



International Coffee Organization
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Coffee Berry Borer

Project proposals

Background

1. This document summarizes the following three proposals submitted for the control of the Coffee Berry Borer (CBB) in Central and South America and Asia.

- ‘Integrated management of CBB with a quality and sustainability component for coffee-growing in Central America’, submitted by IICA/PROMECAFE (Inter-American Institute for Cooperation on Agriculture/Regional Programme for the Development and Modernization of the Coffee Industry in Central America, the Dominican Republic and Jamaica)
- ‘Pilot project on implementation of the Integrated Pest Management (IPM) to control the Coffee Berry Borer (CBB) in Arabica and Robusta coffee smallholdings in Indonesia’, submitted by the Government of Indonesia
- ‘CBB – the need for a review of the status and knowledge of a serious coffee pest’, submitted by CABI – UK

2. The proposals have been circulated to the Virtual Screening Committee (VSC) for assessment and will be considered by the Executive Board in May 2008. Copies of the full project proposals are available upon request from the Secretariat.

Action

The Executive Board is requested to consider these proposals together with the recommendations of the VSC and, if appropriate, to recommend approval by the Council.

I. PROJECT SUMMARY

Project title:	Integrated management of the Coffee Berry Borer (CBB) with a quality and sustainability component for coffee-growing in Central America
Duration:	3 years
Location:	Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Jamaica, Mexico and Panama
Nature of the project:	This project has emerged in view of the existing high-level inoculation against the CBB, which can cause serious damage to coffee crops and can spread to areas where exceptional quality coffee is produced.
Brief description:	This project aims to reduce CBB populations and prevent further outbreaks of this pest in the coffee-producing areas of PROMECAFE member countries, at manageable levels below the threshold of economic damage, prioritizing biological and ethological control.
Project Executing Agency:	IICA/PROMECAFE. Regional coordination of national Executing Agencies: Coffee Institute of Costa Rica (ICAFE) – Costa Rica Dominican Coffee Council (CODOCAFE) – Dominican Republic Salvadorean Coffee Research Foundation (PROCAFE) – El Salvador National Coffee Association (ANACAFE) – Guatemala Honduran Coffee Institute (IHCAFE) – Honduras Coffee Industry Board of Jamaica (CIB) – Jamaica Southern Frontier College (ECOSUR) – Mexico Ministry for Agricultural Development (MIDA) – Panama
Estimated total cost:	US\$11,215,800
Financing sought from the Fund:	US\$4,420,000 (Grant)
Counterpart contributions:	US\$6,795,800 (in-kind)
Supervisory body:	International Coffee Organization (ICO)
Estimated starting date:	n/a

Background

The CBB (*Hypothenemus hampei*) was detected in the Central American region in 1971 and has become the major and most harmful pest affecting coffee growing, causing heavy losses, both in terms of quantity and quality, in the absence of prevention and control measures. Research and technological development designed to combat CBB at the regional level began in the mid-1980s through PROMECAFE, a regional network for technical cooperation between coffee bodies or institutions in Central American countries, Mexico, IICA and Tropical Agricultural Research and Higher Education Centre (CATIE). Initially, chemical pest control was used but non-chemical pest control measures have taken over.

Towards the end of the 1990s, the 'Integrated management of the Coffee Berry Borer (CBB) project' (CFC/ICO/02) was financed by the Common Fund for Commodities (CFC) and implemented under the supervision of the ICO. It was designed to study on-farm integrated management of the CBB, incorporating hygienic cropping practices and control measures. The results of this experience enhanced knowledge and added value to this proposal's components.

The project provided the technological basis applied since then, albeit not always fully, which has had satisfactory results from an economic and environmental viewpoint. It should be noted that components of a biological and environmental type are the only permitted measures for producers of coffee certified as 'organic' or 'environmentally friendly'.

Current situation and problems

The CBB control measures were generated by the CFC/ICO/02 project and routinely applied by the region's coffee growers until crop year 2001/02, when difficulties were encountered as a result of the collapse in coffee prices on the international market. The crisis generated adverse effects that affected coffee-growing as follows:

- As a result of the persistent losses suffered by producers, technological pest control and management practices were discontinued or cut back, even those most easily applicable. This situation, which in some cases led to the complete abandonment of coffee farms, was favourable to the survival and expansion of the pest.
- For the same reasons, coffee institutions in the region, which depend on coffee exports for their resources, drastically reduced the technological services provided to coffee growers.

These two effects led, in turn, to the aforementioned expansion and to new outbreaks of CBB, which thrives on neglected farms and, because of its post-harvest migratory habits, can rapidly spread to non-infested areas.

Project objectives

General objective

To reduce CBB populations and prevent further outbreaks of this pest in the coffee-producing areas of PROMECAFE member countries, at manageable levels below the threshold of economic damage, prioritizing biological and ethological control.

Specific objectives

- To develop, validate and transfer integrated CBB management technology and farm resources generated in the region to coffee producers in the countries involved in the project.
- To provide phytosanitary protection against the threat of CBB in coffee-growing areas, particularly in those producing high-quality speciality coffee.
- To strengthen the technological and operational capacity of plant health and agricultural extension units in national coffee institutes in order to ensure effective participation in the improvement of farm productivity and execution of the project to combat CBB.
- To establish systems for regular surveillance of active and latent CBB populations in each country, evaluation of damage levels and operation of technological responses to infestations requiring immediate control measures.
- To establish procedures for training, evaluation and participatory development with groups of coffee growers, with a view to the adoption of Integrated Pest Management (IPM) technology in Member countries.
- To develop models for traps and new attractants for the capture of CBB and to establish regional systems for handmade traps.
- To manage CBB using non-chemical measures, ensuring coffee quality and the wholesomeness of the beverage.

Beneficiaries

The project aims to achieve the direct transfer of IPM and coffee-growing technology to 6,000 coffee producers in each country with effect from the first year, with an increase of 4,000 in each of the next two years, reaching a total target population of 14,000 in each Central American country and 8,000 in the Caribbean, making a total of 100,000 producers in the region. The final aim of the project is to keep the CBB population below the economic damage threshold with effect from the second year of the project and to institutionalize the system of evaluation and immediate permanent response for controlling the pest.

Estimated costs and sources of financing
(000 US\$)

Component	CFC (40%)	Counterpart contribution (60%)	Total
I. Executing units	620	1,429	2,049
	480	-	560
II. Development and transfer	900	1,350	2,250
III. Evaluation and monitoring	940	2,022	2,962
IV. Services to producers	930	1,170	2,100
V. Quality/Food safety	550	825	1,375
Total	4,420	6,796	11,216

II. PROJECT SUMMARY

Project title:	Pilot project on implementation of the Integrated Pest Management (IPM) to control the Coffee Berry Borer (CBB) in Arabica and Robusta coffee smallholdings in Indonesia
Duration:	3 years
Location:	Indonesia
Nature of project:	To establish a model for the application of IPM for CBB control on Arabica and Robusta coffees at the farm level. The model is expected to be adopted by coffee farmers on a large-scale in order to minimize the impact of CBB attack.
Brief description:	The project will be initiated by a baseline study to identify problems related to CBB in different coffee-growing areas in Indonesia. The study will be followed by a national workshop attended by different major stakeholders to design work plans and their implementation. Preparation of manuals and other dissemination tools, such as leaflets, posters, etc., dealing with the implementation of IPM on CBB will be carried out soon after the workshop. Training of trainers will be arranged to prepare competent people to provide training courses at farmer level. The main activity in this project is to establish a field school for coffee farmers along with the implementation of IPM on CBB control in their farms for two years. During the implementation of the model, expert supervisions will be conducted to undertake technical monitoring and evaluation.
Estimated total cost:	US\$570,000
Financing sought from the Fund:	US\$500,000
Mode of financing:	Expected as grant
Co-financing:	US\$20,000 (contributions are expected from the Association of Indonesian Coffee Exporters (AEKI), including in-kind)
Mode of co-financing:	Co-financing will be by grant (including in-kind)

Counterpart contribution: US\$50,000 (including in-kind)

Project

Executing Agency (PEA): Indonesian Coffee and Cocoa Research Institute (ICCRI) of the Ministry of Agriculture (AARD)

Supervisory body: International Coffee Organization (ICO) and the AARD

Problem statement

1. CBB has been one of the main pests affecting coffee husbandry in Indonesia over the last century. The insect has already spread throughout Indonesia, including Papua Province which is on the border of Papua New Guinea which is reported to be still free from the pest.
2. The insect has significantly infested Arabica coffee in Northern Sumatra and Gayo Highland (Aceh) during the last 10 years, where the well-known specialty of Mandheling coffee originates. Total production of Arabica coffee from the two provinces is between 40,000-50,000 tonnes annually, representing some 70% of the total production of Arabica coffee in the country.
3. There are very high levels of infestation of CBB (up to 50%) in the Robusta-growing areas of Southern Sumatra (Lampung, Bengkulu and South Sumatra provinces).
4. Sanitation methods are effective ways to control the CBB but are labour intensive and costly, and farmers outside Java will not apply these methods. Biological control of CBB by using a fungus of *Beuveria bassiana* has also been applied by coffee estates in Indonesia. Recently the use of trapping methods to control CBB has been developed by ICCRI. Therefore application of IPM on CBB is expected to help the coffee farmers to maintain their coffee productivity and quality.
5. Recent CBB attacks on coffee have been more severe than those of the last ten years. For instance, the insect was previously not a significant problem in Arabica coffee-growing regions in Indonesia due to the high altitudes in these areas. However, at the moment most Arabica coffee-growing areas in the country have been significantly affected by the pest.

Project objectives

- (a) To establish and implement an IPM model as an effective and environmentally-friendly measure to control CBB
- (b) To maintain coffee productivity and quality by avoiding beans with CBB
- (c) To improve coffee farmers' incomes

Beneficiaries

- (a) Small coffee farmers, exporters, consumers and local government
- (b) The project is expected to involve about 3,000 coffee farmers
- (c) Coffee exporters will be able to reduce costs of manual sorting and improve quantities of good quality coffee
- (d) Consumers will have good quality coffee as the pest will be controlled without the application of pesticides
- (e) The pilot project can be used by the government as a model to disseminate new technology to other famers.

Indicative budget

Time	Estimated budget (US\$)	Remark (activities)
Year 1	250,000	Baseline study, national workshop, training of trainers, preparation of manual and other supporting tools (leaflets, posters, etc)
Year 2	175,000	Field school, expert supervision, monitoring and evaluation, writing up final report
Year 3	145,000	Field school, expert supervision, monitoring and evaluation, writing up final report
Total	570,000	

III. PROJECT SUMMARY

Project title:	CBB – the need for a review of the status and knowledge of a serious coffee pest
Duration:	6 months
Location:	Colombia and the United Kingdom
Nature of project:	To carry out a comprehensive review of the pest status of the CBB including an ICO workshop with expert inputs from some of the most affected countries
Brief description:	This project aims to: i) provide an update of current knowledge about the pest; ii) identify the current severity of the problem, with delegates presenting estimates of total economic costs due to CBB; iii) case history(ies) from one or more countries; iv) review of possible new control initiatives (e.g. breeding, mass release biologicals, trapping, mechanization); v) discussion of options over a range of timescales, including diversification in areas that will become inevitably more marginal due to climate change; and vi) development of a plan for practical activities in countries over the short-, medium- and long-term, including training, dissemination and research.
Estimated total cost:	US\$133,000
Financing sought from the Fund:	US\$120,000
Mode of financing:	Financing is expected as grant
Co-financing:	US\$13,000 Contributions are expected from the Centre for International Agricultural Research of Australia (ACIAR), to whom CABI is submitting a phase 2 proposal to study CBB in West Papua (Indonesia) and Papua New Guinea
Mode of co-financing:	Co-financing will be by grant

Counterpart contributions: Countries visited will be expected to contribute staff time and logistical support for collection of data, farm visits, etc.

Project

Executing Agency (PEA): CABI – UK

Supervisory body: International Coffee Organization (ICO)

Problem statement

1. The CBB is the world's most important pest of coffee. It is not easy to control, living most of its life inside the berry, making it difficult to target with either chemicals or biologicals, including both predators and microbials.

2. The CBB is now present in virtually all coffee-producing countries except Hawaii and Papua New Guinea (PNG). In the latter case CBB is now so near to the border with West Papua (Indonesia) that it is likely to arrive in PNG by 2008; and with the general unpreparedness of many smallholder coffee farmers there, the pest may well cause considerable difficulties.

3. In some countries where the CBB is already well established, and despite decades of research and control activities, the problem seems to be getting worse. It seems possible that management is becoming more difficult because of one or more significant changes in economic, environmental and/or social circumstances, which some/many producer countries are finding difficult to resolve. Some of these factors may be specific to the CBB, while others may be more generic and relate to broader coffee supply-side difficulties. The precise causes for this have not been well established, but may include one or more of the following:

- A secular decline in coffee prices has squeezed the costs of control, which have a large labour component. Although prices have subsequently rebounded, the US dollar's devaluation and increasing costs of inputs give farmers little scope for expensive pest control measures and institutions limited scope for control campaigns.
- There is a high dependence on labour for sanitary control of CBB – a principal method of control – which also requires close monitoring to ensure the work is effectively done. At the same time there are persistent reports of labour shortages in some producer countries, suggesting that farmers may be chronically under-resourced to deal effectively with CBB as a regular farm activity.
- Chemical control is increasingly ineffective and unacceptable, due to an increased list of restricted products, possible emerging resistance and stricter market requirements.

- Producer countries have shifted scarce support resources away from traditional research, extension and dissemination activities and towards certification and compliance i.e. from production and loss-reduction activities to a focus on near-to-market issues of added value and market access.
- Despite previous extension campaigns, farmers are still unclear about the best means to effectively combat CBB.
- Climate change is creating more favourable conditions due to increased temperatures that speed up the insect's life-cycle. Increasingly volatile patterns of wet and dry periods or seasons are a possibility too; in El Niño years the CBB survives well in dry conditions in fallen berries, whereas in wet La Niña years these berries rot away and the CBB suffers higher losses. Whereas in former times El Niño-La Niña events were rare, they are now becoming more frequent and farmers and their support institutions may not be used to adapting their management actions to these new weather patterns.

Project objective

The overall objective of the project is to provide comprehensive reviews of current pest status, current knowledge and state-of-art research that will inform an ICO workshop with expert inputs from the most affected countries.

Indicative budget

Section	Activity	Cost
Pre-workshop activities	Travel costs	US\$11,000
	Consultants' time	US\$32,000
	Materials, incidentals	US\$2,000
	Country costs	US\$18,000
Workshop	ICO conference charges	US\$10,000
	Travel costs for experts/special invitees	US\$25,000
Post workshop	Report write up	US\$25,000
	Materials, printing CD costs	US\$10,000
	Total	US\$133,000