

IPM for smallholder coffee farmers in Malawi

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September 2002–March 2005

In the remote hillside farming systems of northern Malawi, coffee is one of the few options for cash cropping. Yields are among the lowest in the world but, despite the low world price for coffee, there is a market for 'Mzuzu' coffee because of its high quality. Following on from earlier work to identify the pest constraints, this project promoted control measures within an ICM framework. On-farm demonstrations were used to promote an ICM system based on growing a derivative of the improved variety Catimor 129 (known as Nyika), which is resistant to the two major diseases. On-farm trials to evaluate insecticides led to the approval of fipronil for use on coffee. This project has contributed to the rehabilitation of smallholder coffee in Malawi at a time when the estate sector is abandoning coffee in favour of other crops. The smallholder sector is expanding rapidly with the assistance of the EU, and the SCFT expects the crop to be sufficient to sustain this trade organisation from export levies by 2007. The project has contributed to the sustainability of the sector by promoting ICM for a farming system (coffee × banana intercropping) that is favoured by farmers, and which provides a food crop as well as a cash crop. Work with perennial crops over a relatively short time frame is always challenging, but this research has made significant steps in addressing some of the primary constraints facing Malawian smallholders.

SELECTED PUBLICATIONS

HILLOCKS, R.J. (ed.) (2004) *Promotion of IPM for smallholder coffee in Malawi*. Proceedings of a Project Workshop, 25 May 2004. Natural Resources Institute, Chatham, UK. 31 pp.

NRI/CABI/SCFT (2004) White Stem Borer. Natural Resources Institute, Chatham, UK (in Chisukwa and Tumbuka) (leaflet).

NRI/CABI/SCFT (2004) Coffee Berry Disease. Natural Resources Institute, Chatham, UK (in Chisukwa and Tumbuka) (leaflet).

NRI/CABI/SCFT (2004) How to Grow Catimors. Natural Resources Institute, Chatham, UK (in Chisukwa and Tumbuka) (leaflet).

NRI/CABI/TaCRI (2004) White Stem Borer. Natural Resources Institute, Chatham, UK (in Kiswahili) (leaflet).

NRI/CABI/ TaCRI (2004) How to Grow Catimors. Natural Resources Institute, Chatham, UK (in Kiswahili) (leaflet).

ORR, A. (2004) Catimor Management Survey, Misuku Hills and Vipha North, Malawi, June 2004. Working Paper No 1063/2. Natural Resources Institute, Chatham, UK. 31 pp.

ISSUES

The earnings from coffee sales are a vital part of the livelihood strategy for rural communities in the hillside farming systems of northern Malawi. Whereas the bulk of coffee production comes from large estates in the south of the country, and the estate sector has some of the highest yields in the world, the smallholder sector averages one of the world's lowest yields – but some of the coffee is of high quality. Since 2002 the smallholder sector has been expanding at a time when, due to the low world

price, coffee output from estates has been declining as they diversify into other crops such as tea and macadamia nuts. This smallholder expansion has been supported by EU funds to the SCFT for capacity building and the multiplication and distribution of new (Catimor) coffee varieties.

CPP support for coffee IPM in Malawi began in 1996 (R6807), just as the smallholder sector entered a period of conflict and change. At that stage the smallholder sector was in turmoil, with poor prices being paid to farmers and



Catimor coffee × banana intercrop – demonstration plot



The hedgerow system for growing Catimor varieties of coffee

coffee gardens neglected. Coffee smallholders supported an industry restructuring and the establishment in 1999 of the SCFT. This trade organisation was to be funded eventually from export levies, but was initially supported by the EU. When the present project began in September 2002, the SCFT was focusing its efforts on Catimor growers. Although most of the new Catimor varieties were yet to come into bearing, the work described here responded to demand from farmers to promote disease-resistant Catimors as a component of the IPM system. This aimed to ensure that the IPM/ICM messages developed over the years were promoted through extension literature, on-farm demonstrations and farmer training.

ACHIEVEMENTS

An ICM system that met smallholders' requirements was developed and promoted as one of a basket of crop management options for the new dwarf Catimor varieties. Varieties promoted by the EU project were resistant to coffee leaf rust (*Hemileia vastatrix*), but not to the other main disease, coffee berry disease (*Colletotrichum kahawae*). The project advocated the use of a

selection from Catimor 129 (known as Nyika) that was resistant to both diseases, but supplies of seed were scarce. A mother garden of Nyika trees was therefore established to meet the demand for seed. On-farm demonstrations of Nyika intercropped with banana were used to promote the technology direct to farmers, backed by an information campaign using leaflets in local languages.

White stem borer (*Monchamous leuconotus*) is the major insect pest in the region, and is a threat to coffee rehabilitation based on Catimor varieties. On-farm trials to evaluate insecticides led to the approval of fipronil for use on coffee.

Socio-economic research focused on growers' management practices for Catimor coffee, the economics of chemical control for stem borers, and the impact of Catimor coffee on livelihoods, particularly for poorer growers. A study of management practices showed that early ICM adopters had closely followed recommendations on terracing, mulching, manuring and frequency of weeding. But growers generally had not adopted recommended practices about hedgerow planting, planting in pure stands, or the use of lime

and Compound J fertiliser (NPK plus sulphur in the ratio 15:5:20:6). Nitrogen application rates were above recommended levels. This suggests that there is considerable scope to improve the efficiency of fertiliser use and thus reduce the costs of fertilising coffee.

Farmers' evaluation of chemical control using stem paints was positive, but formal economic evaluation showed that benefits discounted at 15% over an eight-year coffee cycle were lower than costs. Application rates in on-farm trials are therefore not profitable at current rates and given current knowledge of borer infestation rates. This analysis is provisional as full

information on infestation rates is not yet available, and it may prove feasible to apply stem paint every two years rather than every year. Nevertheless, these results suggest the need to continue efforts to identify control methods that may be less effective, but more affordable and economically viable.

An impact survey over the first four years of Catimor adoption showed positive impacts on livelihoods, including accumulation of assets, improved food security, and greater demand for hired labour at weeding and harvesting. Women in adopter households often planted their own coffee gardens to ensure a protected source of income. Households with more Catimor had lower incomes from bananas, reflecting the SCFT recommendation to plant Catimors in pure stands. This confirms the importance of current trials to develop recommendations for intercropping coffee with banana.

FURTHER APPLICATION

A nine-month follow-up project (R8423) is working to promote these findings to the much larger coffee smallholder sector in Tanzania.