End of Project Report

Project Title: Safe and Affordable Armyworm Control Tools (SAACO-Tools) for poor farmers in East Africa to protect their crops against devastating armyworm outbreaks

Lead Project Organisation:
CABI

List of Partners:

Eco Agri Consultancy Services Ltd, Tanzania (EAC)
Ministry of Agriculture and Food Security, Tanzania (MAFSC)
Ministry of Agriculture, Kenya (MoA)
Natural Resources Institute, UK (NRI)
Lancaster University, UK (LU)
Desert Locust Control Organisation for Eastern Africa, Ethiopia (DLCO-EA)
Pest Control Products Board, Kenya (PCPB)
Tropical Pesticides Research Institute, Tanzania (TPRI)
Bajuta International, Tanzania (Bajuta)
Juanco SPS, Kenya (Juanco)
Ministry of Agriculture and Rural Development, Ethiopia (MoARD)

1. Knowledge being put to use

Identify and describe all theknowledgeproducts/processesthat have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.
RNRRS generated knowledge used: R5270, R6746, R6762, R7966, R7954, R8407 (on the development of pheromone based forecasting traps and their utilisation by communities and on the identification and use of the natural SpexNPV for the control of armyworm)

Non RNRRS generated knowledge used: Approaches have been further refined through donor support, e.g. use of Spex NPV through DFID/ BBSRC funding, community based forecasting through SADC and USAID funding.

(i) Local newspapers (Print): The East African, 14th -20th June 2010; Daily Nation, 25th May 2010; Business Daily, 7th June 2010)
(ii) On-line media: All Africa, 3 June 2010; Africa Science News Service, 10th June 2010; Africa Press International, 19th May 2010
(iii) "Putting Research into Use: Community Based Armyworm Forecasting in Kenya" A paper accepted for publication in the East African Agricultural and Forestry Journal, 2011.
(iv) Shujaaz: http://shujaaz.fm/index.php?option=com_content&view=article&id=93&Itemid=101
(v) Naked Scientists: http://www.thenakedscientists.com/HTML/podcasts/africa/

2. Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred. Please refer back to sections 2.6 and 3.1 of your full proposals.

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1 Pheromone protocol developed	**Achieved with a very straightforward protocol developed and agreed.**	**None**	**N/A**
2 Forecast tool supply chain established	**Distributors and the producers of the forecast supply chain have been linked**	**Slight delay**	**There was a slight delay caused by the slow process of establishing pheromone registration. The process of developing registration requirements and procedures for introduction of semio-chemicals involved many stakeholders, meetings and workshops before acceptance.**
3 Spex NPV production established in Tanzania	**Achieved. The timeframe was very tight but the team has done very well.**		
4 Training of trainers courses	**Achieved. 128 ToT trained in Kenya, 56 in Tanzania**	**None**	**N/A**
5 CBAF established in 120 villages	**Achieved. 120 CBAF villages**	**None**	**N/A**

6 NPV registration data submitted	**Achieved. Government of Tanzania has approved and supports the use of NPV**		
7 SACCO tools developed in government plans	**Achieved in both Kenya and Tanzania. The two governments have set aside some money for facilitating CBAF activities. Additionally, staff in the Ministries of Agriculture have been requested to include CBAF activities under their regular activities**	**None**	**N/A**
8. Marketing strategy	**Achieved in both Kenya and Tanzania – Elgon Kenya and Bajuta International arranging for importation of SAACO tools from Russell IPM in the UK**	**None**	**N/A**

3. Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same?
Community based armyworm forecasting (CBAF) element has required the following activities: 1) Training of trainers so that there is the expertise to establish community based traps, these will stimulate demand for inputs as well as proving the concept to the Ministries in which this approach is to be embedded. 2) In Kenya developing a registration protocol so that the pheromone can be legally imported into Kenya and marketed within Kenya (this is not necessary in Tanzania) 3) Achieving government commitment (including financial) to ensure that there is continual use of these products after RIU funding (and therefore upscaling) which will provide a certain level of market stability for the inputs. The supply chain of inputs is has been developed. 4). Creation of awareness through field days to assure community understanding and ownership of CBAF activities to ensure sustainability The production of Spex NPV has required the purchase of land and a facility to be constructed. This has all gone as planned and the team have been harvesting armyworm for the production of NPV in 2011. The team have also been working with the Ministry of Agriculture in Tanzania to obtain their support and involvement in the use of NPV in conjunction with CBAF.

4. Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

i) All partners listed in the initiative have contributed as expected. None of the partners was dropped

ii) Partnerships have operated at different levels, for example the link with Ethiopia has been more informative than activity based. During the development of registration protocols for the pheromone certain relationships were more important but now there is a great emphasis on the links with the supply chain actors and the Ministries of Agriculture which continue to give support to the initiative and the supply chain. This relationships have also worked well because of a clear understanding of the need to fight a common enemy (armyworm) that traverses boarders i.e. has no boundaries and is erratic in occurrence. An additional distributor, Elgon Kenya, has joined the team, they come with good enthusiasm. In the process of identifying a supplier / manufacturer for the pheromone traps and lures; Russell IPM was identified. However the Pest Control Products Board requires that there be a local agent. Elgon Kenya was identified as a local agent for Russell IPM.

5. Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?
ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?
iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

i) The team has spent a lot of time with policy makers on both the development of pheromone registration protocols in Kenya and getting the support of the Governments of Kenya and Tanzania to scale this approach up. The team have invested a lot of time in these relationships and although progress may be considered to be slow it has also been highly effective.

ii) The teams built on personal relationships, conducted themselves in a very polite manner and invested the time in the relationships with the policy makers. The critical policy makers were within the Ministries of Agriculture in Kenya and Tanzania

iii) **Registration**: Development of a Government of approved simple (no cost, fast) procedure for the registration of pheromones. This will facilitate the commercialisation of other pheromones for lepidopteran pests in Kenya.

Registration: Development of a Government of Tanzania approved simple (low cost, fast) procedure for the registration of SpexNPV.
Policy: Draft inclusion of community based armyworm forecasting on the GoK permanent secretary (agriculture)'s contract meaning that getting CBAF adopted is a key objective for him. Already the impact of this is being seen with mention of government funds being made available for CBAF.
Policy: There has been a change in mindset with the Government of Kenya now recognising that CBAF has an important role to play in providing data on armyworm status to add to that from the national network of traps. This will enable more accurate forecasts to be made and control better pinpointed.
Policy: In Tanzania government support has been both financial in terms of adding additional sites for CBAF. CBAF has been integrated into district agricultural development plan (DADPs), thus ensuring longer term sustainability. GoT has also committed to using SpexNPV in its armyworm control programmes to show farmers its efficacy.

6. Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?
ii). Have there been any unintended changes / consequences?

i).Rather than develop new relationships the team have developed stronger relationships which have brought about the changes described in section. New working practices have been developed. In Kenya the Plant Protection Services Division (PPSD) issues regular '*alerts*' to staff in areas where CBAF activities are undertaken to pay special attention to CBAF activities. PPSD also supplies pheromone lures for the CBAF traps and the front line staff in the CBAF areas provide regular back stopping to the farmer forecasters. Similarly, in Tanzania the Ministry of Agriculture staffs at the district and village level now pay special attention to CBAF areas in terms of back stopping. Additionally, there is a pledge for funding of CBAF activities.

ii). There are no unintended changes that we know from CBAF.

7. Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?
ii). Have you shared these lessons with others and if so with whom and how?
iii). Also, describe what has not worked and explain the reasons why not.
iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if

so how? **v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?**
i). Putting research into use involves team work. Additionally, all team members need to understand the genesis of the research findings and what they are meant to achieve. Key beneficiaries require to be made to own the processes and be able to provide support within their means. Appropriate linkages are of essence. To this end linkages between the key beneficiaries and crucial stakeholders is important. Public-private-partnerships are important and have to be made and maintained. Similarly, linkages with other relevant organization at local and international level are required. Support by the local administration is crucial. Support from stakeholders need to be sought strategically. Involving persons in Key positions in government is paramount for purposes of policy influencing. Creation of awareness to all concerned stakeholders has been found to be an important approach to assure sustainability of the linkages. This involves indication of roles, expected support and economic importance of the armyworm problem. Similarly, production and distribution of publicity materials, indicated in section 1, has been noted to create further awareness and encourage and maintain linkages. ii). We plan to share these lessons with other organizations that have interest in putting research into use particularly for purposes of enhancing welfare of the farming community. Meetings with policy makers have been conducted to indicate lessons. At these meetings interested stakeholders are invited. Similarly, key persons in governments have been requested to pass lessons identified to interested stakeholders for uptake. iii). None iv). Dealing with processes that require decisions at high government levels. Scenarios involving public interest and hinging on welfare. We were able to overcome all these by having meetings and consultations with relevant authorities, respecting protocol and involving concerted and targeted dialogue v). Further policy influencing, communication, promotion and supply chain management. These will be addressed through the same approaches indicated above given that this is for sustainability and expansion of the approach to other countries for purposes of harmonization across the region and beyond.

8. Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected. In the table below an example is given, please use columns below this to enter your own information.

Project Output	**Number & Type of Indirect Beneficiaries**	**Number & Type of Direct Beneficiaries**	**Male Beneficiaries** (indirect and direct)	**FemaleBeneficiaries** (indirect and direct)	**Total**	**Evidence Index***
Output 5		*80,080 in Kenya benefitting through*	*Approx 40,000*	*Approx 40,000*		These figures come from the number of

		forecasting				people in the communities that are now utilising CBAF. These figures were supplied by the Plant Protection Services Division of the Ministry of Agriculture in Kenya
		25000 in Tanzania benefiting through forecasting under RIU. The number is bigger if previous initiatives by other project are considered. These figures refer to farmers only	12500	12500		These figures come from the number of people in the communities that are now utilising CBAF in Tanzania, according to the Plant Health Services of the Ministry of Agriculture and Food Security

*Please provide evidence for the figures included here as a separate attachment, use this column in the table to indicate where this evidence can be found.

9. Poverty reduction, environmental impact & Income generation

i). Describe your achievements here **ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?** **iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report** Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.
i).120 communities conducting CBAF in Kenya, 40 communities conducting CBAF in Tanzania. Registration requirements for semio-chemicals and procedures for introduction of straight chain lepidopteran pheromones developed. Governments of Kenya and Tanzania willingness to support CBAF ii).Baseline exists in terms of the frequency of armyworm infestations, and areas of damage. The economic importance of the armyworm depends on the stage the crop is at when it is attacked and market prices. This has been mapped out by Imperial College and models to measure benefit under different conditions constructred.

iii). There is community ownership of CBAF activities, farmer participation in armyworm control is enhanced, communication and information on impeding armyworm outbreaks is improved, reduced armyworm attack and increased income from cereals.

10.Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.
ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

Before the start of CBAF activities meetings are held at the villages, where the communities democratically elect the prospective community forecasters, who are eventually trained and given the forecasting pack, pheromone lures and traps, and mandated to conduct forecasting. During the election the arrangement is such that one male and one female forecaster are elected in each village.

11.Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

None from CBAF

12.Any Other Comments

Please include any other comments that you would like to include and which you feel don't fit in elsewhere.

Further support required is building capacity in other areas, follow-up in areas conducting CBAF to assure sustainability, provision of SAACO-Tools to those not able to purchase their own in the initial phases, facilitating communication among the stakeholders, further policy influencing to assure government support and lobby support from other interested stakeholders especially for control. Harmonize the approach for region-wide usage, especially in Ethiopia and Malawi