Does growing location and altitude affect macadamia tree yields?

Other

How to cite:
Zuza, Emmanuel (2020). Does growing location and altitude affect macadamia tree yields? The Open University.

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Version: Poster
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1. What are macadamia nuts?
• Macadamia F. Muell is indigenous to the coastal rain forest areas of Australia.
• The crop has a high market value (USD$18/kg) due to high demand globally.
• Macadamia nuts are an important food and cash crop in Malawi.
• Malawi is the sixth largest producer of macadamia nuts in the world and has the potential to become one of the leading producers.
• This is as a result of optimum altitude and climate conditions for plant growth and development.

2. Why macadamia nuts?

3. Why promote macadamia nuts in Malawi?
• Macadamia nuts are used to supplement maize-based diets thus assisting in No Hunger.
• Macadamia nuts are a suitable alternative cash crop to tobacco thus Ending Poverty in this lifetime.
• However, macadamia kernel yields are still very low (<500 kg ha⁻¹) and vary among growing areas.
• This research investigates the influence of growing area & altitude on macadamia tree growth & yields.

4. Study sites

5. Macadamia yield and tree growing location
• Macadamia yields among growing areas significantly varied at p≤0.001.
• Highest yields were observed in Chikwatula (184 kg ha⁻¹) and lowest yields in Mphaza (20 kg ha⁻¹).

6. Macadamia yield and altitude
• Significant yield responses were also observed as a result of altitude on macadamia trees.
• Positive correlations between altitude and yields were observed in Chikwatula, Mwanza, Nachisaka and Neno.
• Negative correlations were observed in Kalira, Malomo and Mphaza growing areas.

7. Conclusions
• Macadamia yields were influenced by the growing area which could be due to different climate conditions.
• Macadamia trees respond differently to changes in altitude.
• Yields increased with altitude, but after 1300 m.a.s.l. the yields tended to decrease.

8. Future work
• Conduct a social-economic study on smallholder constraints of macadamia nut production in Malawi.
• Collect yield data specific on five promising clones identified together with smallholders.
• Analyse soil samples for physical & chemical properties to inform yield constraints.
• Collect past and future climatic data for site suitability modelling.

9. References

10. Acknowledgements
• The Open University GCRF-QC funding, Ken Mkangala and HIMACUL Farmers.
• The many people who engaged through associated projects with Neno Macadamia Trust.