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Leafy Vegetables under Shade? Performance of Cowpea (*Vigna unguiculata* (L.) Walp.) in a Multistorey Coffee Forest in Southwest Ethiopia

Simone Kathrin Kriesemer, Gudrun B. Keding

University of Bonn, Center for Development Research (ZEF), Germany

Abstract

In Yayu Coffee Forest Biosphere Reserve in Oromiya region, Southwest Ethiopia, people eat starch based diets with little fruit and vegetables. Micronutrient deficiency is likely to be widespread such as iron deficiency with anaemia rates among women and children being as high as 64 % in Oromiya region. The main income source from agriculture is coffee which is cultivated in a multistorey cropping system using shade trees. Outside the biosphere reserve and in its transition zone where people reside, it is allowed to cut trees and to cultivate the land. Here, crop production is threatening the existence of the remaining forest patches. Integrated vegetable production underneath the coffee and shade trees could help add another economic layer to the system and improve the availability of leafy vegetables for better nutrition. Previous research in Yayu had shown that cowpea (*Vigna unguiculata* (L.) Walp.) grew more vigorously than other vegetables under shade but how to optimise the leaf yield was still unknown. Therefore, the objective of the study was to test cowpea in shaded conditions for leaf production under two different harvesting regimes. Trials were set up in Yayu between April and December 2017 in a randomised complete block design comparing repeated harvest of single full leaves with a total harvest at the end of the trial. Plant development and growth was monitored on a weekly basis. Repeatedly harvested cowpea produced significantly more leaves than cowpea that was harvested once-over. Although cowpea under shade developed slower than cowpea in open field conditions, coffee forest farmers in Yayu would be able to continuously harvest leafy vegetable cowpea during the majority of the rainy season from land that previously only produced coffee yield. The consumption of vegetable cowpea could improve nutritional health as the leaves contain about 500μg/100g of Vitamin A which is often lacking in starch based diets. With about 3mg/100g of iron cowpea leaves contain about twice as much iron as Ethiopian kale, the single most popular leafy vegetable in Yayu. In 2018, the demand for and selling prices of cowpea leaves as vegetable will be assessed on the local markets in Yayu.

Keywords: Harvesting regime, nutrition, Yayu Coffee Forest Biosphere Reserve

Contact Address: Simone Kathrin Kriesemer, University of Bonn, Center for Development Research (ZEF), Genscherallee 3, 53113 Bonn, Germany, e-mail: simonekriesemer@gmx.de