Taveta	15	0	I	2	I	3
Total	33	2	2	2	I	7

2.1.3 Objective 3

Objective 3 focuses on empowering potato farmer producer organizations to engage in marketing and value addition through organizational and business capacity development in order to provide necessary services to support farming as a business among member farmers

The interim committee of 12 members was formed for the Bungoma Potato Farmers' Cooperative Society Ltd. The society's officials were taken through a mini-election and elected the executive committee, which comprises the interim chairman, interim secretary, and the interim treasurer. The county cooperative department trained the cooperative on formulating cooperative society bylaws and other registration requirements. By the end of the training, the interim committee had developed a draft of bylaws, which are under revision by the cooperative development office.

In Taita Taveta marketing committees have been identified in the three sub-counties: Mwatate (8 members), Taita (13 members), and Voi (6 members). The 27 members formed an umbrella marketing group composed of 11 of the members covering the three sub-counties.

2.2 LESSONS LEARNED

During season I, agri-nutrition messaging by trained CHVs started when GAP training by WAOs was ongoing. Consequently, GAP training ended earlier than agri-nutrition messaging. But this led to poor attendance for the session done after GAP training had ended as CHVs do not have the capacity to call for a farmers' meeting. For season 2, agri-nutrition messaging will be aligned with GAP training conducted by WAOs at the LFs, and WAOs will thereby provide the forum for the CHVs. CHVs will be matched with the respective WAOs and assigned to specific farmer groups.

During season I, there was a low ratio of number of total beneficiaries reached to the number of children under 23 months who were reached through the primary care takers. To improve the ratio achieved during season I (8:1), the number of sessions will be reduced from the current seven sessions to four or five.

A BW management plan is needed to be integrated into all activities, and will be integrated into the year 2 work plan. In both counties BW appeared in both the LFs and the group plots, even though certified seed had been used and farm hygiene and sanitation were practiced during the cropping season. This underscores the presence of BW pathogen in the soil in these regions. BW survives in the soil for 5–10 years and is transmitted by seed, making management plans essential for sustainable potato production.

3. ACTIVITY PROGRESS (QUANTITATIVE IMPACT)

Overall, the project has reached 7,786 beneficiaries (68% women and 11% youth). With the upcoming season activities, this number is projected to surpass year 1 targets (Table 6).

TABLE 6. SUMMARY OF TARGETS VS. ACHIEVEMENTS FOR AVCD INDICATORS THE POTATO VALUE CHAIN IS REPORTING AGAINST

Indicator	Q2 ^a Targets	Q2 Achieved	Q3 Targets	Q3 Achieved	Q3 Achieved	Project Life Target	Project Life Achieved	Project Life Achieved	Reasons for Deviation
EG.3-2: Number of individuals participating in USG food security programs [IM-level]	-	5,588	4,000	2,198	55%	20,000	7,786	39%	These two indicators are on track overall, as we have reached just greater than 1/3 of project beneficiaries after
EG.3.2-24 Number of individuals in the agriculture system who have applied improved management practices or technologies with USG assistance [IM-level]	-	5,588	4,000	909	23%	20,000	6,497	32%	 one of three seasons of interventions. 60% of beneficiaries are targeted in year 2, thus proportionately are ahead of reaching targets.
EG.3.2-26 Value of annual sales of farms and firms receiving USG assistance [IM-level]	N/A ^b	N/A	N/A	N/A	N/A	4,000,000	N/A	N/A	Annually monitored indicators are reported after survey. This indicator is not continuously monitored.
EG.3-10,-11,-12 Yield of targeted agricultural commodities among program participants with USG assistance [IM-level]	N/A	N/A	N/A	17.7	98%	18	N/A	N/A	 The data are from LFs managed by farmer groups and led by WAO. Actual farmer data will be reported after survey as this indicator is annually monitored.
EG.3.2-25 Number of hectares under improved management practices or technologies with USG assistance [IM-level]	N/A	N/A	N/A	N/A	N/A	3,000	N/A	N/A	 10 ha was planted to potato in season I under direct project interventions from 82 LFs and seed distributed to 307 farmer groups. The data are from continuously monitored activities and represent sample only: they are not extrapolated to total beneficiaries. The official data will be reported during annual monitoring, which projects results to total beneficiaries.
EG.3.3-10 Percentage of female participants of USG nutritionsensitive agriculture activities consuming a diet of minimum diversity [IM-level]	N/A	N/A	N/A	N/A	N/A	80%	N/A	N/A	Annually monitored indicators are reported after survey as this indicator is not continuously monitored.
HL.9-2 Number of children under age 2 (0–23 months) reached with community-level	0	0	400	375	94%	2,000	375	19%	This is on target for year I, considering that 80% of nutrition targets are expected in season 2 and year 2 of interventions.

Indicator	Q2 ^a Targets	Q2 Achieved	Q3 Targets	Q3 Achieved	Q3 Achieved	Project Life Target	Project Life Achieved	Project Life Achieved	Reasons for Deviation
nutrition interventions through USG-supported programs [IM-level]									
GNDR-2 Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources [IM-level]	40%	66%	40%	68%	170%	40%	68%	170%	We exceeded this target as more women were available and more organized to participate in activities.
YOUTH-3 Percentage of participants in USG-assisted programs designed to increase access to productive economic resources who are youth (15-29) [IM-level]	15%	8%	15%	11%	73%	15%	11%	73%	The target is 15%. We thus far have 11% of youth or reached the target at 73%.
CBLD-9 Percent of USG- assisted organizations with improved performance [IM- level]	N/A	N/A	N/A	N/A	N/A	90%	N/A	N/A	The organizations have been formed, but their capacity will be developed and targets will be reported in Q4.

^a There no targets nor beneficiaries in Q1

^b N/A refers to annually monitored indicator that will be reported after year 1 interventions.

4. PERFORMANCE MONITORING

With the assistance of WAOs, 16 youth-monitoring agents (MAs) aged under 30 years were identified and trained on MEASURE application for data collection. The MAs were selected from the LFs within the two counties to support HH profiling and data collection for continuous monitoring. The number of MAs in each county was based on the number of groups and LFs within the county, 12 from Bungoma and 4 from Taita Taveta. The trained MAs were taken through a 2-day training, including a practicum to use the platform in a field setting during an activity. They were also expected to take the lead in data collection on all activities taking place at the LFs. The MAs distributed unique identifier cards to 5,889 beneficiaries, which is 89% of all total reached beneficiaries.

Profiling of the HH to collect basic data (e.g., head of HH and family members' names, ages, and sex) was a major activity undertaken and included HH-level data such as number of HH members, total land size under potato, and a HH's experience in potato production. This was done in order to ease documentation of more than I beneficiary/HH and to facilitate the issuance of one card/HH. Now that the application is operational, we expect that all the data collected from various activities will be conducted using the MEASURE application/platform. Since the field MAs are based in the field within a rural setting, they were challenged in the use of MEASURE application. The main obstacles were limited network coverage and a stable internet for submitting the collected data and updating the application. To ensure seamless data collection, field MAs are supported with regular technical backstopping and field visits as well as one-on-one training as needed.

5. CONSTRAINTS AND OPPORTUNITIES

As stated above, BW in both counties is a challenge to potato production. A targeted BW management plan will be implemented at all LFs.

We originally projected that it would be easier to identify a seed business for Bungoma than Taita Taveta, which has limited availability of land. Yet the philanthropist seed business Papa Taita is investing in seed production in this county. The business is led by a philanthropist/business person with a history of philanthropic business-oriented interventions in the county: Papa Taita has organized 2,000 farmers to supply milk to Brookside Dairy. The apical cuttings technology provides an option for seed in Taita Taveta (Apical rooted cuttings - Technology brief).

Identifying a seed business qualified to serve Bungoma county is ongoing. The county faces similar land challenges as that of Taita Taveta, namely insufficient expanses of clean land for seed production. Again as in Taita Taveta, the cuttings technology is an opportunity for Bungoma county.

The high yields of 15.6–19 t/ha of potato in nontraditional agro-ecologies for potato in both counties create opportunities to expand production of potato (Table 7).

TABLE 7. YIELDS OF POTATO VARIETIES PLANTED AT LFS IN SEASON I

County	Wards	No. of Traditional/ Nontraditional Potato Wards	Dutch Robjyn (t)	Shangi (t)	Sherekea (t)	Unica (t)
Taita	Bura	NT ^a	7.1	15.0	12.5	19.8 ^b
Taveta	Mwanda/Mghange	NT	20.5	15.2	19.6	22.0
	Sagalla	NT	5.8	5.3	5.3	4.8
	Wongonyi/Ngolia	NT	6.9	8.2	5.5	13.4

County	Wards	No. of Traditional/ Nontraditional Potato Wards	Dutch Robjyn (t)	Shangi (t)	Sherekea (t)	Unica (t)
	Wusi/Kishamba	NT	13.0	17.5	16.9	22.1
	Chawia	T c	10.8	12.6	15.6	15.9
	Werugha	Т	13.4	17.5	15.3	15.0
	Wumingu Kishushe	Т	11.9	9.0	7.4	7.5
	Wundanyi-Mbale	Т	7.9	6.9	9.4	21.1
Bungoma	Bokoli	NT	10.5	4.9	6.1	2.2
	Mihuu	NT	9.8	14.5	14.6	21.1
	Milima	NT	15.3	28.8	22.0	23.9
	Misikhu	NT	16.4	14.7	-	18.1
	Namwela	NT	26.0	16.3	23.0	20.8
	Soysambu/Mutua	NT	17.0	21.4	41.2	41.6
	Tongaren	NT	56.9	52.8	37.7	34.1
	Elgon	Т	21.6	19.5	32.1	35.8
	Kapkateny	Т	11.4	16.4	26.7	28.8
Overall r	nean		15.7	16.5	18.3	20.4
St dev			11.6	10.9	11.0	10.3
NT mear	1		15.6	16.3	16.8	19.0
St dev			12.3	11.5	10.9	9.9
T mean			17.6	18.1	20.9	22.0
St dev			12.8	12.2	11.6	11.1

^a NT = Nontraditional potato agro-ecology.

6. PROGRESS ON GENDER STRATEGY: YOUTH AND PRIVATE SECTOR

Women represented 68% of the beneficiaries above the target of 40% largely as a result of being more available and wanting to participate in the GAP training and applying the training in farmer groups.

There has been progress in Q3 regarding youth participation in the potato value chain, as indicated by the achieved percentage of youth at 11% (11% in Bungoma county, 12% in Taita Taveta county) compared with the baseline of 3%. Of the 307 farmer groups trained in GAP on LFs and applying GAP in their own farmer groups, 17 of the groups were youth-only.

Field MAs were nominated from various LFs to take a leading role in data collection. These field MAs were within the youthful age group (15–29 years) and were nominated from existing youth groups. The 16 MAs were trained on the use of MEASURE mobile application used to collect data.

The private sector seed business Papa Taita has been identified and support begun for seed potato production in Taita Taveta county. The farmer producer organizations (marketing groups in Taita Taveta and a cooperative in Bungoma county) have formed and capacity development will follow. Some of the marketing groups will be youth-only as done for youth-only farmer groups for the GAP training on LFs. Additionally, women representation on marketing committees and within the cooperative will be determined.

^b Shading highlights a yield of 20 t/ha and greater in nontraditional potato agro-ecologies.

cT = Traditional potato agro-ecology.

7. PROGRESS ON ENVIRONMENTAL MITIGATION AND MONITORING

The 'Unica' variety planted on the LFs achieved yields of 20 t/ha and greater in 8 of the 12 nontraditional potato wards, where the agro-ecology is marginal with minimal rainfall over the season (rainfall data will be provided in the annual report). This was particularly the case for Taita Taveta in the wards where potato was introduced where rainfall was extremely limited over season I; see Table 7 (above) and Figure 3. This helps to diversify potato in nontraditional agro-ecologies through better informed variety selection and target varieties for specific agro-ecologies.



Figure 3. Post from the AVCD Potato WhatsApp group, showing a good field crop of 'Unica' (left) and high number of tubers (> 15) per plant (right).

On the other hand, Bungoma county received more rainfall, which resulted in increased disease pressure from late blight. Traditionally, farmers in both counties would plant the dominant variety 'Shangi', but the training exposed them to more resilient varieties. Most farmers in Bungoma county purchased 'Sherekea' variety after noticing at the LFs that it tolerates late blight. In Taita Taveta county, however, the farmers predominately ordered, 'Unica', which has heat- and water stress-tolerance characteristics that make it more suitable to that county's growing conditions.

The difference in the type of varieties ordered by the farmers was an informed decision, indicating that they were keen on performance of the varieties demonstrated at the LFs.

8. PROGRESS ON LINKS WITH GOVERNMENT OF KENYA AGENCIES

In phase 2 of the AVCD potato component, CGs are the principal partners, with a minor role for the National Potato Council of Kenya to support marketing forums and other market support activities. This demonstrates the key roles that the CGs and a national institution play in designing, implementing, and monitoring interventions. This will foster ownership of the interventions and contribute to ensuring sustainability, as the county can further assess the interventions and note where complementary support is needed.

To support counties in the Journey to Self-Reliance (J2SR), the CGs at all levels are involved in activities from planning to implementation, including monitoring activities (Table 8). Regular planning

and implementation meetings are conducted, usually one meeting for senior county officials to brief and assess project activities. These meetings are also critical to gather information on the counties' investments to complement AVCD interventions. The capacity is now on the ground for the counties at all levels, including 33 WAOs, 27 sub-county nutritional technical county staff, and 132 CHVs to know their roles and lead activity implementation, with planning and support of CIP.

The counties are largely involved in developing cooperative in Bungoma and marketing groups in Taita Taveta. Representatives from the department of cooperatives and WAOs in Bungoma are leading *barazas* (meeting places) to support cooperative membership and provide capacity development to develop bylaws and submit application for cooperative registration.

There is much interest from other potato-producing counties for support to develop the potato value chain. Counties are recognizing the work of AVCD and other interventions led by CIP and are calling for CIP's support. Governors from Bomet and Kiambu counties have visited CIP in Nairobi, with Nakuru county further asking to partners with CIP. The private sector also is requesting CIP's support to develop seed businesses. There is much potential to fully develop seed systems and beyond in the value chain in these counties.

9. J2SR, SUSTAINABILITY, AND EXIT STRATEGY

Project activities are being implemented in close collaboration with national institutions, particularly CG agriculture, cooperative extension, and nutrition and dietetics departments. Close engagement with CGs helps to position potato-growing among the objectives of these departments at county level. Co-investment by CGs under their agricultural support work plans and budgets will be encouraged and monitored by the project.

Engaging private sector institutions to operate along the value chain is another key sustainability factor. A private sector seed business has been identified to undertake the challenge of producing seed in Taita Taveta county—something that initially was not thought would happen. This is quite an accomplishment toward sustainable seed supply in the county. Development of farmer organizations to support marketing will help farmers to equitably engage in the value chain.

Extensive capacity building is central to all interventions to ensure ongoing capacity to continue activities at all levels in the system: implementers, farmers, and businesses (Table 8). And although developing capacity of large numbers of farmers to improve productivity is a core goal of the project, developing capacity of implementers who drive the project will contribute to continued support to the system and scaling out interventions.

TABLE 8. PROGRESS TOWARD J2SR FOR THE POTATO VALUE CHAIN

Start Now	New Approach	AVCDP Value Chain Component action and outputs	
I. Inclusive development	Partners (public, private) taking the lead in implementation	 CGs lead in all activities related to improving productivity of potato farming by supervising LFs managed by farmers and conducting all farmer training. CGs leading implementation of all nutrition-messaging activities. ToTs trained by AVCD are training CHVs who undertake nutrition-messaging activities under supervision of Ministry of Health in the counties. Implementation model consists of initial meetings with county senior officials to review intervention, ToTs (usually county, sub-county, and ward staff), then step down training of farmers and CHVs Output: CGs lead implementation and monitoring interventions. CIP provides support for review and training meetings and technical backstopping to ensure capacity development within all levels of CGs to continue and sustain project interventions. 	 Senior county officials participate in intervention advisory and planning meeting for agriculture and nutrition activities. 33 WAOs lead training and monitoring of GAP training on LFs. 27 sub-county nutritional technical county staff and 132 CHVs lead agri-nutrition-messaging activities. The WAOs, nutritional departments, county staff, and CHVs know their roles in leading activity implementation.
	SMART partnerships with public, private, and farmer institutions	 CGs participate in setting targets, identifying beneficiaries, and collecting all monitoring data. CGs will be trained to use MEASURE tool for monitoring and be equipped with tablets. Private sector provides cost, investment, production, and sales data. Farmer institutions provide membership, investment, production, and sales data. Outputs: Clear targets and deliverables/reporting from CGs to track progress by responding to specific indicators. Indicator data to track progress of interventions led by partners, and private sector and farmer institution involvement and contribution in value chain. 	33 WAOs participate in targets setting based on environment and experience, then pre-identify beneficiaries and group into farmer groups 16 youth identified by WAOs conduct all continuous monitoring and household profiling activities using MEASURE. These 16 monitoring agents were trained on the use of MEASURE mobile application used in data collection by the project Targets set in cooperation for seasons 1 and 2
	Support platforms that give a voice to the poor pastoralists and smallholder farmers	 CG in Bungoma takes lead in supporting formation of potato cooperative society. CG will provide training in good governance and AVCD support training in cooperative management, business skills development, and preparing business plans. Following to be implemented in Taita Taveta county: Outputs: Cooperative developed at county level with sub-county chapters. Cooperative developed cooperative management and business plan. Farmer institutions supporting farmers' access to input and output markets. Farmer institutions fully engaged in value chain growth and development, and supporting smallholder farmers to improve productivity and access to markets 	 Representatives from the department of cooperatives and WAOs in Bungoma lead barazas to support cooperative membership and provide capacity development to develop bylaws and submit application for cooperative registration. County participated in events in Taita Taveta to select marketing committees in the three sub-counties: Mwatate (8 members), Taita (13 members, and Voi (6 members). The 27 members formed an umbrella marketing group of 11 of the members covering the 3 sub-counties.
2. Leveraging all US funds through partnership as norm	Lobbying private sector investments	 Provide technical backstopping, support marketing/awareness of private sector commodities/services, and initial cost-sharing of capital investments to support private sector investment. In exchange, private sector provides investment, cost, production, and sales data to 	A private-sector seed company, Papa Taita, has been identified in Taita Taveta county to invest in seed production for the county, producing cuttings in a screenhouse and seed tubers in the field. The potato

Start Now	New Approach	AVCDP Value Chain Component action and outputs		
		track progress Output: Private sector investing and profiting from investments in potato value chain, namely seed potato production.	value chain will support these investments by sharing costs to establish the nursery and starter material for cuttings and seed production, along with extensive capacity and market development. The private sector will share all cost, production and sales data with CIP	
	Lobbying public sector funding	 Support implementation of county development strategies. Support CGs to comply with newly set national potato regulations, which require county to invest. Track investments by CGs to complement AVCD activities, and their contributions to activities. Lobby CGs to complement/sustain AVCD interventions through the Kenya Climate Smart Agriculture project Outputs: CGs autonomously investing in interventions to sustain and complement AVCD interventions. CGs implementing potato value chain strategies through funding they acquired. 	 Supporting Bungoma county in implementing the recent National Potato Regulations released earlier in 2019 Identifying counties where potato is a priority crop for the Kenya Climate Smart Agriculture, NARIP, and ASDSP programs. County investments for potato will be documented in year I annual report. 	
	Lobbying other dev. Partners investment	 Leverage from other interventions to holistically support AVCD (e.g., seed business development is supported through other projects to provide starter material for seed bulking with seed businesses supported by AVCD). In Bungoma closely collaborating with GIZ for further outreach of project activities Outputs: Surpassing AVCD targets Reaching smallholder farmers beyond AVCD target regions 	 CIP is leveraging from investments support from RTB project to develop apical cuttings technology in Kenya. SRK provides technical training to produce cuttings. SRK is a large-scale private sector producer of cuttings whose capacity was developed by CIP during AVCD phase 1. 	
B. Focus \$\$ on local development organization	Establishing and supporting famer producers' organizations in each value chain component, including umbrella cooperative societies	 Currently supporting development of cooperative society in Bungoma county, activities led by department of cooperatives within the county. County in process of electing an interim committee to develop cooperative charter and bylaws. Support training in cooperative management and business plans. Outputs—Farmer institutions: Develop cooperative management business plan to guide growth and development. Are fully engaged in value chain growth and development and supporting smallholder farmers to improve productivity and access to markets. Support farmers' access to input and output markets. Lobby for support outside of AVCD 	 Representatives from the department of cooperatives and WAOs in Bungoma lead barazas to support cooperative membership and provide capacity development to develop bylaws and submit application for cooperative registration. County participated in events in Taita Taveta to select marketing committees in the three sub-counties: Mwatate (8 members), Taita (13 members), and Voi (6 members). The 27 members formed an umbrella marketing group of 11 of the members covering the three sub-counties. 	
	Building capacity in government institutions to ensure effective and sustainable service delivery	 Building capacity of CGs in potato production enhancing technologies to enable CGs to lead interventions on the ground. AVCD supports ToTs to enable CGs to take lead on implementing activities through 	Capacity of agriculture, nutrition, and cooperative departments in the counties is being developed to plan, implement, and monitor activities: technical and indicator monitoring.	

Start Now	New Approach	AVCDP Value Chain Component action and outputs		
		 Support CGs to train farmer institutions in cooperative management and good governance. AVCD works alongside CGs as they implement activities to ensure sound delivery of capacity development objectives. Output: Capacity development of CG staff at all levels to enable them to scale out activities without technical support from AVCD. 	 33 WAOs lead training and monitoring of GAP training on LFs. WAO capacity in potato production improved by CIP through ToTs and monitoring WAOs in the field. The potato value chain focal point for Taita Taveta and the Wundanyi WAO also participated in the Meru study tour to see how cuttings are used in the field. 27 sub-county nutritional technical county staff and 132 CHVs lead agri-nutrition-messaging activities. WAOs, nutritional departments, county staff, & CHVs know their roles in leading activity implementation. 	
	Building capacity in local private sector organizations, including small and medium-size businesses	 Provide technical backstopping to private sector in seed production. Support training in cooperative management and business plans. Outputs: Farmer institutions develop cooperative management business plan to guide growth and development. Increase production of certified seed. 	 SRK provides technical training to produce cuttings to Papa Taita seed business developing in Taita Taveta. Staff from Papa Taita went on a study tour to Meru county to observe how screenhouses for cuttings are constructed and the systems around cuttings. These screenhouses were initially developed in AVCD phase I, and also supported by the RTB project AVCD is leveraging from. 	
4. Co-creation of all new designs with Kenyan actors that have legitimate community/ business links	Building capacity of local institutions and smallholders to enable them to participate effectively in co-creation of new designs	 Support training in cooperative management and good governance. Training in business skills and developing business plans. Outputs—Farmer institutions: Develop business plans to guide growth and development. Are fully engaged in value chain growth and development and support smallholder farmers to improve productivity and access to markets. Support farmers' access to input and output markets. Lobby for support outside of AVCD. 	Department of cooperatives in Bungoma provides capacity development to develop bylaws and submit application for cooperative registration.	
	Strengthening linkages between communities and business to ensure legitimate and genuine involvement during design	Linking farmer institutions to markets and supporting platforms for networking to raise awareness of services and products farmer institutions offer, and market requirements		
	Ensure involvement of Program Advisory Committee comprises of Kenyans from government and private sector	• N/A		
5. Doing	Binding and enforceable	N/A as CGs are primary partners in AVCD potato value chain taking the lead on	Regular meetings with all levels of CGs: county	

Start Now	New Approach	AVCDP Value Chain Component action and outputs	
business differently	agreements with partners to ensure commitments are honored	implementing most activities	executives, sub county staff, WAOs, nutrition officers, and CHVs, and with farmers and minutes prepared with follow-up actions.
	SMART partnerships with county executives, private sector players	 CGs are main partner for activities and during review meetings. CGs commit to delivering the agreed activities and targets and monitoring data. 	 Regular meetings with all levels of CGs: county executives, sub-county staff, WAOs, nutrition officers, and CHVs and with farmers and minutes prepared with follow-up actions. WAOs, nutritional departments, county staff, & CHVs know their roles in leading activity implementation and targets for their activities.
	Initiate for half-year meetings with partners (county executives and private sector partners)	 In place Outputs Identify intervention designs that are delivering on project goals. Modifying interventions to be better enable them to deliver on project goals. 	 Hold meetings with county executives before each season of interventions to update work plans and results from previous activities, resulting in 2–3 meetings annually.
6. Leading pivot to J2SR and changing our work	Review project components for J2SR by July 2019	Will comply	Not necessary, already compliant to deliver on J2SR objectives
	Drop components/ interventions that are not in line with J2SR by January 2020	Will comply	All components of potato value chain interventions contribute to the J2SR and are continuing as planned
	Include/beef up interventions that are in line with J2SR by September 2019	Will comply	
7. Self-learning of new skills and abilities for J2SR	Establish Learning Agenda that incorporate all stakeholders	 Capacity development of all implementing and beneficiary partners across all activities to enable them to continue the activity without technical support from AVCD. Support CGs and stakeholders to comply with national potato regulations. 	Capacity building at all levels is embedded in all activities.
	Proactively pursue learning opportunities and inculcate a culture of openness to the learning for the organizations		 Targeted/specific diversification of varieties in differing agro-ecologies for different needs—consumption, marketing. Integrate apical cuttings into seed and farming systems. Unconventional private sector partnerships/ development/leveraging private sector development—social enterprise (as in Papa Taita example), seek to identify further such private sector.

10. WORK PLAN FOR Q4

Activities in Q4 for the potato component will concentrate on group registration, distribution of certified seed to registered groups, continued establishment of the LFs and training sessions for GAPs, and agri-nutrition messaging. Sixty LFs will be established, where training for the 242 farmer groups, both for GAP session and agri-nutrition messaging, will take place. In-field technical backstopping will be carried out for season I farmers who purchased certified seed and groups who are doing further multiplication of the seed tubers they produced in season I.

The project will continue to support formation of potato cooperative society in Bungoma county with a focus on training on good governance as well as on leadership and business skills. In Taita Taveta county, marketing groups will be established in conjunction with the CG. Members will be trained in entrepreneurship and business skills.

After having identified a suitable seed business in Taita Taveta to invest in seed production, the potato value chain will provide technical backstopping to this business and support initial investments through cost-sharing. Further, feasibility of seed production in Bungoma will continue to be assessed, which relies on identifying the right business to produce seed potato.

All activities to close out season I were completed as planned in Q3; activities to launch in season 2 are shown in Table 9.

TABLE 9. STATUS OF ACTIVITIES FOR PROJECT Y 1 Q 3

Planned Actions from Previous Quarter	Actual Status (Q3)	Explanations for Deviations	
Continuous monitoring/spot check	In process	An ongoing process that continues throughout all activities	
Develop communication materials	In process	One deliverable (Annex I). Developing case studies from phase I. An ongoing process throughout all activities.	
County partner meetings to develop and implement potato strategies	In process	An ongoing process throughout all activities.	
County agriculture: establish LFs (season 2)	In process	Occurs over September-October	
County agriculture: train on learning farms season I	Completed		
County agriculture: targeted training campaign on options to save seed on farm (season I)	Completed		
County agriculture: collect monitoring data on farmers applying saving seed on farm technology (season I)	In process	Harvests in August; data being compiled	
County nutrition: CHVs deliver nutrition messaging (season I)	Completed		
County nutrition: CHVs target give infant and young child-feeding messaging to HH with infants (season I)	Completed		
Cost-share starter material—basic seed + transport	In process	Activity occurs over several months. Just began in September after identifying a qualified seed business in September.	
Cost-share starter material—cuttings + transport	In process		
KEPHIS certified seed training	In process		
Sample fields intended for use for seed potato production for key soil/seed-borne pathogens	In process		
Cost-share investments for seed storage (diffused light stores)	In process]	
Support farmer producer organizations to form/rally members	In process	Activities delayed slightly due to intensity of other activities. Systems in place to	
CG: good governance training	In process		
Business plan development cooperative/farmer institutional	In process	conduct activities in season 2, thus more emphasis on market development	
NPCK: market studies and forums	In process	activities.	
Support youth groups to engage in potato value chain	In process	Ongoing process throughout all activities	

ANNEX I.LIST OF DELIVERABLE PRODUCTS

The AVCD potato value chain phase 2 brief can be found at: <u>AVCD Brief_Phase 2_FtF USAID.</u>

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