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**Use of efficient, low cost and climate smart irrigation technology under home garden vegetable growers condition in Ethiopia**

L. Martorano\*, A. Berhe, H. Kebede, H. Ferreira

<sup>1</sup>*Embrapa Eastern Amazon, Brazil*, <sup>2</sup>*Mekelle University, Ethiopia*, <sup>3</sup>*Pará State University, Brazil*

Managing irrigation water is among the critical issues to address food insecurity under the changing climate. Rainfall variability has been reported to have significant effect on the country's economy as natural rainfall is the major source of water for agriculture. Clay pot technology has been proved to significantly improve crop water productivity in dryland areas but has not been promoted and used due lack of crop specific suitable standard design. The objectives of this study were to evaluate the performance of different clay pot design for irrigating Swiss chard and estimate the water use efficiency of clay pot irrigation technology. The experiment was carried out in northern Ethiopia. The treatments were four clay pot designs having capacity of 5 litteres: imperforated bar, perforated bar, imperforated round and perforated round type and control (direct water application method). Each was repeated three times and arranged in randomized complet block design. The highest biomass water use efficiency and benefit cost ratio were recorded for perforated bar type clay pot design. Results showed that clay pot design determine the water distribution around the roots of the experimental plant and hence determine the crop water productivity. Pots with round shape were not as efficient as those bar types because Swiss chard is a shallow rooted row crop whose water demand might be met by using a bar pots buried closely in parallel along the rows of Swiss chard plant. In imperforated clay pots, water outflow was slow and most likely regulated by water needs of the plant and maintain uniform water distribution for relatively longer period of time. The bar shaped imperforated clay pots were identified as superior for irrigating Swiss chard. The technology was found to be economically viable under small scale growers condition, demonstrating the success of scientific knowlege sharing between Brazil-Africa partnership.

Keywords: Clay pots, swiss chard, Africa, Brazil