

Njabulo Sondelani Zubuko

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Nationality: Swazi

Professional Summary

Agricultural scientist with experience in crop science, laboratory technology, and agronomic research. Dedicated to promoting sustainable agriculture through advanced research in crop physiology and resource optimization. Driven to design cost-effective agricultural solutions, leading high-impact projects, and mentoring future agronomists through collaboration. Currently pursuing a PhD in Crop Physiology, leveraging drone technology and digital phenotyping to optimize groundnut drought tolerance, driving sustainable solutions for food security in Sub-Saharan Africa.

EDUCATIONAL BACKGROUND

Doctor of Philosophy in Crop Physiology (In Progress)

University of Abomey-Calavi, Abomey-Calavi, Benin

November 2024–Present

Research focus: Utilizing Remote Sensing Technology to Assess Drought Tolerance in Groundnuts. Employs drone-based remote sensing and digital phenotyping protocols to evaluate drought tolerance, light use efficiency, and water use efficiency in groundnuts under varying water application levels in Benin. Aims to advance precision agriculture for climate-resilient crop production.

Master of Science in Crop Science

University of Eswatini, Luyengo, Eswatini

2014–2018

Thesis: Determining Heavy Metal Contents in Layer and Broiler Chicken Manures and Their Mobilization by *Moringa oleifera* Lam. Investigated heavy metal concentrations in poultry manures and their uptake in moringa leaves, stems, and roots under varying application rates. Evaluated implications for environmental safety and crop quality.

Bachelor of Science in Agronomy

University of Swaziland, Luyengo, Eswatini

2007–2011

Project: Distribution of Heavy Metals with Soil Depth Across Soil Horizons. Examined the vertical distribution of heavy metals in soil profiles, analyzing their accumulation across different soil horizons to inform sustainable soil management practices.

O-Level Certificate

St. Paul's High School, Eswatini

2002–2003

WORK EXPERIENCE

Technologist (Laboratory and farm)

University of Eswatini (UNESWA), Luyengo, Eswatini

June 2019–Present

- Spearhead laboratory and field research, designing experiments to optimize crop performance and soil health.
- Orchestrate laboratory operations according to standard procedures, preparing materials for practical courses and enforcing stringent safety protocols.
- Guiding students on their research projects, and lead field research, conducting soil sampling, plant analysis, and data-driven assessments to support evidence-based agricultural solutions.
- Manage procurement of laboratory supplies and equipment maintenance.

Research and Development Controller

Swaziland Fruit Canners Pty (ltd), Malkerns, Eswatini

March 2019–May 2019

- Directed pineapple production research, coordinating interdisciplinary teams to enhance crop yield and quality
- Authored compelling research proposals and reports, influencing strategic production improvements.
- Supervised field operations, streamlining processes to boost efficiency.

Mathematics and science teacher

Eswatini government, Ministry of Education and Training, Eswatini

July 2011–February 2019

- Delivered engaging lessons in mathematics, biology, integrated science, and life skills due time, inspiring critical thinking.
- Fostered student independence and competence through creative teaching strategies, empowering academic and personal growth.

SKILLS

- Technical expertise: Statistical analysis (GenStat), remote sensing (drone technology), digital phenotyping, and laboratory techniques for heavy metal and nutrient analysis.
 - Research and innovation: expertise in experimental design, heavy metal distribution and mobilization and precision agriculture.
 - Leadership and communication: report writing, project leadership, and mentorship of diverse teams.
 - Certifications: Academic Scientific Writing, Data Management for Research and Institutional Decision Making, Data Science (all from RUFORUM) and Research Data Management (eLwazi Open Data Science Platform).
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PUBLICATIONS

1. N. S. Zubuko, A. O. Olaleye & O. T. Edje (2019): “Effects and rates of broiler and layer manures on the leaf yield and tissue nutrient contents of moringa (*Moringa oleifera* Lam.) in Swaziland”. *Journal of Plant Nutrition* 42(11):1-14.
<https://doi.org/10.1080/01904167.2019.1655044>.
2. N. Magagula, M. P. Mabuza, and N. Zubuko. 2020. “Effects of Plant Density and Planting Pattern on Growth and Seed Yield of Groundnuts [*Arachis Hypogaea* (L.)] in the Wet Middleveld of Eswatini”. *Asian Plant Research Journal* 3 (2):1–12.
<https://doi.org/10.9734/aprj/2019/v3i230065>.
3. N. Mkhathshwa, M. P. Mabuza, and N. S. Zubuko. 2021. “Effect of Vine Length and Leaf Removal on Growth and Yield of Sweet Potato [*Ipomoea Batatas* (L.)] in the Wet Middleveld of Eswatini”. *Asian Plant Research Journal* 8 (4):74–82.
<https://doi.org/10.9734/aprj/2021/v8i430187>.

REFERENCES

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