

A structured questionnaire was administered to 160 farmers from the Kakamega and Vihiga districts of Western Kenya using a purposive random sampling technique to assess the profitability of different soil fertility management strategies for kale and tomato production systems. Different soil fertility amendment technologies including the use of manure, chemical fertilizer and biomass materials, alone and in combination, were compared. Use of farm yard manure alone was considered as a baseline strategy to show the extra costs and returns incurred by farmers if they decided to invest in additional technologies for kale and tomato production. Partial budgets were constructed in order to analyze marginal changes that occur in benefits and costs due to the introduction of improved technology. Kale production was found to be most profitable when grown using a combination of manure and chemical fertilizer to replenish soil fertility. This combination (manure and chemical fertilizer) also yielded the highest marginal rate of return (MRR) of 1,758% in kale production. In the case of tomato production, the most profitable system is farm yard manure, chemical fertilizer and *Tithonia diversifolia* biomass transfer, which gave a net return of US\$256 per year per hectare. This shows that it was profitable to shift from use of farm yard manure to a combination of farm yard manure, chemical fertilizer and *Tithonia diversifolia* biomass transfer. The study thus shows that it is profitable for the farmers to combine farm yard manure and any other soil fertility replenishment strategy in both kale and tomato production. The study thus recommends the need for the farmers to be encouraged to use available and relatively cheap soil fertility replenishment technologies. Further, there is need for the farmers to propagate the *Tithonia diversifolia* plant on their farms.