

RECONCILING FOOD AND PERENNIAL EXPORT CROP PRODUCTION IN A CHANGING ENVIRONMENT

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Abstract

Perennial export crops such as cocoa and coffee contribute indirectly to food security by providing an income that can be used to buy food and/or the supplies for the cultivation of basic food crops. Thus, any crop loss incurred due to the effects of climate change will also impact food security. A first clear warning of the impact of climate change on perennial export crop production was provided by the climate change driven coffee leaf rust disease crisis in Central America. Coffee production decreased by 16% in 2012-13 and a further 10% in 2013-14 as a consequence of the epidemic. In Central America, these production reductions had direct impacts on the livelihoods of approximately 500 000 smallholders and harvesters and the food security situation of these rural communities.

It is foreseen that in the not so distant future (2050) climate change and increased land use for food crop production due to population growth, will negatively impact global production of coffee and cocoa by reducing the amount of suitable arable land. On top of that, the current trend towards full sun systems with excessive use of external inputs (agrochemicals, irrigation) increases the vulnerability of the cocoa and coffee sectors to climate change.

To reconcile the need for food crops and the demand for export crops such as coffee and cacao under the scenarios of climate change and population growth, innovative production systems have to be developed. Such systems should also contribute to mitigation of and adaptation to climate change and provide other environmental services such as regulation of pests and diseases.

Agroforestry systems are one of the production systems that can reply to these manifold demands. Here an overview is provided of means to develop competitive and sustainable agroforestry systems and the evaluation of environmental services provided.