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**Integrated white stem borer management in  
smallholder coffee farms in India, Malawi  
and Zimbabwe**

**Mid-term evaluation**

## **Background**

The attached document contains a summary report on the mid-term evaluation for the project “Integrated white stem borer management in smallholder coffee farms in India, Malawi and Zimbabwe” which took place in Malawi and Zimbabwe in July 2005. A copy of the full report, together with the report of the mid-term evaluation which took place in India in April 2005, can be made available separately on request.

## **Action**

The Council is requested to note this report.



# **Integrated White Stem Borer Management in Smallholder Coffee Farms in India, Malawi and Zimbabwe (CFC/ICO/18)**

**Mid-Term Evaluation**

July 2005

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## Introduction:

Most of the population in southern Africa is rural, with agriculture contributing 36 and 15% of the GDP of Malawi and Zimbabwe, respectively. Agriculture also generates income, earns foreign exchange and provides raw materials for the industrial sector. Providing a livelihood to farmers in this region, as indeed in many developing countries, is a major strategy in alleviating poverty. It is estimated that the rural poverty accounts for as much as 90% of total poverty in this region.

With its varied soil types, rainfall, topography and population densities, a wide range of farming systems are practiced. Cultivation of food crops to sustain the high population is particularly common, but this is frequently combined with cash crops. One of the important tree cash crop based farming system in the region is the coffee based one. Coffee is one of the most widely traded agricultural commodity (US\$10 billion) employing over 25 million worldwide. It is a labour intensive industry engaging millions of rural population in its cultivation, picking and processing. Coffee accounts for 3 and < 10% of the total export earning of, and is grown by 4,000 and 1,000 small holder farmers in Malawi and Zimbabwe, respectively. Although coffee is a major income earner for smallholder farmers, over 90% of the coffee in the region is cultivated by large scale plantation commercial farmers. Among smallholder farmers farm sizes are small (1-2 ha.) which often support several other crops, especially bananas, maize, beans, paprika, as well as other enterprises such as dairy farming. These alternative agricultural practices have intensified lately as a result of low returns due to poor marketing, increased production cost (e.g. management of diseases like coffee wilt diseases) as well as a decline in world prices of coffee. Major constraints also face farmers after harvesting of coffee due to poor marketing systems leading to the exploitation of farmers.

One of the most serious threats to coffee production in Southern Africa is the white coffee stem borer (CSB), *Monochamus leuconotus* (Pascoe) (Coleoptera: Cerambycidae). *M. leuconotus* is endemic to Africa and mainly attacks Arabica coffee grown at altitudes of below 1,700m where it may make the cultivation of coffee uneconomical. The related *Xylotrechus quadripes* (Coleoptera: Cerambycidae) is the main coffee stem borer attacking coffee in India, having been reported for the first time in Mysore State (Karnataka) in 1838.

This project was therefore developed to seek ways of managing these pests in India, Malawi and Zimbabwe. The project is funded by the Common Fund for Commodities (CFC) with the International Coffee Organization (ICO) as the Supervisory Body and CAB International (CABI) as the Project Executing Agency. The Project Implementing Agencies are the Coffee Board (India), Ministry of Agriculture (Malawi) and Ministry of Agriculture (Zimbabwe). The 4-year project was proposed to last from June 2002 to May 2006.

The two purposes of the project are to (a) increase coffee productivity and profitability by reducing costs and constraints, and (b) develop low cost and input pest control methods for the management of the CSB. The outputs of the project are new control methods for CSB developed and optimized; sustainable Integrated Pest Management (IPM) approaches to control CSB developed; project findings developed and staff trained; and project executed effectively and efficiently.

The project involves coffee farmers in the development of stem borer control strategies by applying Farmer Participatory Training and Research approaches. The Farmer Field School is a form of adult education, which evolved from the concept that farmers learn optimally from field observation and experimentation. It was developed to help farmers tailor their IPM practices to diverse and dynamic ecological conditions.

In regular sessions from planting till harvest, groups of neighbouring farmers observe and discuss dynamics of the crop's ecosystem. Simple experimentation helps farmers further improve their understanding of functional relationships (e.g. pests-natural enemy population dynamics and crop damage-yield relationships). In this cyclical learning process, farmers develop the expertise that enables them to make their own crop management decisions. Special group activities encourage learning from peers, and strengthen communicative skills and group building.

IPM Farmer Field Schools were started in 1989 in Indonesia to reduce farmer reliance on pesticides in rice. Policy-makers and donors were impressed with the results and the program rapidly expanded. From the mid-nineties onwards, the experience generated in Asia was used to help initiate IPM Farmer Field School programs in other parts of the world. New commodities were added and local adaptation and institutionalization of these programs was encouraged. At present, IPM Farmer Field School (FFS) programs, at various levels of development, are being conducted in over 30 countries worldwide.

FFS is therefore a more participatory hands-on approach of training which is superior to the linear non interactive researcher to extension staff to farmer approach.

This CSB project will assist in the production of Arabica coffee in a sustainable manner in order to encourage long term commitment by farmers to the crop and contribute to a cleaner greener image for coffee that might be used in future marketing strategies. This report only covers activities in Malawi and Zimbabwe.

The Project Agreement and Project Implementation Agreement of project CFC/ICO/18 stipulate that a mid-term evaluation of the Project be undertaken to assess progress in the implementation of the project activities and recommend remedial actions if necessary. The terms of review was drawn by the CFC and the ICO (see Appendix 1), and the itinerary (Appendix 2) developed by CABI-ARC. Caleb Dengu (CFC), Denis Seudieu (ICO) and George Oduor (CABI) constituted the review team. The team visited Malawi between 17<sup>th</sup> and 24<sup>th</sup> July and Zimbabwe between 25<sup>th</sup> and 30<sup>th</sup> July 2005.

## **Recommendations**

### **1. Technical progress**

1.1 Develop new control methods within an IPM and Farmer Participatory Research framework.

- Although coffee from the 2 countries are not sold to niche markets, there is need to continue searching for and evaluating biological control agents, as other CSB control methods are evaluated.

- Rehabilitate office to an insect pathology laboratory, to enable receipt of *Beauveria bassiana* currently in Kenya (Malawi)
- Feasibility of using pheromones as a CSB management tool should be re-considered by the PIAs.
- Regular reports on progress of National Coordinator's PhD studies should be made to the Regional Coordinator (Zimbabwe).

### 2.1 Optimise currently available technologies for managing the CSB

- Monitoring of field trials (including varietal) should continue
- Fipronil (Regent) appears to be effective at controlling the CSB. The local suppliers of the insecticides should be contacted by the National Coordinators to see how its cost can be reduced (the project is in the process of registering the product for use in Coffee in Malawi).

### 3.1 Extension and dissemination of project results, and Economic assessment of farming coffee

- The farmer-extension staff-researcher linkages are weak and need to work as a team and to be strengthened through participatory planning and implementation of research activities.
- Since the concept of FFS on coffee is a new concept in the 2 countries, the extension staff and selected contact farmers should undergo comprehensive training to better equip them with knowledge not only on CSB, but also on Good Agricultural Practice, coffee processing and marketing. The trained staff and farmers could then be used to train others.
- The FFS activities were appreciated by the farmers and must be intensified and supported, e.g. project to make available inputs like fertilizers, pesticides, food for participants at training sites, irrigation facilities, etc.
- Production and dissemination of research findings must be intensified in the various print and electronic media as well as in the form of posters, leaflets, fact sheets, etc. Copies of the dissemination materials should be sent to the ICO for wider distribution.
- Competitions for Farmer and FFS of the year should be organized in each country and winners rewarded with e.g. Certificates, T-Shirts, Calendars, etc.
- Extension staff should be supported with fuel (to facilitate their mobility), technical information (including fact sheets, pest Identification manuals and training), recruitment of more staff, etc.
- National Project Coordinators in each country should draft letters inviting 3 collaborators from the Indian component of the project to make an exchange visit to Malawi and Zimbabwe this year, preferably in October 2005.
- National Project Coordinators in each country should investigate the possibilities of including project findings in websites.
- A National Coffee Vision and a strategy to achieve it must be developed in each country. The Economist in Malawi must develop this, and together with the one from Zimbabwe, ensure that their ownership transferred to their respective Ministers of Agriculture.
- The Economist in Malawi should work closely with Mr. Gerald Fisher of SCFT in developing the coffee vision to ensure that their work is complementary and not duplicative.

- Since the project will end soon, the Economists in each country must develop an exit strategy document that will ensure that the project activities are taken over and financed by the respective governments. The document should include the current benefits of coffee and the project as well as the cost and benefits of having a well managed sector.

## **2. Resource utilisation**

- All countries must restrict their expenditures to the annual budget. The use of balances from earlier budgets may occur after approval by the PEA and CFC.
- The external auditors must submit to the PEA drafts of the 2004 audits by 22<sup>nd</sup> July (Malawi) and final reports by 5<sup>th</sup> August 2005 after comments have been provided by National Coordinator by 2<sup>nd</sup> August 2005 (Zimbabwe). The final reports for both countries must be submitted to the CFC by 29<sup>th</sup> August 2005.
- Given the balance in the overall project budget, the project may be extended by between 6 months and 1 year. The outstanding balances will revert to a central pool and each country and the PEA requested to re-submit a 6-monthly workplans and budgets for periods as follows; July - December 2005, July 2005 - June 2006, July 2005 - December 2006 and July 2005 - June 2007. Workplans, which supersede the current one, should be developed participatorily by farmers, extension staff and researchers. The total budget, which will have to be approved by the CFC, should not exceed the current project balance. The PEA will provide a template budget format to the PIAs by 1<sup>st</sup> August 2005. The PIAs should submit their workplans and budgets to the PEA by 15<sup>th</sup> August 2005 and the PEA must consolidate and forward these to the ICO/CFC by end of August 2005.

## **3. Project coordination and management**

- Each country must hold their Project Steering Committee meetings as indicated in the workplans, as these meetings serve both to resolve problems and popularize the project. Minutes of such meetings must be taken and circulated.
- All the CFC vehicles must bear the CFC logo stickers on them and log books, copies of which must accompany claims sent to the PEA.
- Ownership of the project vehicles must be formally transferred to the project from the United Nations Development Programme (UNDP) (Zimbabwe).
- The National Coordinator should urgently contact the Zimbabwe Revenue Authority and agree on all taxable items and services in the project and, if necessary, pay tax as is stipulated in the law ( Zimbabwe).

## **4. Social effects of the project**

- The Economists should help farmers understand whether they are making a profit or running at a loss as a result of cultivating coffee, including the cost of adopting new technologies.
- The lack of differential payments that reward farmers who produce higher quality coffee de-motivate farmers and policies should be developed to support these harder working farmers. A marketing system which reduces delays in payment for delivered coffee, assists in coffee processing, provides up-to-date market information, etc. should be established with priority to smallholder farmers.

- Infrastructure, especially rural access roads, needs to be improved to facilitate adoption of project findings.

#### **5. Planning of the project implementation during the remaining period**

Important information was gathered from the farmers and extension workers. This will help in identifying the activities to be included in the future workplans and budgets. The FFSs, training of extensionists (including exchange visits) and production and dissemination of findings of the project should constitute a major part of the future activities. The National Coffee Vision and Strategy will be finalized by the Economists, forwarded to and owned by the Governments of the two countries.