RESULTS

- Both the planting tower and the second wall showed significantly higher vegetable yields (g) than the bucket system for all vegetables cultivated.
- The wall was the most efficient when regarding yield/m².
- No significant differences could be found between north and south direction.
- Vertical garden systems are tested in their ability to produce local green leafy vegetables in Kapchorwa, Uganda to expand the surface area of the home garden and increase vegetable production.

CONCLUSIONS

- Vertical Gardens are a viable possibility to improve food and nutrition security in rural households.
- Focus on recyclable materials worked well.
- More research can be done on irrigation techniques to extend the season.
- More research needed on multiple season cultivation effects on yield.

INTRODUCTION

- Producing and consuming nutrient rich foods is vital for food and nutrition security, as well as human health.
- The hotspot of vegetable production for households in smallholder farming systems of Sub-Saharan Africa are home gardens.
- Home gardens are often limited in size and may feature soils of poor fertility.
- Vertical garden systems are tested in their ability to produce local green leafy vegetables in Kapchorwa, Uganda to expand the surface area of the home garden and increase vegetable production.

METHODS

- Three systems developed using recyclable materials: the second wall (Fig.1), bucket system (Fig.2) and planting tower (Fig.3) with different irrigation systems: cotton cloth, plastic tubes, and drip irrigation.
- Six systems (two of each of the three) were set up in each location with three facing north and three facing south.
- Soil temperature and moisture was measured using Meter EM50 sensors.
- Four local vegetables were tested: field peas (Pisum sativum L.; Fabaceae), African spinach (Beta vulgaris spp.; Amaranthaceae), black nightshade (Solanum nigrum L.; Solanaceae) and collard greens (Brassica oleracea L.; Brassicaceae).

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