Annex 10 Community Based Armyworm Forecasting Project – *M. Kimani*

Community Based Armyworm Forecasting

ICART Grantees Meeting, September 2008

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Objective

- To establish community based armyworm forecasting in Malawi, Tanzania and Zimbabwe for reducing cereal crop losses caused by armyworm outbreaks.

Partners

- Kenya: CABI Africa (Project coordinator)
- Tanzania: Ministry of Agriculture, Food and Co-operatives, Plant Health Services
- Malawi: Pesticide Control Board, Department of Agricultural Research Services
- Zimbabwe: Plant Protection Research Institute, Ministry of Agriculture
- South Africa: Agricultural Research Council, Information Core for Southern African Migrant Pests
- UK: Natural Resources Institute

Activities

- Community based armyworm forecasting (CBAF) successfully piloted in Malawi and Zimbabwe and lessons learned.
- CBAF scaled up and out in Tanzania (all years) and Malawi and Zimbabwe in years 2 and 3
- Methodology refined and benefits documented
- Capacity for innovative regional migrant pest research built

Pre-season planning meeting

- Project planning in Nairobi and in country meetings with key stakeholders
- Detailed plans and village selections in each country
- 5 villages in Zimbabwe and 10 villages in Malawi

Baseline socio-economic surveys

Yield losses due to armyworm outbreaks		
	Zimbabwe	Malawi
The average crop loss due to armyworm attacks	68.17%.	42.20%.
Yield loss due to armyworm attack	100%	100%
Average production of with armyworm infestation	6.48bags	6.69 bags
without armyworm infestation the average production was	23.38 bags of 50 kg each.	11.60 bags of 90 kg each.

Village meetings

Malawi	Zimbabwe
•Farmers •Village leaders/chiefs •Village extension officers •District crops officers •Agricultural development Division crops officer •Pesticide Control Board	•Farmers •Village authorities •Agritex officers •Plant |Protection staff •Stockists •NGOs

Preparation of armyworm forecasting kit

- **Forecast Pack contains the following items:**
  - **Armyworm moth trap**
  - **Two rubber baits in an airtight bottle**
  - **Insecticide for the trap**
  - **Armyworm moth trap instruction sheet (translated into Shona and Chichewa)**
  - **Rain gauge, rain collection cup and measuring cylinder**
  - **Rain gauge instruction sheet**
  - **Forecasting instruction sheet**
  - **Data sheets**
  - **Pens, pencils**
  - **Outbreak record cards**
  - **Armyworm posters**
  - **Armyworm leaflets**

Forecaster training

- **Participants- Farmers, village extension officers, village leaders**
- **Topics**
  - **Armyworm biology and migration behaviour**
  - **Assembling/setting the forecast equipment**
  - **Data collection and recording**
  - **Calculating forecast**
  - **Communicating positive forecast**
- **th forecasting pack at the end of**

Season long forecasting

The correct forecasts fall in the upper left and lower right cells of the table

Four forecasting outcomes

Outbreak occurred \ Forecast	Warning	No warning	
Yes	Outbreak correctly forecast	Outbreak occurred but not forecast	Out-breaks total
No	Warning given but no outbreak	No warning, no outbreak	No outbreaks total
	Warnings total	No warnings total	

CBAF scaled up and out in Malawi, Tanzania and Zimbabwe

The following scaling up activities took place in Tanzania only in Y1

- **Results in earlier three season pilot trials in Tanzania showed that:**
  - **70% of farmers were aware that armyworm outbreaks can be forecasted**
  - **52% of farmers had received outbreak warnings**
  - **82%of farmers had been able to control the most recent armyworm outbreaks**
- **Community-based pest forecasting into pest control budgets**
- **Local districts support the scaling up approach**
- **NGOs willing to participate**

Steps taken towards scaling up CBAF in Tanzania

- **Pre-season planning meeting in Nairobi and and in-country stakeholder meetings**
- **40 villages in Northern Tanzania selected and active**
- **Training of trainers for District Plant Protection Officers and 2 extension staff from 7 districts of the Central and Northern**
- **Additional topics**

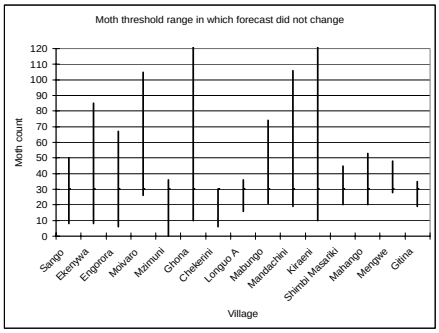
Steps taken towards scaling up CBAF in Tanzania continued

- Master trainers implement CBAF
- NAWC integrated CBAF with the National forecasting system
  - visited traps and participated in M&E,
  - hosted advisory committee meetings
  - Prepared policy briefs
  - Sent project briefs to partners
  - Placed articles in CABI News letter and CABI e-nzine
  - Communicated directly with forecasters through mobile phones
  - Planned a National policy makers' seminar- scheduled for third year

Methodology refined and benefits documented

- Key issues addressed:
  - Does the moth catch threshold need to be adjusted for different villages?
    - Does the rain gauge information add much extra to the moth catch information?

Moth threshold



Methodology refined and benefits documented- activities planned for Y2 and Y3

- Determination of application domains
- Economic analysis of large-scale CBAF implementation
- Assess long term sustainability of CBAF
- End-of-action Evaluation
- Publish results

Capacity for innovative regional migrant pest research built

- Action inception meeting

- 1st annual learning and planning workshops held in Malawi in July 2008
- Relevant elements of outcome mapping applied through out the project
- Communication and knowledge management strategy developed and implemented using outcome mapping

Capacity for innovative regional migrant pest research

- Results disseminated through ICOSAMP
  - www.arc.agric.za/home.asp?pid=4651
  - www.arc.agric.za and click on "armyworm forecasting" menu

Capacity for innovative regional migrant pest research built- activities planned for Y2 and 3

- Project management training
- Leadership training
- Exchange visits
- Regional workshop

Achievements

- CBAF established in 40 in Tanzania, 5 in Zimbabwe and 10 in Malawi during the 1st year.
- Forecasting packs and leaflets were produced in local languages in all countries
- Lessons were learnt:
  - Early trap visits ensure immediate capturing and solving of problems
  - Addressing correct protocols at all levels of authority is time consuming but essential for institutional support
  - Forecast information from CBAF plays a role in the central forecasting system
  - Positive forecasts benefit farmers in neighbouring CBAF villages
  - Qualitative information on rainfall may not be necessary for forecasting

Challenges

- Some confusion was caused by the concept of 'rolling' forecasts.
- In Malawi some farmers believed armyworm could only be controlled by chemicals from the government
- In some villages fellow farmers had expectations that village forecasters would provide chemicals
- The political situation in Zimbabwe resulted in major logistic challenges.
- Provision of pesticide varied from country to country resulting in different challenges in each country.

Way forward

- **In the coming year all countries will be in the stage of scaling up CBAF.**
- **Approaches taken will vary from country to country allowing the possibility to evaluate the value of different approaches.**
- **Increased engagement with pesticide providers will be sought to address some of the problems.**
- **Increased emphasis will be placed on communication within countries, taking advantage of National events including agricultural shows and producing communication materials for use in agreed strategies that can be easily adapted across countries.**