Ghana Agricultural Development and Value Chain Enhancement Project (ADVANCE)

A USAID FEED THE FUTURE INITIATIVE

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This report covers activities under USAID Cooperative Agreement No. 641-A-00-09-00026-00.

List of Acronyms

ACDEP	Association of Churches Development Projects
ADB	Agricultural Development Bank
ADVANCE	Ghana Agricultural Development and Value Chain Enhancement
AEA	Agricultural Extension Agent
AfDB	African Development Bank
AGRA	Alliance for a Green Revolution in Africa
ATP	Agribusiness and Trade Promotion
CRI	Crops Research Institutes
DCA	Development Credit Authority
E-ATP	Enhanced-Agribusiness and Trade Promotion
ECOWAS	Economic Community Of West African States
EPA	Environmental Protection Agency
EU	European Union
FASDEP	Food and Agriculture Sector Development Policy
FBO	Farmer Based Organization
FDB	Food and Drugs Board
FIs	Financial Institutions
FSF	Financial Services Facilitator
FST	Financial Services Team
FtF	Farmer-to-Farmer
FTF	Feed the Future
GAIDA	Ghana Agricultural Input Dealers Association
GAP	Good Agricultural Practice
GEPA	Ghana Environmental Protection Agency
GFSR	Global Food Security Response
GGC	Ghana Grains Council
GIS	Geographic Information system
GPS	Global positioning system
GRIB	Ghana Rice Inter-professional Body
GSSP	Ghana Strategic Support Program
GTZ	German Technical Cooperation
ICT	Information and Communications Technology
IEHA	Initiative to End Hunger in Africa
IFAD	International Fund for Agriculture Development
IFDC	International Fertilizer Development Corporation
IFPRI	International Food Policy research Institute
IITA	International Institute of Tropical Agriculture
LWA	Leader with Associate
M&E	Monitoring and Evaluation
METSS	Monitoring and Evaluation Technical Support Services
MCC	Millennium Challenge Corporation
METASIP	Medium Term Agriculture Sector Investment Plan
MFI	Micro Finance Institution

MiDA	Millennium Investment Development Authority
MoFA	Ministry of Food and Agriculture
MoFEP	Ministry of Finance and Economic Planning
MOU	Memorandum of Understanding
MSME	Medium, Small and Micro Enterprise
NADMO	National Disaster Management Organization
NBFI	Non-Banking Financial Institution
NF	Nucleus Farmer
NGO	Nongovernmental Organization
NRGP	Northern Rural Growth Program
OISL	Opportunity International Savings and Loans
P4P	Purchase for Progress
PMP	Performance Monitoring Plan
PPRSD	Plant Protection and Regulatory Service Division
RAFIP	Rural Agriculture Finance Program
SADA	Savannah Accelerated Development Authority
SARI	Savannah Agricultural Research Institute
SME	Small and Medium Scale Enterprise
SMS	Short Message Service
SRI	System of Rice Intensification
STTA	Short-Term Technical Assistance
TA	Technical Assistance
TIPCEE	Trade and Investment Program for Competitive Export Economy
ToT	Training of Trainers
USAID	United States Agency for International Development
USAID-EG	United States Agency for Development – Economic Growth
USDA	United States Department for Agriculture
VCA	Value Chain Financing
VCTF	Venture Capital Trust Fund
WFP	World Food Program

TABLE OF CONTENTS

List of Tables

List of Figures

List of Annexes

EXECUTIVE SUMMARY

This is the first annual report covering a redesigned ADVANCE that is aligned to the Feed the Future (FTF) program objectives of the US government with an overall objective of sustainably reducing poverty and hunger. ADVANCE contributes specifically to Strategic Objectives Three (SO3): improved nutritional status, especially of women and children; and Four (SO4): inclusive agriculture sector growth. The project tracks four key Intermediate Results (IRs) as follows:

- IR 1: Improved Agricultural Productivity
- IR 2: Expanding Markets and Trade
- IR 3: Increased Investment in Agriculture and Nutrition - Related Activities
- IR-5: Increased Resilience of Vulnerable Communities and Households

By 1st October 2011 all project activities south of the 8th parallel had been closed down and all resources moved to designated operation zones above the 8th parallel. New offices were established in Wa and Bolgatanga and the existing Tamale office was expanded to become both the Northern Region office as well as the overall technical supervisory office for all project intervention areas. The project maintained the existing Techiman office which continues to oversee project activities in districts in the Brong Ahafo Region that are fully above, or have portions located above and below, the 8th parallel. However the Accra office, headed by the Chief of Party, remains the overall project office providing finance, administration, communication, logistics, grant, volunteer and program management support to all four field offices. The project also reduced the number of commodity value chains from six to three, concentrating on the three staple food crops of maize, rice and soy bean.

The project has successfully carried out an aggressive first-year technical program following the move to the north to maximise achievement of project targets. For the three target commodities of maize, rice and soybean, technical activities cantered on support to participating research institutions, international seed companies and local seed growers to produce certified seed of high yielding crop varieties. Increased access to certified seed combined with strong linkages between producers and markets, input suppliers, and financial institutions, forms the core of our strategy to improve productivity and raise incomes of producers, especially smallholder farmers.

Improved Agricultural Productivity

During the reporting period, the project worked with 26,070 mostly smallholder farmer producers of maize, rice and soybean; about 28% (7,419) of these had been working with the project for the two previous years; 17,677 (68%) are smallholder outgrowers for 127 nucleus farmers/aggregators; and 8,290 (32%) are smallholders affiliated to 287 Farmer Based Organizations (FBOs). ADVANCE uses a long-term sustainable approach by using commercial actors as conduits for reaching large numbers of smallholders, ensuring that the improved practices remain in the market system after the end of the project.

Over 18,900 beneficiaries were trained to acquire new skills and knowledge in production technologies as well as management practices that will enable them to operate in a more business-like manner. About 53% of the beneficiaries trained are women. As part of the

training program, 127 crop demonstration sites were set up to show farmers how to achieve higher productivity through good agronomic practices and use of high yielding seed, seed treatments, fertilizers, weedicides and inoculants (for soybean). As a result, 6,500 smallholders adopted new technologies and/or new management practices.

Gross margins for maize were exceeded while those for rice and soybean fell below the targets for the year. This can be attributed to lower than expected yields in the 2011 season caused by low rainfall, and in some cases drought, in parts of Brong Ahafo and the three northern regions.

Expanding Markets and Trade

During the reporting period, an incremental volume of 13,367 mt of all three commodities was purchased from smallholder producers with a total value of $4,532,350. This achievement is 57% of target incremental volume and 55% of the sales value of all three commodities[1]. The project supported 18,303 value chain actors to access services that improved their businesses during the reporting period. Loans disbursed from financial institutions to beneficiaries were valued $648,470. The project also supported 533 Micro, Small and Medium Scale Enterprises (including 75 buyer/traders, 31 processors, 58 input firms, 323 mechanized service providers, 27 financial institutions and 19 radio stations) to improve their business services. Actors working with the project invested US$1,632,538 in farm machinery and other agro inputs to support increased productivity and quality of the three commodities.

For Public Private Partnerships (PPP)

The project has partnered with the Centre for Remote Sensing and Geographic Information Systems (CERGIS) to develop a sustainable system of mapping agricultural commodities and partially commercializing the data. Also, the project is working closely with Armajaro Cotton Ghana Ltd and their cotton farmers to grow maize for food in the Northern Region by providing them with improved seeds and fertilizer, as well as training on good agricultural practices.

Increased Resilience of Vulnerable communities and households

During the reporting period, the project reached out and engaged 16,789 rural households of which 4,722 (29%) had participated in the previous year (PY 2011). Out of these 16,789 rural households, only 603 are classified as vulnerable who generally live in communities that are prone to drought, flooding, violent conflict and bushfires.

Cross cutting programs

Technical delivery of project activities is supported by the volunteer, gender, environment and grant programs.

Volunteer program: The volunteer program has made significant achievements since the Farmer to Farmer Leader Award started in 2008, and since the Farmer to Farmer Associate Award (ADVANCE) started in 2009. The ADVANCE program, now under the Feed the

[1] This target achievement is not unexpected due to the transition to the North. Note that the volumes and values pertain to the 2011 production season when the ADVANCE program was engaged with 5600 smallholder farmers and not the 26,000 beneficiaries we had by the end of the 2012 program year.

Future initiative, has fielded 88 volunteers who have completed 5911 volunteer days as at 30th September 2012 as against an overall life of project target of 5642 volunteer days. The on-going Farmer to Farmer volunteer program which provides some volunteers to ADVANCE actors, has also achieved 2032 (81%) of the life of project target of volunteer days as at 30th September 2012. The two volunteer programs have had great impact on overall implementation of the ADVANCE project. One nucleus farmer for example used a business plan developed with volunteer assistance to apply for a loan and received US$20,000 for his 2012 crop season operations. In another case, the Sissala Tractor Operators Association used templates developed by a volunteer to register farmers in advance for the 2012 crop season to ensure proper planning and delivery of services in a more efficient manner. They also adopted standardized pricing policy taking into consideration the variable and fixed costs associated with tractor service management. During PY 2012, thirty-four ADVANCE volunteers have assisted 39 program actors on record keeping, strategic planning, budgeting, and inventory control.

Gender: ADVANCE has always made a conscious effort to reach as many women as possible and we are achieving an appreciable level of gender participation. We ensure that women beneficiaries have equal access to grants, receive literacy and numeracy training, and participate in nutritional education. During the year, 37% of all direct project beneficiaries were women. Over US$317,000 in credit (from a total of $648,470) was disbursed to 774 women out of 2,612 beneficiaries (27%) while 38% of the major aggregators and buyers were women. Women also featured prominently in FBOs accounting for 42% of the membership receiving project assistance, and 46% accessing business development services. Also, women made up 28% of beneficiaries trained in Farming as a Business (FaaB) or other business skills. Regarding adoption of new technologies, women beneficiaries cultivated 606 hectares (27% of the total) under improved technologies or management practices as a result of project assistance.

Environment: The project addressed four thematic environmental management areas in this reporting period: (i) improving agrochemical management; (ii) researching into soil and water management technologies; (iii) improving smallholder adaptation to climate change and (iv) general compliance with title 22 of the code of federal regulations section 216(22CFR216).

Project management also kept track of all indicators for environmental management, monitored the amended Environmental Mitigation and Monitoring Plan for warehouse construction and the new conditions for the negative determination of the ADVANCE pesticide Evaluation Report and Safe Use Action Plan. Details of all these are presented in the environment section of this report.

Grants: In PY 2012, 346 grants were awarded to FBOs, radio stations, nucleus farmers and aggregators. This brings the total number of signed grant agreements to date to 382, with a total obligated amount of $2,628,434, of which $1,616,962 has been disbursed. These grants have directly benefited 2,894 smallholder producers, nucleus farmers, input dealers, radio stations and aggregators, and have reached 123,278 people indirectly through family ties and business relationships. Project management introduced the very successful *Small Equipment Grant Program* in 2012 where beneficiaries selected preferred equipment themselves from pre-qualified vendors based in North Ghana and made down-payments

30% of the equipment value prior to equipment release (and final payments of 70% of value by the program).

Monitoring and Evaluation

The program performance monitoring plan (PMP) was updated during the reporting period and approved by USAID. Management took steps to improve data collection, storage and retrieval as well as quality assurance standards. The ADVANCE Management Information Systems database for M&E was upgraded from the Lotus software into an SQL database system ensuring that the new design captured data on all FTF indicators with their respective disaggregation. Also, the project's data quality strategy was revised to reflect new indicators for FTF, their definitions, and methods for data collection.

An external Data Quality Assessment (DQA) was conducted by the Monitoring and Evaluation Technical Support Services (METSS), which focused on the USAID Economic Growth indicators reported in the PY 2011 annual report and the preparedness of the ADVANCE Project to maintain data quality during FTF implementation. Project management has implemented all recommendations by the DQA team. The Project continues to use GIS as a tool for data collection to improve the efficiency and competitiveness of specific supply chains and to provide general support to M&E functions.

1 INTRODUCTION

USAID awarded the ADVANCE project to ACDI/VOCA in July 2009 through the Farmer-to-Farmer Leader with Associates Award under the Associate Cooperative Agreement No. 641-A-00-09-00026-00. The project is implemented by ACDI/VOCA and four partners: two international organisations (TechnoServe and Winrock International) and two local organisations (ACDEP and PAB Consult). Originally, the project was designed to contribute directly to achieving USAID's Strategic Objective 6: "Increase competitiveness of Ghana's agricultural sector in domestic, regional and International markets", as well as contribute to the results of the Global Food Security Response (GFSR) program which aims to increase agricultural growth, stability and food security.

However, at the beginning of the 2012 program year, the project was redesigned and fully aligned with the Feed the Future (FTF) program objectives. The geographic focus was narrowed to locations above the 8th parallel and commodity value chains limited to rice, maize and soybean. ADVANCE now contributes to the intermediate results of USAID's FTF Strategic Objective 3 (Improved nutritional status, especially of women and children) and Strategic Objective 4 (Inclusive agriculture sector growth).

In this report, we present the progress made in the reporting year beginning from October 1, 2011 through September 30, 2012. The report summarizes the broad results and achievements (Section 3) for the third year of project implementation and details how they feed into specific first-year intermediate results of USAID's FTF Strategic Objectives three (3) and four (4). The report also presents the progress made with each commodity value chain (Section 4), including supporting technical programs for financial services, inputs/equipment and outreach, all leading to enhanced competitiveness of the three commodity value chains.

The volunteer program, which has seen significant progress, is presented in Section 5. Efforts related to the grant, environment and gender programs are presented in Section 6, while monitoring and evaluation of project activities are presented in section 7.

2 ADVANCE MANAGEMENT AND COLLABORATION WITH OTHER PROGRAMS

2.1 OFFICE STRUCTURE AND STAFFING

At the start of this reporting period, the activities and target groups of ADVANCE were re-aligned to Feed the Future program goals, strategic objectives and priorities. New offices were established in Wa (Upper West Region) and Bolgatanga (Upper East Region). The Tamale office was expanded to become both the Northern Region office and the overall North Ghana technical supervisory office. The project maintained the Techiman office and continued to implement project activities in districts in the new ADVANCE geographic target areas in the Brong Ahafo Region above (or straddling) the 8th parallel (Kintampo North and South, Pru, Sene and Tain). The Techiman office also plays the role of liaison between northern producers and key markets and service providers in the south. Nearly all staff (over 95%) that transferred to the new project offices in the North reported to their new post by 1st September 2011 and with the exception of five field staff who left the project for personal or family reasons, the rest have remained at post.

ADVANCE operates four field offices in four regions, covers 39 districts (see Annex 1 for details), and fields 54 staff working on technical delivery and 39 staff performing support and logistics functions (see details in Annex 2). The Accra office provides financial, administrative, communications, logistical, grants, volunteer and program management support to the field. The Chief of Party, based in the Accra office, remains the primary point of contact for communication and interaction with USAID/Ghana. The overall project organogram is attached as Annex 3.

2.2 COLLABORATION WITH MOFA

ADVANCE has continued to actively engage the Ministry of Food and Agriculture (MoFA) at the national, regional, and most actively at the district levels, and has made efforts to ensure that project activities are in line with the objectives set out in the Food and Agriculture Sector Development Policy II (FASDEP II). At the national level we closely followed activities leading to the preparation of Medium Term Agriculture sector investment Plan (METASIP), actively participate in the agricultural sector working group (ASWG), and continue to contribute to the CAADP working groups.

At the regional and district levels, project staff have consistently interacted and engaged with MoFA Directors on project activities to promote collaboration and avoid duplication of efforts. ADVANCE continues to work closely with MoFA officers and agents in target districts to train farmers in good agricultural practices (GAPs) and post-harvest handling, and to set up and maintain demonstration sites. ADVANCE project management considers this collaboration with MoFA critical to the sustainability of project activities and will continue this level of engagement through the rest of the project.

2.3 LINKAGE TO OTHER PROGRAMS

As a policy, ADVANCE makes deliberate efforts to link up with other projects and programs operating in the same geographic and/or commodity areas. The project has worked with both governmental and non-governmental organisations including the Northern Rural Growth Project (NRGP) managed by MOFA and funded by IFAD, Savannah Agricultural Research Institute (SARI), International Institute for Tropical Agriculture (IITA), Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ), the Ghana Agricultural Insurance Programme (GAIP), the Rural and Agricultural Finance Programme (RaFIP) funded by International Fund for Agricultural Development (IFAD), International Fertilizer Development Corporation (IFDC), Centre for Remote Sensing and Geographic Information Systems (CERGIS), Ghana Rice Inter-professional Body (GRIB), and the Arzakinmu Project funded by Alliance for a Green revolution in Africa (AGRA), among other organizations.

Table 2-1 Linkages and Collaboration with Various Projects and Programs

No.	Name of Public/Private Entity	Areas of Collaboration
1	IFDC	Collaborating and providing technical support to 5 ABCs in the Northern Region. Opportunities have been offered to irrigation projects to apply for small equipment grant. Both are also coordinating and providing technical support to two irrigation schemes.
2	Ghana Agricultural Insurance Program (GAIP); GIZ funded	Collaborating on drought index insurance that GAIP/GIZ is piloting in Northern Ghana including training ADVANCE staff/actors, procuring and installing five automated weather stations and providing GIS/GPS data.
3	Armajaro Cotton Ghana Ltd	Leveraging resources to work with maize farmers in the Northern Region to provide farmers with improved seeds and fertilizer as well as training on good agricultural practices.
4	Ghana Rice Inter-Professional Body (GRIB)	Framework for cooperation with GRIB developed to leverage resources to develop the rice industry value chains in Ghana.
5	Rural & Agricultural Finance Program (RaFiP); IFAD funded	ADVANCE carried out value chain studies on rice, maize and soybean and shared with RaFiP. Collaborating with ARB Bank and the Rural Community Banks to ensure quality training and availability of training materials for bank staff.
6	International Institute of Tropical Agriculture (IITA) – N2 Africa Project (SARI)	Collaborating to build capacity of smallholder farmers in Northern Ghana to improve soybean production through the use of inoculants. Carrying out demonstrations using inoculants.
7	Jaksally Organization, Damongo, N/R	Collaborating to map farmers' locations using GPS and profiling farmers. Linking Village Savings and Loan scheme groups to other financial opportunities.
8	ASI-Arzakinmu Project	Collaborating in the construction of 17 warehouses of 80 metric tons capacity in all three northern regions; and post-harvest handling training.
9	Centre for Remote Sensing and Geographic Information Services (CERGIS)	A framework of cooperation to develop Ghana's first geo-portal system for agriculture
10	Ecobank	Partnership to collaborate on the USAID DCA agricultural loan guarantee initiative
11	Sinapi Aba Trust	Partnership to collaborate on the USAID DCA agricultural loan

		guarantee initiative
12	WFP/P4P prof]gram	Collaborating with P4P with ten rice FBOs for capacity building, improved rice quality and access to markets.
13	University of Development Studies –Wa	Provide work-study opportunities for UDS-Wa students in the ADVANCE Wa office
14.	Pending MOU with IITA/USAID Rising Africa program	Collaborative efforts on conservation/extensive farming techniques sharing demonstration sites for the 2013 farm season.
15	UDS-Tamale Campus (Pending)	Provide work-study opportunities for UDS-Tamale students in the ADVANCE Tamale and Bolga offices

3 SUMMARY OF RESULTS

The ADVANCE project contributes to the overall Feed the Future (FTF) goal of sustainably reducing poverty and hunger, and tracks a total of sixteen FTF indicators and four additional ACDI/VOCA-specific indicators. The project contributes to two main FTF objectives: Strategic Objective 4 (SO4) **"Inclusive agriculture sector growth";** and Strategic Objective 3 (SO3) **"Improved nutritional status, especially of women and children".**

Results contributing to achieving FTF's SO.3 and SO.4 are tracked through the following Intermediate Results (IRs):

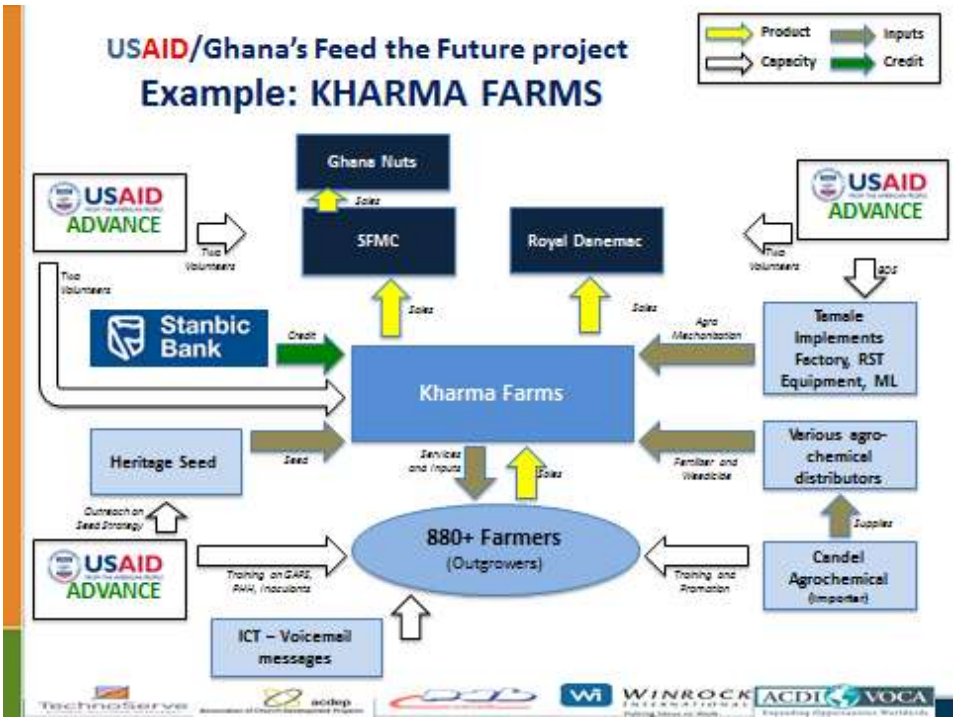
- IR 1: Improved Agricultural Productivity
- IR 2: Expanding Markets and Trade
- IR 3: Increased Investment in Agriculture and Nutrition - Related Activities
- IR-5: Increased Resilience of Vulnerable communities and households

Details of the strategic objectives, results, intermediate results and indicators tracked by the project are presented in the results framework (Figure 3-2)

3.1 ADVANCE'S IMPLEMENTATION STRATEGY

ADVANCE adopts an implemetation model in which we strengthen nuclues farmers/aggregators to provide agriculutral services (tractor services, improved seed, fertiliser, post harvest services like shelling, and credit) to smallholder farmers (outgrowers) whilst also acting as a link to larger buyers and processors thereby creating marketing channels for the smallhlders (see Figure 3-1).

Figure 3-1: ADVANCE's implementation strategy



The project selects these nuclues farmers and aggregators carefully by assessing their willingness to invest and provide the services mentioned above and then builds their capacity through training, grants and technical advice to enable them manage these outgrower schemes effectively and efficiently. This approach will ensure sustainability for various reasons among them; (i) the project does not provide any services directly, (ii) the relationships between all the actors are purely businesslike and will continue as long as it remains profitable.

Using the strategy described, the project is currently working with 26,070 producers of maize, rice and soybean (**Table 3-1**). Of these producers, about 28% (7,419) worked with the project in the two previous years. Out of the 26,070 mostly smallholder farmers, 17,677 (68%) are outgrowers for 127 nucleus farmers/aggregators and 8,290 (32%) are smallholder members affiliated to 287 Farmer Based Organizations (FBOs).The 127 nucleus farmers/aggregators make up less than one per cent of project beneficiaries. The nucleus farmers, along with aggregators, outgrowers and FBOs, are linked to 75 buyers and 31 processors for a total of 67 different supply chain operations. The smallholders are also linked to 58 agricultural input firms, 323 mechanized service providers, 27 financial institutions and 19 radio stations.

Table 3-1 Number of producers reached by crop

Crop	PY 2012 Status
Maize	16,975
Rice	4,742
Soya	4,353
Total number of producers	26,070

Progress under each intermediate result is presented in this section of the report.

Figure 3-2: ADVANCE Results Framework

Goal	Sustainably reduce poverty and hunger
Indicators	• % of people living on less than $1.25/day in target regions

1st Level Objectives	Inclusive agriculture sector growth	Improved nutritional status especially of women and children
Indicators	• Per capita expenditures (as a proxy for income) of USG targeted beneficiaries	

2nd Level Objectives	Improved agriculture productivity	Expanding markets and trade I	Increased investment in agriculture and nutrition activities	Increased resilience of vulnerable communities and households(
Indicators	• Gross margins per hectare of land of selected product	• Value of incremental sales (collected at farm level) attributed to FTF implementation	• Value of new private sector investment in agriculture sector or value chain	• # of rural households benefiting directly from USG interventions • # of vulnerable households benefiting directly from USG interventions

3rd Level Objectives	Enhanced human and institutional capacity development for increased sustainable agricultural sector productivity	Enhanced technology development, dissemination management and innovation	Improved access to business development and sound and affordable financial and risk management services
Indicators	• # of farmers and others who have applied new technologies or management practices as a result of USG assistance • # of individuals who have received USG supported short term agricultural sector productivity or food security training • # of private enterprises (for profit), POs, WUAs, women's groups, trade and business associations, and CBOs receiving USG assistance • # of members of POs and community based organizations receiving USG assistance • # of private enterprises, POs, WUAs, trade & business association, and CBOs that applied new technologies or management practices as a result of USG assistance • Crop yield • # of beneficiaries trained in Farming as a Business or other business skills	• # of hectares under improved technologies or management practices as a result of USG assistance • # of new technologies or management practices researched, field tested, or made available • # of demonstration sites created	• # of public-private partnerships formed as a result of FTF assistance • Value of Agricultural and Rural Loans • # of MSMEs receiving USG assistance to access bank loans • Number of MSMEs receiving business development services from USG assisted sources • # of beneficiaries accessing business development services

3.2 IMPROVED AGRICULTURAL PRODUCTIVITY

Progress towards achieving this strategic objective is presented in Table 3-2. The results contribute to FTF:

(i) Sub-IR 1.1: Enhanced human and institutional capacity development for increased sustainable agricultural sector productivity, and

(ii) Sub-IR 1.2: Enhanced technology development, dissemination management and innovation.

Yields and Gross Margins

Gross margins for maize were exceeded while those for rice and soybean fell below the targets. This can be attributed to lower than expected yields in the 2011 season due generally to low rainfall and drought in parts of Brong Ahafo and the three northern regions. The higher gross margin for maize is attributed to an increase in price by as much 31%; for rice it went up by only 7.3% (see ISSER, 2012[2]). For soybean, prices were unstable but were generally lower than the previous years' price because of imports by the processors who had resisted paying the floor price of US$455/Mt set by the national buffer stock company. Most farmers were unable to sell their soybean leading to post harvest losses and eventually sold what they could salvage at about US$340/Mt.

Adoption of New Technologies

During the reporting period, 6,500 smallholders (45% of target) adopted new technologies and/or management practices made available by the project. Notably, most rice farmers in irrigated fields adopted the Togo Marshal and Jasmine 85 varieties for the first time. These are the varieties in high demand in southern Ghana markets and compete directly with imported rice. However, the total area under improved technologies was only 29% of the target of 12,000 ha; limited resources and high cost of finance discouraged farmers from investment and they did not expand their operations as much as we had anticipated.

Producer Organizations and Food Security Enterprises Receiving FTF Assistance

A total of 287 FBOs (198% of the PY 2012 target) with 6,746 members, benefited directly from project activities during the reporting period. The exceeded target can be attributed to project support to the nucleus farmers in developing more efficient ways of managing their outgrower schemes, and many outgrowers organized themselves into FBOs.

Capacity Building of Beneficiaries

During the period reporting, 18,903 beneficiaries (representing 145% of the PY 2012 target) were trained to acquire new skills and knowledge in production technologies as well as management practices that enables them to operate in a more business-like manner. Fifty three per cent (9,966) of beneficiaries trained were women. Ninety-four per cent of all trainees were producers, 5.7% were from agricultural MSMEs, and less than one per cent from MoFA and other government agencies. In addition, 5,734 beneficiaries, including 1,578 women (28%), were trained in "farming as a business".

Technology Demonstration

A successful strategy for making technology available to smallholders is the use of demonstration sites. In the 2012 crop season, 132 demonstration sites (132% of the PY

[2] ISSER (2012) The State of the Ghanaian Economy in 2011

2012 target) were set up to show farmers how to achieve higher productivity through good agronomic practices and use of high yielding seed, seed treatments, fertilizers, weedicides and inoculants for soybean. Most demonstrations were on maize with 85 sites, 17 were for rice, and 30 were set up for soybean. In addition, weighing scales and moisture meters were introduced to aggregators and producers to standardize weights and measures of produce purchased.

Table 3-2 Results of Sub IRs 1.1 and 1.2

Indicator		PY 2012 Results	PY 2012 Target	% PY 2012 Target achieved
4.5(4) Gross margins per hectare (FTF)	Maize	313	300	104%
	Rice (R)	220	1,000	22%
	Rice (I)	480	1,200	40%
	Soya	64	160	40%
4.5.2(5) # of farmers and others who have applied new technologies or management practices as a result of USG assistance. (FTF)		6,500	14,500.0	45%
4.5.2.(2) # of hectares under improved technologies or management practices as a result of USG assistance (FTF)		3,538.3	12,000	29%
4.5.2(11) Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations(CBOs) receiving UCG assistance		287	145	198%
4.5.2.(27 Number of members of producer organizations and community based organizations receiving USG assistance		6,746	2,500	270%
4.5.2.(7) Number of individuals who have received USG supported short term agricultural sector productivity or food security training		18,903	13,000	145%
4.5.2. (39)2 # of new technologies or management practices made available. (FTF/EG)		7	4.0	175.%
4.5.2(42) # of private enterprises, producer organizations, water user associations, trade and businesses associations and CBOs that applied new techs or mgt practices as a result of USG assistance.(FTF)		160	40.0	400%
1. Crop yield(ACDIVOCA)	Maize	1.6	3.0	53%
	Rice	1.42	2.5	57%
	Soya	0.8	1.8	45%
2 # of beneficiaries trained in Farming as a Business (FaaB) or other business skills)(ACDIVOCA)		5,734	8,500	68%
3. # of demonstration sites created.(ACDIVOCA)		132	100	132%

3.3 EXPANDING MARKETS AND TRADE

Results achieved contribute to FTF Sub IR 2.4: improved access to business development, sound and affordable financial and risk management. Output targets and achievements are presented in Table 3-3.

Value of Incremental Sales

During the reporting period, an incremental volume of 13,367 MT of all three commodities was purchased from smallholder producers with a total value of $4,532,350. For this indicator, the target for rice was exceeded because of the strong market linkages created by the project for producers at irrigations sites in the north to southern buyers and the fact that they produce under irrigation and therefore did not suffer very much from the drought. Maize and soybean volumes dropped because of the drought and lower overall national production.

Table 3-3: Results of Sub IR2.4

Indicator		PY 2012 Results	PY 2012 Target	% PY 2012 Target achieved
4.5.2.(23) Value of incremental sales (collected at farm level) attributed to FTF implementation.(FTF)	Maize	$1,490,975.5	$3,843,000.0	38.8%
		4,382.0 Mt	12,810.0 MT	34.2%
	Rice	$2,652,874.1	$1,165,000.0	227.7%
		7,689.5 Mt	2,330.0 MT	330.0%
	Soya	$388,500.0	$3,260,000.0	11.9%
		1,295.0 Mt	8,151.0MT	15.9%
4.5.2.(29) Value of Agricultural and Rural Loans		$648,470	$800,000	81%
4.5.2 (30) Number of MSMEs(including farmers) receiving USG assistance to access bank loans		2,612	45	5804%
4.5.2 (37) Number of MSMEs (including farmers) receiving business development services from USG assisted sources		18,303	120	10,113%

MSMEs Receiving BDS and Assistance to Access Bank Loans

During the reporting period, 18,303 value chain actors accessed services that improved their businesses during the reporting period. Loans disbursed from financial institutions to beneficiaries were valued at $648,470 representing 81% of the PY2012 target of $800,000. The financial institutions focus of engagement during the reporting period was to increase their lending to the agricultural sector by creating strategic alliances with nucleus farmers, buyers/aggregators, processors and input firms.

Over 2,600 MSMEs, including farmers, were supported to acquire informal and formal credit facilities to improve their businesses. The credit facilities were either in cash or inputs. The target of 45 for this indicator was far exceeded (2612) because the indicator definition was changed to include smallholder farmers, whereas the original target had been set with the old definition that did not include such smallholders.

The project supported 533 MSMEs (including 75 buyer aggregators, 31 processors, 58 input firms, 323 mechanized service providers, 27 financial institutions and 19 radio stations) to improve their business services over achieving the target set for the year. Support to mechanized service providers focused on increasing patronage of their services by linking them to aggregators and producers participating in ADVANCE-supported supply chains. For input dealers, support included training on input service provision and assistance in promotional events to increase outreach and their customer base. The project supported radio stations with technical assistance to improve the content of their agricultural programs, create links to sponsors, and to participate in stakeholder fora.

3.4 INCREASED INVESTMENT IN AGRICULTURE AND NUTRITION-RELATED ACTIVITIES

Intermediate result three (IR:3) of FTF tracks investments by individuals, micro, small and medium enterprises (MSMEs) and government agencies as a result of project activities and support. Progress towards achieving this IR is presented in Table 3.4.

Investment in New Technology

During the reporting period, actors invested a total of US$1,632,538 in farm machinery and other agro inputs to support increased productivity and quality of produce. This amount represents 203% of the PY 2012 target and was achieved mainly as a result of the linkages created within the value chains, especially the grants program with 30% leverage from beneficiaries which encouraged investments in post-harvest farm machinery.

Table 3-4: Results of IR3

Indicator	PY 2012 Results	PY 2012 Target	% PY 2012 Target achieved
4.5.2 (38) Value of new private sector investment in the agriculture sector or food chain leveraged by FTF implementation.	$1,844,929	$800,000	231%
4.5.2.(12) Number of public-private partnerships formed as a result of FtF assistance	2	2	100%

Public-Private Partnership

The project is partnering with the Centre for Remote Sensing and Geographic Information Systems (CERGIS) to develop a sustainable system of mapping agricultural commodities and partially commercializing the data. The objective is to make this data available to the general public and businesses. Also, the project is working closely with a private company (Armajaro Cotton Ghana Ltd) to work with cotton farmers to grow maize for food in the Northern Region by providing them with improved seeds and fertilizer on credit, and training them on good agricultural practices.

3.5 INCREASED RESILIENCE OF VULNERABLE COMMUNITIES AND HOUSEHOLDS

Progress towards achieving the FTF objective of improving nutritional status especially of women and children and sub IR 5 is presented in Table 3-5. The project contributes to sub IR5 by working with rural and vulnerable households.

Table 3-5 Rural and Vulnerable HH Benefitting from FTF Assistance

Indicator	PY 2012 Result	PY 2012 Target	% PY 2012 Target achieved
4.5.2.(13) # of rural HH benefitting directly from USG interventions(FTF/EG)	16,272	24,500	66%
4.5.2.(14) # of vulnerable HH benefitting directly from USG interventions (FTF/EG)	603	1,000	51%

During the reporting period, the project reached out to 16,789 rural households who benefited from one or more project interventions including training, grants, links to inputs and finance sources, and markets. The number of rural households benefiting directly from the project is 69% of the 24,500 targeted for PY 2012. A total of 4,722 (28%) rural households continued from PY 2011 while 12,067 HH joined in the current reporting year. The cumulative number of beneficiary rural households since project inception is 33,891. Table 3-6 shows the gendered household type of the rural households.

Table 3-6 Gendered Household Type Reached by Project

Gendered HH Type	Number	Percentage
Adult Female no adult male(FNM)	324	2.0
Adult Male and Adult female (M&F)	15,669	96.3
Adult Male no Adult female(MNF)	279	1.7

Vulnerable Households

Out of the 16,789 rural HH that participated in project activities in the reporting period, 603 households are classified as vulnerable. They generally live in rural communities that are prone to drought, flooding, violent conflict and bush fires.

4 PROGRESS WITH SPECIFIC COMMODITIES AND PROGRAM

In this section, we report on specific activities and results of the three commodities as well as the support market services (outreach, financial services and inputs/equipment).

4.1 MAIZE VALUE CHAIN

Maize harvests were generally poor in the reporting period due to a country-wide drought. Both national production (1,683,984 mt) and yield of 1.65 mt/ha fell below expectations even though total acreage under production grew by 3.18% over 2010 area under production to 1,023,000ha.[3] There were however some positive maize developments for ADVANCE operational areas. These include improved gross margins of US$313/ha which exceeded the target of US$300 set for the year. Also, farm investments increased in three of the four project regions leading to area expansion (NR=22%, UWR=19.48% and UER=14.37%). However, it is only the upper East region (UER) that recorded both an increase in total production and yield to 20.91% and 5.72% respectively.

Box 1: ***Maize at a Glance under ADVANCE***

Total area cultivated (Ha)	24,200
Total amount of seed produced (mt)	83.20
Total production (mt)	24,661
Yield, (Mt/Ha)*	2.30
Total number of farmers	16,975
Total number of Aggregators	28.00
Total number of Processors	7.00

4.1.1 Ensuring Access to quality maize seed

Maize demonstration plots were set up with 80 nucleus farmers and 85 input-dealers to showcase various innovations for about 9100 smallholder farmers. Prior to the announcement of government subsidies on most of the inputs contributed for the demonstrations, dealers reported increased patronage at locations where demos had been established.

Accessing to quality maize seed

Farmers trained on innovations for cultivating high yielding and QPM = 9,100

Demonstrations with high yielding maize seed = 54

Demonstrations with quality protein maize = 31

All the demonstrations used high yielding, drought-tolerant and/or quality protein content maize, and in the process, supported the publicity of good seed for these preferred varieties. Five of the input dealers; (Heritage Seeds, Antiku, 18th April, Wienco, Ohumpong Farms and the Crop research Institute at Kumasi) contributed seed of *Obaatanpa, Mamaba, Etubi, Omankwa, Abontem, Pan 53, Pan 12, and ProSeed* for the demonstrations. Other dealers contributed innovative or maize-specific seed dressers, fertilizers and herbicides. These include Yara, Makhteshim Agan West Africa, Louis Dreyfus, CANDEL, Heritage seeds, and Dizengoff Ghana Limited, Wienco, Antika, Bentronics Production, Golden Stork and

[3] Note that this report covers the 2011 production/harvest season.

Chemico Ghana Ltd. In return for their investment and maintaining the demonstrations, the nucleus farmers or smallholders will keep the harvest from the sites. Early reports indicate that some nucleus farmers - Zocoffams Ltd, Sulbilla Iddrisu and farmers in Zinindo (in Northern Region) - purchased 4.2Mt of Mamaba/Obatanpa seed valued at $3445 from Heritage Seeds Company for their out-growers and their own farms. This was due to the high germination percentage and vigorous manner of the seed donated by Heritage Seed to the demonstrations set up close to their location. It is also reported from the Wa West District which is prone to drought, that two weeks of drought experienced in the area this year had adverse effect on the growth of the other varieties planted but not the Etubi variety at the demonstration plot. This has already prompted increased sale of the seed by Antiku Ltd. to farmers who re-planted or planted late.

4.1.2 Encouraging farmer-led seed production models

The project trained 38 farmers on hybrid seed production at SARI and CRI during the reporting period. The objective was to enable these farmers to produce foundation seed of high yielding hybrids for their own use and to sell to other farmers. However, the needed parental lines to produce the required seed could not be obtained (from CRI and SARI) and the hybrid seed could not be produced.

Supporting Community Seed Distribution

Number of communities identified = 119

Community shops linked to seed sources = 91

Number of community agents trained = 61

For the open pollinated maize seed, seed growers could not access adequate foundation seed to produce the required certified seed for out-growers of trained nucleus farmers. Two nucleus farmers (Mashood Dori and Big Ajar), and one seed grower (Nabie) who were trained by SARI on the production of hybrid white maize variety, (Mamaba), managed to produce 4.9Mt of seed from the foundation seed received during the training. This seed was distributed to more than 140 out-growers to cultivate 104Ha of maize.

4.1.3 Supporting community seed distribution networks

During the reporting period, the project identified the seed needs of 119 communities across project intervention areas and trained 61 community agents who were linked to 91 sources of quality certified seed. In Tamale, the Heritage Seed Company engaged nucleus farmers and their out-growers but commercial seed purchases were negatively affected by the government subsidy on seeds for the 2012 farming season. Prior to the announcement of the seed subsidy, the nucleus farmers had purchased a small quantity of 4.2 mt of certified maize seed and distributed them to their outgrowers.

Despite challenges facing the seed sector there were still some success activities. At Techiman, Ohumpong Farms organized three seed dealers, their 19 agents and shop attendants from high producing areas to be trained on seed handling and storage by a resource person attached to the MoFA Seed Unit. In the Upper West region, 530 farmers in nine remote communities received quality seed worth $1255 through an itinerant community input promotional activity from the agents trained by Ohumpong. Without this exercise, some farmers would have had to travel a minimum of 30km to access quality and improved seed.

4.1.4 Encouraging seed distribution by Nucleus Farmers

Generally, nucleus farmers provide only plowing services to their outgrowers. There is however, an opportunity for them to deliver other business development services including distribution of high yielding certified seed and fertilisers to improve productivity. During the year, 36 nucleus farmers/aggregators distributed more than 12 mt of certified Obaatanpa, Pan 53, Etubi and Mamaba seeds to cover 556ha of smallholder farms as part of the support package. These nucleus farmers made valuable contributions towards technology dissemination, an activity that is limited due to the government extension agent to farmer ratio of 1:2400.

4.1.5 Improving Buyer-Seller Relationships

In a bid to improve buyer-seller relationships, the project linked five project aggregators who are agents of various end markets located to the south of the 8th parallel, to farmers in the north of the Brong-Ahafo Region where the ADVANCE Techiman office had re-located their operations. The maintenance of such old links deepened the trust and confidence of the actors in the supply chains.

Forty business fora were organized in project intervention areas for representatives of processors, nucleus farmers, FBOs, input dealers, financial institutions and aggregators to discuss product specifications and strategies to improve the quality of grains. Incentives, including offers of premium prices were promised at such fora by aggregators.

Five (5) buyer companies with a total requirement of 40,000Mt of maize were introduced through buyer missions to various locations during the reporting period. Jeminal Company and Odiasempa Cooperative and Marketing Society were introduced to maize farmers and groups organized by ADVANCE in the Gushiegu and West Gonja Districts in the Northern Region. Premium Foods Ltd (PFL) was also taken on a sponsored visit to Binaba and Bazua in the UER to explore the procurement of maize. These linkages resulted in some early results. Odiasempa Cooperative and Marketing Society purchased 95Mt of maize valued at US$32,386 from Umar Abdul Latif (a nucleus farmer) to supply to the WFP. Further purchases as a result of these missions will take place in the coming harvest period.

Improved Buyer-Seller relationships

Linkages continued from 2011 = 7

New Southern-Ghana based markets linked to Northern Ghana = 9

Buyer missions organized = 5

Business Fora for Actors in Supply Chain = 40

4.1.6 Improving transparency and trust in contracting mechanisms in supply chains

To build trust and strengthen supply chains, 1,179 actors were trained to adopt formal contracts as a standard business practice. A better understanding of this formality removed the mystery around the use of this business tool, especially for nucleus farmer-outgrower and nucleus farmer-aggregator relationships.

Subsequently, four nucleus farmers from the training group (Saaka Awuro, Malik Nabie, Mashood Dori and Sambotimah) have successfully used the knowledge acquired and are adopting the templates provided as part of their contracting mechanisms with 131 smallholder farmers, and with two input dealers in their supply chains.

Also, to deepen their understanding of costs to help in pricing, 1,538 beneficiaries comprising FBOs, nucleus farmers and outgrowers were trained on costing and pricing. As part of the training, access to market information using the Esoko platform and other mobile phone platforms was explained. Farmers and aggregators are now reported to be actively using the Esoko platform to obtain prices on maize, rice and soy from the various markets across the country.

Improved transparency and trust

745 Aggregators and Nucleus farmers trained on weights and measures.

996 NFs and out-growers of maize trained to access current maize prices with mobile phones

5Nucleus farmers trained on using analysis of margins to guide pricing of product.

No. of Formal Contracts signed as a result of Project assistance = 133

No. of Actors trained on use of formal contracts = 1179

FBOs, NFs and OGs trained on costing and pricing = 1538

Nucleus farmers trained on out-grower management = 39

During PY 2012, 39 nucleus farmers were trained on out-grower management schemes. The training took various forms including facilitated participatory discussions and farmer-to-farmer exchanges on experiences with the scheme. In Wa, 14 nucleus farmers and 504 out-growers were trained on topics including communication, accessing inputs, finance, and effective structuring of out-grower schemes to improve on their management. As a result of this training, 155 out-growers of Mashood Dori have opened bank accounts with the Nandom Rural Bank to improve their financial management. In the nucleus farmer-outgrower program, the training on out-grower schemes was a farmer-to-farmer exchange on experiences in nucleus farmer out-grower management from the 17 nucleus farmer participants. Nucleus farmers discussed their experiences on topical issues including structuring agri-businesses, organizing inputs for the outgrowers, coordination of plowing activities and building relationships with outgrowers. The workshop also offered the opportunity for the nucleus farmers to learn and share experiences with different models of outgrower management.

Seven hundred and forty five (745) aggregators and farmers were also trained to use standard weights and measures for the maize trade. Topics discussed include the calibration and maintenance of the weighing scales and moisture meters provided by ADVANCE as part of the activity to improve transparency in business operations. Wherever these scales were used, sales to processors and large volume buyers picked up significantly.

4.1.7 Strengthening Trade Associations operating in maize in northern Ghana

Using ADVANCE grant funds, staff from the Ghana Grains Council held three (3) awareness creation sessions on the warehouse receipts system (WRS) and GGC membership. A growing interest and an increased understanding of the WRS is manifesting in the growing membership of the GGC especially among farmers from 15 to 45. ADVANCE is also collaborating with the GGC to work with the MIDA constructed agri-

A 500 MT warehouse under construction in Tamale as part of USAID grant program in support of the WRS

business centre operators and their selected FBOs to participate in the WRS program.

ADVANCE is also collaborating with the Arzakimu Project, (an AGRA-funded project being run by ASI and the GGC) to construct 50-80 mt warehouses that will serve as the primary storage centre to aggregate and preserve the quality of grain before transfer into the certified warehouses. The project engaged other development partners involved with maize to ensure synergies and reduce duplication of efforts among members in the partnerships. The partnerships developed or strengthened include those with; Armajaro, SNV, IFDC, ADRA, AgriServ and WFP. Meetings were held at various levels of management to engage each other and four (4) partnership MOUs were signed.

4.1.8 Improving Productivity through adoption of innovative technologies

Various field-day trainings were organized at the 85 maize demonstration sites to show higher productivity and good agronomic practices including appropriate land preparation, choosing the best seed to plant, husbandry of growing maize, and timely harvesting for maximum returns.

Training sessions on GAPs and PHH

Seed selection, seed testing and seeding rates conducted	=906
Choice, timely and appropriate application of weedicides	= 69
Choice, timely and appropriate application of fertilizers	= 65
Harvesting, Post-harvest handling, and end of season land management	= 14
Use of tarpaulins, shellers,	= 89
Bagging and transporting	= 67
Storage and warehousing	= 67

The effect of using Actyva fertilizer is particularly significant for demonstrations conducted on maize because of the high sulphur content. We observed at the demonstration sites that maize treated with Actyva had greener leaves, were more robust and tolerant to lodging and showed more vigor at the early stages of plant growth. This observation on the performance of Actyva indicates a possible dwindling of sulphur in the soils in some of our operational areas.

Mahmud Tie, one of the 68 beneficiaries of Premier Food Ltd support weeding his 15-acre farm in July 2012

4.2 RICE VALUE CHAIN

All the regions in Ghana, except the Brong-Ahafo Region, increased the area cropped to rice in 2011. The total national percentage increase in area cropped was 8.97. Although drought conditions caused a 5.6% drop in total rice production to approximately 278,385mt, project beneficiaries increased the volume of rice sales by almost 7,700mt valued at US$2,652,874; due to strong market linkages with buyers from the south. Given that irrigation schemes exist in the Northern and Upper East Regions for rice production, the decreases in yield in these two regions (NR=20.98% and UER=24.95%) especially at the irrigated sites, is more attributable to the inefficient use of these facilities and other inputs. ADVANCE made significant efforts at addressing some of these inefficiencies.

Box 2: Rice at a Glance under ADVANCE

Total area cultivated,	*7,266 ha*
Total amount of seed produced,	*780mt*
Total production,	*11,979mt*
Yield,	*2.78 (mt/ha)*
Total number of farmers	*4,742*
Total number of Aggregators	*68*
Total number of Processors	*15*

The rehabilitation of the Botanga Irrigation facility in the Northern Region was completed by MiDA and handed over. ADVANCE was tasked to find investors to partner with the farmer members of the new Botanga Cooperative Union to produce and market high quality perfumed rice for the Southern markets. Premium Foods showed interest and signed an MOU with the Farmer's Union and started investing in machinery and production inputs during the last quarter of this program year.

The project focused on seven major activities during the reporting period, namely:

1) Ensuring access to quality seed
2) Increasing yields and production volumes
3) Improving buyer- seller relations
4) Improving contracting mechanisms in supply chains
5) Building institutional capacity of rice industry associations
6) Increasing installed capacity and access to efficient mills

4.2.1 Ensuring access to certified seed

The first task undertaken to ensure access to certified seed was to identify 39 rice seed growers, (29 male and 10 females) in key production areas of the Upper East and Northern Regions to produce seed. These seed growers were trained on agronomy during the major rice planting season. Four (4) trainings were also carried out for 19 of the seed growers from Upper East, Northern and Brong-Ahafo Regions in technical and business management with assistance of the Seed Inspection Unit of MOFA. However, there was inadequate foundation seed to multiply as planned for this intervention. Notwithstanding this challenge, various efforts were made to ensure access to high yielding and/or high demand seed varieties.

4.2.2 Linking farmers to certified rice seed sources.

A second intervention to ensure access to certified seed was to link farmers directly to certified seed sources. Over 2,380 farmers were linked to SARI, MoFA and seed growers in southern Ghana to access 75mt of certified rice seed during the reporting period. This was used to cultivate about 800ha of rice. In addition four buyers (Amsig Resources, Premium Foods, Kibos farms and Gundaa Produce Company) supplied 36.72mt of seed to farmers in their supply chains at the Golinga and Botanga irrigation sites. The investors did this with an agreement including the right to first offer of the resultant harvest.

4.2.3 Increasing rice yields and production volumes

As a result of ADVANCE interventions in the Upper East, Northern and Bong Ahafo Regions, 1290ha of additional land was cropped to rice. This resulted in the production of an extra 4,200mt of rice. The interventions include linking smallholder farmers to plowing service providers, training on good agronomic practices, and links to various credit sources. Zocofarms (a nucleus farmer who provides tractor services in the NR), was linked to 300 farmers at the Botanga Irrigation Site to plow 250ha of land. In other instances, 551 smallholders in the Upper East Region who are members of six FBOs were linked to four tractor service providers.

4.2.4 Build farmer capacity in GAPs and business management

During the reporting period, 1,759 rice farmers were trained in General Agricultural Practices (GAPs) and business management skills to support better management practices and to increase productivity. Topics for GAPs training include the selection and use of seed varieties with high market demand, the SRI-technique of rice cultivation (which reduces cost of production and increase rice yields by 35-100%), and timely and appropriate use of fertilisers and weedicides.

Transplanting rice seedlings at the Botanga irrigation site

At Botanga, eight nucleus farmers were trained on the SRI-technique at a Training of Trainer (ToT) workshop by the scheme manager. The Scheme Manager was also supported to set up a one acre demonstration of Jasmine 85 using the SRI technique. This demo recorded an unprecedented yield of 7.3 mt/ha compared to average yields of 3.8 Mt/Ha for the minor season of 2011 at the site. The rice farmers observing this demo were also trained in other topics including appropriate harvesting methods, timely harvesting, bulking, storage, and the need to thresh on tarpaulins.

At workshops in Bonia, Gaani and Nyariga in Kassena Nankana District and Bolgatanga Municipality, 288 Smallholders, (131 males and 157 females), were also trained on seed

selection, seed sorting, nursery management, ash technology for seed dressing and germination test.

4.2.5 Establish demonstration sites for rice

Seventeen demonstration sites on rice were setup in the Upper East, Northern and northern Brong Ahafo Regions. These demonstrations were to increase awareness and sustain interest in the SRI technique for cultivating rice. The results of these demonstrations for harvested demos showed that yields did not differ significantly among varieties, but they had differing results depending on the agronomic practices. Four of these demonstrations were sponsored by input dealers (Chemico Ltd, Jegular Enterprise and Kwame Amobi Enterprise).

4.2.6 Facilitate access to credit for farm operations

Like maize and soy farmers the project works with, 670 rice farmers were linked to credit sources including links to aggregators, who, in return to in-kind and cash credit, wanted the right of first offer of sale from the farmers. This enabled most of the farmers to double the size of their holdings. Five nucleus farmers who work with 330 out-growers in the Upper East Region were linked to Rebecca Doworkpor (an aggregator based in southern Ghana) who provided a credit facility totalling $10,600 to finance the cost of hiring tractor services and to buy seeds for their out-growers. The farmers have since paid back with 24mt of paddy rice.

Some credit facilities were given in kind; in the Northern Region 34 farmers of the Suglo Kongbo Farmers Group were linked to the input dealer, Ganorma Agro-chemicals, who supplied them fertilizers and herbicides for cropping rice. The input dealer also paid for training on the effective use of inputs (sold by him) to ensure proper application. The farmers will repay the loan in six months when the crops are harvested. Again, 32 out-growers of Mathew Nbarti (a nucleus farmer) were linked to Yelmangli Enterprise where a pre-financing arrangement of 50% of the production cost of their 380 acres of Jasmine 85 rice variety, worth $8189, was reached. The in-kind credit comprised 600 bags of 23:10:5 fertilizer and 180 cartons of Sunphosate herbicide.

4.2.7 Improving access to production inputs and equipment

To guide project interventions, the project conducted a needs assessment of rice farmers in the project areas to provide a better understanding of their equipment requirements. Small production equipment, (power tillers, reapers and threshers) for various farm operations in rice production, were identified as the greatest need for improving efficient cultivation practices. Subsequently, 50 farmers applied to purchase some of the equipment under the ADVANCE small equipment grants scheme.

To ensure that beneficiaries of such equipment use them efficiently, some of the vendors trained the farmers on effective use. J.K Technologies (one of the vendors) was assisted to train both owners and operators of the power tillers and machines sold to farmers. The farmers were taught how and when to use the trailer, plow, rotovator and furrow wheel attachments. In the Brong-Ahafo Region ADVANCE collaborated with CANDEL Company Limited (an agro-chemical dealer) and MoFA to organize 9 training sessions on Health and Safety as well as effect of agro-chemicals, using video and demonstrations to show the proper use of Personal Protective Equipment (PPE). Over 490 farmers, (288 males and 203 females) benefited from the trainings.

4.2.8 Improve buyer-seller relations

More than 1000mt of paddy worth $422,834 was purchased as a result of an introduction of nine buyers to farmers in our intervention areas. Four southern-Ghana based aggregators, (Rebecca Doworkpor, Agnes Yankey, Doris Asilevi and Gifty Tetteh) were identified and introduced to the executive members of the Tono Irrigation Cooperative Farmers' Union (TICFU) at Navrongo in the Upper East Region to discuss modalities for a business relationship in the 2011/12 production season. This included the purchase of paddy harvested between the months of November and December. The parties agreed to use transparency enhancing tools such as scales for purchases and moisture meters to standardize moisture content of the product.

Similarly, aggregators, (Kate Achiaa, Sadia Aggregator Group, Aframso Rice Marketing Group, Ejura Rice Buyers Group and Afia Beyaa Rice Mills), introduced from the Ashanti and Brong-Ahafo Regions purchased 693mt of paddy valued at US$253,411. The increase in end markets has been a great motivation for expansion of land under cultivation of rice at especially the irrigated areas where other crops like tomatoes have faced marketing challenges in the recent past. Project staff also played a mediation role on pricing and resolved initial conflicts over quantities and qualities between buyers and farmers.

4.2.9 Facilitate buyer missions to northern Ghana

Eleven buyer missions were undertaken by aggregators and processors from southern Ghana to the Upper East and Northern Regions during the reporting period. The chance to see things at first hand enabled the top executives on such missions to make informed and concrete investments in the areas visited. Most missions were to ICOUR in the Upper East Region. Tom Gambrah (Managing Director of Premium Foods Ltd.) met with farmers at ICOUR and discussed supply of paddy and to develop business relationships. ADVANCE assisted Premium Foods Ltd (PFL) and ICOUR to conduct cost analysis on equipment for land preparation. Subsequently, PFL followed up with ICOUR and consolidated the earlier discussions with an MOU and has delivered five new four-wheeled tractors to be hired for land preparation and managed by the Farmers Union.

Other missions include two by Rebecca Doworkpor and Agnes Yankey, Hawa Seidu and Lawratu Ibrahim (all aggregators from the south) who made independent trips to ICOUR to negotiate agreements for the purchase of paddy. These negotiations resulted in the purchase of 317mt of paddy valued at US$154,044.

4.2.10 Facilitate business forums for buyers and supply chain actors

Nine business fora were organised for buyers and producers to interact during the reporting period. These fora served as opportunities to strengthen the links in the various supply chains and resulted in some good business networks. Six of these business fora were organized for rice supply chain actors in the Pru, Sene and Kintampo North Districts to strengthen buyer/farmer linkages. The main issues discussed were product specifications, purchase prices and credit facilities. Six aggregators (2 males, 4 females) and 166 farmers (102 males, 64 females) participated in these fora.

4.2.11 Improve contracting mechanisms in supply chains

Five hundred and forty (540) actors from seven rice supply chains drawn from all project intervention areas were trained to adopt formal contracts, costing/pricing and negotiation skills. A better understanding of contract benefits can reduce the level of mistrust among farmers and aggregators. In collaboration with the National Board for Small Scale Industries (NBSSI), 152 Smallholders (18males, 134females) from 11 FBOs and two aggregators were trained on the importance and implications on using formal contracts. Issues discussed were strict adherence to timelines for payments of purchases and sanctions for breach of contract. A similar training was organized for 30 out-growers (13 males, 17 females) of Gilbert Atanga at Gowrie in the UER. The project also trained 356 farmers and FBOs (including the WFP/P4P groups) on product specifications to improve understanding of the end-markets.

4.2.12 Build institutional capacity of rice industry associations

An MOU was signed with the Ghana Rice Inter-professional Body (GRIB) to collaborate in building capacity of the association to advocate and maintain industry standards. An institutional assessment of GRIB was completed and the recommendations are being reviewed to pursue the necessary capacity building needs.

4.2.13 Increasing installed capacity and access to efficient mills

During the year, two rice mills were upgraded through the grant program in the Ejura-Sekyedumasi District for the Aframso Rice Marketing and Processing Group, and at Fakwasi Rice Farmers Association in the Brong Ahafo Region. One other southern aggregator (Sadia Awuni) has constructed a new milling plant as her grant leverage and approval has been received from USAID to purchase rice milling equipment through the grant program.

Northern Ghana has relatively few rice processing facilities and efforts to efficiently process locally produced paddy and increase the competitiveness of milled rice from the north is important. In January-February 2012, a consultant was contracted to assess rice mills in northern Ghana to determine their ability to process paddy rice to meet the high end market standards and volumes. The study identified 136 millhouse owners with a total of 151 mills. These mills included 99 Englebert steel huller types with a capacity of 0.5 mt per hour; 51 mills with single-pass rubber rolled types with 1.5 mt per hour capacity; and 1 multi-pass type mill of 1 mt per hour capacity. The mills studied were located

Northern producers and southern sector buyers at the Pre-Harvest event in Tamale in November 2011

in 27 towns and villages in 15 districts in the Upper East, Northern, the northern part of the Brong Ahafo and Ashanti Regions.

Recommendations were made to consider upgrading seven single-pass and one multi-pass type mills with hullers, graders, elevator buckets, polishers, weighing scales, moisture meters, tarpaulins, water tanks, drying floors as well as capacity building in business and inventory management at a total cost of $87,602.

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CASE STUDY

Assured Markets Expand Rice Cultivation at Botanga

Photo credit: Andrew Aforo

Botanga cooperative's ability to fulfil an initial order to the required quantity and quality by using an ADVANCE-linked aggregator, has attracted Premium Foods Limited (PFL), a major grains buyer. PFL has now initiated a pilot pre-financing program with 51 cooperative members to cultivate 27.2 HA of rice at the irrigated site.

Challenge

The Botanga Food Farmers and Marketing Cooperative Union in Northern Ghana has its member's farms located close to the Botanga irrigation site where year-round rice cultivation is possible. However, until recently the farmers were not able to take advantage of this opportunity for a number of reasons. Key among the reasons was the difficulty in acquiring the needed mechanization services for land preparation to reduce the time involved and high cost of cultivation. Seventy per cent of farmers at Bontanga were cultivating and conducting all farm operations on their rice fields manually. They were broadcasting seed because farmers could not afford the high cost of labor required to adopt the recommended method of nursing and transplanting the rice seedlings. This resulted in low yields and poor quality because of plant population and the growth of weak seedlings among healthy ones. The farmers subsequently were forced to sell their produce on the open market where there is low or no insistence on standards and grades and where prices are often low.

Initiative

In late 2011, USAID/ADVANCE linked the farmers to a southern rice aggregator, Agnes Yankey. USAID/ADVANCE also linked the farmers to tractor service providers who plowed 240 HA of their fields in addition to 74 HA that they manually cultivated. They were also linked to the Seed Unit of the Ministry of Food and Agriculture (MoFA) and procured certified seed of the preferred commercial rice variety (Jasmine 85). To enable the farmers to improve on the quality of their harvests, USAID/ADVANCE again linked them through MoFA to access combine harvesters, five threshers and five reapers. In addition, USAID/ADVANCE trained three members of the cooperative on how to use a scale and moisture meter that were provided to the cooperative through the grants facility. The scale ensured that the right quantity of produce was bagged and the moisture meter was to ensure the right moisture content.

Results

In the 2012 cropping season, the Botanga farmers harvested 1,225 MT of rice from 314 HA, recording an unprecedented average yield of 3.9 MT/HA. Using their acquired scale and moisture meter, the cooperative's marketing committee was able to purchased rice that met buyer specifications. The cooperative fulfilled their first contract supply of 28.1 MT of paddy rice of Jasmine 85 sold at the required moisture level of 14% at a total value of US$9,524 to the aggregator. This success has attracted Premium Foods Limited (PFL), a major grains buyer, which has initiated a pilot pre-financing program with 51 cooperative members to cultivate 27.2 HA of rice at the irrigated site. The company has procured and supplied 1,360 kg of Jasmine 85 seeds to the cooperative. Arrangements are being made to give the farmers credit for the labor costs for transplanting. PFL will also provide the farmers with agro-chemicals, fertilizer, harvesting and threshing services on credit at an estimated cost of $14,412.82. This assured market and credit support has re-boosted interest in growing rice in the Botanga area and today, the cooperative is working hard to maintain this strong business relationship with the buyers.

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4.3 SOYBEAN VALUE CHAIN

In less than a decade, Ghana's soybean production has doubled from 40,000 mt in 2007 to over 70,000 mt in 2010 (Source: MoFA statistics) but demand continues to outstrip supply. In program year 3, ADVANCE worked with 36 nucleus soybean farmers with a total of 3,410 out-growers in the three northern regions. These farmers sold 3,178mt of soybean valued at $1,360,184 to seven end market buyers in southern Ghana.

Box 3: Soybean at a glance

- Total area cultivated(ha) 3503
- Total amount of seed produced (mt)=90
- Total production(mt) 5,254
- Yield 1.5
- Total number of:
  - Producers 3,410
  - Aggregators 9
  - Buyers 7

In the 2012 growing season, project beneficiaries planted 3,503ha of soybean. At an average yield of 1.5 mt/ha approximately 5,255mt will be harvested in November. At an average price of $473mt the estimated revenue would be $2,471,425. This is a slight reduction compared to last year, most likely due to farmers' reaction to a destabilized price in 2011/12 season as a result of the floor price announced by NAFCO and the subsequent importation of soy cake by poultry farmers and processors (e.g. Ghana Nuts imported 31,000 MT of soy cake/beans). To reduce the level of importation of beans or cake, which negatively impacts the smallholder soybean market opportunities, ADVANCE's strategy is to support farmers to improve productivity.

4.3.1 Improved Soybean Productivity and Production

In collaboration with the MoFA Seed Inspection Directorate, 20 soybean seed growers and 17 seed dealers were supported to produce seed. The varieties grown were Jenguma and Anidaso; with Northern Region focusing on Jenguma seed and Upper East and West on the Anidaso variety. On the whole, Jenguma is better suited to Ghana because of its non-shattering characteristics and higher yield. However, a shortage of foundation seed made it impossible for some of the growers to produce the variety. Ten of the seed growers from the Northern and Upper East Regions produced over 90mt of seed that could plant 2,200 ha of soybean (the 2012 target is 80mt).

A soybean field day in Tibali near Tamale

The seed growers were linked to nucleus farmers and smallholder farmers to sell their seed. However, the GoG's introduction of the seed subsidy restricted the sale of seed to only three designated seed dealers/input suppliers. ADVANCE linked 13 seed growers and 17 seed dealers to 1,857 smallholder farmers for the distribution of certified seed. This linkage resulted in the sale of 51.1mt, 30% more than last year when certified seed sold out. Change in market price of grain at planting time from $526/mt in 2011 to $342 in 2012 discouraged

farmers from planting soybean this year. Farmers would rather plant their own saved seed when grain prices drop. Some seed growers, as a result of the low seed demand, downgraded their seed and sold them as grain to minimize their losses.

The 20 seed growers and 17 seed dealers were trained in good agricultural practices for soybean production, records keeping, costing and pricing. The training is expected to increase productivity, improve the quality of seed, enhance business practices, and improve efficiency in the seed delivery system. Heritage seed for example acquired a planter which enabled him to achieve the desired plant population, coupled with the application of inoculants; we estimate that his yields will increase from 0.8 to 1.2mt/ha. Six of the seed growers were further trained in seed promotion strategies including organizing field days, seed fairs, branding, brochures and radio advertisements to increase sales and increase the farmer adoption rate for improved seed.

4.3.2 Building capacity of four seed dealers on sale promotion

Four of the 17 seed dealers developed seed promotion strategies using field days, seed fairs, branding, brochures, and radio advertisements. Heritage Seed, Abednego, April 18 and Antika were supported by ADVANCE to develop pamphlets, information sheets, brochures and to use radio advertisements to create awareness of their product. The fact sheets contained the profile of the seed dealers, their operational capacity, varieties of seed produced, list of agents including their names, contact addresses and benefits of using improved seed. Antika used four radio stations in the Upper West Region to promote the sale of seed. The use of promotions tools improved access to seed and increased revenue to seed dealers especially Antika who sold 15mt of soybean seed this season compared to 10mt in 2011. A combination of the government subsidy on seed and his own promotion activities accounted for the 50% increase in sales; Antika being one of the three designated seed dealers in northern Ghana for the GoG seed subsidy program.

4.3.3 Promoting Technology Adoption

Although the yields of soybean remains low in Ghana, it has been demonstrated by the IITA/N2Africa project that inoculants can increase current yields by 30%. To improve their productivity, ADVANCE trained 24 nucleus farmers and members of 13 FBOs on how to use the inoculants properly. The training was delivered by the SARI/N2Africa project staff. ADVANCE also collaborated with MoFA to train of 1,039 smallholders in GAPs for soybean production, the majority of whom adopted row planting.

Through ADVANCE, two input dealers (Simple Prince in the Upper East Region and Antika from the Upper West Region) bought and distributed 627 packs (200 gms per pack) of inoculants to smallholder farmers valued at US$2,672 to plant 502 hectares of soybean. Farmers demand increased by 40 percent compared to the 2011 season and this is expected to increase yield by up to 30%.

Under the small equipment grants program, six seed growers (including Antika, Martin Ariku, Abednogo Abosore and Heritage Seed) received production equipment to upgrade their operations, threshers to reduce post-harvest losses and improve seed quality.

To encourage domestic use of soybean, five women soybean groups were identified. One of the groups located in Bawku with 10 members, process soy into a local spice called 'Dawadawa'. In collaboration with the Women in Agricultural Development (WIAD) Unit of MoFA, the group was supported to process 'Dawadawa' under more hygienic conditions and to improve packaging.

4.3.4 Establishing soybean demonstrations

As a tool to transfer new technology to farmers and increase yields, 36 demonstration farms were set up (6 sites were abandoned due to excessive flooding at planting time). Farmers were introduced to a Brazilian hybrid variety of soybean "Sambaiba" for the first time and compared this to Jenguma that they are familiar with. Four treatment combinations were established: control (no fertilizer and no inoculant); inoculants, fertilizer and a combination of fertilizer and inoculant to give 8 plots per site. Private and public sector institutions such as YARA, N2Africa, Chemico Ghana Ltd, Glory and Jagular Enterprise invested their products in the demonstrations.

A soybean demonstration site in the Upper West Region

Soil sampling: As part of the demonstration soil samples from 23 out of the 36 sites were analysed for pH, available Nitrogen (N), available Phosphorous (P) and exchangeable Potassium (K) at the Soil Science laboratory at SARI. Results showed that generally the soils are acidic, very low in nitrogen and available phosphorus. Exchangeable potassium was however, moderate on the average. It is recommended that for optimum soybean production, the pH must be above 5.5 (0.1 M $CaCl_2$). All the soil samples with pH less than 5.8 in this analysis are likely to respond poorly to inoculation. Liming is required to raise the pH to 6 for the soils to benefit from rhizobium inoculation, and should also be applied six weeks before planting. For all the soils, there is need to apply phosphorus at the rate of 45-60 kg/ha to improve yields. In the demonstration, YARA donated phosphorous based fertilizer called YARA Legume fertilizer containing 15% of P and the micronutrients Ca, Zn, Mg and Mo. This was applied at a rate of 7.5 bags/Ha to bring phosphorous to the recommended level of 45-60Kg/Ha.

Over 861 farmers were trained in land preparation, application of inoculant, fertilization and planting technologies at the demo sties. Field days were held at the flowering stage and again at harvesting in November.

4.3.5 Strengthened supply chain relationships

A learning exchange visit was organised in March 2012 for 28 soybean farmers from northern Ghana to visit soybean processing companies in the south in order to build trust and business relationships between the actors. As a result of the trip, there is better understanding of each other's businesses, and a temporary price of US$ 340/mt (farm gate Tamale, Bolga and Wa) was agreed upon between producers and processors. The agreed

price led to the resumption of purchases by processors from the smallholder in the north. Since this agreement, 169 Mt of soybean have been supplied to Ghana Nuts, Royal Danemac and Golden Web. ADVANCE also facilitated business discussions that resulted in 1,725 smallholder farmers supplying 1,136.4 mt of soybean valued at US$ 433,972 to the buyers.

Existing buyer linkages between northern producers and southern buyers have been strengthened through two networking fora organized in Tamale in November, 2011 and March, 2012 with over 500 actors attending the two events. Discussions focused on strengthening business relationships, supply quantities and quality, purchase of new equipment and inputs. Three buyers - Yedent, Vestor Oil and Royal Danemac - initiated links to new nucleus farmers in Upper West Region. Several new investments were also made (see Financial Services and Grants sections).

Three farmers (out of 15) who were trained in record keeping and analysis have started to implement cash and expense records, as well as farmer registration with their outgrowers. One nucleus farmer secured a loan of US$ 5682 from Stanbic Bank to purchase inputs for his outgrowers as a result of better record keeping. Also 10 FBOs and 221 out-growers received the same training and strategic management from US volunteers, National Board for Small Scale Industry (NBSSI), and ADVANCE staff. One training session was organized in collaboration with NBSSI on inventory management skills for two aggregators; Mary Anabinga and Mariama Karim. The two aggregators are major suppliers selling to Ghana Nuts and SFMC. Following the training, the aggregators have started taking stock of all inventories.

4.4 INPUTS AND EQUIPMENT

The project's strategy for inputs and equipment is to promote yield-improving mechanization, improve crop productivity through effective use of agro-inputs – especially certified and high yielding seed varieties – and improve the inputs distribution system.

ADVANCE introduced the small equipment grant that provided actors with the opportunity to leverage 30% down payment with the vendor for an approved piece of equipment (valued at less than $5,000). The grants section of the report provides details.

In addition to the small equipment grant, ADVANCE supported 10 equipment dealers to deliver sales and services of seven tractors, six ploughs, fifteen multi-crop shellers, five power tillers, two automatic seed drills, thirteen dibblers, forty-five animal ploughs/carts and one combine harvester to 111 Nucleus farmers, FBOs and mechanization service providers in the ADVANCE operational areas valued at US$212,013.

Farm Equipment Dealers & Mechanized Service Providers working with ADVANCE

Four importing companies (ML, JK Technology, Pokifan Enterprise & RST Engineering) rendered sales & services of 3 tractors, 2 ploughs, 37 power tillers, 18 automatic seed drills, shellers/threshers, reapers, rice upgrading equipment to value chain actors.

Other collaborators include:

- Amank Agriculture Equipments Company
- FAM GH Ltd
- Ajax Agro Gh Ltd
- Senaky Enterprise
- ZOOMLION Ghana Ltd
- Agrimat Ltd
- Mechanical Lloyd (ML) Co Ltd
- RST Eng
- Tamale Implement Factory
- 4 Regional GRATIS foundations
- J.K Technologies & Ent Ltd
- MaxBaff Welding and General Works
- Montana Engineering works
- Rural Technology Facility
- ADVANCE Metal Works
- POKIFAN Enterprise

4.4.1 Increasing access to Mechanization Services

ADVANCE identified and has been working with 19 equipment dealers with the aim to create direct linkages between dealers and producers or aggregators to encourage sales of new equipment and spare parts. This is a crucial element to ADVANCE's facilitation approach, in that it ensures commercially viable service provision that will continue to provide benefits to farmers long after the end of the project. The most useful equipment to the north of Ghana has been tractors, power tillers, shellers, threshers, and dibblers. Seed drills and planters are also popular with farmers, but as this equipment tends to be more specialised, it is only the more knowledgeable tractor service providers and nucleus farmers who can adapt their practices to use the seed drills and planters efficiently and effectively. Gratis Foundation, Tamale Implement Factory and MaxBaff Welding & General Works offer animal traction and smaller equipment options to farmers; – examples are the dibblers, animal carts, ploughs and harrows. The small equipment grant program successfully helped smallholders and nucleus farmers/aggregators to increase their

A demonstration on the use of a power tiller in a rice field

mechanization options, for example to transport rice from remote fields in the Fumbisi valley, shell maize or thresh rice and soybean.

During the 2012 program year, 52 mechanization service providers and one tractor service providers association (SATOA, Upper West Region with 71 members) joined the program to offer mechanization services to smallholders. These Tractor Operators were linked to farmers and 67 of them ploughed 9,057ha of maize, rice and soybean for 8,852 smallholder farmers working with the project. The estimated value of this service is US$450,000 (equivalent US$55/ha).

In partnership with MoFA, ADVANCE drew up a mechanization service inventory with information on brand, location, concentration and serviceability across the three northern regions. Currently, there are an estimated 1,770 tractors in the three regions (Northern Region – 1,156, Upper West Region – 496, Upper East Region – 118). Of the total, 1457 were classified as serviceable while 313 as unserviceable.

ADVANCE, in partnership with MoFA, conducted six training sessions for 52 mechanization service providers and 276 tractor operators (with 1 Female). Topics included legal requirements of tractor operators, tractor mechanics, safety precautions, proper tractor operation, maintenance/repairs, hitching and unhitching. Training sessions were interactive and interspersed with practical lessons as the participants engaged the resource persons in useful discussions. The tractor service providers testified to the importance and timeliness of the training and resolved to put the new knowledge into practice.

One of the challenges observed with mechanization service delivery is the providers' inability to properly record financial transactions, acreages ploughed, locations and other business related information. The program observed that the few service providers who keep good records seem to have better returns on the business because they receive up to 95% repayment for their services compared to those that kept no or poor records. Through a volunteer consultant and in collaboration with the NBSSI, 71 members of SATOA, and 52 other mechanized service providers were trained in business management skills. As a result of better record and book keeping, three mechanized service providers (Haskett Ventures in Pru, Latif Tractor Services in Sene and Amboff Enterprise in Kintampo) accessed $24,432 in credit from YAPRA and Kintampo Rural Banks to purchase tractor spare parts.

The project realises that the maize and soybean shelling business can be quite lucrative for owners of this type of equipment. The usual fee for the service is one bag for every 10 bags of the commodity that is shelled. An ADVANCE volunteer assisted SATOA to analyse these costs, as well as their ploughing costs to determine the most profitable operations. The shelling business has a net margin profit of 23%. As a result, 10 tractor service providers and nucleus farmers invested in shelling equipment in July and August through the small equipment grants, to provide this service in the 2012 harvest in November/December.

As part of ADVANCE activities in year three, the project signed a one year MOU with Armajaro Cotton Ghana Ltd to partner on their maize/food security program that operates alongside their cotton activities. Five districts were selected from the Northern Region, and 1,448 smallholders registered to receive maize inputs (Etubi or Mamaba seed and fertiliser) on credit. The fertilizer was procured from Chemico, (a private company) who also covered

the costs of four AEAs to deliver training on GAPs and particularly good fertiliser application. To date, 14.5mt of seeds and 4,344 bags (217mt) of fertiliser have been provided to the farmers. ADVANCE will assist the farmers to access end markets, but should they wish to, the farmers may sell directly to Armajaro. Practical demonstrations are a good method for training farmers on new technologies, products and equipment use. Sixty-one nucleus farmers, 4,688 outgrowers/smallholders and 30 FBOs were trained to use basic small equipment. Subsequently, seven nucleus farmers, 16 outgrowers and 12 FBOs acquired a manual planter, 28 dibblers, 18 donkey carts, 15 bullock ploughs and six ridgers.

At a Preseason Event in March 2012, equipment supplier, F&A Engineering showed 300 farmers the 3-in-1 maize sheller that shells, chops the maize stalks, and grinds the maize into flour. The farmers' interest has resulted in the company importing 14 of the 3-in-1 maize shellers for demonstration and promotional purposes this season.

4.4.2 Increased Productivity through Effective Use of Agro-inputs

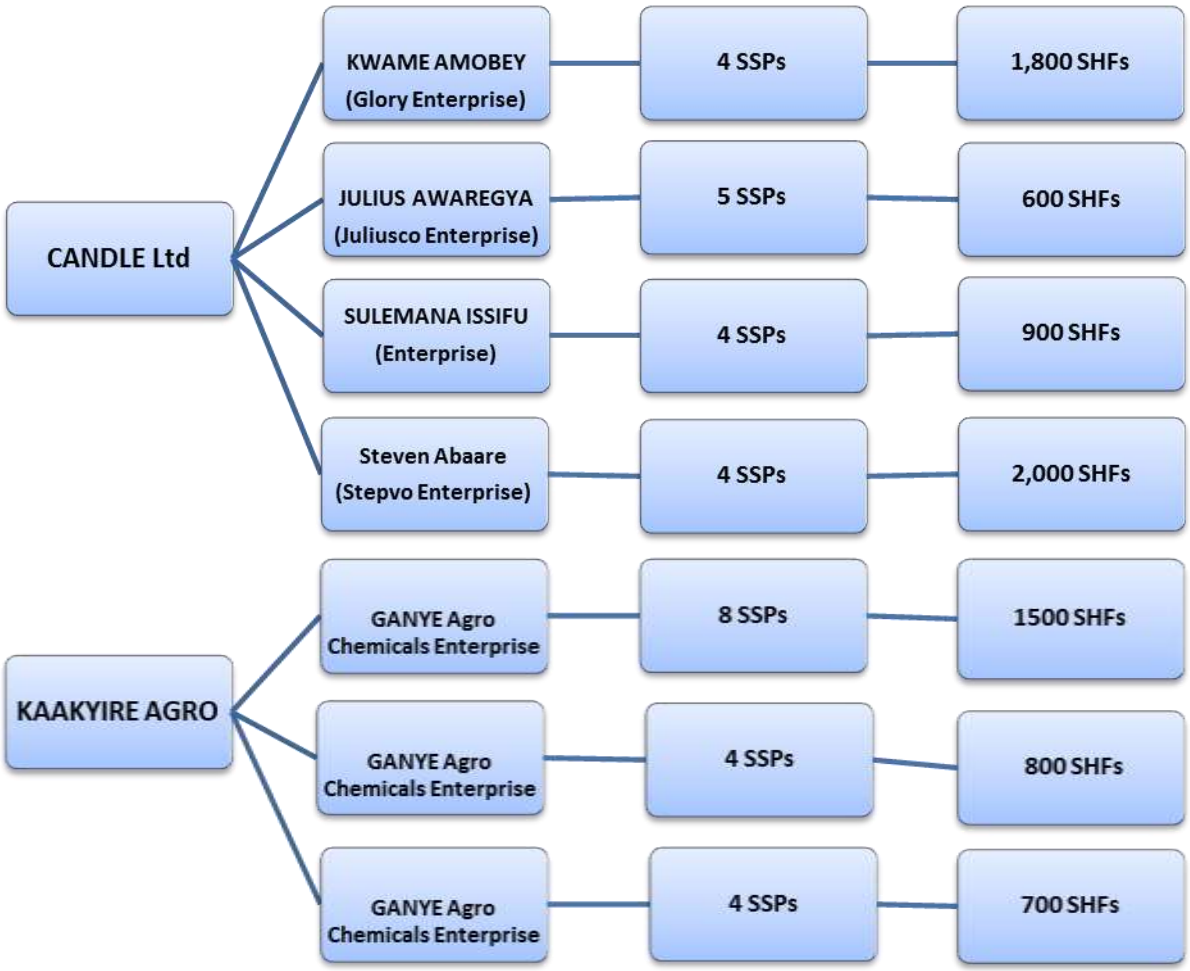
ADVANCE worked closely with ten agro-input importers, seven distributors and 99 community retailers to expand their distribution networks, services and also improve profitability. Our collaboration with IITA/N2Africa project continues. At a workshop in November 2011 to assess the industry demand for inoculants, farmers showed a high interest in purchasing inoculants for the 2012 season having seen that it can increase yields by an average of 30%. Hence, 627 packs (200 gms/pack) of Legumefix inoculant was procured by farmers from SARI (valued at US$2672). In comparison to 2011 growing season, the demand for inoculants increased by 40%. However, the adoption rate at the farmer level is still low (approximately 8% of project beneficiaries growing soybeans). The project's collaboration with SARI and Yara to demonstrate the effects of rhizobium inoculants and Yaralegume fertilizer on 28 demonstration sites has increased awareness and educated farmers and the private sector on the benefits. Plans are underway for 2-3 input importers (e.g. Kaakyire Agro) to import inoculants for the 2013 crop season.

DIZENGOFF (a private company), introduced seed power 44 WS (a seed dressing) to 350 farmers in Northern and Upper East Regions through crop demo plots and trained them in safe use and handling. The company provided 45 sachets for seed treatment on 15 demonstration fields and 125 sachets to 42 farmers for pilot trials on their own farms. Again, to ensure effective and efficient application, fifty-five nucleus farmers and 2,047 smallholders (1,269 M, 778 F) were trained by six private sector actors on the safe use of agro-chemicals and handling.

Development of Spraying Service Providers

The program has been developing business models for selling spraying services to farmers. Seven spray service providers (SSPs) from Navrongo, Bolgatanga, Bawku West and Savelegu/Nanton with 33 members were trained in safe agro-chemical use and handling by ADVANCE in collaboration with the EPA, CANDLE Ltd (an agro-input importer), B-Kaakyire Agro Ltd and the Plant Protection and Regulatory Services Directorate (PPRSD) of MoFA. The SSPs subsequently rendered spraying services to 2,468 farmers with 2,580 acres in nine communities in Upper East and Northern Regions, and realized revenue of US$7,330. These SSPs have the capacity to reach as many as 8,300 farmers in the coming season, all on a profitable basis, ensuring sustainability of the service and thus the impact.

Figure 4-1: Provision of spraying services through Service Providers



4.4.3 Building capacity for effective distribution and use of agro-inputs

Five agro-input distributors and 73 community agro-input retailers (including four women) were trained in basic record keeping, accounting, inventory management and safe agro-chemical use and handling in the three northern regions. The project also trained 26 agro-input retailers (18M, 8F) on cost analysis, pricing of products and timeliness for delivery. Also, they were trained on effective inventory management and sales management to encourage them adopt incentive measures that will enable them maintain long-term business relationships with their clients. Subsequently, an evaluation of sales records of a couple of the businesses indicates that the agro-input retailers were attracting more customers and had increased revenue by 15% over the 2011 performance.

4.4.4 Enhanced Availability and Use of Certified Seed

In the 2012 program year, the project worked with 39 registered seed growers. Of these, 24 were linked to 25 input/seed dealers and the project facilitated supplies of about 57 mt of certified seeds to 8,057 smallholders through 27 aggregator and nucleus farmer linkages across the regions. Eighteen seed growers were trained on GAPs, record keeping, costing,

pricing, seed handling and storage, in addition to using ash on rice nurseries and hybrid maize seed production. Finally, two southern aggregators (Agnes Yankey and Rebecca Dorwokpor) supplied 250kg of foundation seeds of Togo Marshal Rice variety to three seed growers at ICOUR for multiplication and supply to 300 rice farmers.

ADVANCE facilitated linkages between SARI and seed growers and farmers to supply 0.5mt of maize and soybean breeder seeds, and 1.6mt of maize seed and certified foundation soybean seed. Six seed growers/dealers in Northern and Upper East Regions (Martin Ariku, Baba Kumasi, Alhaji Mbila Asaki, Musah Sulemana, Heritage Seeds Company and Hakuna Matata Ltd) were engaged in hybrid seed production, and as a result produced 3 mt of Mamaba maize seed.

4.4.5 Improving inter-firm collaboration

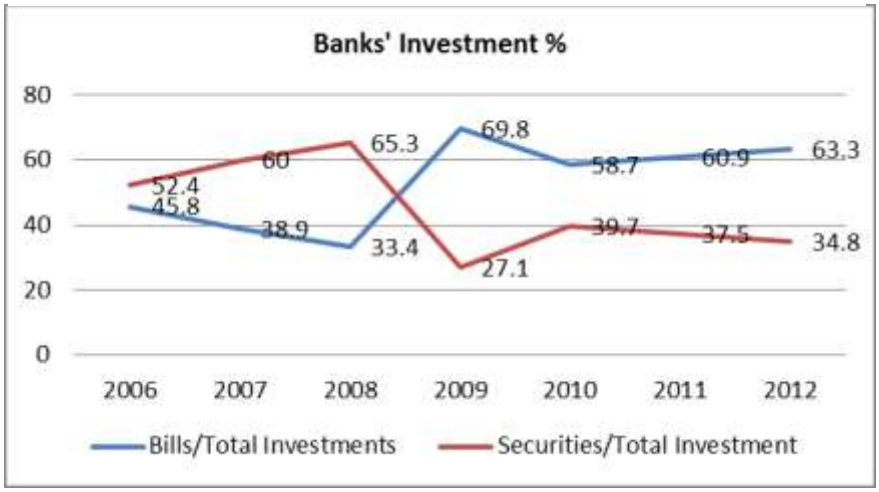
Across north Ghana, 120 demonstration plots with improved varieties of maize (85), soybean (28) and rice (12) were established in collaboration with 17 private companies and one project (IITA/N2Africa project) donating various products for the demonstrations. The products included 388 liters of pre-emergence and post-emergence chemicals, 344 bags (16.7mt) of Actyva and 15:15:15 NPK fertilizer, six bags (0.3mt) of TSP, 30 bags (1.5mt) of Yaralegume fertilizer, 95kgs of rhizobium inoculant, 45 sachets (450 grams) of seed dressings, and 1.1mt of certified maize, rice and soybean seed. Also, ADVANCE worked with Louis Dreyfus,(an agro input importer) to introduce 3rd top dressing technology through a one acre demonstration to farmers at Jilik in Bumkprugu District of Northern Region with an objective of showing how this product can significantly boost crop yields.

To enhance cooperation along the inputs value chains, the project organised four business fora in Tamale, Bolgatanga, Wa and Techiman bringing together five importers, five distributors, EPA and YARA representatives, 132 retailers and nucleus farmers/aggregators, to better understand agro-input business models, brainstorm on current challenges in the agro-input business, discuss sources of supply, and opportunities for growth and expansion in northern Ghana. Two key issues that emerged during these meetings were the non-adherence to GAIDA regulations, and the limited use of agrochemicals by smallholders. ADVANCE used these meetings to develop agro input supply chain models for Ganorma, Simple Prince, Antika, 18th April, and Timothy Agrochemicals. Outcomes of these fora include the sale and distribution of 12,359 litres of agro chemicals, 53.7mt of seeds and 17,300 bags (865Mt) of fertilizers to 4,537 farmers in project intervention areas this year.

4.5 FINANCIAL SERVICES

The Ghanaian economy faced risks stemming from pressures on the domestic currency throughout the year and a possible transfer of global developments onto the local economy through trade and the effects of the global shift toward safer treasury bills, which exacerbated an overall credit supply crunch. Statistics from Bank of Ghana reports indicates a tightening of loans and credit lines to enterprises in the country from the fourth quarter of 2011. This is due to riskier loans, high cost of funds and additional collateral requirements. Per Bank of Ghana's Financial Stability Report[4] shows the shift in Ghanaian banks' investment portfolio over the last 6 years. Banks have invested more in treasury bills than long term securities and debt since 2008. In 2012, the gap between the two types of investments continues to widen with the Banks investing less in loans for expansion land rather prefer to invest in T-bills (see Figure 4-2.

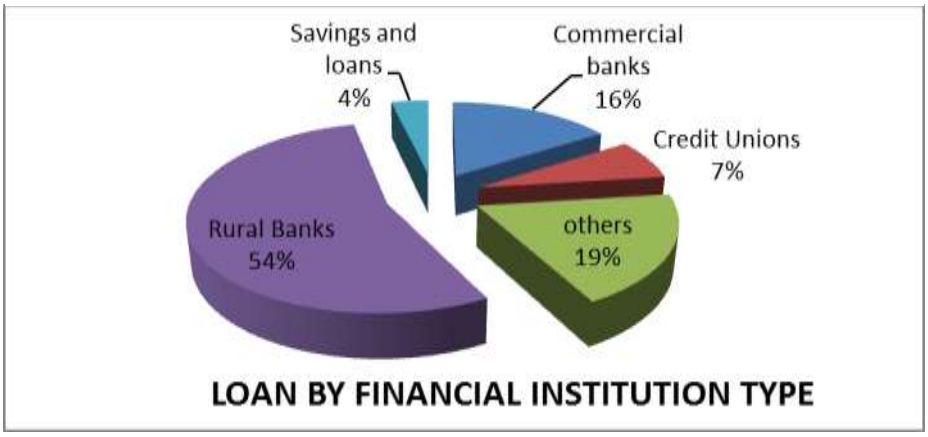
Figure 4-2 Focus of Banks' investments



4.5.1 Access to loans and investments by private sector

Interest rates on loans remain high; hence, fewer individuals and businesses across all sectors find borrowing attractive unless a clearly profitable opportunity presents itself. However, access to credit remains essential for farmers and businesses in northern Ghana to invest in upgrading and to become competitive. Access to "affordable" finance that is in line with the margins made by different actors in the project-assisted value chains, is especially important and remains our focus.

Figure 4-3: Loan disbursements by Type of Financial Institution



[4] Bank of Ghana. (2012). *Monetary Policy Report, Financial Stability.*

Bank of Ghana. (2012, June). *Monetary Policy: Economic and Financial Reports.* Retrieved September 1, 2012, from Bank of Ghana: http://www.bog.gov.gh/index.php?option=com_content&view=article&id=806%3Aeconomic-a-financial-reports-2011&catid=48&Itemid=121

Although the agriculture sector faces very strong challenges with credit allocation, in the third year of the project, the value of agriculture and rural loans disbursed to ADVANCE actors was US $648,470. Two thousand six hundred and twelve (2,612) MSMEs including nucleus farmers and smallholders, received USG assistance to access these loans.

The value of new private sector investment in the agriculture sector and food chain (includes building warehouses, factories, buying tractors, combine harvesters, shellers and dibblers) as a result of project intervention was approximately US $1,844,929, greatly exceeding the project target of $800,000. The Small Equipment Grants (see section 6.3) proved to be very effective at reaching smallholder farmers and stimulating investment. The farmers' 30% contribution to purchase the small equipment showed their commitment to invest in their value chains in their quest to increase yields. In all, 154 farmers invested US$160,562 directly in their businesses and value chains. This is a good indication that smallholders recognize the importance of investing in their businesses when given the right incentives.

Box 4: Examples of innovative, risk-mitigating, financing

Based on meetings facilitated by ADVANCE between the FIs and actors, Grace Manu, a maize aggregator received a loan of US$7,386 to pilot reverse factoring. Baduman Rural Bank also approved US$5,681 for Peter Okrah and Royal Golden Egg, a poultry farmer, to start implementing a purchase order financing agreement. Also, wa Credit Union approved US$13,650 for 148 out-growers of Benlunuma group for plowing services, improved seeds and fertilizers supplied by Antika Company Ltd under a pilot testing of cashless input credit

Overall, rural banks contributed 54 percent of total loans disbursed (see figure) to ADVANCE project beneficiaries. Sissala Rural Bank in UWR contributed approximately 42% of the rural banks' total disbursed loans due to the bank's close proximity to farmers in the Sissala East and West Districts. Four financial institutions that contributed significantly were Sissala Rural Bank (21%), Venture Capital Trust Fund (19%), Toende Rural Bank (17%) and Stanbic Bank (13%).

A member of a Women's Group in Yaro, Wa, checking money received from the Wa Credit Union

Financing through the value chain is important for many actors who do not meet the criteria of financial institutions or prefer alternative sources of funding. This year, US$607,090 was recorded as direct financing from one actor to another within the value chains. Last year, the value of loans, including financing through the value chain, was US $945,823 and increased to US $1,255,560 representing a 33% increase over last year.

In PY 2012 the project organized 16 financial stakeholder meetings bringing together the various actors to discuss agricultural financing options. Rural, commercial and microfinance institutions (MFI) participated in thirty-three field visits to interact with nucleus farmers/out growers at the farmer level. This type of visit helps increase the banks' familiarity and comfort level with the agricultural sector, which lowers their risk perception.

As a result 1,718 actors utilized financial products including making savings deposits and accessing loans. A total of US$1,083,130 worth of loans was approved but only US$648,470 was disbursed at the time of writing this report, with an additional US$434,659 expected to be disbursed in the first quarter of next year. Amounts disbursed per financial institution type as well as the average size per loan are presented in Table 4-1. Overall, a large proportion of credit disbursed this year went mostly for aggregation, production and equipment purchase. The commercial banks generally provided loans for equipment purchases and the other FIs provided aggregation and production credit. In the BA region, majority of the disbursed loans went to aggregators. In the Northern and Upper East Regions funding went into equipment purchases and production. In the Upper West on the other hand, majority of the loans went to support inputs for production.

Generally, the FIs in northern Brong Ahafo are more open and willing to try new ideas and products compared to the FIs in the three northern regions. This can be partially attributed to the two more predictable cropping seasons in northern Brong Ahafo compared to only one in the northern regions.

Table 4-1: Loans disbursed by different types of Financial Institutions

Financial Instituion Type	Amount (US$)	Average loan size (US$)
Commercial banks	100,852.27	12,606.25
Credit Unions	46,036.93	11,509.09
Rural banks	325,717.56	16,032.39
Savings and loans	23,863.64	11,931.82
[5]Others	125,000.00	65,200.00

4.5.2 Improving Capacity of Financial Institutions to Provide Value Chain Financing

In order to improve understanding of value chain financing among financial institutions, input dealers and nucleus farmers/aggregators, ADVANCE facilitated a number of trainings, meetings and stakeholder workshops in the four regions for 27 financial institutions; five in northern Brong Ahafo, nine in Upper East, seven in the Northern, and six in the Upper West Region. The financial institutions make up a diverse mix of 18 rural community banks, three commercial banks, three credit unions, one saving and loan company, and two micro-finance institutions.

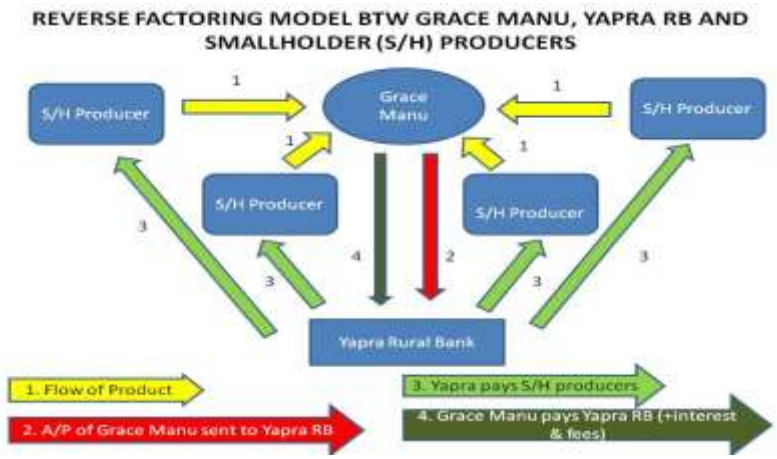
[5] [5] "Others" is made of credit from investment funds or government initiatives and sources not originally known as sources of loans/credit. The US$ 125,000 is made up of 2 loans US$ 113,636 from venture capital trust fund and US$ 11,364 from Ghana Agriculture Input Dealers Association (GAIDA) hence the average dollar amount per loan is US$ 65,200 but it does not paint a very accurate picture.

Twenty-one (21) board of directors and 14 managers from 24 financial institutions, including 15 rural banks, were trained in value chain financing in four locations. These include Ecobank and Sinapi Aba Trust both implementing the DCA program with USAID. Fifteen rural banks, three credit unions, three micro-finance institutions, two commercial banks and one savings and loan financial institution attended the three-day trainings held over Fridays and weekends to fit in with the banks' schedules. Participants were taken through the history of agricultural financing, agriculture value chain framework and agriculture dependent household loans. They were also taught reverse factoring and were introduced to leasing as a product. Commercial banks already use cash flow tools to analyse credit, but the other FIs have only been introduced recently and are showing great interest in cash flow analysis as a tool for assessing risk - particularly with agriculture. Follow ups to the banks indicate that they are modifying their loan application forms to cover other income sources of the farmer's household to give a better reflection of their total income, and hence qualify for loans which they currently will not be able to access. As a result of the training, Wa Credit Union disbursed US $30,696 to two nucleus farmers. One of the beneficiaries, Felix Bazing, a maize nucleus farmer received US $17,045. The loan enabled Felix Bazing to expand his operations by 58 percent (from 96 farmers to 163) with a total of 80ha. He provided plowing services and subsidized fertilizer to all his outgrowers and also provided certified seeds (Obaatanpa) to a selected number as well.

Three ADVANCE volunteers trained staff of 10 banks on topics including; identifying and quantifying risk, financial modelling, and credit manual development and monitoring techniques. Banks were assisted to update their credit manuals or develop new ones as necessary. The volunteers created a risk credit scoring template and introduced this to the banks as an additional tool to quantify credit risk of farmers by taking into account such risk factors as market linkages, use of equipment/technology, and access to TA.

Improving credit analysis and new product development skills has been supported through the before mentioned reverse factoring model (see Figure 4-4) with maize aggregator (Grace Manu) now paying her suppliers (smallholder farmers) faster because of the loan from Yapara Rural Bank. Financial institutions prefer well established arrangements because the risk is shared with an intermediary with intimate knowledge of the smallholders. The smallholder farmers are pleased to receive an instant payment when they sell produce. Yapara Rural Bank also agreed to pilot this with 35 farmers out of the 250 working with Grace Manu, all of whom have bank accounts now. An initial amount of US $1,704 was first approved and disbursed by the bank which helped the aggregator to purchase 21 mt of maize from smallholder farmers. A repeat facility of US $5,681 has been approved and disbursed. This facility will cover all the 35 smallholder farmers under the pilot. Following the successful implementation of the pilot the bank intends to scale up next year to cover all the 250 farmers working with the aggregator.

Figure 4-4: Reverse factoring Model



4.5.3 Enhancing Capacity of Value Chain Actors to Meet Credit Requirements

Based on assessments, 942 actors (including FBOs, aggregators, NFs, seed growers, maize and rice processors) were identified and supported to improve the financial management systems for their businesses. A local business development provider was selected to train participants on simple record keeping to more complicated pricing and profit margin analysis.

Of these, 722 FBOs, aggregators, NF, seed growers, maize and rice processors were trained on the importance of record keeping and 371 actors were trained in collaboration with various financial institutions on managing credit efficiently. These trainings were aimed at providing actors with the skill to follow proper business practices and meet credit requirements of financial institutions. Topics included the importance of record keeping, types of records, the cash book, credit sales and purchases books, banking culture, costing and pricing, price negotiation, marketing and marketing skills, analysis of margins, and price setting. The actors included nucleus farmers, rice aggregators, tractor service providers, input dealers and executives of selected FBOs. Additionally, six key nucleus farmers operating outgrower programs were trained to develop profit/loss and cash flow statements for their individual businesses. During the training, most nucleus farmers were able to separate profit centers for their own commercial farms as well as their outgrower schemes. Simple lessons were also learned: they observed that expanding outgrower schemes without expanding plowing services is not prudent and should therefore expand only when they have invested in their equipment. After the financial analysis, two of the six nucleus farmers applied for grants to purchase new tractors, which were under consideration at the time of reporting.

4.5.6 Improved Access to Multi-Party Financing Options

The project has been strategizing on how best to facilitate financing activities of farmers keeping in mind the challenges in the north where FIs are generally reluctant to lend to the agriculture sector. Our goal is to find affordable intermediaries for FIs to lend through i.e. aggregators, nucleus farmer or find other means of replacing collateral requirements. We realize that while sometimes successful, sustainability was a problem because intermediaries bore the risk. Financial institutions for the most part would not eliminate the collateral requirement or discount loans for smallholder farmers. To overcome these

challenges, ADVANCE trained a total 1,227 outgrowers and NFs on the fundamentals of value chain financing and the importance of maintaining trust worthy relationship within the chain. Two hundred and seventeen actors were provided templates to help them track the amount of credit they provide to their value chain partners. In all US $$607,090 was recorded as trade finance between the actors.

ADVANCE worked on 12 multiparty financing options across the four operational areas. Only five of these were successful and resulted in lending. The success of the multiparty financing is greatly dependent on the banks' willingness to lend to the agriculture sector as well as sensitization of the actors to understand the importance of relationship building that result in win-win outcomes. After the Value Chain Finance (VCF) trainings in the Brong Ahafo and Upper West Regions, the financial institution drove the process just as much as we did. Although they were interested in trying out new ideas, in the UWR, the financial institutions were also interested in the social aspect of raising the standard of the people especially women in the communities. In the Brong Ahafo Region, financial institutions saw this as primarily as a means to grow their portfolio in the agriculture sector while reducing their risk.

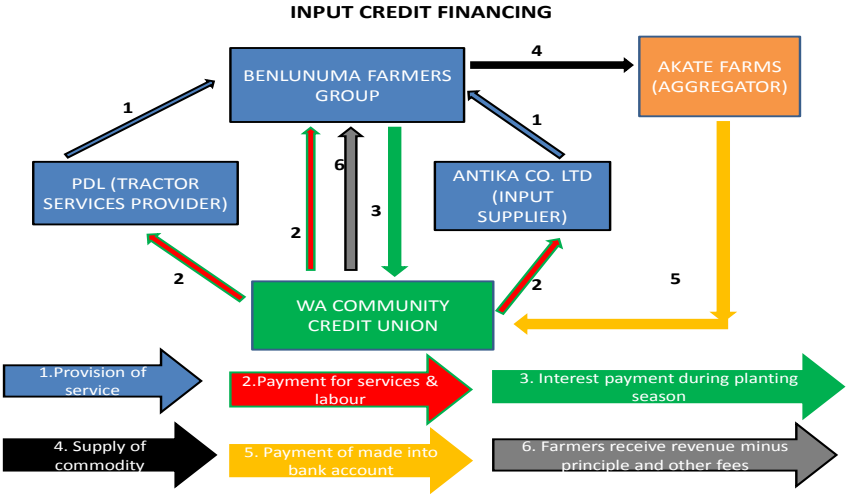
The other multi-party finance efforts stalled for many reasons including;

1. Actors not interested because of the high interest rates from financial institutions,
2. Actors with inadequate funds to meet the minimum deposit of banks
3. Banks preferring to invest in T-Bills rather than make loans
4. Actors not willing to accept credit in the form of inputs, instead they wanted the cash
5. Banks general unwillingness to lend to the agriculture sector.

In Northern Brong Ahafo, ADVANCE facilitated discussions with Baduman Rural Bank to pilot a purchase order financing model with Peter Okrah, a maize aggregators. The end-markets, Royal Golden Egg, has adopted the purchase order financing model when ordering stock from Mr. Okrah. Baduman Rural Bank provided Peter US $5,681 per month to supply maize to Royal Golden Egg. The aggregator makes immediate payments to smallholders when they supply maize. Under the financing arrangement, about 98mt of white maize valued at US $15,592 has been supplied by the aggregator over the past five months. This volume translates into almost 20mt of maize per month. There is an appreciable increase of 79.56% in volume of maize purchased and sold by the aggregator who previously sold 4mt per month in the open market. The aggregator has increased his purchases from 50 to 150 smallholder farmers.

Another multi- party financing model (see Figure 4-5) was developed in Upper West Region between Benlunuma group, Wa Credit Union, Plantation Development Limited (PDL), Antika Company Limited and Akate farms. Benlunuma farmers were linked to Wa Community Credit Union to apply for production credit for the season. The US $13,650 facility was developed into input credit with the farmers linked to PDL and Antika for plowing services and inputs respectively. The tractor/input services rendered was paid directly by Wa Community Credit Union. At harvest, the produce will be purchased by Akate farms through a local agent. Payment would be made into the account of the farmers at the Credit Union. Wa Credit Union will make its deductions for principal payments and other fees, and the remaining amount is paid to the farmers.

Figure 4-5: Input credit financing



Last year Benlunuma group did not have access to funds hence they did not have the right kind of inputs. This year, with their ability to access funds, they were able to access certified improved seed and adequate supply of fertilizer. It is anticipated that their yields this year will conservatively be ten bags per acre (1 mt) compared to yields of less than 6 bags per acre (0.6 mt) last year.

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CASE STUDY

Female Aggregator Adopts Risk Mitigating Model

Photo credit: ADVANCE/Techiman

Grace Manu explains entries in her ledger book to Financial Services Business Facilitator during a monitoring visit

"Relationship is vital in this business. Other aggregators have entered the market but are not paying on time. I want to keep my word to the smallholder farmers. This arrangement helps me to continue to do just that.

Access to finance is vital to farming. However, many smallholder famers are unable to access credit to purchase fertilizers, seeds and other inputs required for their farming operations. Financial institutions avoid lending to the agricultural sector due to perceived risks. As a result, most smallholder farmers and other value chain actors such as tractor service and agro-chemical providers have to explore other sources to finance their operations. Grace Manu, a maize aggregator and trader at Kwame Danso, a rural community in Ghana's Brong Ahafo Region, is no exception.

To help reduce real and perceived risks associated with agricultural lending for Grace and many smallholder farmers, USAID trained 16 financial institutions in the Brong Ahafo, Northern, Upper East and Upper West Regions in value chain financing from February – April 2012 to build their capacity for effective lending to the agriculture sector. Following the training, Yapra Rural Bank in the Brong Ahafo Region adopted a financing mechanism, "risk mitigating tool" which enables the bank to pay smallholder farmers on behalf of the aggregator within two weeks of delivery of produce. The Bank is piloting this model with Grace and 35 smallholder farmers from whom she buys maize. Grace buys 35 metric tons of maize weekly from 500 smallholders in the Kwame Danso community and supplies the produce to JOKASS farms, a poultry farm in Kumasi, Ghana's second largest city. She then settles the facility with the bank at the end of the month. Since June 2012, she has accessed US$1,500 from the bank through this financing mechanism.

Grace finds this financial arrangement very rewarding: she is able to pay the farmers on time, thus maintaining the healthy relationship she has with them which makes them willing to sell their crop to her. Similarly, Yapra Rural Bank through this initiative increased its customer base by 35 in May 2012. It is estimated that all 500 farmers working with Grace will open accounts with the bank as a requirement to remain part of the model, which means further financial inclusion resulted as well.

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4.6 OUTREACH AND TRAINING

In the 2012 program year the project assisted 16 radio stations to provide better agricultural content in their outreach programs. This was accomplished through radio station staff attendance at two Farm Radio International workshops, providing linkages to resource personnel in research and government institutions, initiating discussions with private sector actors, and participating in farmer field days on maize, soybean and rice demonstration sites. Where radio station staffs do not have sufficient access to resource persons, the project has trained them (9 radio stations) to record their own field interviews, carry out phone interviews, and save materials for broadcast afterwards. This is having impact for the stations, particularly as five radio stations created 30 listenership groups reaching up to [6]50,000+ smallholders through recorded programs. Also the use of Information Communication Technology (ICT) technologies (SMS, voicemail, market information) has been a useful tool to reach many farmers in remote areas. Audio visual materials and participatory drama also have been used by the project to educate farmers.

4.6.1 Delivering Agricultural Messages through Radio

Fifteen staff members from 13 radio stations were trained on how to prepare different types of radio drama scripts containing GAPs and other agricultural content during workshops with Farm Radio International. Working sessions on *the eight steps of 'The Story-Based Approach to Farm Radio Programming'* backed up with a catalogue of useful websites on agriculture and food security issues for African broadcasters has equipped the radio program staff with more resources to use.

Listenership Clubs Educate 50,000+ Farmers

Eight radio stations in North Ghana received a six-month airtime sponsorship to disseminate messages on GAPS (certified seed, fertilizer and pesticide use), market information, and climate change to farmers. Private sector company staff, research scientists and farmers go on air to discuss and educate farmers on various topics relevant to agriculture. Some farmers who patronize these radio programs say:

*"We meet every Friday to listen to the agric program on radio Upper West and through that we have learnt the best way to apply fertilizer on our farms, by digging close to the maize and bury the fertilizer inside and then you cover it "*said Grace Tabla a member of the Nyonye Listenership club.

"I have been able to save money to buy extra fertilizer since I started listening to the agric program. My fertilizer used to dissolve due to poor storage but through this radio program I have learnt the best way to store them and this year they are all intact." Mr Dakurah, Farmer in Nadowli

ADVANCE also facilitated linkages between 16 radio stations and resource persons from MoFA, Environmental Protection Agency (EPA), SARI, National Disaster Management Organization (NADMO), Irrigation Company of Upper Region (ICOUR), Fire Service, FIs, Ghana Interbank Payment and Settlement Systems (GHIPSS), agrochemical dealers, processors, nucleus farmers, aggregators and women organizations including Women In Agricultural Development (WIAD) to encourage participation by experts in live radio discussions on rice, maize and soya commodity value chains, and environmental aspects such as bush fires, climate change and use of agrochemicals. The radio stations designed twelve-month agricultural

[6] Each Listenership group has 50active members hence 1,500 direct beneficiaries. In addition, each station reaches about 10,000 smallholders in their catchment areas.

programs and each program begins with a 15- minute “Farmer Digest” on market prices. In collaboration with ESOKO Ghana Ltd, 16,000 farmers receive SMS on market information once every week. Additional radio activities include:

- Members of Ambanbaah Women's Group in Upper West Region who were trained in soya processing and food preparation participated in a radio show on Radio Upper West to share their newly acquired knowledge with over 30,000 listeners who are mostly smallholder farmers leading to increased knowledge in nutritional values of foods fortified with soya.
- An agro-chemical company in Upper West Region, Antika Limited, signed a sponsorship promotion agreement with Radio Progress, a beneficiary of the ADVANCE Radio Grants Program; to promote the use of Etubi hybrid seeds for three (3) months. Through this activity, 15.6 Mt of Etubi seeds worth US$17,727 were sold to farmers. *“I am grateful to ADVANCE, the radio promotion has been a huge success and what is surprising is that farmers are buying other certified seeds (Obaatanpa, Mamaba, Jenguma)”* said Antika Enterprise in Upper West Region. Antika is prepared to invest in these activities next year to make more certified seeds available to smallholders.
- Seven radio stations participated in field trainings at demonstration sites and Farmer Field Day activities to conduct field interview. Recordings were aired later with an estimated 10,000 farmers hearing the information.
- Bonzali Rural Bank and North Star Radio collaborated on a two–week program (one hour per week) to educate smallholders on Bonzali banking operations, savings and loan products, benefits, requirements and processes for farmers and the general public. Listeners were given the opportunity to phone in or send SMS to contribute to the program by asking questions that concerned them. A caller, Abukari remarked *“Thanks so much for your program, it enable us to learn how to save money”*

The project also worked with the print media to publish articles on agribusiness with the support of US volunteer Timothy White. The volunteer worked with five newspaper houses and eight radio stations to enhance their reporting on agribusiness related stories. Subsequently, one reporter from Business & Financial Times has produced nine agribusiness articles since February 2012.

4.6.2 Promote Drama/Festival/Videos for Disseminating Messages on GAPs

Eleven value chain actors, (3 NFs, 3 agrochemical dealers, 2 aggregators and 3 radio stations) used drama as a tool to disseminate extension information to smallholders at three cultural crop-related festivals; the Kakube (in Nandom, UWR) and Fao (Navrongo in UER) festivals with positive results. Farmers have started using protective clothing when spraying agrochemicals.

Also, Mashood Dori, a nucleus farmer in the Upper West Region and 186 maize/soybean farmers (41 women and 145 men) watched audio visual programs on the benefits of opening a bank account to reduce risk of losing their savings. Following from the video show, 45 farmers in one community opened bank accounts with Nandom Rural Bank.

Another drama titled “Misuses of Agrochemical; the wrong step,” at the Fao festival in Navrongo, Upper East Region, brought together value chain actors, Simple Prince (input

dealer), MoFA, ICOUR and Nabina FM to create awareness of the dangers of misusing agro-chemicals in farming. It targeted 1,500 rice farmers working with the project in ICOUR but attracted up to 4,000 people. The follow ups show that the use of chemical containers for drinking and storing consumables has reduced with over 60% of the rice farmers in that community indicating that they had stopped using the chemical containers completely. In Korania and Biu communities, farmers were observed spraying agro-chemicals in protective clothing, which was not common before the drama. The participatory drama approach was also used to educate farmers at Nandom on post-harvest losses and good storage methods of maize at the Kakube festival.

4.6.3 Effective Use of Communication and ICT Tools by Businesses

Smallholders tend to produce and buy in small quantities, are generally far apart from each other, and typically live far from urban centers; all factors that lead to higher transaction costs. To overcome some of these challenges, ADVANCE is collaborating with four ICT firms (Softtribe Limited, ESOKO Ghana, E-zwich, and Hekimax Solutions Ghana Ltd) to develop SMS platforms for nucleus farmers, aggregators and banking institutions to improve direct communications with their clients at affordable costs rates. Four actors (YAPRA Rural Bank, Sissala Rural Bank, Ghana Nuts and Kharma Farms Enterprise) signed up for pilot SMS packages in the 2012 season. The packages include a nine-month contract for a pilot voice messaging service to send out audio messages to approximately 880 of Kharma Farms outgrowers.

The districts covered include Tibali, Gushegu and Bimbilla, all in the Northern Region. Messages are sent via voice in the local Dagbani language and this service is being offered by Hekimax Solutions Ghana Ltd.

Effective communication is important for strengthening relationships between actors in the value chain and avoids misunderstanding and conflicts. To improve communication, ADVANCE piloted voicemail messaging with five nucleus farmers. Over 300 smallholders of Kharma Farms' outgrowers received 5 messages this season. With the voicemail messages, smallholders are more confident to plant or undertake other farm operations because the NF would have consulted with MoFA and confirmed that the time was right for the particular activity.

Additionally, the NF uses the technology to inform outgrowers of planned meetings, inform farmers of when the tractor service will arrive, and inform them of harvest time/and/or prices. When asked how the farmers would feel if they did not get the voicemail messages next year, the chairman of the Tibali community responded "*We will think that Kharma Farms and ADVANCE has deserted us".*

Memunatu Salifu, a soybean farmer at Tibali said *"Since we were born we have never seen something like this. Now we do not need to call Muhib for information about our farming activities"*

ESOKO conducted a baseline survey of 32 randomly selected nucleus farmers in August to learn how farmers currently get their agricultural information. Questions included what to cultivate, when to cultivate, how to cultivate, where to sell, when to sell and at what price. The results showed that most farmers get information on commodity prices from friends, MoFA, and from the ADVANCE project.

Presently, 94 nucleus farmers, aggregators, processors and outgrowers receive market and price information on the three commodities through ESOKO market information system. The services also include weather alerts, bids and offers, extension messages and disease notification and call center services ("adamfo pa" service). Beneficiaries were trained in how to use the phone, upload messages and interpret the data/information. Four hundred and fifty-five of Martin Ariku's outgrowers in Bazua, (Upper East Region), were taught how to access market information on prices of commodities using the ESOKO SMS system. Follow up work indicates that 89% of the outgrowers with mobile phones now access market prices of maize and soybean regularly. Similarly, 27 nucleus farmers and 24 lead farmers in the Upper East Region were trained and are accessing market prices of commodities on their mobile phones.

Soybean smallholder Memunatu Alhassan receiving information on market prices via voice SMS

Another example is a nucleus farmer in the Upper West Region, Yahaya Iddrisu, compared a processor, Royal Danemac, price against the market information on his cell phone before making a decision to sell to 32 mt of soybean to her.

Apart from the Esoko platform, the project introduced Sissala Rural Bank in Tumu and YAPRA Rural Bank to another bulk messaging SMS platform developed by SoftTribe Ghana Limited to send messages on salary reminders, best agronomic practices (methods of fertilizer applications), holiday reminders, management meetings and financial education on loan repayments resulting in less telephone bills and better communications between the banks and their clientele who are mostly farmers. The project will conduct a comparative analysis of these different SMS pilots and recommend best options for use by the different beneficiary groups and subsequent projects.

"This has reduced our operational cost in telephone calls and brought about closer loyalty by clients. We can now compete with our competitors with the help of the SMS. The responses have been encouraging with clients demanding the other products like alerts on their balances." Mr Anthony Tettey, an accountant of Sissala Rural Bank.

Similarly, Mahama Seidu, the Secretary of Yong Dapkemyili Company in the Tamale Metro (they are part of the Gundaa Produce Company supply chain), benefits from the voice messaging service saying, "*It has made my work easier. Now I say whatever I want our members to know and it is sent to them without any stress of having to walk from house to house in the community to deliver such messages. Even those who do not have phones are informed by the ones who receive the messages*".

Electronic money transactions

To reduce risks and delays associated with cash transactions, 16 businesses were introduced to the E-zwich and MTN mobile money systems.

E-zwich

Ghana Nuts has successfully adopted the e-zwich payment method which has led to more efficient handling of cash payments to their casual workers. The project is supporting Gundaa Produce Enterprise and Simple Prince Ltd to adopt the system but this has not yet taken off fully. Ghana Nuts Ltd adopted the E-zwich system to pay 600 casual workers, approximately US$301,156 during the reporting period thereby, reducing transaction difficulties and allowing for timely payment of wages.

MTN Mobile Money
Two input dealers, 18th April Agrochemicals and Antika Ltd in the Upper West Region, are piloting MTN mobile money, and have been trained by MTN to be set up as mobile merchants. The pilot has eliminated some of the difficulties of transferring daily sales to input dealers and associated loss of money through thefts. Five of the retailers transferred a total of US$11,080 for their input supplies to Antika and 18th April Enterprise during the reporting period.

4.6.4 Numeracy and Business Training

Training material, including posters and handbooks were developed during the year. These include a maize handbook, maize poster, FBO development and group dynamics poster, Farming as a Business Manual and Handbook, and a Numeracy Skills Development Training handbook. The materials are being used to train FBO members and other smallholder farmers.

FBO Development and Strengthening
Over the reporting period, 1,372 (1006M, 366F) smallholders from the Azarkimu-ADVANCE warehouse beneficiary farmer groups were trained on business planning and group management. As a result, eight FBOs registered with the Department of Cooperatives as cooperative societies. The groups now keep records, are building their savings, holding regular meetings, and have clear objectives and goals. Ten WFP/P4P women's groups (with 274 women) in the Northern Region also completed the FBO development and strengthening training.


Women receiving numeracy training in Azunsapeliga in the UER

Numeracy Skills Development
Women's confidence to carry out business transactions can be hampered by numeracy illiteracy. ADVANCE therefore identified women who are part of supply chains and trained them to acquire numeracy skills. To date, 797 female smallholders have completed the course and can record some of their daily financial transactions. Trainers were selected from the communities to enable continuity and refresher sessions to occur even on a one-on-one basis. The training will continue during the dry season when farming activities are minimized.

Farming as a Business

ACDI/VOCA has used the Farming as a Business (FaaB) curriculum in several countries worldwide. This manual has been adapted to the Ghanaian context and produced a handbook for participants. Eighteen trainers from the three northern regions have been identified to participate in a TOT in Tamale in October. The TOT will be provided by an ACDI/VOCA volunteer with experience on this training material.

5 ADVANCE VOLUNTEER PROGRAM

In this section, we present the overall volunteer program achievements since project inception, the focus of the volunteer program during the reporting period and achievements.

5.1 Overall Program Implementation

The volunteer program has made significant achievements since the Farmer to Farmer Leader Award started in 2008, and since, the Associate Award (ADVANCE) started in 2009. The ADVANCE volunteer program has achieved 5911 volunteer days as at 30th September 2012 as against an overall life of project target of 5642 volunteer days. This achievement is 104% of overall project target. The Farmer to Farmer project has also achieved 2032 (81%) of the life of project target of volunteer days as at 30th September 2012 (see Box 5). A total of 198 assignments (99 each for both Farmer to Farmer and ADVANCE) have been completed since 2008, benefiting 20,608 people directly and 288,726 people indirectly. The targeted number of assignments for the 2012 reporting period was 64 (30 and 34 for the ADVANCE and Farmer to Farmer programs respectively).

Box 5: **Summary of Volunteer days achieved**

ADVANCE

Targeted volunteer days (LOP)	5,642 days
Actual Volunteer days achieved	5,911 days
Target number of volunteers (LOP)	80
Actual number of volunteers	99

Farmer-to-Farmer

Targeted Volunteer days (LOP)	2,520 days
Actual volunteer days achieved	2,032 days
Target number of volunteers (LOP)	120
Actual number of volunteers	99

In the reporting period, 34 volunteers under the ADVANCE program completed 26 short-term and 14 long-term assignments with 39 host organizations (see details in Annex 4). The targeted number of assignments was exceeded because management decided to place volunteers with nucleus farmers to train them in business skills that will enable them to operate effectively and efficiently. Of the 34 volunteers, 26 provided technical assistance in business development, technology transfer, financial services and organizational development. Seven volunteers also provided technical assistance on cross-cutting components of the ADVANCE program - four volunteers for gender, two for environment and one on nutrition related issues. The ADVANCE volunteers provided 2,701 days of technical assistance for PY2012. The targeted number of direct and indirect beneficiaries for PY2012 was 560 and 2240 respectively. A total of 677 direct beneficiaries received volunteer assistance with corresponding 35,619 indirect beneficiaries for the ADVANCE program.

Under the Farmer-to-Farmer Leader Award (FtF), 35 volunteers completed 35 assignments with 28 host organizations (see details in Annex 5). This constituted 720 volunteer days of technical assistance; 1546 direct beneficiaries with corresponding 92,632 indirect beneficiaries receiving volunteer assistance during the year.

5.2 Program Focus during the reporting period

The volunteer program (both Farmer to Farmer and ADVANCE) had eight objectives in this reporting period and completed assignments were grouped under these objectives (Table 5-1)

Table 5-1: Volunteer assignments completed under various objectives

Objectives	Completed	
	Farmer to Farmer	ADVANCE
1. Strengthening existing agribusiness groups	12	7
2. Promoting best practice through appropriate technology among value chain actors.	6	2
3. Inculcating sound business practice among value chain actors.	16	22
4. Improving financial services in program value chains.	0	3
5. Mitigating environmental threats through the adoption of innovative environmental technology	0	2
6. Integrating practical gender mainstreaming mechanisms in program implementation	0	4
7. Understanding and incorporate the nutritional needs of smallholder households	0	1
8. Improving outreach services in the program value chain	1	1
Total	**35**	**40**

***Strengthen existing agribusiness groups*:**
Under this objective, 19 assignments were completed. Diana Lilla worked on group assessment and strengthening for Sanbotima Enterprise (SE) and his outgrowers. SE's outgrowers (of which 80% are women) have an average farm size of two acres. The outgrowers lacked the necessary training to pursue their farming activities as a business. This contributed to a lack of compliance with agreements and contracts leading to gross misunderstanding between the outgrowers and Sanbotima. The volunteer assessed the outgrower model of Sanbotima Enterprise and strengthened the relationship between the outgrowers and Sanbotima through group dynamics and business development training.

For the 2012 farming season, Diana Lilla developed a record keeping template and a plowing schedule for both SE and the outgrowers. This made it easier to keep records and planning farm activities for the cropping season. Using this template and schedule, 300 outgrowers (with a total of 700 acres) received tractor services from SE in time for the 2012 planting season. Also through this assignment, SE was linked to three commercial buyers: (i) 18th April (an input dealer and maize aggregation firm) who buys for National Buffer Stock, (ii) Premium Foods and (iii) Vester Oil. Subsequently, SE signed a contract with 18th April and supplied 20Mt of maize valued at US$6,822.

Inculcate sound business practice among value chain actors: The majority (36, representing 48% of all assignments for 2011 – 2012 project year) of the volunteer assistance under this objective focused on record keeping and business plan development. One local organization, 25 nucleus farmers, four input dealers, two farmer-based

organizations, and one mechanization service providers' association received assistance on farm record keeping while two processing companies and three aggregators also received assistance in inventory management. Templates were developed for use by beneficiaries during these assignments. See **Error! Reference source not found.** or examples of beneficiaries adopting recommendations on record keeping.

***Promote best practice through the use of appropriate technology*:**
A long term volunteer, Tara Wood (Doctoral student from the University of Nebraska, USA) supported the setting up of demonstration plots by providing technical advice on different technologies transferred to farmers in the field. (Details on the demonstration sites are in section5 4.1, 4.2 and 4.3).Tara Wood also developed pest management guidelines for maize which is being used by field staff as reference material.

Improve financial services in program value chains:
Three long-term volunteers (Janet Buresh, Kanishk Bishnoi and Doyle Galvin) assisted 10 rural banks (in the Upper East, Northern and Brong Ahafo Regions) to develop templates for assessing the risk associated with agricultural lending. The volunteers trained 118 members of staff of these banks including Credit Officers, Managers and other bank staff on various methods of risk quantification and analyses. Another volunteer will be recruited to work with four rural banks in the Upper West Region by February 2013

A volunteer taking farmers through row planting in Techiman

Mitigate environmental threats through adoption of environmental practices:
Two volunteer assignments addressed environmental issues related to the ADVANCE Environmental Mitigation and Management Plan (EMMP) and Water management. In the first quarter of this year, Sovi Lambert Ahouansou, an Environmental Specialist, supported the overall implementation of the ADVANCE EMMP. Four training sessions were held for ADVANCE staff on the safe use of pesticides in line with the ADVANCE PERSUAP.

Doe Adovor, a water management specialist, worked on indigenous coping strategies for water availability and management in Northern Ghana. During this assignment, Doe Adovor collected data on water use among 198 households in nine communities (seven districts) in the three Northern Regions of Ghana. The report highlights the opportunities and constraints to dry-season agriculture in Northern, Upper East and Upper West Regions.

***Integrate practical gender mainstreaming mechanisms in program implementation*:**
Four gender volunteers began work in November 2011 on gender mainstreaming in each of the ADVANCE field offices for six months. Gender based constraints in the project operational areas were identified and intervention options were tested in different cultural contexts. Please refer to section on gender (section 6.1) for more details on the interventions adopted.

Understand and incorporate the nutritional needs of smallholder households: In the last quarter of the year, a nutrition volunteer (Dr. Virginie Zoumenou) was recruited to advice on how best ADVANCE can incorporate nutritional issues in maize, rice and soybean value chains. The volunteer made four recommendations of which ADVANCE will be implementing two in the coming year namely: (i) promoting nutrition education training along the soybean value chain focusing on soy recipes to alleviate malnutrition among children under five years, and (ii) promoting other foods rich in micronutrients and/or protein along with soy products.

Box 1: Beneficiaries adopting recommendations on records keeping

- Volunteer Worku Nibret trained two staff of Sanbotimah Enterprise (SE) on record keeping. The volunteer also developed a business plan for the enterprise. Since the assignment SE has employed two staff members based on the volunteer recommendation. Each person is attached to one of the two tractors owned by SE to keep records on plowing services rendered to farmers in the field. The enterprise also presented the business plan to SG-SSB and Stanbic bank and received US$20,000 loan for the 2012 planting season.

- Following volunteer David Darkoh's recommendations, Dori Enterprise has employed a Secretary who keeps records of farm operations. Records on plowing services and inputs delivered to 965 outgrowers of Dori during the 2012 planting season have been compiled.

- Sissala Tractor Operators Association (SATOA) used a template developed by a volunteer (Kavita Avtar) to register farmers in advance for the 2012 plowing period. Registered farmers were allocated to members so they could plow farmer fields on time. The SATOA members standardized their price this production season taking into consideration the variable and fixed costs associated with tractor service management (US$26 per acre). Using the sliding price mechanism developed by the volunteer, farmers paid for plowing services based on the farm size and number of obstacles on the field. The more stumps farmers have on their fields, the higher the cost of plowing.

- Maclog enterprise engaged a graduate Intern from the University of Development Studies for three months to assist in keeping farm records using templates developed by volunteer Mamadou Thiam. Now, Maclog is able to track all plowing services and inputs delivered to all 404 outgrowers. Based on the data collected, he is able to forecast budgetary and stock projections.

6 CROSS CUTTING PROGRAM SERVICES

Cross-cutting programs including gender, grants, environment, and public relations provide support to all the technical sectors of the project.

6.1 ADVANCE GENDER PROGRAM

Gender issues remain a concern to development as women bear as much responsibility and in some instances more responsibility for meeting basic needs of their family. However, it is common, especially in rural areas for women to be denied the resources, information and freedom of action they need to fulfil this responsibility. It is a long standing belief that when women are supported and empowered, society in general benefits, their families are healthier, more children go to school, agricultural productivity improves and incomes generally increase. Therefore, ADVANCE continues to make gender issues an integral and important part of program implementation.

In the reporting period, ADVANCE focused on the following major areas to ensure gender equity in all activities namely; (i) increasing awareness of actors to women participation, (ii) building capacity - literacy and numeracy, (iii) creating networks among the women actors on the program, and (iv) increasing women's access to productive resources. Other activities included efforts at increasing access to agricultural and nutritional information for smallholder farmers especially women, and also the celebration of International Women's Day with the women actors.

6.1.1 Ensuring Gender Equity and Benefits from Project Assistance

Project staff continue to ensure gender equity in all project activities regarding number of women benefitting as well as their level of participation. The project developed a "*Gender Tips for Volunteers"* on the volunteer program. This ensures that all volunteers have a gender dimension of their assignment and their reports reflect that as well. Four gender volunteers (Rashid Alhassan, Mona Hakimi, Joya Taft-Dick and Naa Adjeley) were recruited by Winrock International to assist with implementation of gender activities especially with regards to increasing women's access to productive resources.

During the year, 9,768 (37%) women benefitted directly from the project out of 26,070 beneficiaries. Over US$317,900 in credit was disbursed to 774 (27%) women out of 2,612 beneficiaries, while 29 (38%) of the major aggregators and buyers were women. Women also featured prominently in FBOs with 2,831 (42%) being FBO members receiving project assistance out of 6,746, and 8,361 (46%) accessing business development services. Also, women made up 1,578 (28%) of beneficiaries trained in Farming as a Business (FaaB) or other business skills out of the 5,734 beneficiaries. Regarding adoption of new technologies, women beneficiaries cultivated 606 (27%) hectares out of 2,274ha of land under improved technologies or management practices as a result of project assistance. Therefore, the extent of women participating and benefitting from project assistance is near or exceeds the 30% target set by the project.

During the period under review the project identified a number of gender based constraints facing project beneficiaries at home, work and during group meetings, as well as leadership roles. Constraints such as women not: (i) fully participating in meetings, (ii) being part of decision making, (iii) getting full support from husbands to engage in other economic interests, (iv) having adequate numeracy and literacy skills, (v) having adequate access to tractor services and inputs and (vi) having adequate access to finance. Group discussions were held on topics such as the role of women in agriculture and home keeping. During these discussions, both beneficiaries and technical staff identify and or suggest strategies to overcome the challenges and the women are encouraged to try them.

6.1.2 Business Lunch for Women Entrepreneurs and farmers

Charlotte Ababio, CEO of Royal Danemac was sponsored by ACDI/VOCA to participate in the 2012 Global Summit for Women which was held in Athens, Greece where she interacted with other women entrepreneurs across the world to share experiences and develop business networks.

"The most important thing I learnt from the summit is the power of Branding. I currently do not have a branding strategy for my products so this has created the awareness" – Mrs Ababio

Mrs. Ababio was the speaker for a Business Lunch organized in Tamale for eight women entrepreneurs to learn from Mrs Ababio's experience. The women later reported that they were motivated by Mrs Ababio's experience and would strive to also gain international recognition. Another Business Lunch was organized for eight women involved in agriculture and exhibited success and knowledge. The purpose of the gathering was to provide a platform for the women to share their experiences regarding various aspects of agriculture.

Women smallholders sharing knowledge gained on nutrition on a local FM station, Radio Upper west

6.1.3 Gender Integration in Radio Programs

With increased access to quality agricultural information, 13 FM station hosts out of the 15 FM stations earmarked for this year were assisted to develop their agricultural programs with a "gender lens" which highlights the timing, guests and contents of their programs. As a result, subsequent agricultural programs were planned with the trained radio hosts. In an effort to reduce the gender gap in rural radio programs, the project held a workshop with 13 radio stations from the three Northern Regions. One of the gender gaps identified during the workshop was the dearth of female sources in agriculture reports or panels. As a result, a "Gender Sources Database" was developed by ADVANCE for the radio hosts to increase their accessibility to Resource Persons. This intervention will encourage more women

participation as resource persons on agricultural radio shows and promote gender-sensitive reporting.

Eleven women's listening groups were established across the three northern regions to encourage effective discussion of agricultural programs. The program content developed focused on agric-financing, farming as a business, good agronomic practices, marketing, bush fire management, and safe use of agro-chemicals, FBO development, and the role of the youth in agriculture.

6.1.4 Celebration of International Women's Day

ADVANCE marked this year's International Women's Day celebration at Bussie, a community in the Wa Municipality on March 8, 2012. The global UN theme was *"Connecting Girls, Inspiring Futures"* and the ADVANCE event theme was *"Women Who Feed the Future"* The event aimed to acknowledge and celebrate the efforts and contribution of women in the agricultural value chain. Six local women's farming groups with more than 200 women members attended. The program was also attended by the chief, assemblymen, representatives from WIAD and Plan Ghana, female nucleus farmers, and the media. The Regional officers for WIAD gave a talk on nutrition, which was followed by a cooking competition, focusing on the use of soya bean, cowpea and maize. The winners were awarded items sponsored by Yedent and Ghana Nuts Limited. GhanaNut and Yedent supported the program with cooking oil and fortified foods respectively.

Volunteers from the women's groups also performed a drama emphasizing the importance of harmonious relationships both in a marital context, as well as between nucleus farmers and their out growers. The drama was used to educate the community members on the *"Benefits of operating an Out grower Scheme"*. As a direct result of this event, 20 members from Duong, a neighbouring community formed an out grower scheme with Sanbotimah, the nucleus farmer for Bussie.

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CASE STUDY

Feed the Future Empowers Sorugu Women's Group to Increase Income

Photo credit: Alhassan Sahanuni

Members of the women's group discussing a poster during the training session

"This is the beginning of a brighter future," says Madam Amina Alhassan, a leader of the group.

About 90 per cent of women in Sorugu, a rural community located about five kilometres from Tamale, are illiterate and rarely have access to the required skills and knowledge to improve their wellbeing and that of their children. Faced with the task of taking care of their children's health, nourishment, payment of school fees and other needs, 65 women came together in 2009 to form a smallholder farmer-based organization. Known as the "Sorugu Tung-teeya (meaning together we grow) Women Farmers Group, the women produce and process rice for the local market. In 2011, the World Food Program (WFP) identified and contracted this group to supply rice to its Purchase for Progress (P4P) Program – an initiative that offers smallholder farmers opportunities to sell their produce to the Agency. However, the group faced certain challenges such as poor record keeping, poor savings culture and inadequate business management skills.

That same year, WFP and USAID/Ghana's Feed the Future (FTF) Initiative signed a Memorandum of Understanding to collaborate in the implementation of the P4P program. Consequently, the USAID project developed simple, easy-to-understand training materials to train these women in their local language. The training was conducted over a period of five months in numeracy skills, sustainable group practices, good record keeping, planning and management of their farming operations and group leadership skills.

Three months after the training, the group registered with the Department of Cooperatives as a legal cooperative society. Some of the benefits of registration include relative ease of transacting business with banks and other business entities. With the support of USAID/FTF, the group mobilized US$1,045 to purchase a rice ripper, thresher and tarpaulins through savings and levies from members towards efforts to meet the standards and specifications of the WFP/P4P initiative. Their first consignment of 25 metric tons valued at US$8,750 will be delivered to WFP in November 2012.

Today, the women keep minutes of meetings, savings book, visitors' register, production records and equipment register. They have also started monitoring their income and expenditure to enable them make better business decisions such as adding value to attract better prices, cost-benefit analysis, and taking measures to reduce cost of production to become more efficient and thereby maximize profits.

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6.2 ENVIRONMENTAL COMPLIANCE

The project addressed four thematic environmental management areas in this reporting period:

1. Improving agrochemical management,
2. Researching into soil and water management technologies,
3. Improving smallholder adaptation to climate change and
4. General compliance with title 22 of the code of federal regulations section 216(22CFR216).

Project management also kept track of all indicators for environmental management (see Annex 6) monitored the amended Environmental Mitigation and Monitoring Plan (EMMP) for warehouse construction (summarized in Annex 7) and the new conditions for the negative determination of the ADVANCE pesticide Evaluation Report and Safe Use Action Plan (PERSUAP) results which is summarized and presented in Table 6-1.

6.2.1 Improvement in Agrochemical Handling

During the period under review, 119 persons in the agro-input supply chain in the three northern regions were trained on environmental aspects of pesticide handling and safeguards. They included 83 input dealers, 17 Spraying Service Providers (SSPs), 14 subsidiaries and five (5) shop attendants. Topics included compliance with the laws and regulations of the Environmental Protection Agency (EPA), proper pesticide storage and sales, the importance of using appropriate Personal Protective Equipment (PPE) during pesticide handling, training for employees (distributors, retailers), and safe methods for the disposal of obsolete pesticides and used pesticide containers. In collaboration with Dizengoff Ghana Ltd and Candel, the program carried out 15 field days on demonstration plots to train smallholder farmers on the proper use of agrochemicals. These efforts were also supported by Extension Agents (EAs) from the Ministry of Food and Agriculture (MoFA) and ADVANCE Business Facilitators in the regions. In total, 1,366 smallholder farmers attended the field days.

An officer of an input company demonstrating effective chemical handling to farmers in Tamale

The project collaborated with the EPA Regional Office in Sunyani to develop a brochure to guide radio stations on agrochemical advertisement in both print and the electronic media. Following this development, 23 Presenters from 14 radio stations were trained on how to use the agrochemical advertising guidelines. The EPA also used the occasion to train media practitioners on agrochemical classifications, highlighting the class one and banned pesticides. Practitioners were also cautioned on the dangers of advertising banned

chemicals as the practice is criminal, contributing to misuse and poor handling that could cause environmental hazards.

The project supported two input dealers, Antika and 18th April Ltd., to develop environment, health and safety procedures as required by the EPA but often ignored by input dealers. The program will continue to provide environmental management guidance to Antika and 18th April in order to improve upon safe handling of agrochemicals.

Monitoring the implementation of the ADVANCE PERSUAP
Safe use and handling of agrochemicals remains a major challenge in project implementation; re-use of empty agrochemical containers and lack of attention to safeguards by applicators is still widespread among farmers. To address these issues, a mitigation and monitoring plan for the PERSUAP which comprehensively addresses the major issues has been developed and being implemented. Details of monitoring results for this season are found in Table 6-1.

6.2.2 Research into Soil and Water Management Technologies

A survey on water management techniques was carried out in nine (9) communities across seven (7) districts in the three northern regions. Data was collected from 198 smallholder farmers on indigenous water management technologies as well as water utilization in the three northern regions. The survey also collected data on farmer utilization of water resources in dry season farming. The report highlighted the available water for agriculture and household use during the dry season and concluded that water availability is not a constraint to dry season farming, however abstraction techniques and drudgery has made dry season farming unattractive in the research coverage areas.

The project collaborated with Savannah Agricultural Research Institute (SARI) to conduct soil tests to demonstrate what fertilizer to use or when liming is necessary to adjust the soil PH for optimum plant growth. Soil samples were collected from total of 56 farms for testing. The soil analysis revealed major deficiencies in available potassium and exchangeable phosphorous and nitrogen. These deficiencies were addressed with the application of fertilizers provided by lead input dealers who supported the demonstrations.

6.2.3 Improved Adaptation and Resilience to Climate Change

The ADVANCE Project has introduced smallholder farmers to drought index insurance in collaboration with the Ghana Agricultural Insurance Pool (GAIP) and the German Development Corporation (GIZ). The drought index insurance scheme is intended to reduce the risk of crop failure as a result of drought. ADVANCE field officers supported the program by sensitizing farmers on the concept of the drought index insurance for maize and soybean. A total of 179 farmers purchased policies for the 2012 planting

Box 6: ***Drought index insurance for 2012 cropping season***

No. Of weather stations Used: *9*
No. Of Farmers Insured: *179*
No. Of acres insured: *253.5*
Total sum insured: *GHC23, 770.00*
Total Premium: *GHC3, 090.00*

Claims triggered at two weather stations

Weather station with claim	Tamale	Pong Tamale	Pong Tamale
No. of farmers with claims	3	7	9
Crop insured	Maize	Maize	Soybean
Claim Amount (GHC)	9.00	129.00	42.00

season covering 253 acres (see **Box 6** for some details).

ADVANCE also procured and installed five (5) automated weather stations at Karaga, Savelgu/Nanton, Tolon /Kumbungu, Zabzugu/ Tatale and Nadowli districts to support the Ghana Meteorological Agency (GMET) to effectively monitor and collect rainfall data to expand the drought index insurance scheme and provide more accurate weather information to farmers. These weather stations will be signed on to the drought index insurance scheme after two years to provide rainfall data for the catchment area and therefore provide an opportunity for the farmers in that locality to have access to the insurance scheme.

Some farmers in Tamale receiving their claims from the drought insurance scheme in the 2012 crop season

6.2.4 General Compliance with USAID Environmental Regulations

The ADVANCE management team has ensured that all project activities have remained consistent with the Initial Environmental Evaluation (IEE) conditions for the period under review. The program also amended the IEE to include small scale construction which hitherto was not covered by the initial evaluation of aspects and impacts. Field officers received refresher training on the ADVANCE Project's IEE conditions and implementation of the ADVANCE Environmental Mitigation and Monitoring Plan (EMMP). Topics covered in the training session include implementation of the PERSUAP in the field as well as data gathering for monitoring the environmental indicators. Also, environmental and Safety Plans (ESP) have been developed for all enterprises that have received direct grant assistance for farm equipment to enhance safety and environmental safeguards.

During the current reporting period, ADVANCE received a provisional permit for the construction of a 500mt warehouse in the Tamale Municipality which is currently under construction. The EMMP for the warehouse construction has also been fully implemented by the contractor and the monitoring results are provided in Annex 7. The program continues to use the environmental review forms and the USAID visual field guides to conduct reviews for all grants and new activities and these are up to date for the period in review.

Monitoring implementation of the EMMP and the amendment for warehouse construction
The environmental performance indicators as stipulated in the IEE have been tracked over the life of the project and Table 6-1 summarizes the results as at the end of the reporting period.

Table 6-1 ADVANCE PERSUAP Implementation and monitoring

Issues	ADVANCE Action Needed	Progress till date
Reduced Reliance on Pesticides To produce maize, rice and soybean, it is necessary to use agrochemicals to some extent to combat pests and diseases of these	The choice of pest control method and products available will start from the selection of appropriate planting material based on levels of resistance and tolerance to major pests. The	ADVANCE project management has collaborated with the crop research institute on the trials of new varieties of seeds that are yet to be released. In collaboration with major input dealers the program has also made available certified seeds to farmers for this

Issues	ADVANCE Action Needed	Progress till date
commodities and in land preparation.	program will therefore promote planting materials that have a high tolerance to pests with limited reliance on pesticides through collaborations with research institutions.	planting season. The project has also introduced farmers to seed dressing this season. The program will continue its efforts in ensuring that farmers have access to improved certified seeds that are pest resistant to minimize pesticide reliance.
Access and utilization of Personal Protective Equipment Small holder farmers in the Northern sector so not view the use of personal protective equipment (PPEs) as essential. Farmers are aware of the potential hazards when spraying pesticides but usually chose not to wear protective clothing.	To address the issue of poor use of PPEs, field officers will recommend and promote the use of PPEs specifically designed for the hot weather conditions which is the main cause of poor use of PPEs. Additionally the program will work with local service providers to develop a services market for certified pesticide applicators to reduce the number of untrained persons exposed to pesticides	ADVANCE field officers have demonstrated the use of PPEs during all field days in collaboration with MOFA, EPA and major input dealers. Input dealers collaborating with the ADVANCE program have promoted PPEs for purchase by small holder farmers. In the period, 21 spray service providers were trained in pesticide handling safeguards and spray service provisioning in the Upper East region. They have provided services to 285 small holder farmers this cropping season
Avoiding Re-use of Pesticide Containers Small holder farming communities generally re-use pesticide containers for the storage of food items and do not believe any harm can come to them if they are clean.	ADVANCE field officers will make recommendations for the destruction and burial of used containers on the farm and avoid bringing them back to the homestead to prevent the temptation of re-use. ADVANCE will also maintain regular programs of public awareness, education and training programs for small holder farmers	ADVANCE field officers demonstrated the methods of disposal of used pesticide containers during 15 field days and training sessions. Small holder farmers have also been advised by MOFA extension agents on the importance of destruction and burial of the used containers.
Pre-harvest and Storage chemical interval violations The risk of high levels of pesticide residue in harvested produce has been identified throughout the operational areas	ADVANCE outreach team will maintain regular public awareness programs on the effects of violations of pre-harvest and storage chemical residues. Pesticide training programs will also cover handling practices that reduce unacceptably high levels of residue.	The ADVANCE outreach team continues to maintain awareness through the electronic and print media on the hazards of violating pre-harvest storage chemical residues. The project will develop a checklist for storage of cereals for warehouses which will be made available in the harvesting period.
Unsafe Storage, transport and handling Poor storage, transport and handling of agrochemicals can pose high risk to those directly handling the chemical and other passers-by.	The program will support the training of input retailers and small holder farmers on precautionary measure when transporting, storing and handling agrochemicals	Eighty three (83) input retailers received training on storage, transportation and handling of agrochemicals during the period. Environmental, health and safety procedures have been developed for two agro-input retailers, Antika and 18th April.
Applications by Women and Children Minors that support parents on the farm are often saddled with the task of pesticide application, Women sometimes also	ADVANCE will develop outreach programs that promote the elimination of women and children in pesticide application programs while encouraging their involvement in other	The program has not undertaken any specific activities to address this issue in the reporting period, Neither has there been any instances where women and children have been allowed to apply agrochemicals.

Issues	ADVANCE Action Needed	Progress till date
apply pesticides , oblivious of the health implications to them and even children yet unborn	aspects of the farm that do not deal with pesticides.	
Potential for using pesticides more than Necessary Farmers normally apply agrochemicals by calendar without actually encountering the threat of a pest invasion leading sometimes to avoidable high cost of agrochemicals and over application of pesticides.	Through training programs, farmers will be encouraged to practice good agronomic practices to avoid the over utilization of pesticides. A cost benefit analysis tool will be used to discourage over-utilization and IPM methods will be encouraged.	Good agronomic practices (GAPS) have been the major topic for ADVANCE demonstration plots. With the support of a volunteer consultant (Tara Wood), small holder farmers were also introduced to pest scouting prior to pesticide application to avoid over application of pesticides.
Use of lower-toxicity products The study revealed farmers inclination towards pesticides recommended by other users and retailers without necessarily considering toxicity levels	ADVANCE will implement awareness campaigns targeted at small holder farmers and retailers to use agrochemicals in toxicity class III whenever possible and toxicity class II will be used under very strict safety measures.	The program has used the PERSUAP recommended agrochemicals as a guide for farmers to choose the least toxic products available on the market. All ADVANCE demonstration plots used the PERSUAP recommended agrochemicals.
Avoid contamination of water resources Small holder farmers tend to have farms close to the homestead and water resources that most often serve as their drinking source as well as that of livestock	Through outreach and awareness programs, farmers will be encouraged to avoid spraying around the home and water bodies.	This activity has been incorporated in the 15minute farmers digest supported by the ADVANCE program on 14 radio stations across the three Northern regions.
Safer Use of Pesticides	Paramount in the routine actions of ADVANCE will be the establishment of a monitoring program for safe and effective use of pesticides.	The program continues to demonstrate safe and effective use of agrochemicals during all field days and training programs.

6.3 GRANTS PROGRAM

The focus of the Grants Program in the reporting year was on procurement of equipment to assist beneficiaries increase productivity, improve post-harvest practices and storage facilities, as well as introducing uniform standards in weighing and measuring of produce during trade activities.

6.3.1 Overall progress with the Grants program

During the year, 346 grants including 145 small equipment grants and 116 tarpaulins, moisture meters and weighing scales were awarded to FBOs, radio stations, nucleus farmers and aggregators. This brings the total number of signed grant agreements to date to 382, with a total obligated amount of $2,628,434, of which $1,616,961.79 has been disbursed. These grants have directly benefited 2,894 and 123,278 indirectly.

Summary of results to date

- $2,628,434 **obligated**; $1,616,961.79 **disbursed**
- 2,894* direct beneficiaries
- 123,278 indirect beneficiaries
- 591 pieces of equipment provided to beneficiaries on cost share basis
- Thirteen 50Mt community warehouses constructed
- 8 Community Radio Stations supported to provide outreach services to farmers

Project management introduced the very successful *Small Equipment Grant Program* in 2012 where beneficiaries selected preferred equipment themselves from pre-qualified vendors based in North Ghana and made down-payments 30% of the equipment value prior to equipment release, with final payments of 70% of value made by the program. (See 6.3.2 for details)

6.3.2 Small Equipment Grant Program

The focus on farmers in northern Ghana required an innovative approach to enable access to small but effective equipment for production and harvesting. ADVANCE piloted the Small Equipment Grants Program for relatively small farm equipment including, but not limited to dibblers, animal traction equipment, threshers and planters. A key feature of this program was its limitation to manufacturers and vendors of small equipment based solely in the north to enable farmers to physically inspect and select equipment of their choice. Additionally, the SEG mechanism sought to create direct contacts and to build relationships between other ADVANCE stakeholders and the equipment vendors. A total of 251 pieces of small equipment were approved for 154 beneficiaries with a total value of $542,124.67. The beneficiaries contributed $160,562.10 while ADVANCE paid the difference of $381,562.57 (see details in Annex 8).

6.3.3 Future Direction.

A major focus of the Grants Program in the coming year will be on monitoring the use and impact of the production, harvesting and processing equipment provided to farmers for the various commodities. We will also continue to support innovative ideas by the technical team that could strengthen linkages along the value chain of the various commodities.

Table 6-2: Completed and On-going activities.

Activity	Status
Agricultural Equipment Procurement Support for Improved Mechanization	Three beneficiaries in northern Ghana received assistance to procure 72HP tractors for the production season; an additional tractor purchased earlier in 2011 was delivered to a beneficiary in the Brong Ahafo Region.
Procurement of Tarpaulins to Improve Produce Quality	ADVANCE procured 251 tarpaulins for farmers selected through their nucleus farmers to ensure quality of produce during threshing. Beneficiaries were FBOs and nucleus farmers who are obliged under the agreement to make the tarpaulins available to their out growers during harvesting.
Procurement of Weighing Scales and Moisture Meters to Promote Adherence to Standards	ADVANCE program is encouraging the use of weighing scales and moisture meters to project beneficiaries to ensure uniformity and fairness in trading activities. Under the program, 61 beneficiaries received 123 (200kg) platform type weighing scales and 41 moisture meters. Using moisture meters, farmers will be able to accurately and efficiently measure the moisture levels in harvested crops which should reflect on a better price of grain. It is expected that 13,052[7] farmers will benefit from this activity.
Rice Mills Upgrading to Improve Quality of Locally Produced Rice	Rice processing equipment consisting of graders, winnowers, whiteners and cleaners were delivered to four rice mills: Aframso Rice Processing and Marketing Group, Gomoa Okyereko Irrigation Coop and Rice Farming Society, Akpafu Odomi Cooperative, and Fakwasi Rice Mill Farmers Association to complete the upgrading of rice mills that started in 2011. It is expected that 596 rice farmers would benefit from the use of these rice mills.
Outreach Radio Programs	Eight grants were awarded to Radio FREED, Radio North Star, URA Radio, Radio Upper West, Radio Builsa, Radford FM, Radio Progress and Nabiina Radio to support weekly broadcast of agricultural radio programs during the reporting period of six months. The topics for discussion on the radio programs cover production and post-harvest handling, good agricultural practices, environmental protection, among others.
Procurement of Weather Stations to Support the Ghana Agricultural Insurance Program	As part of our collaboration on crop insurance program with the GIZ-supported "Innovative Insurance Products for the Adaptation to Climate Change (IIPACC)" program, and the Ghana Agricultural Insurance Programme (GAIP) ADVANCE procured 5 weather station equipment for the Meteorological Department of Ghana to be used to collect and report rainfall data to various stakeholders under the crop insurance program. The weather stations have been installed in Karaga, Savelugu/Nanton, Tolon/Kumbungu, Zabzugu/Tatale, and Nadowli districts in the Northern and Upper West Regions.
Support to the Ghana Grains Council (GGC)	A grant was awarded to Ghana Grains Council for operational costs and training activities related to the implementation of the warehouse receipt program, as well as establishment of a warehouse receipt platform. A pilot warehouse is under construction, in readiness for the roll out of the program.
Support the Construction of Small Storage Facilities	During the reporting period, the project completed the upgrading of the first 13 of 30 community storage facilities in collaboration with the AGRA funded Arzankimu project.
Pineapple Suckers Distribution	Under the contract signed with Bomart Farms in December 2011, ADVANCE provided 3,500,000 disease-free, smooth cayenne

*2,894 direct equipment beneficiaries supporting 13,052 out growers of an average family size of 6

[7]This is the total number of out growers working under the beneficiary nucleus farmers

	pineapple suckers to 14 FBOs, 2 companies and 13 nucleus farmers. This activity is now closed.
Construction of 500MT Warehouse facility for Gundaa Produce Limited in Tamale	As part of the Warehouse Receipt System, ADVANCE is assisting Gundaa Produce Enterprise to construct a warehouse to increase their current capacity and deliver improved quality and quantity of maize to the markets through the Warehouse Receipt Program.
Provision of Parboiling Vessels for Women's Groups in Northern Region	ADVANCE, in collaboration with P4P Program of the World Food Program is assisting 8 women's groups in the Northern Region to secure parboiling vessels to enhance the availability of parboiled rice on the market. This complements the WFP's program to accelerate the FBO's commercial development growth.

Beneficiaries of small equipment grant using the weighing scale and moisture meter at Tono

A tractor-driven planter acquired by Heritage Seeds under the USAID small equipment grant program)

One of USAID-grant supported maize shellers being used in Wa

One of the 30 30-MT capacity warehouses as part of the USAID grant program

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SUCCESS STORY

Timely Plowing Service Gives Hope for Higher Yields

Photo credit: ADVANCE/Wa

Augustine using his new tractor to plow a field

"Last year, I could only plow for 120 farmers. It was a great source of worry to me because this defeated my purpose of helping my farmers to fight poverty through mechanized farming, especially the women who form 70% of my farmers. With this new tractor, I am extremely happy to support these vulnerable farmers to fight poverty. Thank you USAID for your support," says Augustine.

Fifty-one year old nucleus farmer, Augustine Sandow, has 405 maize outgrowers to whom he provides seeds, fertilizer and plowing services in the Nadowli District of the Upper West Region of Ghana. At harvest, the farmers repay him in kind with a 100kg bag of maize per acre plowed and four additional bags for the provision of 9 kg of seeds and 3 bags of fertilizer. Since 2006, Augustine could only plow a maximum of 220 acres for 120 of his outgrowers and this was not done in a timely manner; his only tractor had become old and broke down frequently. Access to mechanization services in the region remained limited. The majority of Augustine's farmers prepared their fields manually, resulting in late planting and poor yields

USAID recruited two volunteers from the U.S. to assist Augustine in developing a strategic plan to enable him to access credit of approximately $20,000 from the SG SSB and Stanbic Banks. This credit allowed him to pay 30 per cent leverage for a new tractor through USAID's grant equipment pilot program, part of the Feed the Future Agricultural Value Chain Project. Augustine was also able to use this credit to fix his older tractor. In addition, USAID, in collaboration with the Ministry of Food and Agriculture (MoFA) provided agricultural extension services to Augustine as well as his outgrowers.

Following these interventions, Augustine plowed 700 acres for 350 outgrowers before the start of the rains in the 2012 farming season. In addition, he plowed another 100 acres for 50 farmers who are not part of his outgrowers. It is expected that the timely provision of plowing services to Augustine's farmers will lead to an increase in maize production from 88 MT to 700 MT, with an estimated total value of US$21,000 compared to US$2,000 in the previous season.

"Before the USAID intervention, I struggled last season and had only an acre of land ploughed very late and this affected my yields, but this season I have five acres already plowed – three for me and two for my wife. With this timely plowing and the training on good farming practices from extension officers, I anticipate a significant yield at the end of the farming season," says Ala Francis, a smallholder farmer.

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6.4 PUBLIC RELATIONS AND COMMUNICATION

The key role of the Public Relations and Communication (PR&C) Unit is to project and promote the activities, progress, impact and successes of the ADVANCE Project and USAID's contribution to Ghana's development by providing the funds for the project. In the year under review, PR&C focused on creating awareness on project accomplishments and building public awareness about USAID's feed the future program. The project created awareness on accomplishments by reporting various stories and case studies, providing weekly bullets to Ghana USAID Mission and publishing a quarterly newsletter.

6.4.1 "Telling our Story"

'Telling our story' is one of USAID's tools used to inform the general public of USAID interventions, describing who the beneficiaries are and the impact the intervention is having on lives. In the reporting period, the project developed eight "Telling our Story" write ups as follows: (i) two highlighted improved productivity through innovative technologies; (ii) two focused on building market linkages among value chain actors; (iii) one on acknowledging the efforts and contribution of women in the agricultural value chain; (iv) one on adoption of new financing mechanisms by a woman aggregator and (v) one on expanding trade and markets. Four stories were included in our semi-annual report and another four in this annual report.

USAID published three of our "Telling our Story" write ups in the 50 anniversary program book and the USAID Ghana website during the agency's celebrations in November 2011. The story featured Memunata Alhassan, a woman outgrower in the Nanumba North District (one of Kharma Farms's outgrowers) who increased the income of her soybean from USD120 to USD360 from her one hectare soybean farm in just a year after joining the outgrower scheme. The publication also highlighted the success of Mabel Meteku, an Input Dealer, who expanded her market from 800 farmers to 1200 with support from the project. The third story focused on Rebecca Doworkpor, a rice aggregator in the South working with farmers in the North, who through the support of USAID/Ghana's Feed the Future agricultural value chain project, received a loan of US$3,000 from the First Allied Savings and Loan Bank and acquired processing equipment to process the "Sweet Rice" brand of Jasmine and Togo Marshall rice varieties.

6.4.2 Weekly Feed the Future Bullets

The project submitted 27 weekly bullets to the USAID Ghana Mission during the reporting period. The bullets reported on various value chain actors participating in field demonstrations; volunteers completing various training programs and or developing business plans and records keeping templates for nucleus farmers; reports on value chain actors' forum; various training programs especially on harvest and post-harvest management; farmers access to inputs and equipment and transferring of knowledge through demonstrations and field days etc.

6.4.3 Quarterly Newsletter

Three editions of the project's "Quarterly Newsletter"[8] were published and distributed to over 1,000 recipients including partners, clients and actors involved in the project, in both electronic and printed form.

6.4.4 Publicizing USAID/Ghana's Feed the Future Agricultural Value Chain Project

In October 2011, six actors involved in the project participated in the Third National Food and Agricultural Fair dubbed "FAGRO 2011." These actors were Agnes Yankey of Anointed Rice and Rebecca Dowokpor of Sweet Rice (both rice aggregators); Hajia Salamatu (a maize aggregator), the Tamale Implement Factory, NAAMSECO and the Ghana Grains Council.

The event exposed the actors to potential clients and enabled them to learn from other exhibitors techniques for branding and product promotion. Based on comments and suggestions made during the fair, the Tamale Implements Factory modified their dibbler and sheller. For the dibblers, they replaced the ordinary bearings holding the dibblers with pillow bearings, replaced the pipes holding the wheels with a thicker one and modified the prongs to provide more speed. Forty dibblers have been manufactured with the new specification and are being tried in the field. They have also incorporated a blower in the design of the sheller to make them multipurpose. Twenty five new shellers have been manufactured with this new design.

[8] Electronic copies can be obtained from amsey@acdivocaghana.org

7 MONITORING AND EVALUATION

At the start of the year ADVANCE management reviewed the Monitoring and Evaluation (M&E) Plan in line with the goal and objectives of USAID's Feed the Future (FTF) program. ACDIVOCA Director for M&E visited the project to support the management team to review project targets and upgrade the MIS database for easier data entry, retrieval and analysis, assessment of data quality and assess our strategy for data quality assurance. Measures were also taken to strengthen staff capacity to assess and attribute change to project activities, and report effectively and accurately.

7.1 Performance Monitoring Plan, Indicators and Targets

The program performance monitoring plan was updated during the reporting period and approved by USAID. Key revisions to the document were as follows:

- Revision of indicators to be in line with the FTF framework.
- Revision of performance indicator definitions to reflect program context and new direction from PY 2012
- Revision and/or setting of annual and life of project targets for all ADVANCE performance indicators in line with FTF.
- Update of Performance Indicator Reference Sheets to reflect revised indicator definitions where applicable as well as baseline values and annual targets for respective indicators.

Copies of the revised monitoring and evaluation plan were distributed to all staff to guide them in implementing project activities and monitoring progress.

7.2 Data Collection, Analysis and Reporting

During the reporting period project management took steps to improve data collection, storage and retrieval as well as quality assurance standards; the ADVANCE MIS database was upgraded from the Lotus software into a web based SQL system ensuring that the new design captured data on all FTF indicators with their respective disaggregation (see section 7.3). Also, the project's data quality strategy was revised to reflect new indicators for FTF, their definitions and methods for data collection. Similarly, updates were made to data collection instruments to adequately capture data required to report to the FTF indicators. The full complement of data collection forms have been compiled into a toolkit for use by all field staff.

Mapping of fields as part of data collection for gross margin determinations

Project staff continued to collect data regularly on all indicators. For gross

margins, a survey is underway to collect all cost data and to map farms of almost 1200 smallholders who were randomly selected from the database of project beneficiaries. Project staff will, together with the farmers, harvest the produce from the mapped farms to determine the volume of production.

7.3 Management Information System Database Upgrade

The ADVANCE Management Information System (MIS) database was upgraded in line with the FTF indicators and newly-required disaggregation. Major changes include changing from a Lotus to an SQL platform to allow for more flexibility in managing data, modification of data templates such that gendered household types can be disaggregated and determined instantly without having to further export the data. The new system will allow field M&E officers to enter data directly without having to send such data to the Accra office for uploading.

Nine national service personnel were recruited to support the Accra and field offices with data collection and entry. This has greatly improved the time lag between data collection and data entry, the volume of data entered on the MIS database, and the speed at which the M&E team is able to respond to requests for information.

7.4 Data Quality Assessment

An external data quality assessment was conducted by the Monitoring and Evaluation Technical Support Services (METSS), a USAID M&E support project. The assessment focused on the USAID Economic Growth indicators reported in the PY 2011 annual report and preparedness of the ADVANCE Project to maintain data quality during FTF implementation. Project management has ensured that recommendations by the DQA team have all been implemented. The key recommendations and actions taken are summarised in Table 7-1.

Table 7-1: Implementation of DQA recommendations

DQA Team's recommendation	Action by ADVANCE
Redesign the MIS database to enable M&E officers generate activity and indicator reports from the database directly without using other statistical software for analysis.	ADVANCE had already hired Filla Consult to redesign the database in MS Access with inbuilt formulae to enable users generate reports directly from the system. Design of the database was completed in August and being populated with all the data collected in the field
Revise/retool some of the data collection instruments to allow enumerators to collect disaggregated data for all FtF indicators.	ADVANCE had started revising the data collection instruments before the DQA and has subsequently completed the revision.
Design and document all guidelines needed to execute activities, both in the M&E department and field implementation level.	ADVANCE has revised the project's data quality strategy to guide uniform/standardised implementation of all M&E activities.
Design and document a sampling methodology for selecting farmers for gross margin survey to enable generalization and assure validity.	ADVANCE adopted appropriate sampling techniques to collect the data for calculating GMs for PY2012
The ADVANCE program should collect actual farm sizes using GPS instruments instead of taking farmers reported acreages as actual farm sizes.	Before the DQA, ADVANCE had planned to map farms that will be sampled for the gross margins data collection for 2012. This exercise started in September and will be completed in November.

The ADVANCE program should design a mechanism for creating unique identifiers for household heads to eliminate double counting and also minimize the possibility of under reporting as observed during the field visits.	The program has provided unique codes for all households. Currently, all household data forms are being coded appropriately.

The data quality strategy for the program that describes how ADVANCE ensures the validity, relevance, reliability, precision and timeliness of all data that is collected, recorded, analysed, reported and used for decision-making, was reviewed to ensure that all FtF indicators are properly defined and methods of data collection reflect best practice. The revised strategy has been distributed to all field staff to guide them in collecting quality data and maintaining the integrity of data.

7.5 Staff Capacity Development in Monitoring and Evaluation

During the period under review a refresher orientation on the principles and practices of project monitoring and evaluation was organized for all M & E staff. The orientation covered methods for data collection for indicators requiring technical knowledge such as crop yields and gross margin analysis for tracking. The M&E staff were also trained on data entering in the new database and how to use the revised data collection instruments. These capacity building activities have further enhanced the ability of project staff to perform their M&E functions effectively.

Figure 7-1: Ghana Agriculture Online GIS Platform

7.6 Geographic Information System (GIS)

The Project continued to use GIS as a tool for data collection to improve the efficiency of specific supply chains, improve the competitiveness of the respective commodity value chain, and to provide general support to M & E functions. During the period under review, the major activities and achievements under GIS are as follows:

a) Implement the Enterprise/web GIS platform
b) Undertake GIS mapping of rice, maize and soya fields in Northern Ghana.
c) GIS database for mechanized service providers
d) Demonstration Site Mapping
e) Mapping Financial Service Providers

7.6.1 The Enterprise/web GIS platform

To sustain the application of GIS technologies to agribusiness development in Ghana, ADVANCE has developed an enterprise GIS platform where all GIS data collected by the project will be posted and accessible online. This is expected to increase the efficiency of the specific commodity value chain actors and industry leaders as managers can base critical

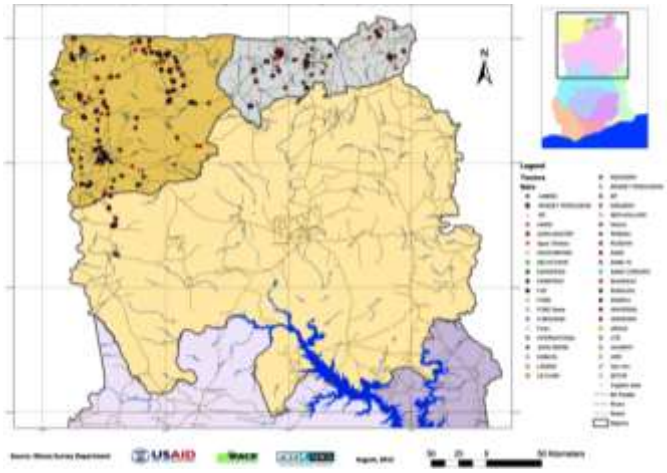
management decisions on reliable data. The establishment of this platform was done in partnership with the Centre for Remote Sensing and Geographic Information Services (CERSGIS) of the University of Ghana.

A Memorandum of Understanding (MOU) was signed with CERSGIS to develop a framework for cooperation between the Project and CERSGIS to leverage resources towards the realization of a geo-portal system for agriculture in Ghana while enabling the Centre to increase their capacity to host a reliable database that is available to all stakeholders on demand. This public-private partnership (PPP) provides an avenue for GIS data sharing and continued updating and maintenance of all GIS data collected by the project.

A private GIS and IT firm, GeoKings Associates, was contracted to develop the web based platform. All GIS data collected by ADVANCE and the previous TIPCEE project as well as spatial data from ADRA's Ghana Food Security programs have been examined, validated and uploaded unto the system by the developer (Figure 7-1). This includes data on citrus, mango, cashew, rice, and maize and rice commodity chains. The platform has been handed over to CERSGIS awaiting a formal launch before the end of this year. Also, staff from both ADVANCE GIS and CERSGIS were trained to maintain and update the system. This platform can be assessed at: http://www.gis4ghagric.net .

To ensure efficient management of this web platform, a business development consultant was contracted, as part of the MOU with CERSGIS, to develop a strategic business model and plan that will ensure sustainable management of the database and provide easy access to data and information for development projects, as well as a resource for researchers. A draft of the plan has been completed and submitted to CERSGIS for their review.

Figure 7-2: Major tractor locations in Upper East and West Regions



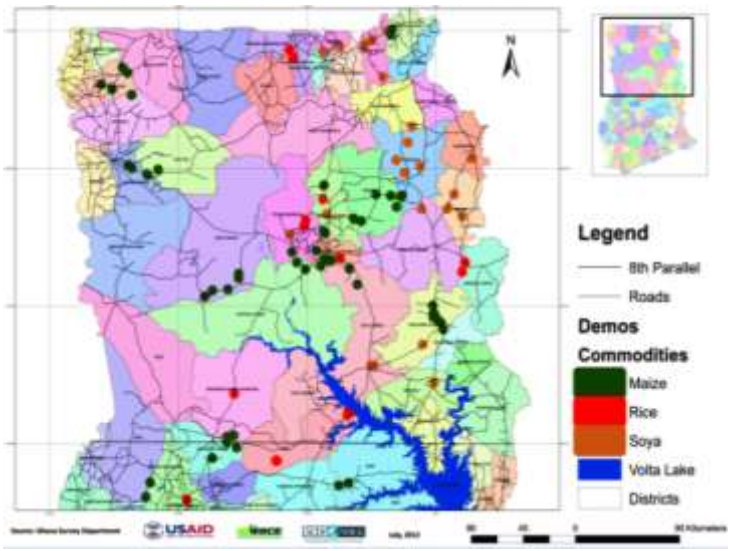
7.6.2 Undertake GIS mapping of rice, maize and soya fields in Northern Ghana.

To increase the productivity and competitiveness of nucleus farmers and their out growers and also provide some baseline data in northern Ghana for M&E purposes, the project surveyed and mapped 5600 commercial and smallholder farms in the three northern regions during the fourth quarter of 2011. During the period under review, the spatial processing and analysis of the data obtained from that survey was completed. The results are being shared with the farmers and for M&E purposes. The results showed that average farm holding per household in northern Ghana is 1.79ha (4.48 acres). At the commodity level, average farm size for maize was found to be 0.99ha (2.49acres), rice 0.77ha (1.93acres) and soya 0.84ha (2.11acres).

7.6.3 GIS database for mechanized service providers

The project also started making an inventory and analysing a spatial database of mechanized service providers in northern Ghana. Some factors contributing to poor mechanization service delivery are lack of data about distribution of tractors in the regions, poor access to spare parts and inadequate training of tractor operators. This activity was completed in the Upper West and Upper East Regions where twenty-nine (29) and eleven (11) MoFA extension officers respectively, were trained on how to use the GPS receivers to pick the coordinates of all mechanized service providers in the two regions. The resulting data has been processed to develop a database for tractor /mechanized service providers in the regions with information on the brand, number, serviceable/not serviceable, locations/concentration, NFs/FBOs locations plotted (**see Figure 7-2**). The database will be used for planning training programs, linkage to NFs/producers to improve efficiency in the service delivery and will be shared with other stakeholders like equipment/implement suppliers and spare part dealers. There are plans to extend this activity to the Northern Region in the coming year.

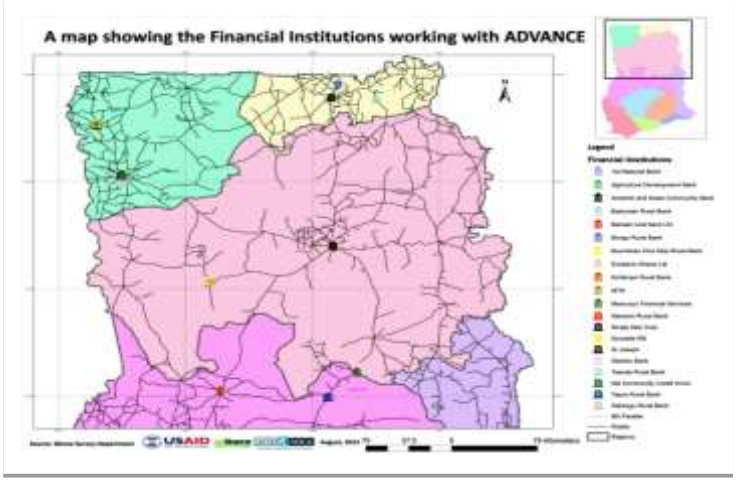
Figure 7-3: Map of demonstrations sites



7.6.4 Mapping of demonstration sites

The project set up demonstration sites (Figure 7-3), together with value chain actors in collaboration with MoFA. The purpose was to educate farmers on new crop varieties, appropriate agro-inputs, and good agronomic practices. In all, over 100 of the 130 demonstration sites established were mapped: 63 for maize; 14 for rice and 24 for soya.

Figure 7-4: Location of Financial Institutions



7.6.5 Mapping Financial Service Providers

During the last quarter of the year under review, GPS locations of 26 Finance Service Providers working with ADVANCE were collected (Figure 7-4). A map has been developed to show the location of all these financial institutions. This enables both the project staff and value chain actors to know where these service providers are located.

ANNEXES

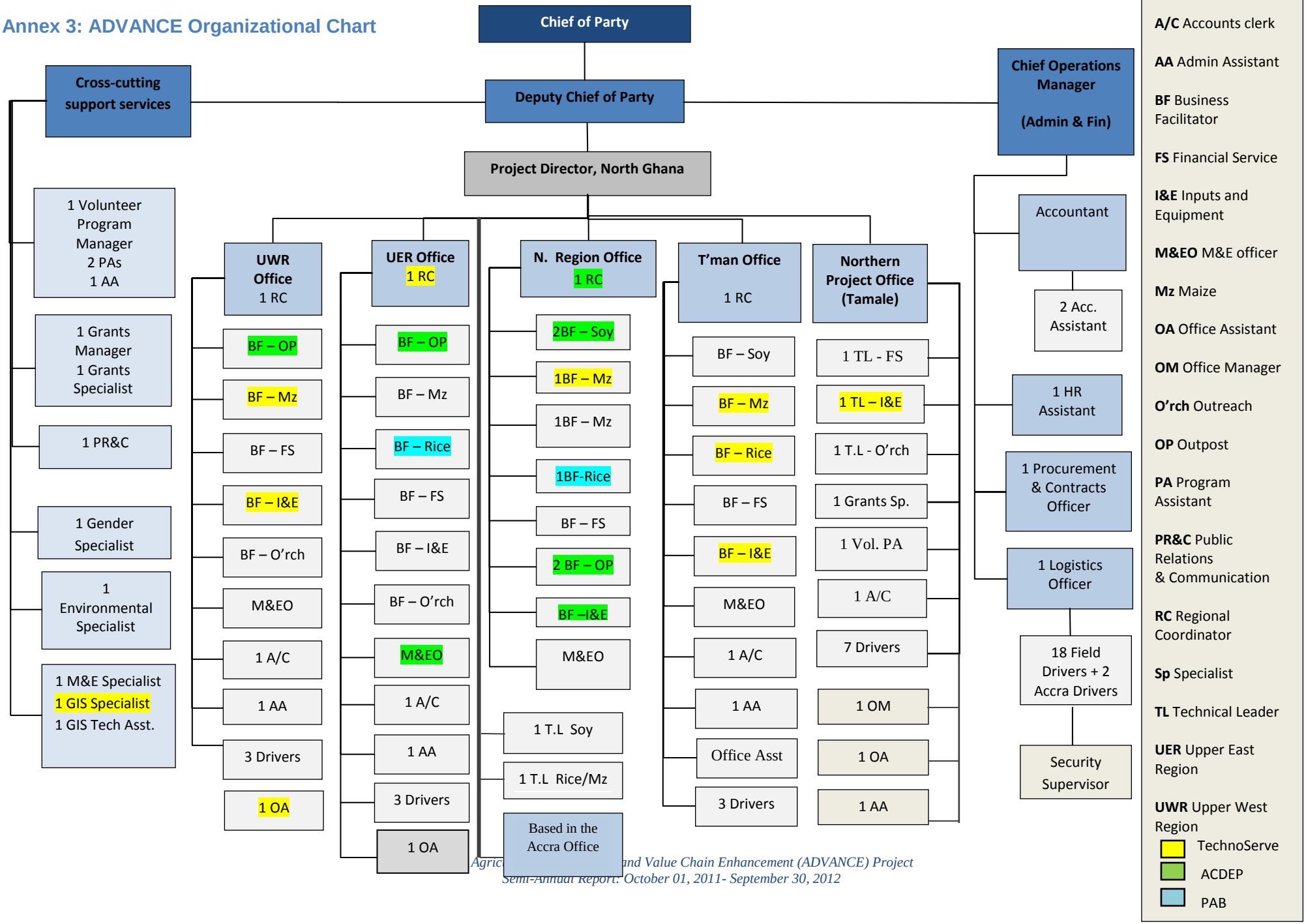
Annex 1: ADVANCE operational districts and commodities

Region	District	Commodity
Northern	Tamale Metropolitan	maize, rice
	East Mamprusi	Maize and soybean
	Gusheigu	Maize, Soybean, Rice
	West Gonja	Maize
	Nanumba North	Maize/Soybean/Rice
	Nanumba South	Maize
	Savelugu/Nanton	Maize
	Central Gonja	Maize, Soybean
	Tolon Kumbungu	Maize, Rice
	East Gonja	Maize, Soybean, Rice
	Yendi	Maize, Soybean, Rice
	Karaga	Maize, Rice And Soybean
	Zabzugu/ Tatale	Rice, Soybean
	Chereponi	Soybean
	Saboba	Soybean
	West Mamprusi	Soybean/maize
	Bunkpurugu Yunnyo	Maize and Soy
Upper East	Builsa	Rice and Soy
	Kassena Nankana	Rice
	Sawla/Tulna/Kalba	Maize
	Bongo	Soy
	Bolgatanga	Rice, maize and Soy
	Bawku West	Maize and Soy
	Garu - Tempane	Maize and Soy
	Bawku Municipal	Maize and Soy
	Talensi - Nabdan	Maize
Upper West	Wa West	Maize/Soya
	Wa East	Maize/Soya
	Wa Municipal	Maize/Soya
	Jirapa	Maize
	Sissala East	Maize/Soya
	Sissala West	Maize/Soya
	Sawla-Tuna-Kalba	Maize and Soybean
	Nadowli	Maize/Soya
Brong Ahafo	Kintampo North	Maize/Rice
	Kintampo South	Maize
	Pru	Maize/Rice
	Sene	Maize//Rice
	Tain	Maize

Annex 2: ADVANCE staffing

Staff Category	Number
Technical Staff:	
• COP • DCOP • Project Director(PD)	
Technical Leads and Regional Coordinators	9
M&E Manager and M&E Officers	5
Business Facilitators(BFs)	26
Program Services(Gender, Environment, Grants, PR&C)	11
Support Staff	
Accounts	5
Administration & Logistics	12
Drivers	18
Security	4

Annex 3: ADVANCE Organizational Chart



Annex 4: ADVANCE Completed Volunteer Assignments (October 2011-September 2012)

ID	Volunteer	Host	Assignment Title	Start Date	End Date	Commodity	Region	Type of Technical Assistance1
1	David Darkoh	Kojo Fosu Enterprise (KFE)	Record Keeping and Farm Management Practices	23-Sep-12	29-Sep-12	Maize	Brong Ahafo	Business/Enterprise Development
2	Stovall, Scott	Agholisi Farms (AFA)	Record Keeping and Farm Budget Development	22-Sep-12	27-Sep-12	Maize, Soybean	Upper East	Business/Enterprise Development
3	Stovall, Scott	Stepwise Farms (STEF)	Improved Farm Management	17-Sep-12	21-Sep-12	Maize, Rice, Soybean	Upper East	Business/Enterprise Development
4	David Darkoh	Kwadwo Matu Enterprise (KME)	Record Keeping and Farm Management	16-Sep-12	22-Sep-12	Maize	Brong Ahafo	Business/Enterprise Development
5	Diana Lilla	CCH Finance House Limited (CCHFHL)	Human Resource Management	15-Sep-12	29-Sep-12	Maize, Rice, Soybean	Greater Accra	Organizational Development
6	David Darkoh	Kwa Jonhson and Sons Limited (KJSL)	Record keeping and Farm Management Practices	10-Sep-12	15-Sep-12	Maize, Soybean	Brong Ahafo	Business/Enterprise Development
7	Gerald Skiles	Frank Tetteh Farms (FTF)	Record Keeping and Farm Management Practices	09-Aug-12	17-Aug-12	Maize	Upper West	Business/Enterprise Development

ID	Volunteer	Host	Assignment Title	Start Date	End Date	Commodity	Region	Type of Technical Assistance1
8	Philip Brown	Kibo Farms (KIF)	Record Keeping and Farm Management Practices	09-Aug-12	15-Aug-12	Maize, Soybean	Northern	Business/Enterprise Development
9	William Nichols	Antika Company	Marketing and Business Plan Development	04-Aug-12	19-Aug-12	Maize	Upper West	Organizational Development
10	Philip Brown	Guzuli Farms (GUF)	Record Keeping Farm and Farm Budget Development	29-July-12	08-Aug-12	Maize, Soybean	Northern	Business/Enterprise Development
11	Gerald Skiles	John Mulney Farm (JMF)	Record Keeping and Farm Management Practices	01-Aug-12	08-Aug-12	Maize	Upper West	Business/Enterprise Development
12	David Lee	Zebango Farms (ZEF)	Business Plan Development	29-Jul-12	24-Aug-12	Maize	Upper East	Organizational Development
13	Philip Brown	Dirayini Farms (DIF)	Record keeping, Farm Budget Development and Farm Management	16-Aug-12	20-Aug-12	Maize, Soybean	Northern	Business/Enterprise Development
14	Michele Hubbard	Muyo Farms (MF)	Improved Record Keeping and Farm Management Practices	21-Jul-12	12-Aug-12	Maize, Soybean	Northern	Organizational Development

ID	Volunteer	Host	Assignment Title	Start Date	End Date	Commodity	Region	Type of Technical Assistance1
15	Virginie M. Zoumenou	ACDI/VOCA ADVANCE	Nutritional Strategy and Educational Materials for ADVANCE Program	19-Jul-12	19-Aug-12		Northern	Technical/Technology transfer
16	Janet Buresh	Kintampo Rural Bank, Yapra Rural Bank, Amantin Rural Bank, Mawuye Financial Services	Credit manual: Kintampo, Yapra, etc.	16-Jul-12	11-Aug-12	Support Services	Brong Ahafo	Organizational Development
17	Ralph Ward	Lolandi Rice Processing Company	Business Plan and Inventory Management System	14-Jul-12	04-Aug-12	Rice	Northern	Organizational Development
18	Mona Melanson	AMSIG Resources Limited	Improved Management Practices and Business Planning	14-Jul-12	30-Jul-12	Maize, Rice, Soybean	Northern	Business/Enterprise Development
19	Doyle Galvin	Bawulonso One Stop RB Ltd, Sinapi Aba Trust, Tizaa Rural Bank, Zabzugu Rural Bank	Credit manual: Bawulonso, Sinapi, etc.	19-May-12	24-Aug-12	Support Services	Northern	Organizational Development
20	Tara Wood	Farmers in ADVANCE Operational Areas	Setting up of Crop Demonstration Farms	19-May-12	11-Aug-12	Maize, Rice, Soybean	Northern	Technical/Technology transfer
21	Robert Cooperrider	Heritage Seed Company	Assessment of Business Model	05-May-12	27-May-12	Maize, Equipment & Input	Northern	Business/Enterprise Development

ID	Volunteer	Host	Assignment Title	Start Date	End Date	Commodity	Region	Type of Technical Assistance1
22	Kavita Avtar	Centre for Remote Sensing and Geographical Information Systems (CERGIS)	Strategic Business Plan Development	29-Apr-12	19-May-12	Support Services	Greater Accra	Business/Enterprise Development
23	Gerald Skiles	Ariku Enterprise	Organisational Capacity Building	17-Apr-12	03-May-12	Maize	Upper East	Organizational Development
24	Kanishk Bishnoi	Builsa Community Bank, BESSFA Rural Bank, Toende Rural Bank, East Mamprusi Rural Bank	Credit manual: Builsa, BESSFA, etc.	2-June-12	1-Sept-12	Support Services	Upper East	Organizational Development
25	Doe Adovor	ACDI/VOCA ADVANCE	Watershed Management	27-Jan-12	15-Apr-12	Maize, Rice, Soybean	Northern	Environmental
26	Worku Alemayehu Nibret	Sanbotima Enterprise	Business Plan Development	16-Jan-12	28-Jan-12	Maize, Rice, Soybean	Upper West	Organizational Development
27	David Darkoh	DORI Enterprise	Business Plan Development	14-Jan-12	28-Jan-12	Maize, Rice, Soybean	Upper West	Organizational Development
28	Julia Leanne Shuck	ACDI/VOCA ADVANCE	Outreach & Public Relations Volunteer	07-Jan-12	07-Apr-12	Outreach	Northern	Technical/Technology transfer
29	Richard Edwards	Maclog Enterprise	Business Plan Development	26-Nov-11	10-Dec-11	Maize	Upper West	Organizational Development
30	Joya Taft-Dick	ACDI/VOCA ADVANCE	Gender Specialist	15-Nov-11	30-Jun-12	Maize, Rice, Soybean	Gt Accra, Upper West	Technical/Technology transfer

ID	Volunteer	Host	Assignment Title	Start Date	End Date	Commodity	Region	Type of Technical Assistance1
31	Rashid Alhassan	ACDI/VOCA ADVANCE	Gender Specialist	15-Nov-11	30-May-12	Maize, Rice, Soybean	Gt. Accra, Upper East	Technical/Technology transfer
32	Naa Adjeley Suta	ACDI/VOCA ADVANCE	Gender Specialist	15-Nov-11	15-May-12	Maize, Rice, Soybean	Brong Ahafo	Technical/Technology transfer
33	Mona Hakimi	ACDI/VOCA ADVANCE	Gender Specialist	15-Nov-11	15-May-12	Maize, Rice, Soybean	Greater Accra, Northern	Technical/Technology transfer
34	Sovi Lambert Ahouansou	ACDI/VOCA ADVANCE	Environmental Expert	15-Nov-11	15-May-12	Maize, Rice, Soybean	Greater Accra	Technical/Technology transfer
35	Doe Adovor	Ministry of Food and Agriculture (MoFA)	Training of MoFA Official in Development of Documentaries for Mobile Information Vans	12-Nov-11	30-Nov-11	Outreach	Eastern	Organizational Development
36	Timothy White	Business and Financial Times (B&FT)	Creation of an Agribusiness News Desk	17-Oct-11	07-Nov-11	Outreach	Greater Accra	Business/Enterprise Development
37	Nicola Marcus	Agnes Yankey (Rice Aggregator (Buyer)	Business Plan and Inventory Management System	04-Aug-11	31-Oct-11	Rice	Greater Accra	Business/Enterprise Development

ID	Volunteer	Host	Assignment Title	Start Date	End Date	Commodity	Region	Type of Technical Assistance1
38	Jeremy Goldschmidt	Becky's Rice and Milling Services	Business Plan and Inventory Management System	04-Aug-11	31-Oct-11	Rice	Greater Accra	Business/Enterprise Development
39	Lauren Dodds	ACDI/VOCA ADVANCE	Value Chain Management	01-Aug-11	31-Jul-12	Maize, Rice, Soybean	Northern	Organizational Development
40	David Taylor	ACDI/VOCA ADVANCE	Value Chain Management	01-Aug-11	30-Jun-12	Maize, Rice, Soybean	Northern	Organizational Development

Annex 5: Farmer to Farmer completed assignments (October 2011-September 2012)

ID	Volunteer	Host	Assignment Title	Start Date	End Date	Commodity	Region	Type of technical assistance1
1	Daryl Meyer	Sissala East and West Secondary Level FBOs	Group Assessment and Strengthening	19-Aug-12	09-Sep-12	Maize, Soybean	Upper West	Organizational Development
2	August Braaksma	Okagyakrom & Adidiem Young Farmers League Co-operative Society Limited (OAYFLCSL)	Farming as a Business and Strategic Planning	07-Aug-12	29-Aug-12	Support Services	Volta	Business/Enterprise Development
3	David Addae	Worawora Rice Mills Ltd. (WRML)	Improved Business Operations and Business Plan Development	01-Aug-12	23-Aug-12	Rice	Volta	Business/Enterprise Development
4	John Wallbrown	Nkabom Ye Onuador Group	Farming as a business and General Farm Management Practices	22-Jul-12	08-Aug-12	Maize, Rice	Western	Business/Enterprise Development
5	Edward Hubbard	Rice and Corn Sellers Association (RICSA)	Organizational Capacity Building	21-Jul-12	12-Aug-12	Maize, Rice	Northern	Organizational Development
6	Molly Rockaman	EDA Wanim Group (EWG)	Farming as a Business and Group Dynamics	23-Jun-12	06-Jul-12	Maize	Western	Business/Enterprise Development

7	Joseph Mantoan	ODO Group	Farming as a Business and General Farm Management Practices	23-Jun-12	06-Jul-12	Maize	Western	Business/Enterprise Development
8	Matthew Wolverton	Deka Wowor Rice Growers Association (DWRGA)	Group Assessment and Strengthening	16-Jun-12	4-July-12	Rice	Brong Ahafo	Organizational Development
9	Richard Edwards	Tumalala Farms (TF)	Improved Farm Management	10-Jun-12	2-July-12	Maize, Rice, Soybean	Northern	Business/Enterprise Development
10	Gerald Nolte	Kukunansor Women Organization (KWO)	Organizational Capacity Building	07-Jun-12	30-Jun-12	Soybean	Northern	Organizational Development
11	Gary Bullen	Beullah Farms	Farm Management and Business Planning	14-May-12	30-May-12	Maize	Upper West	Business/Enterprise Development
12	Ralph Harold Kurtzman	Bemcom Youth Association	Mushroom Spawn Production	06-Apr-12	25-Apr-12	Mushroom	Brong Ahafo	Technical/Technology transfer
13	Mark Kopecky	Peace & Love Vegetables Growers Association (PLVGA)	Improved Agronomic Practices for Vegetable Production	24-Mar-12	07-Apr-12	Vegetables	Brong Ahafo	Technical/Technology transfer
14	Michael Mckeown	Agona Nkwanta Rice Aggregators Association (ANRAA)	Improved Records Keeping and Business Plan Development	17-Mar-12	31-Mar-12	Rice	Western	Business/Enterprise Development

15	Alex Stainburn	Bogu Seed and Fruit Farmers Association	Strategic Business Plan Development	10-Mar-12	24-Mar-12	Soybean	Northern	Business/Enterprise Development
16	Michael E. Hofmann	Nuamakrom Rice Farmers	Increased production of Rice and Post-harvest Practices	09-Mar-12	24-Mar-12	Rice	Central	Technical/Technology transfer
17	Mamadou Thiam	Malik Nabie Enterprise	Improved Financial Management and Business Plan Development	04-Mar-12	17-Mar-12	Maize	Upper West	Business/Enterprise Development
18	David Addae	Deka Wowor Rice Growers Association (DWRGA)	Increased production of Rice and Post-harvest Practices	03-Mar-12	24-Mar-12	Rice	Brong Ahafo	Technical/Technology transfer
19	Daryl Meyer	Nuamakrom Rice Farmers	Group Formation and Strengthening	25-Feb-12	12-Mar-12	Rice	Central	Organizational Development
20	Kavita Avtar	Sissala Area Tractors Owners Association	Strategic Plan Development	25-Feb-12	17-Mar-12	Support Services	Upper West	Organizational Development
21	Dombro, Quentin	DORI Enterprise	Group Assessment and Strengthening	04-Dec-11	14-Dec-11	Maize, Rice, Soybean	Upper West	Organizational Development
22	Bekoe-Sakyi Nana	B-Kakyire Agro-Chemicals	New Business Opportunities	26-Nov-11	13-Dec-11	Support Services	Northern	Business/Enterprise Development

23	Severin Oman	Gushei Farms Company Limited	Improved Financial Management and Business Planning	19-Nov-11	14-Dec-11	Support Services	Northern	Business/Enterprise Development
24	Diana Y. Lilla	Sanbotima Enterprise	Group Assessment and Strengthening	12-Nov-11	26-Nov-11	Maize, Rice, Soybean	Upper West	Organizational Development
25	Mamadou Thiam	Maclog Enterprise	Improved Farm Management and Record Keeping	05-Nov-11	20-Nov-11	Maize	Upper West	Business/Enterprise Development
26	Mark Kopecky	Northern Region Vegetable Union	Improved Agronomic Practices for Vegetable Production	05-Nov-11	16-Nov-11	Support Services	Northern	Technical/Technology transfer
27	Velma Gwishiri	Doelyne Agrochemicals	Business Assessment and Improved Accounting Systems	30-Oct-11	19-Nov-11	Support Services	Volta	Financial Services
28	Esendugue Greg Fonsah	African Farming Families Foundation (AFFFG)	Farming as a Business	29-Oct-11	12-Nov-11	Support Services	Eastern	Technical/Technology transfer
29	Daniel Shaneyfelt	PB Farms	Strategic Business Plan Development	29-Oct-11	26-Nov-11	Maize, Rice, Soybean	Brong Ahafo	Business/Enterprise Development
30	Jorge Juliano	Association Of Mushroom Producers Ashanti (AoMPA)	Establishment of Mushroom Spawn Laboratory and Spawn Generation Technology	17-Oct-11	11-Nov-11	Mushroom	Ashanti	Technical/Technology transfer

31	Stephen Gary Bullen	Presbyterian Agricultural Services (PAS)	Capacity Building in Operational Management and Farm Management Accounting	15-Oct-11	03-Nov-11	Support Services	Northern	Organizational Development
32	Julia Shuck	ACDI/VOCA - FtF	Outreach & Public Relations Volunteer	01-Oct-11	18-Dec-11	Outreach	Northern	Organizational Development
33	Scott Stovall	Samsford Enterprise	Improved Financial Management and Business Planning	01-Oct-11	16-Oct-11	Support Services	Northern	Business/Enterprise Development
34	Deborah Foti	MAMETEK Agrochemicals	Assessment of Business Operations and Improved Accounting Systems	17-Sep-11	15-Oct-11	Agrochemicals	Volta	Business/Enterprise Development
35	Alan Lessler	Presbyterian Agricultural Services (PAS)	Business Plan Development and Marketing	17-Sep-11	09-Oct-11	Support Services	Northern	Organizational Development

Annex 6: Summary progress on Environmental Mitigation and Monitoring Plan

No	Monitoring Indicator	Results
1	New land converted to agricultural use as result of project assistance	No green fields have been converted for agricultural land use as a result of project assistance, all expansions have been in areas that were fallow for a period
2	# of beneficiary plots where compost is applied	In this reporting period no soil amendment practices were recorded
3	# of plots cleared using alternative methods	No alternative land preparation methods were reported for the period in review
4	# of cost share agreements with aggregators, buyers, and input and service providers to provide extension services directly	No cost share agreements have been recorded for the period under review
5	# of beneficiary plots where conservation agriculture (low or zero tillage) adopted and applied	2 demonstration fields (0.45 hectares) used zero tillage to make the technology available to farmers
6	# of farm plots on slopes exceeding 45%	None, areas under current production is relatively flat lands in the savannah and transition zones and critical slopes were not encountered in this period.
7	# of plots where terracing, contour farming, agroforestry or other measures on slopes exceeding 12% being implemented	None have been recorded in the period in review
8	Area of forest or mangrove habitat cleared attributable to project assistance, grants or inputs	None. GIS mapping of production areas supported by the project has confirmed that no forest or mangrove habitats have been cleared attributable to project assistance
9	# of agricultural plots established in protected or sensitive areas attributable to project assistance, grants or inputs	None, the program has ensured that no farms are established in any sensitive habitats and our GIS mapping results has confirmed this
10	# of agrochemical dealers providing pesticide spray/application services	Twenty one (21) spray service providers in the Upper East Region provided services to 285 farmers this season
11	# of buyers and aggregators using performance incentives # of buyers and aggregators who have established clearly-defined production goals with farmers	1,830 have entered into written agreements for clearly defined production and supply goals with incentives for meeting the set goals
12	# of input dealers providing services	Eighty three (83) input dealers provided services during the period in review
13	% of introduced seed varieties that are “low-input”	No new seed varieties were introduced this season
14	GMOs introduced	The ADVANCE program has not promoted the use of any GMOs
15	% of grant proposals screened	All (100%) new proposals have been screened for this reporting period

Annex 7: EMMP for 500MT Warehouse construction

Activity	Potential Environmental Impact	Mitigation Measures	Results to date
Site currently used by locals	Displacement of people and livelihoods	ADAVANCE will ensure that all warehouse locations are appropriately sited in areas that do not require the displacement of people. Where people might have to be moved, we will ensure that this is done quickly and in a manner that does not disrupt their daily activities and lives. The program will also ensure that all other users are adequately informed of the impending development works through community consultations	The site was not under occupancy at commencement of construction hence no displacements has occurred as a result of project activities. However, kiosks lined up in front of the site will be removed after construction.
Dwellings such as schools and hospitals located in close proximity to construction zone	Noise , dust and nuisance to adjoining land users	The project will not be sited in proximity with hospitals, schools and the like, The time of the day for noisy activities will be carefully chosen to reduce as much as possible the number of people exposed at any time Construction zone will be completely fenced off to avoid unauthorized access Dust suppression shall be frequent to reduce any potential dust pollution.	There are no hospitals located close to the site. The school in the community is about 1km away from the site hence construction activities have no effect on teaching and learning. The construction zone has not been fenced off as planned but no unauthorized persons have been found on the site
Site has historic or cultural and heritage importance	Offence to local and indigenous people	Site shall be immediately relocated	Such sites do not exist at or near the construction site.
Site contains critical ecosystems	Destruction of biodiversity and critical habitats	The Program will not support any activities that will impact negatively on critical habitats and any such areas of ecosystem and biodiversity importance shall be avoided in site selection	Such sites do not exist at or near the construction site.
Site is a wetland area	Destruction and drainage of wetland and displacement of wetland biota	The program shall not support investments for any construction that will degrade or drain any wetland areas	site is not a wetland area
Critical slopes	Increased erosion and destruction of both terrestrial and aquatic ecosystems	No construction works shall take place on any slopes exceeding a gradient of 45% For areas with slopes less that 12% erosion control will be designed into the construction engineering	The area under construction is fairly flat and there are no areas with gradients between 12%-45%
Forest reserves or out of reserve	Deforestation and loss of biodiversity	The program shall not support any projects in forest reserves In cases where out of reserve forest	There has been negligible loss of biodiversity as the project area was an already disturbed site

Activity	Potential Environmental Impact	Mitigation Measures	Results to date
forest areas		areas will be impacted, a replanting strategy shall be implemented as part of the program mitigation measures	
Waste generation	Ecosystem degradation, ground and surface water contamination	Waste to be generated from this construction facility will consist mainly of construction waste which will be contained within the site and removed and disposed of in an approved landfill site. Hazardous waste shall be separated and disposed appropriately	Construction waste is routinely removed and disposed at land fill site. There has been no generation of any form of hazardous waste
Use of heavy equipment	Soil compaction due to machinery tracks Noise generation Oil spillage and contamination of soil and water resources as a result of dumping of hydraulic and engine oils during repair works	The use of heavy machinery will be minimized drastically Vehicle maintenance shall be done off site whenever feasible. If necessary to conduct minor repairs on site, the ground shall be covered with plastic and all contaminated soil removed and disposed of appropriately	Soil compaction in the area as a result of construction has been minimal. Vehicle maintenance is not conducted on site either so there has not been an incident of oil spillage as a result of maintenance.
Site clearing and leveling	Ecosystem destruction as a result of site clearing , Removal of topsoil , exposure to erosion and siltation of aquatic ecosystems as a result of earth movement	Only areas that actual construction will be cleared to avoid massive clearing and leveling. The use of bull dozers will also be minimized as much as possible Where native trees are removed, a replacement scheduled will be developed and implemented	Bull dozers were not used during site clearing as site was already bare of all tree stumps and boulders. The site clearing was also limited to the construction area.
Building Material source	Indirect contribution to deforestation as a result of sourcing uncertified timber products	Identify and source wood products only from certified sources and avoid illegal timber	All building materials are sourced from certified sources with supervision by AESL, the site consultants
Health and Safety	Increased number of injuries as a result of insufficient safety protocols	Develop and implement safety protocols on site Ensure that all workers are provided with the appropriate personal protective equipment and used at all times. Report all safety incidents and make appropriate adjustments that may be necessary in the safety procedures	Site workers/laborers have been provided with adequate protective clothing such as helmets, boots and reflector shirts. No injuries have been reported for the period in review

Annex 8: Items purchased under the Small Equipment Grant and their value

#	ITEMS	No.	ACDIVOCA Contribution	Grantee Leverage	Total cost of Equipment
1	Manual Planter	8	$1,524.44	$653.33	$2,177.77
2	Leveller	5	$3,920.00	$1,680.00	$5,600.00
3	Multi crop Sheller	15	$42,000.00	$18,000.00	$60,000.00
4	Plough	2	$3,889.20	$1,666.80	$5,556.00
5	Power Reaper	5	$17,402.00	$7,458.00	$24,860.00
6	Power tiller	53	$184,461.20	$79,054.80	$263,516.00
7	Rice Thresher	1	$2,800.00	$1,200.00	$4,000.00
8	Tractor Attached seed Drill	20	$35,561.00	$15,240.00	$50,801.00
9	Dibblers	28	$6,117.22	$2,621.67	$8,738.89
10	Donkey Ridger	2	$505.56	$216.67	$722.23
11	Shellers	33	$58,780.56	$25,191.67	$83,972.23
12	PTO driven Sheller	6	$10,111.11	$4,333.33	$14,444.44
13	Donkey Carts	41	$10,144.44	$2,383.33	$12,527.77
14	Bullock Ploughs	25	$3,402.78	$458.33	$3,861.11
15	Ridger,	4	$476.39	$204.17	$680.56
16	Harrow	3	$466.67	$200.00	$666.67
			$381,562.57	**$160,562.10**	**$542,124.67**