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## Technical Efficiency of Smallholder Horticultural Farmers in Ghana

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### Abstract

Rapid growth in the trade of high-value commodities has resulted in significant growth in many developing countries including Ghana. Trade in high-value agricultural products are displacing exports of traditional commodities. In Ghana, crops such as pineapples, mangoes and vegetables have become promising options to diversify from the traditional export base comprising of cocoa, timber and gold. While market access remains important, Ghana's major handicap is her inability to sustain export growth on the open market. The causes of these could be attributed to inefficiency, lack of competitiveness and supply side constraints. Even though horticultural exports have grown dramatically over the last decade, these have yet to fulfil their potential. Horticultural production can significantly contribute towards increasing the incomes of smallholder farmers, expanding employment opportunities, enhancing rural development and an important source of foreign exchange earnings. It also raises the demand for labour in rural areas therefore reducing the incidence of rural-urban migration. This study examines the factors that affect technical efficiency of smallholder horticultural farmers in Ghana.

Using survey data on about 6,000 farm households in 23 districts in Ghana, the study assesses the technical efficiency of smallholder horticultural farmers using the Translog functional form of the Stochastic Production Frontier. Twelve focus group discussions and twelve in-depth interviews were conducted on smallholder mango, pineapple and chilli pepper farmers in six selected districts in Ghana. Preliminary findings indicate that chemical costs, tractor costs, seed costs and labour hours all had significant positive effects on the yields of pineapple, mango and chilli pepper. With respect to production risk, the results show that fertiliser, herbicide and insecticide are risk-increasing whereas tractor and equipment and labour are risk-decreasing. Farm size, gender, and age were found to have significant positive effects on technical inefficiency of mango, pineapple and chilli pepper farmers. Years of education of farmer and farmer's experience had significant negative effects on the technical inefficiency of the farmers. Constraints to production outlined by farmers included marketing, training, funding, accessibility and affordability of inputs, land, access to credit and pests and diseases. Further analyses of both the quantitative and qualitative data are still ongoing.

**Keywords:** Horticulture, production risks, smallholder farmers, technical efficiency