EFFECT OF RATOONING ON GROWTH AND PRODUCTIVITY OF SWEETPOTATO

By

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Background

- Pre-harvesting of vines has been used to increase cumulative vine yield (Ahmed *et al.*, 2012).
- An *et al* (2003) showed that this practice affects quality of the different vine cuts.
- A lot has been said on the use of ratooned vines (vine regrowth) for fodder (Ahmed *et al.*, 2012; An *et al*., 2003; Backer *et al.*, 1980; Gonzales *et a.l*, 2003; Giang *et al.*, 2004),
- But little or nothing is known on the effect of these same cuttings when cultivated.
- This study will therefore be conducted to determine the effect of cultivating ratoons on sweetpotato productivity and quality.

- Main objective is to determine the effect of different ratoons from the same generation on productivity of sweetpotato

Materials and methods

- This experiment is in two phase.
- Phase one involved the establishment of a nursery to supply ratooned planting materials for the main field establishment.
- This phase is on-going.
- Phase two has to do with the establishment of the main field using vines from the nursery.

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- **Phase One – Nursery Establishment**
- Sweetpotato vines were planted and raised on three 1m x 4m long bed. This will provide the needed planting materials sufficient enough to establish the main field.

- **Planting material:**
- The vines were cut into cuttings of 3 nodes (20cm) in length.
- The leaves were removed from the cuttings so that just the stem is planted; removing the leaves helps to reduce the surface area through which water may be lost from the cutting.
- **Planting**: The 3 node (20cm) long cuttings were planted at a slant at a spacing of 10cm x 20 cm, with at least two of the nodes buried under the soil, to encourage faster plant growth.
- **Irrigation:** The nursery bed was watered two times daily (in the early morning and evening), in the first few days, and later watered 3-4 times a week until the rains finally came in, in the month of March.

Phase 1

- **Nursery bed establishment:** There are 3 beds in all which will yield 3 different ratoons for the field establishment phase.
- The first Nursery bed was established
- Second bed was established at an interval of 4 weeks following the establishment of the first bed,
- While the third was established 8 weeks after the establishment of the first bed and 4 weeks after the second.

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- **Cutting:** The first bed was subjected to 2 cuts at 8 weeks and 12 weeks (discarded) and the third cut will be at 16 wap (3rd ratoon).
- The second bed was cut once at 8weeks (discarded) and the second will be at 12 wap (2nd ratoon)
- The third bed will be cut at 8weeks to establish the trial along with the 3 and 2nd ratoon.
- The third bed will serve as the control.
- The above cutting regime will provide 3 different ratoons. The first, second, and third bed will provide the third, second, and first ratoon respectively.

Bed 1 at 8 weeks before first cut

Bed 1 after first cut at 8 weeks

Beds 1 & 2 at 16 and 8 weeks respectively (before cutting)

Beds 1 & 2 at 16 and 8 weeks respectively (after cutting)

Field trial (2nd phase)

- The trial will be established on the 26th of June at NRCRI, research field
- The treatments will comprise 3 different ratoons (1st, 2nd and 3 ratoons) and 4 levels of fertilizer (400kg/ha NPK, No fertilizer, 5t/ha poultry manure and 2.5t/ha poultry manure +200kg NPK)
- The treatments will be assigned to plots in a randomized complete block design and replicated 3 times.
- Each plot will measure 3m x 3m ($9m^2$) with a discard of 1m between plots and replicates. The total area will be 11m x 11m ($121m^2$).
- Sweetpotato vine cuttings of length, 20cm will be planted at a spacing of 1m x 0.3m along the crest of the ridges.
- Supply of vacant stands will be done at 4 weeks after planting.
- Weeding will be done at 8 weeks after planting. Fertilizer will be applied at 4 weeks after planting..
- Crop growth and yield parameters will be collected
- Harvesting will be done at 16 weeks after planting