PAEPARD

FARA

Report on the 2016 Monitoring Visits to the 4 PAEPARD-CRF Projects

by

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Background

PAEPARD is an eight year project sponsored by European Commission (80%) and partner own contributions (20%). It is coordinated by FARA who signed the contract agreement as the beneficiary with the EC on the 16 December 2009 initially for three years before a no cost extension of one year and another for four more years. It aims at building joint African-European multi-stakeholder partnerships in agricultural research for development (ARD). The partnership comprises: AGRINATURA (the European Alliance on Agriculture Knowledge for Development) coordinating the European partners); COLEACP (representing the private sector); CSA (representing the NGOs); ICRA specializing in capacity building in ARD; and the EU-ACP Technical Centre for Agricultural and Rural Cooperation (CTA), all representing the European partners. The African partners are the Pan-African Farmers Forum (PAFO) that involves three of its four members [Eastern Africa Farmers Federation (EAFF) based in Nairobi, Reseaux des Organisations Paysannes et des Producteurs de l'Afrique de l'Ouest (ROPPA) based in Ouagadougou, and the Plateforme Regionale des Organisations Paysannes de l'Afrique Centrale (PROPAC) based in Yaoundé]. The Southern African Confederation of Agricultural Unions (SACAU) is an associate partner. The Food Agriculture Natural Resources and Policy Analysis Network (FANRPAN) based in Pretoria is the other partner.

The four years extension granted to the project at the end of 2013 came with an additional funding of Euro 2 million designated as "Competitive Research Fund (CRF)" and "Incentive Fund (IF)" to fund 3-4 projects selected through competitive mechanisms. The 4 CRF projects that were selected from among 11 proposals submitted in May 2014 are:

1. *Re-engineered Soybean Afitin and Soybean Milk processing technologies in South and Central Benin* (ProSAM) [Benin]
2. *Effets des amendements organiques enrichis aux Trichoderma sp. appliqués aux productions maraîchères de la zone sub-saharienne* (Trichoderma) [Burkina Faso]
3. *Stemming Aflatoxin pre- and post-harvest waste in the groundnut value chain in Malawi and Zambia to improve food and nutrition security in the smallholder farming families* (GnVC) [Malawi-Zambia]
4. *Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda* (Indigenous Veg.) [Uganda]

An amount of Euros 250,000 has been granted to each project, giving a total budget of Euros 1,000,000 for the 4 consortia for a period of 3 years. The 4 projects were launched end of October 2014 and started implementing their activities effective November 2014.

Objectives of the M&E field visit

The structured field monitoring of the implementation of PAEPARD-CRF activities started in FY2015. The first M&E visit to all the projects was at the beginning of 2015, when the FARA M&E Specialist assisted the teams revise their Results Frameworks (RFs) and establish the baseline values and indicator targets for ease tracking implementation progress. Assessment is made from quarterly technical and financial reports and the once-in-a-year Monitoring visit. FARA and the PAEPARD Project Team are interested in ensuring that:

- CRF projects are aligned with the FARA and overall PAEPARD objectives;
- Projects teams effectively manage and deliver the projects on time and within budget;
- Key issues and constraints faced during the implementing period are discussed and appropriately addressed through advice and feedback, and the sharing of templates, best practice and lessons learnt;

- Lessons learned are well documented to inform other projects and future FARA programming; and,
- Confidence in the projects' outcomes is maintained and exit strategies are set up early enough.

The assessment is largely limited to reviewing and refining the Results Frameworks, levels of the implementation of the activities, the constraints/challenges faced by implementers and drawing lessons that can be learnt and shared to all partners for the PAEPARD project and other FARA initiatives.

Methodology used in the field visit

The quarterly progress reports and updated RFs are reviewed and specific issues, if any, raised with the teams. Field visits by the FARA team followed, during which discussions were held with the project teams and other stakeholders (where it was possible) at the project sites. The project teams made presentations that served as the basis for discussion.

Major findings of M&E field visit

The major findings of the M&E field visit are summarized in the following bullets. These elements are further developed in the detailed field notes (next section) section of this report:

- All the 4 projects have generated (or are likely to generate) impressive outputs. The projects working with a diverse array of value chain actors have generated high expectations that may neither be satisfied in the current phase, nor achieve a scale that can achieve meaningful impact within the 3-year implementation period within which to generate research technologies and scale them out to end users. Nonetheless,
    - Promising results from these projects are being published to showcase the role of multi-stakeholder partnerships. Also other partners are joining some CRF (e.g. Trichoderma) to use their partnership model to scale out some technologies.
    - The Soy-bean milk & Soy-bean afitin has officially released the technology for milk production
    - The aflatoxin in groundnut in Malawi and Zambia has successfully completed experimental trials and results have been analyzed to be published in peer reviewed papers.
    - The indigenous vegetables project in Uganda has generated knowledge on the morphological diversity, biochemical composition and molecular diversity. The indigenous vegetables have shown a wide range of variation phenotypically and are comparatively rich in nutrients. Progress has also been made on identifying and profiling varieties of indigenous vegetables with longer shelf life and processing potential.
    - All CRFs have utilized the CRFs small funding as seed money to search for more funding and expand their consortium/network. The soy-bean milk & soy-bean Afitin consortium won an ARF (275,000€); the Trichoderma consortium submitted successfully a project to a call launched by the Agence Francaise de Developpement (AFD) and won 185,000€. The Indigenous vegetables team was shortlisted at the first round (by time of the visit) for a national funding launched by NARO Uganda.

- Some projects had issues with their indicator definitions and this created confusion in collecting the appropriate data sets required for computing these indicators. The RFs were further reviewed and modifications made where necessary.

M&E Team Field Notes

1. ***Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda*** **(Indigenous Veg.) [Uganda] – 17-18 May 2016.**

The M&E team visited the project sites at Uganda Christian University (UCU) in Mukono, the School of Food Technology, Nutrition and Bio-engineering at Makerere University, and field sites at Bumboi Nabisolo in Mbale and Butiki Kyekide in Jinja.

At UCU, the FARA team met and interacted with the entire project team of the Dean, Faculty of Science and Technology, Dr. Michael Masanza,the Head of Department of Agricultural and Biological Sciences, Dr. Elizabeth Kizito (Team Leader), Dr. Apollo Kasharu, Dr. Paul Nampala and Dr. John Jagwe; and also a postgraduate student – Mrs. Pamela Kabod.

Brief presentations were made on the progress of work on morphological and molecular diversity, biochemical analyses, and on developing improved indigenous Solanaceae vegetables. The richness of diversity observed in the collected germplasm at UCU during the characterization efforts underway was highlighted as well as the stakeholder participatory selections and evaluations that were being carried out in east and central Uganda to gain an understanding of the preferred traits when farmers are choosing their indigenous vegetables. The team then visited the seed processing and storage facility, where the need for specialized seed storage equipment was expressed. Three lines of Nakati were being purified for production of quality certified seed. The team then visited the University Farm and Ntawo Skills Development Centre where the field germplasm characterization and multiplication of African indigenous vegetables is taking place.

At Makerere University, the team met Dr. Agnes Namutebi and 2 postgraduate students - Mr. Steven Sekulya and Mrs. Mary Apolot, and a technician – Joshua Sozi. After brief presentations the team was led through a guided tour of the on-going post-harvest handling and processing experiments [the solar dryer, processed vegetables, charcoal cooler prototype]. The solar drier was to be used for processing the AIV vegetables in year 3 as per the planned schedule. Processed vegetables provide avenues for preservation and value addition. The charcoal cooler aims to address one of the ways in which freshly harvested vegetables can be kept for longer without compromising their nutritional and other quality properties using locally available materials. Mr. Sekulya reported that the charcoal cooler so far had a comparative performance as the cold chain storage at 4 degrees Celsius as both were keeping vegetables well by the fourth day post-harvest. The biochemical analysis of their performance for each day from harvest was still ongoing. He mentioned further that the other stakeholders had expressed interest in trying out the technology including farmers and the Kampala City Council Authority.

The second day was dedicated to visiting the on-farm experimentation and outreach programme.

2. ***Stemming Aflatoxin pre- and post-harvest waste in the groundnut value chain in Malawi and Zambia to improve food and nutrition security in the smallholder farming families (GnVC) [Malawi-Zambia] – 25 – 29 July 2016.***

The M&E team visited the NASFAM headquarters, Kamwendo-Mchinji Innovation and Administration Centre, Kikuyu Marketing Action Centre (farmers group), the Malawi Programme for Aflatoxin Control (MAPAC) at the Ministry of Industry, Trade and Tourism, ICRISAT Malawi, Chitedze Research Station in Malawi and Msekera Research Station in Zambia, and a farmers' group in Chipata, Zambia Eastern Province Farmers' Cooperative – as per programme below.

- 26th July: field visit in Mchinji - one of the project sites in Malawi
- 27th July: visits to the laboratory and appreciate the work that is ongoing, ICRISAT and LUANAR
- 28th July: leave for Chipata, Zambia and visit some beneficiaries and the Msekera research station

Persons met: Dr. Betty Chinyamunyamu (D/CEO, NASFAM), Makwenda Beatrice (NASFAM and Team Leader), Talentus Mthunzi (FARNPAN), Dr. Elon Gilbert (IITA Africa RISING/Feed the Future Malawi Bridge Project), Dr. Patrick Okori (ICRISAT Malawi)

The GnVC project has been implemented in two growing seasons (2014-2015 and 2015-2016) with promising results for scaling up adoption of the technologies as well as for influencing policy and programmes in the quest for reduced aflatoxin contamination. The project has demonstrated the strength of collaboration and reinforces information flow between researchers, extensionists and policy advocates. The project has strengthened the extension advisory content and the evidence in influencing policy formulation/implementation. Being the second year and with one year left, the research products were being finalized and will strengthen further the policy papers that will be the focus for next year and strengthening the communication products. Like all agricultural production related projects, weather changes amidst farming affected some of the beneficiaries - experienced dry spells, too much and/or erratic rainfall – all of which affected the timing of research activities as well production/harvesting trainings.

So far, the project has described 9 and validated 4 technologies – 2 pre-harvest (double-row planting and residue incorporation), 2 post-harvest (Mandela Cork and sorting). Demonstrations have been conducted with 5 farmers' organisations involving 2,267 farmers; and training for 475 male and 403 female farmers through field days.

The team interacted with farmers in Kamwendo, Mchinji district who are participating in seed multiplication through the NASFAM owned Mchinji Innovation and administration Centre and Warehouse. This has a membership of 20,417 farmers (9,846 female) organised around 7 Extension Planning Areas and 5 Associations. The extension structure run by NASFAM is organised in a hierarchy of – Club of 10 farmers – Group Action Centre that serves as the entry point for training and marketing – Association – NASFAM. The Mchinji warehouse has installed capacity of 995 MT.

The key issues with the programme were listed as:

- Poor record keeping with regard to indicators of performance;
- Member loyalty with respect to meeting production and quality requirements; and,
- Competitors and new entrants into the market

The Kikuyu Group/Marketing action centre visited comprised 398 clubs with a total membership of 3,394 farmers. Farmers complained trainings were not synchronised with operations, while some of the farmers harvested either late or too early and led to loss of some records for the experimental trails.

The PACA focal point in Malawi narrated the activities in Malawi. The Africa continental level approach to Aflatoxin control started in 2011 culminating into the establishment of PACA in 2013. It brings together officials and stakeholders in the agriculture, trade and health sectors. The PACA Strategy 2013-2022 has 5 pilot countries – Malawi, Uganda, Nigeria, the Gambia and Senegal.

Malawi has three laboratories with capability to analyse aflatoxin although they are not internationally accredited/recognised. The team visited the Department of Agricultural Research services laboratories at Chitedze Research station. The soil laboratory which handles aflatoxin testing charges MK 15,000 per sample analysed although the true cost is about MK 40,000. The laboratory can handle 70 – 100 samples/day. The Seed testing laboratory is accredited to the International Seed Testing Centre and is audited every 3 years. Current germination rates (400 seeds planted) are 75% against a COMESA standard of 80%.

The team also visited ICRISAT Malawi and held discussions with Dr. Patrick Okori. ICRISAT released an Aflatoxin Rapid Assessment Kit launched on 26 July 2016. The kit is calibrated to 10ppm (Malawi standard that is tagged to meeting EU requirements). As a scientist, he wondered why Europe that does not grow ground nuts sets such high standards, as compared to say USA (20-25 ppm) and China (33 ppm). It not possible to eliminate the soil-borne fungus; temperatures of 34 degrees Celsius are most ideal for the fungus. Groundnut and Avocado Oils do not go rancid and do not pick flavours of deep fried foods. China is becoming a big player in the ground nut market, buying any stuff and purifying the aflatoxin from the oil rather than concentrating on the contamination levels in the grain. African countries should concentrate more on protecting the local contamination, especially from the cheaper maize grain. He ended the discussion on a light not: - Ministry of Health warning is Smoking Kills, but for every 1 European that quits smoking, 9 Chinese join!

In Chipata, Zambia, the team met with farmers of the Eastern Province Farmers' Cooperative. The group is largely composed of women; the youth are not greatly involved. Farming operations are gendered – ridging by men, planting and weeding by women, harvesting by both and transportation and selling by men. The team concluded the Zambia visit with discussions at the Msekera Research Station.

The mission ended with a wrap-up meeting on 29 July 2016. The FARA team advised the project team to take care in triangulating the results and ensuring the validity of conclusions from the experimental results given the divergence in experimental design in the two countries.

3. Effets des amendements organiques enrichis aux Trichoderma sp. appliqués aux productions maraîchères de la zone sub-saharienne (Trichoderma) [Burkina Faso] – 16-17 August 2016

Jour	Horaires	Activités
Samedi 13 Août	20h55	Arrivé à Ouagadougou
Dimanche 14 Août	11h00 -12h00	Echange et validation du programme de la mission, briefing sur le déroulé de la mission
Lundi 15 Août	15h00-18h00	Revue documentaire et travail au bureau
Mardi 16 Août	7h00-8h30	Déplacement sur le terrain à Niessega
	9h00-13h00	Visite de l'unité rurale de compostage Visite des champs écoles en cours Echange avec les producteurs
	13h00-14h00	Pause déjeuné
	14h00-16h00	Retour sur Ouaga et direction champs écoles de Tanghin Dassouri
	16h00-18h00	Visite des champs écoles en cours Echange avec les producteurs
	18h00-18h30	Retour à Ouagadougou
Mercredi 17 Août	8h00-9h00	Débriefing de la mission
	9h00	Départ pour l'aéroport

The team met with the project team leader Claude Arsène SAVADOGO, Agro Économiste and Administrateur-Gérant, GIE BIOPROTECT-B and also travelled to Niessega village to meet with the Teega-Wende Women's Group producing compost organic manure. Group has 30 registered members; 27 active and only about 15 actively maintaining their OM composting pits. The group sells each 50kg bag of OM+T compost @ CFA 2,500 [a bag of Burkina Phosphate costs CFA 5,000, subsidised for the group at CFA 3,000]. The composting yard has an installed capacity of 200MT/year with each participant owning 3 structures; actual production between January-June 2016 was 61MT of which 36MT has been sold. Peak demand is Jan-March. Vegetable growing is Sept – May and July-August is cereal growing season. Key issues: marketing problem, quality assurance – poorly maintained structures lead to contamination/adulteration with other soil and wetting/wet storage leads to contamination with pathogens, group participation.

The team also visited the irrigated vegetable site at Rengba village, the training centre and warehouse, and an off-season farmer in Mweeme village, conducted around by BIOPROTECT and ARFA staff: Bambara Tasiana and Oudrago Ibrahim.

4. ***Re-engineered Soybean Afitin and Soybean Milk processing technologies in South and Central Benin (ProSAM) [Benin] – 18-19 August 2016***

The M&E team met with the project team led by Patrice Lagnon SEWADE, Coordinator Project Soya Afitin-Milk (ProSAM) at the offices of the Association of Development of Soybean (SOJAGNON), and discussed progress on the components and the project RF.

The team also visited Zobdomoey Women's Group: The group has secured a 20mx25m plot to construct a warehouse, developed a business plan and obtained a DANA number for their product. Product branding and proper packaging is the next plan. Currently the group produces soy milk and on order for meetings and social occasions in the region. The team then visited FUPRO Benin (Federation des Unions de Producteurs du Benin) and discussed with the President Mr. Guezodje Lionel, about the possible assistance the union could extend to the group of women of Zobdomoey. FUPRO which is member of the soy-bean and soy-milk consortium is in charge of disseminating of

soy-bean milk and soy-bean Afitin technologies. This activity will effectively commence in year 3 of the project.

At the Institut National des Recherches Agricoles du Benin (INRAB) research station in Porto Novo, the team was shown through the process of stabilisation of the soy milk by the head of the station and project team member, Dr. Ir. Houssou Paul. The process can extend shelf life from 1 day to 6 months. Two cycles of research are to be run – one completed and the next one starting with group in Songhai Centre. Institute has fabricated a milling machine and adapted a steriliser – not yet able to have it manufactured locally. The students on the project: one BSc student completed; one MSc student defending by November. Scientific publication and Training guide also expected to be published in November.

At the Faculty of Agricultural Sciences, University of Abomey-Calavi, the team was briefed on the progress with the Afitin taste enhancer by the research team of: Jonathan Nougbode, Celia Fiogbe, Harold Hounhouigan and Yann Madode. The market studies have been completed and baselines profiled. Different recipes have been formulated. One MSc student has graduated and 3 other students are in the pipeline.

Projects Results Frameworks

The RFs were reviewed and necessary adjustments made. The updated RFs are annexed.

CONCLUSION AND RECOMMENDATIONS

The CRF projects have triggered the multi-stakeholder partnerships (MSP) between researchers and non-researchers on one hand and between African and European partners on another one. All consortia have generated (or will generate) technologies that are affordable by small farmers.

The small amount of CRF has helped consortia to open up their partnerships to new partnerships like MAPAC and APSA in the case of Malawi, BIOCHAR in the case of Trichoderma in Burkina Faso, and in more than three partnerships in Benin. The involvement of European partners in the CRF differs disproportionately - some of them are very dynamic while others participate less actively.

The way forward is now to document and publish results achieved so far and to take to scale the technologies developed during the experimental stage.

APPRECIATION

We would like to express our sincere gratitude to the project leaders and their institutions for the kind cooperation extended during our visits.

RESULTS FRAMEWORKS

ORGANISATION NAME	Platform for African-European Partnership on Agricultural Research for Development (PAEPARD II) - CRF						
PROJECT NAME	Stemming Aflatoxin Pre- and Post-harvest waste in Groundnut value chain (GnVC) in Malawi and Zambia to Improve Food and Nutrition Security in the Smallholder Farming Families						
		Project Baseline	**Project Targets**	**2015**	**Project Actuals 2015**	**Preliminary 2016 Actuals**	**Explanation**
Overall Objective: Improved food and nutrition security of smallholder farmers	% increase in income from groundnuts (Income/ha)	Malawi=MK214000	10-15%	MWK 225,000.00	MWK 450,000.00	MWK 550,000.00	Calculations based on average yield of 1000kg/ ha for both 2014/2015 & 2015/2016 seasons and prices of 450/kg and 550/kg respectively.
		Zambia=K2634	10-15%	ZMK 2,767.00	ZMK 2,907.00	ZMK 2,912.00	
Specific Objective: Reduced pre- and post-harvest losses by focusing on reducing Aflatoxin in the GnVC	Proportion of nuts with EU acceptable aflatoxin levels of 4 parts per billion (ppb)	83%	95%	85%	80%	TBD	The target was revised because baseline was higher than initial target
	Reduce Post-harvest losses for broken but not mouldy nuts at farm level	35%-40%	15%	40%	40%	TBD	This will be determined next year
Result 1. Promising practices and technologies that relate to production, income and gender pathways that have a potential to reduce Aflatoxin contamination in the GnVC identified, further validated and disseminated.	Number of farming families reached/supported by the project (At least 20% being female headed)	0	8000	2,000	1,928	3,507	
	Number of practices and technologies identified, described	0	9	9	9	9	1-Residue Incorporation 2-Single/Double Row 3-Tie/Box Ridging 4-Mandela cork 5-Kennel Sizing 6-Plant population/Spacing 7-Hand Sorting 8-Soil Liming 9-New/ Improved varieties

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		Project Baseline	**Project Targets**	**2015**	**Project Actuals 2015**	**Preliminary 2016 Actuals**	**Explanation**
	Number of practices and technologies made available to farmers	0	5	5	3	7	1-Residue Incorporation 2-Single/Double Row 3-Tie/Box Ridging 4-Mandela cork 5-Kennel Sizing 6-Plant population/Spacing 7-Hand Sorting
	Number of knowledge products produced/revised (1 bulletin, 1 training manual, 1 new poster on hand sorting, poster on the whole groundnut contamination value chain)	0	7	2	2 (Poster on effective hand sorting and leaflets	4	
Result 2. Innovative approaches in farmer-led Rural Advisory Services (RAS), capacity-building and mechanisms for knowledge management, learning and sharing of experiences compiled, disseminated and scaled up and out	Number of knowledge sharing events (and participants) conducted	0	24	8	8	14	These are District Executive Committee (DEC) meetings taking place quarterly
	Number of farmer training events conducted	0	9	-	4	10	Type of Training Events: -Demonstration plots -Field Days -Farmer Trainings
	Proportion of farmers not directly involved in the project accessing the good practice options for reducing pre- and post-harvest losses validated and promoted by the project	0	75%	0	0	0	This will be determined in 2017 after the good practice options for reducing pre- and post-harvest losses have been validated
	Number and type of stakeholders that have incorporated the good practice options for reducing pre- and post-harvest losses validated and promoted by the project into their own farmer advisory and training programs	0	10	0	0	0	This will be determined in 2017 after the good practice options for reducing pre- and post-harvest losses have been validated

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		Project Baseline	**Project Targets**	**2015**	**Project Actuals 2015**	**Preliminary 2016 Actuals**	**Explanation**
Result 3. Appropriate recommendations on reducing Aflatoxin-related pre- and post-harvest losses in the GnVC tabled at national and regional levels	Number of policy briefs related produced and made available	0	3	1	0	2	
	Number of Regional policy dialogue events (and participants by category) tackling Aflatoxin pre- and post-harvest management issues.	0	3	1	1	1	
	Number of participants for Regional policy dialogue events (and participants by category) tackling Aflatoxin pre- and post-harvest management issues.	0	150	50	82	to-be done	
	Number of national policy dialogue events tackling Aflatoxin pre- and post-harvest management issues.	0	6	2	1	3	
	Number of participants for national policy dialogue events tackling Aflatoxin pre- and post-harvest management issues.	0	180	60	35	97	
Result 4:*Timely project communication, dissemination and learning*	Develop website	0	1	1	0	1	
	Produce Project brochure	0	2	0	1	2	
	Produce Pull Out Banners	0	6	2	2	3	
	Strategic events per year sharing project results	0	9	3	1	1	in the absence of empirical results, sharing events was limited to popularising the PAEPARD work and what the project intends to achieve
	Convene annual planning and reflection workshops (inception and alongside the regional policy dialogues)	0	4	2	2	2	

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		Project Baseline	Project Targets	2015	Project Actuals 2015	Preliminary 2016 Actuals	Explanation
Result 5: The project is managed effectively and efficiently	Number of financial and technical reporting meeting FARA requirements and standards	0	12	4	4	6	
	Number of internal and external coordination meetings convened (include face-to-face and virtual)	0	12	4	3	3	monthly skype meetings not held as planned

Re-engineered Soybean "Afitin" and Soybean Milk processing technologies in South and Central Benin (ProSAM) logical Framework							
Intervention Logic	**Objectively Verifiable Indicators**	**Project Baseline**	**Project Target**	**Cumulative Achievement**			
				2015	**2016**	**2017**	**Comments**
Overall Objective: Increased household income through improved food chain of soybean derived products (milk and afitin)	10% increase in income from soy milk processing for at least 25 % of targeted women processors	45 F CFA of net margin per L of soy milk	10% increase	-	-		
	10% increase in income from soy afitin processing for at least 25 % of targeted women processors	75 F CFA of net margin per kg of soy afitin	10% increase	-	-		
Specific Objective: Small farmers and processors (especially women) and their organizations take ownership and use SM & SA processing technologies and improved marketability of these soybean derived product**s**	Number of farmer groups that effectively start the production of re-engineered SM and developed STE (03 per product)	-	06	-	-		
Result 1. The existing soybean processing technologies are inventoried	Number of publications on SM and SA processing state-of-art	00	02	00	- SM: 00 - SA: 00		
	Number of existing processing equipment inventoried for in technology improvement (SM and SA)	00	06	02	- SM: 00 - SA: 04		
Result 2. Nutritional value, safety and microbial composition, consumer preference of SM and SA are assessed and documented	Number of publications on SM & SA biochemical and microbiological characteristics	00	04	00	- SM: 00 - SA: 00		
	Number of publications on SA and taste enhancer consumer preferences	00	01	00	- SM: 00 - SA: 00		
Result 3. Adapted SM and SA processing technologies are developed	At least 25% increase in SM recovery rate (Quantity of SM produced per unit of soyabean)	08 L SM per kg soybean	≥10L of SM per kg soybean	08L SM per kg soybean	12L SM per kg soybean		
	Significant increase in SM shelf-life	SM - 2hrs for fresh SM ; 7 days refrigerated	Stabilized SM lasting at least 1 month	SM - 2hrs for fresh SM ; 7 days refrigerated	Stabilized SM lasting at least 3 months		
	Significant increase in SA shelf-life	Salted and Paper-wrapped SA stores 5-10 days at room	at least 6 months	Salted and Paper-wrapped SA stores 5-10 days	-		

Re-engineered Soybean "Afitin" and Soybean Milk processing technologies in South and Central Benin (ProSAM) logical Framework							
Intervention Logic	**Objectively Verifiable Indicators**	**Project Baseline**	**Project Target**	**Cumulative Achievement**			
				2015	**2016**	**2017**	**Comments**
		temperature		at room temperature			
	Number of improved processing technology developed	0	at least 02	01	SM: 01 SA: 01		
	Number of processors that accept/approve the developed STE / reengineered SM	0	At least 75% of processors (1200) validated STE / reengineered SM	00	00		
	% of consumers that accept the developed STE / reengineered SM	0	75 % of consumers	00	00		
Result 4. Improved technologies, skills and knowledge disseminated to consortium members and stakeholders	Number of female processors trained (directly, indirectly) on the reengineered SM / developed STE technology	0	A least 300 female processors trained	00	SM: 40 SA: 00		
	Number of BSc and MSc trained	0	05	BSc: 01 MSc:02	BSc: 01 MSc:04		
	Number of ~~reengineered SM and developed STE~~ business plans developed	0	04	00	00		
	Number of project dissemination workshops organised	0	02	01	01		
Result 5: The project is managed effectively and efficiently	Number of proper and timely financial and technical reports submitted	-	06	02	03		
	Proper financial and technical management	-		-	-		
	Effective internal and external coordination	-		-	-		

Projet : effets des amendements organiques enrichis aux *Trichoderma sp.* appliqués aux productions maraîchères de la zone sub-saharienne						
Objectively Verifiable Indicators	**Project Baseline**	**Project Target**	**result forecasted 2016**	**Achievement 2016**	**Verifcation sources**	**Commentaires**
Overall Objective: Strengthened food security of family farms, improved agricultural production						
% increase in yield for tomatoes, onions and Irish potatoes [comparison also between chemical fertiliser [CF] and organic manure [OM]]	**TBE** **Tomatoes:** **(CF) 20 T/Ha** **(OM) 10 T/Ha** **Onions:** **(CF) 25 T/Ha** **(OM) 15 T/Ha** **Potatoes:** **(OM) 20 T/Ha**	30% increase for OM	25%	Tomatoes : 25,43% Onions : 7,8% Potatoes : 13,1%	narrative repporting; FFS repporting	Sur les parcelles conventionnelles, les résultats sont beaucoup plus impressionnants et se présentent comme suit : Tomatoes :50% Onions: 38%
% increase in incomes of farmers	181FCFA/m^2 for tomatoes 78 FCFA/m2 for onions 250 FCFA/m2 for potatoes	25%	15%	Tomatoes : 77,5% Onions : 15% Potatoes : 30%	narrative repporting; FFS repporting	Sur les parcelles conventionnelles nous avons les résultats suivants: CF Tomatoes : 160% Onions : 184%
Specific Objective: Market gardeners in the Eastern and Northern regions of Burkina Faso acquire knowledge on innovative techniques and practices for the use of organic amendments enriched with Trichoderma in managing soil fertility						
Number of farmer organisations/groups' ability to defend their interests and propose concrete actions for improving their living conditions(e.g. govt. assistance)	0	10 FOs in 2 Unions	10	9	narrative repporting; training reporting	
% of market garden production sites (shared by 15-30 farm households) within the project area receiving and using *Trichoderma*-enriched organic amendments.	0	25%	15%	13.25%	narrative repporting; arfa monotoring and evaluation reporting	116 litres de biopesticides dont 34,8 litres de Trichoderma ont été utilisé au cours du semestre sur 10,5 ha de cultures maraîchère. La dose recommandée est de 25l/ha. La quantité utilisé représente donc 13,25% de la surface exploitée

Projet : effets des amendements organiques enrichis aux *Trichoderma sp*. appliqués aux productions maraîchères de la zone sub-saharienne						
Objectively Verifiable Indicators	**Project Baseline**	**Project Target**	**result forecasted 2016**	**Achievement 2016**	**Verifcation sources**	**Commentaires**
Annual use of of compost enriched with *Trichoderma sp*. (in tonnes)	0	300 T/year at the rate of 15 T/Ha/year for 20 Ha	100	256.217	narrative repporting; arfa monotoring and evaluation reporting	242,69 tonnes ont été produit directement par les maraîchers et les 13,5 tonnes font partie du compost acheté aux femmes par les maraîchers. La production annuelle moyenne des femmes de l'URC est de 200T. Une partie est revendu localement et une autre partie va dans les différentes régions du burkina;
Result 1: Participatory statement of needs in terms of organic matter for better soil fertility management in the use of market garden production known.						
1.1 List of techniques and practices of market gardeners in the area of production and use of organic matter enumerating agricultural by-products that are unused or recoverable as compost	Literature revue of previous research in bf (little is available on market gardening)	01 document of inventory of local knowledge systems on production and use of organic amendments in the production sites Yes	1	in progress	narrative repporting; the document of inventory	enquête et dépouillement terminé. Résultats d'analyse présentés mais reste à être affiné. Rapport en cours de finalisastion
1.2 Number of target groups in the different intervention sites of the project	0	Numbers of lists of members of groups and their main characteristics: (i) producers (15) (ii) input providers (2) (iii) NGOs and FOs (2) (iv) compost production plants (3)	10 2 2 2	10 2 2 3	narrative repporting;	il y'a 3 URC dans la région du centre Nord

Projet : effets des amendements organiques enrichis aux *Trichoderma sp.* appliqués aux productions maraîchères de la zone sub-saharienne						
Objectively Verifiable Indicators	**Project Baseline**	**Project Target**	**result forecasted 2016**	**Achievement 2016**	**Verifcation sources**	**Commentaires**
1.3 Number of suitable local strains of Trichoderma spp, and their analysis	0	10 strains and one strain selected	10 1	10 1	narrative repporting; BIOPHYTECH lab	les 10 souches isolées sont d'origine Burkinabé.
Result 2: Different formulas and packaging of Trichoderma enriched organic amendments are produced and analysed						
2.1 Rate of germination of Trichoderma spores on different types of organic amendments	0	95%	85%	in progress	narrative repporting; BIOPHYTECH report	
2.2 Number of tests on conditioning (liquid, solid) and storage of organic amendments enriched with Trichoderma	0	2 tests	2	2	narrative repporting; INERA report	
2.3 Number of tests on the suitability of different substrates (sorghum grain, bran, other), on quality and consistency of different types of organic amendments enriched with Trichoderma	0	3 tests	3	5	narrative repporting; BIOPHYTECH report	les supports de cultures testés sont : le sorgho, la maïs, les coques d'arrachide, la mangue, la bagasse de canne à sucre
Result 3: Agronomic effects of Trichoderma-enriched organic amendments are known						
3.1 Result of soil analysis receiving organic amendments enriched with Trichoderma	Literature revue of previous research	Results of soil laboratory analysis (report)	1	in progress	narrative repporting; IRD analysis report	des résultats préliminaires sont déjà disposnible, mais reste à être affiné
3.2 Number of Farmers' Field Schools with organic amendment enriched with Trichoderma	0	30	20	31	narrative repporting;	cela est du à l'intérêt qu'à suciter les CEP conduit au cours de l'an 1 et à l'intérêt manifeste des producteurs conventionnel vis-à-vis du *Trichoderma*
3.3 Number of technical hands out on recommended practices for the use of organic amendment enriched with Trichoderma	0	2	2	1	narrative repporting; technical hands	le guide sur la production du compost enrichi a été réalisé. Il est en cours de finition. Un suuport de formation audio-visuel sur la même thématique est en cours de réalisation

Projet : effets des amendements organiques enrichis aux *Trichoderma sp*. appliqués aux productions maraîchères de la zone sub-saharienne						
Objectively Verifiable Indicators	**Project Baseline**	**Project Target**	**result forecast ed 2016**	**Achievement 2016**	**Verifcation sources**	**Commentaires**
Result 4: Producers master the application of Trichoderma-enriched organic amendments						
4.1 Number of guided field tours of Farmers' Field Schools (FSS)	0	4	2	3	narrative repporting;	1 visite en an1, 2 visites en an 2 dont celle avec CORADE
4.2 Number of training session and awareness raising on the use of Trichoderma in the production of organic amendments and fertilizers	0	Number of sessions: 3 Number of participants: 60	3 60	3 71	narrative repporting; Training reporting	1 formation pour les composteuses qui a regroupé 19 participantes; 1 formation pour les producteur (23 au 25 mars 2015) qui a regroupé 30 participants, et une formation pour les maraîchers ARFA (21-23 avril 2015) qui a regroupé 22 participants
4.3 Number of training session and awareness on the importance and use of Trichoderma enriched organic amendments for market gardeners, Techn. Services (TS), NGOs, inputs providers	0	Number of sessions: 10 Number of participants: 300	8 240	6 159	narrative repporting; Training reporting	formation en direction des groupement et revendeur d'intrants de la région du centre en novembre 2014 (25 participants); Formation au profit des maraîchères de la région du centre en avril 2015 (30 participantes); Formation au profit des agents techniques d'agricultures, revendeurs d'intrants, ONG, Association (25 participants) en juin 2015; Formation des maraîchers à niessega en Mai 2016 (27 participants) formation des producteurs à Natiaboani en mai 2016 (25 participants); formation au profits de COPRA mars 2016 (27 participants). Il y'a eu également beaucoup de formation insitue directement sur les fermes au profit des producteurs
4.4 Number of workshops on results of agronomic experiments and FFS	0	4	2	1	narrative repporting; Workshop reporting	Un atelier organisé en octobre 2015. Deux atelier sont prévus pour septembre 2016 pour présenter les résultats
4.5 Number of scientific publications and (audio-visual) documents; Number of seminar for institutional users at end-of-project	Literature revue of previous research	Scientific publications (3) audio-visual documents (1) end-of-project seminar (1)	1 - -	1 - -	narrative repporting; Scientific publications audio-visual documents end-of-project seminar	Une publication a été déposé au niveau du journal IJBCS
Result 5: The project is managed effectively and efficiently						

Projet : effets des amendements organiques enrichis aux *Trichoderma sp*. appliqués aux productions maraîchères de la zone sub-saharienne						
Objectively Verifiable Indicators	**Project Baseline**	**Project Target**	**result forecasted 2016**	**Achievement 2016**	**Verifcation sources**	**Commentaires**
Proper and timely financial and technical reporting	0	yes	yes	yes	FARA	
Proper financial and technical management	0	yes	yes	yes	FARA	
Effective internal and external coordination	0	yes	yes	yes		

Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda.									
Intervention Logic		**Objectively Verifiable Indicators**		**Project Baseline**	**Project Target**	**Cumulative Achievement**			
						2015	**2016**	**2017**	**Comments**
CRF	**Uganda – AIVs**	**CRF**	**Uganda - AIVs**						
Overall Objective: To contribute to achieve food security, poverty reduction and sustainable management of natural resources in Sub-Saharan Africa through equitable and demand-driven joint African-European multi-stakeholder partnerships able to design and implement agricultural research for development projects.	Increased (i) consumption of African indigenous vegetables in nutritionally vulnerable populations and (ii) revenues of those engaged in their production ***[target Result 1 of CRF]*** *[implying better access to health, education and nutrition for households in these locations and hence contributing to the attainment of the MDGs on health and nutrition].*	Number of applications of research related to smallholder farming systems in Sub-Saharan Africa	- At least 10% growth in consumption of indigenous vegetables in urban areas [moved from SO] - *At least 10% increase in gains from producing indigenous vegetables*	In East and Central Uganda, 48% of the households eat green leafy vegetables on daily basis. Average household incomes from the sale of *S.aethiopicum* (Shum group) is 0.48m/- in central Uganda and in Eastern Uganda 0.63m/- for S.aethiopicum (gilo group).	Increased daily consumption of leafy vegetable by households in East & Central Uganda to 60% 10% increment in household incomes from sale of indigenous vegetables	48%	55% 5%	60% 10%	
Specific Objective: To strengthen the capacity of the most promising consortia created within PAEPARD II to improve and	Prolonged shelf life of African indigenous vegetables (especially *Solanaceae sp*) through improved post-harvest handling and	Projects developed and/or implemented through PAEPARD	*Number of women and youth equipped with technologies and skills for seed production and of prolonging shelf life of indigenous vegetables*	0	300 women, 50 youth and 4 graduate students trained by the end of year 3	1 PhD, 3 masters enrolled	150 persons	300 persons; 3 masters completed	

Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda.									
Intervention Logic		**Objectively Verifiable Indicators**		**Project Baseline**	**Project Target**	**Cumulative Achievement**			
						2015	**2016**	**2017**	**Comments**
CRF	**Uganda – AIVs**	**CRF**	**Uganda - AIVs**						
implement impact-oriented demand-driven agricultural research for development projects.	preservation [moved from 00]	support have plausible **Theories of Change (or Impact Pathways)** to address problems related to food security, poverty reduction and sustainable management of natural resources							
Project Outcomes -Increased knowledge and skills on production, handling, preservation and utilization of indigenous vegetables among poor smallholder farmers in rural areas - Diversified sources of income for rural vegetable farmers especially women and youth. -Inclusion of indigenous vegetables in diets of urban and vulnerable - Increased awareness	1. Better knowledge of indigenous vegetable varieties with prolonged shelf life								
	2. Increased knowledge about technologies and processes for prolonging shelf life of indigenous vegetables								
	3. Better understanding of efficient delivery pathways for value added indigenous vegetables to end-markets.								

Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda.									
Intervention Logic		**Objectively Verifiable Indicators**		**Project Baseline**	**Project Target**	**Cumulative Achievement**			
						2015	**2016**	**2017**	**Comments**
CRF	**Uganda – AIVs**	**CRF**	**Uganda - AIVs**						
of economic and nutritional benefits of indigenous vegetables in diets populations									
Result 1: A significant number of the most promising impact-oriented agricultural research for development projects initiated through PAEPARD II enter the implementation phase, contributing effectively to address a range of specific problems related to food security, poverty reduction and sustainable management of natural resources in Sub-Saharan Africa	**Result 1:** Varieties of indigenous vegetables with longer shelf life and processing potential identified and profiled	100% of the ARD projects funded through the CRF and other funds are effectively and efficiently implemented 80% of final beneficiaries of the ARD projects financed through the CRF are satisfied with the first results and consider their needs are being addressed	- A collection of 100 genotypes (landraces) by Q1 Yr 1 - A morphological profile of the collected landraces by end of Q3 Yr 1 - At least 3 selected farmer preferred lines by the end of Quarter 2 Yr 3. - On-farm varietal line purification system to enhance farmers' germplasm by Q2 Yr 3.	0	- A vegetable collection among farmers in Uganda. A target of up to 100 different vegetable accessions. - A report Indigenous knowledge regarding the production, associated practices and beliefs, as well as the use of indigenous vegetables in the different regions documented - Accessions grown on-station at UCU and assessed for their different attributes. - Participatory varietal selection to validate and produce 3 new vegetable varieties - On-farm varietal line purification system to enhance vegetable varieties developed - Characterisation and profiling of up to 40 selected	100 1 100 - - 40	- - 10 10 - -	- - 3 3 1 3	

Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda.									
Intervention Logic		**Objectively Verifiable Indicators**		**Project Baseline**	**Project Target**	**Cumulative Achievement**			
						2015	**2016**	**2017**	**Comments**
CRF	**Uganda – AIVs**	**CRF**	**Uganda - AIVs**						
					accessions/ lines using SSR markers and biochemical analysis.				
	Result 2: Appropriate processing and handling mechanisms/ technologies for indigenous vegetables documented & availed to targeted stakeholders.		-A profile of processing & handling technologies by end of Yr1 -At least 5 technologies / methods piloted by end of Yr 3	0 0	- A report conducted in eastern and central Uganda profile of processing & handling technologies - 3 different post-harvest handling practices and 2 processing methods tested on identified indigenous vegetables. - 2 different food based industries in Uganda involved in testing the identified processing and handling technologies above by end year 3	1 1 post harvest handling practice tested -	- - 3 post-harvest handling practice tested - 1 processing method tested - -	- - 3 post harvest handling practice tested - 2 processing methods tested 2 different food based industries in Uganda involved in testing the identified processing and handling technologies above by end year 3	

Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda.									
Intervention Logic		**Objectively Verifiable Indicators**		**Project Baseline**	**Project Target**	**Cumulative Achievement**			
						2015	**2016**	**2017**	**Comments**
CRF	**Uganda – AIVs**	**CRF**	**Uganda - AIVs**						
	Result 3: Appropriate delivery pathways of value-added indigenous vegetables established		- Profile 20 farmer groups At least 5 key value chain actors identified by end of Yr 1 Analysis of value chain actors and their delivery pathways -) -	0 0	A profile on 20 farmer groups produces by end year 1 Demand & supply study conducted on potential market for value added indigenous vegetables Profile of existing value chains produced - At least 1 delivery pathway identified and promoted by end of Yr 3	1 1 -	- - 1	- 1 1	
	Result 4: Information on utilisation of indigenous vegetables		-Number of information products availed by end of Yr 3		- 12 radio talk shows on local radio stations- one per region for 3 years	- 2 talk shows	-8 talk shows	-12 talk shows	

Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda.									
Intervention Logic		**Objectively Verifiable Indicators**		**Project Baseline**	**Project Target**	**Cumulative Achievement**			
						2015	**2016**	**2017**	**Comments**
CRF	**Uganda – AIVs**	**CRF**	**Uganda - AIVs**						
	shared with a wide array of stakeholders through appropriate pathways.		- Number of awareness campaigns held in East and Central Uganda by end of Yr 3		- Web site established by end of Yr1 - At least 3 publications released by end of Yr 3 -A mobile phone based system of updating key stakeholders especially on market information and training opportunities - One Video documentary on vegetable production - Schools/community outreach programs (4 schools, 20 FGs) - innovation platform meetings (CABI) - At least 2 newspaper/ magazine articles by end year 3	1 - 1 1 - - -	1 - 1 1 4 schools, 20FG 1 1	1 3 1 1 video documentary produced -4 schools, 20FG 2 2	
		A pilot mechanism							

Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda.									
Intervention Logic		**Objectively Verifiable Indicators**		**Project Baseline**	**Project Target**	**Cumulative Achievement**			
						2015	**2016**	**2017**	**Comments**
CRF	**Uganda – AIVs**	**CRF**	**Uganda - AIVs**						
		(including selection criteria) for funding user-led projects proposed by joint African-European multi-stakeholder partnerships has been formalized and presented to main ARD stakeholders and donors							
Result 2: A significant number of Agricultural Research and Development (ARD) projects initiated through PAEPARD II are further supported in their inception phase and in a position to be financed through other funding sources.		100% activities funded by the Incentive Fund contribute to increase funding potential of proposals, improve proposals quality and adequacy with PAEPARD objectives							
		Number of applications of PAEPARD consortia to all							

Enhancing nutrition security and incomes through adding value to indigenous vegetables in East and Central Uganda.									
Intervention Logic		**Objectively Verifiable Indicators**		**Project Baseline**	**Project Target**	**Cumulative Achievement**			
						2015	**2016**	**2017**	**Comments**
CRF	**Uganda – AIVs**	**CRF**	**Uganda - AIVs**						
		kinds of donors funding ARD (disaggregated by type of donor and consortia)							
		Proportion of consortia which have obtained funds for their projects (outside the CRF) is higher than 20%							
Result 3: The project is managed effectively and efficiently		Proper and timely financial and technical reporting							
		Proper financial and technical management							
		Effective internal and external coordination							