Towards integrated control to improve farmer incomes

Chemical control, which is the main method used, is difficult to implement and not particularly eco-friendly. Moreover, it is costly in a context of smallholdings struggling to cope with an unprecedented economic crisis.

Use of varieties with durable resistance traits, along with rational plantation management, guarantee maintained productivity and more effective control of production costs for farmers, whilst protecting the environment. For many years, CIRAD has been involved in such an approach, notably in Cameroon where the Java variety with CBD resistance traits has been selected, and new crop management sequences have been proposed that enable rational use of chemical control.

Partners

CRF (Coffee Research Foundation, Ruiru, Kenya)
IICT/CIFC (Instituto de Investigacão Cientifica Tropical / Centro de Investigação das Ferrugens do Cafeeiro, Portugal)
IRAD (Institut de recherche agronomique pour le développement, Cameroon)
IRD (Institut de recherche pour le développement, France)

Arabica coffee tree CBD symptoms.
Synergies: research partnerships

CIRAD has launched a research programme with Cameroon, Kenya and Portugal, with funding from the European Union. Resistance sources have thus been identified in wild Arabica coffee trees derived from the species’ centre of diversification in Ethiopia, and in the Catimor (interspecific hybrid). The hybridization programmes currently under way take into account both resistance and productivity, but also cup quality. In order to speed up the breeding process, work is being undertaken in partnership with IRD to identify molecular markers associated with resistance to CBD. All this research is based on a study of the pathogen’s genetic diversity on the scale of the African continent.

In addition, the spatio-temporal development of the disease in different agro-ecological contexts is being studied in relation to the phenology of the plant, in order to draw up integrated CBD control strategies. In this way, crop management sequences likely to limit disease development are proposed.

Research objectives

Research is currently focusing on five major objectives:
• identify new sources of resistance and disseminate them in hybrid form,
• implement a marker-assisted selection programme,
• create durably resistant varieties,
• ascertain the origin of the disease and understand how it spreads,
• propose crop management sequences to farmers that enable them to limit treatments.

Example of markers of resistance to CBD
(R: resistant, S: susceptible).

For further information

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