

# Sulman Olieko Owili

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## Summary

Sulman is an agricultural and applied economist dedicated to applying innovative research methods to inform sustainable food systems policies and advance sustainable development in the agri-food sector. In 2023, he was recognised as the Best Collaborative Masters in Agricultural and Applied Economics (CMAAE) student, an accolade awarded within a programme comprising eight leading universities across Eastern and Southern Africa. Earlier that year, he was also ranked the second-best master's student in the Faculty of Agriculture at the University of Nairobi. Sulman has served as a Research Fellow at the International Institute of Tropical Agriculture (IITA) and has undertaken numerous consultancy engagements with international research organisations, including IITA, World Agroforestry (CIFOR-ICRAF), the American Heart Association (AHA), and the Alliance of Bioversity International and CIAT. His research interests span production, resource, and ecological economics; causal analysis; microeconomics; Bayesian econometrics; statistics; and quantitative modelling. His work is particularly biased towards efficiency analysis in sustainable food systems, technology adoption, and innovation systems as pathways to food sovereignty, poverty alleviation, and the empowerment of marginalised communities, while mitigating the impacts of climate change.

## Education

-  **MSc Agricultural and Applied Economics**, University of Nairobi Dec. 2025
  -  **Coursework:** Quantitative Methods for Policy Analysis; Econometrics; Statistics; Production Economics; Mathematics for Economists; Research Methods; Institutional and Behavioural Economics; Issues in Agricultural and Applied Economics; Agricultural Policy Analysis; Agricultural Marketing and Price Analysis.
  -  **Thesis title:** Intensity of Adoption of Agro-ecological Pest Management Practices for Fruit Fly Suppression and its Effect on the Efficiency of Smallholder Mango Farmers Makueni County, Kenya
  -  **Supervisors:** Prof. David Otieno, Dr. Evans Chimoita & Dr. Frederick Baijukya.
  -  **Academic documents**
    -  Letter of award [↗](#)
    -  Transcripts [↗](#) (Provisional)
  - Publications from masters thesis**
    -  DOI: 10.1080/09670874.2024.2413592 [↗](#)
    -  DOI: 10.1007/s44279-026-00521-7 [↗](#)
  - Awards received during masters studies**
    -  Best CMAAE SFSE Student [↗](#) & [↗](#)
    -  CMAAE Academic Board Prize [↗](#)
    -  Second-best Masters Student [↗](#) (Faculty of Agriculture)
-  **BSc Agricultural Education and Extension**, University of Nairobi Dec. 2020
  -  **Degree Classification:** First Class Honours
  -  **Academic documents**
    -  Transcripts [↗](#)
    -  Certificate [↗](#) (First Class Honours)

## Academic employment & experience

-  **International Institute of Tropical Agriculture (IITA)**, Research fellow Nairobi, Kenya

**Project II:** Agroecology Initiative (Multifunctional Landscapes) **Supervisor:** Dr. Frederick Baijukya Jul. 2022 to Dec. 2025  
3 years 5 months

  -  Localised key performance indicators, programmed survey questionnaire in KoboToolbox and pretested questionnaire, trained enumerators, supervised the two-wave data collection, validated, cleaned, and analysed data for the Holistic Localised Performance Assessment for Agroecology (HOLPA) survey under the CGIAR's Initiative on Agroecology; Conducted research towards my masters thesis and wrote two research manuscripts out of my thesis objectives as part of the Agroecology Initiative project outputs; Contributed to conceptualisation, data cleaning, analysis and visualisation (R, Stata, Python, and QGIS), writing, and reviewing of technical reports.

 **International Institute of Tropical Agriculture (IITA)**, Research Associate, Consultant

**Project I:** Excellence in Agronomy Initiative **Supervisor:** Dr. Tesfamichael Wossen

Nairobi, Kenya  
Jun. 2024 to Nov.  
2024  
6 months

- ✔ Cleaned, processed, and analysed primary and secondary data, including the development of R/Stata scripts to automate retrieval and upload of data to databases and data management systems, ensuring quality and completeness; Conducted literature reviews and synthesis; Extracted critical outcomes and impact indicators and writing research reports, scientific papers, and policy briefs.

 **American Heart Association (AHA)**, Regreening Agriculture Case Study Co-facilitator, Consultant

**Project:** FoodEdu & Good Food Fellows **Supervisor:** Britt Molde

Nairobi, Kenya  
Jan. 2025 to Jul. 2025  
6 months

- ✔ Facilitated filming crew with identification of key informants for interview as well as translation, editing and review of the film storyline for accuracy, viewer engagement, and maximum impact.

 **Alliance of Bioversity and CIAT**, Research Associate, Consultant

**Project II:** ABCD in Regreening **Supervisor:** Dr. Lisa E. Fuchs

Nairobi, Kenya  
May. 2025 to Jul. 2025  
3 months

- ✔ Reviewed existing reports and additional literature to strengthen literature review sections and conceptual framing; Composed draft papers that draw on the existing materials and additional literature and finalise publishable drafts in formatting required by agreed upon journals.

**Project I:** Food Quality Data Initiative on Regenerative Agriculture (Periodic Table of Food Initiative)

**Supervisor:** Dr. Francis Oduor

Nairobi, Kenya  
Oct. 2024 to Mar.  
2025  
6 months

- ✔ Conducted literature review on regenerative agriculture practices in common bean production systems; Analysed the current context of agricultural practices in Embu County, including challenges faced by smallholder farmers; Supported in the day to day management of the field experiment in Embu; Assisted in designing and conducting surveys with farmers in Embu County; Collected data on costs, yields, labour requirements, and potential environmental impacts of both conventional and regenerative practices; Contributed to the collection of food samples for biomolecular composition analysis using PTFI standardised multi-omics tools; Conducted a comprehensive analysis of the economic, environmental, and social trade-offs involved in adopting regenerative agriculture practices in Embu County, with a focus on common bean production systems.

 **World Agroforestry (CIFOR-ICRAF)**, Agroecological Systems and Research Analyst, Consultant

**Project:** Agroecology Initiative & TRANSITIONS Metrics & ABCD in Regreening

**Supervisors:** Dr. Lisa E. Fuchs & Dr. Matthias Geck

Nairobi, Kenya  
Dec. 2023 to Dec.  
2024  
1 year

- ✔ Supported the Kenya team in HOLPA data cleaning, merging, managing the database and analysis depending on the needs of each team player towards achievement of Work Package output targets; Analysed baseline, midline, and endline data for the ABCD in Regreening project to assess causal effects of project interventions (implemented in Stata and R); Analysed baseline and endline data for Regreening Africa project to assess the impact of project interventions (implemented in Stata and R); Reported results to the project research team in a timely and logical manner; Contributed to conceptualisation, data cleaning and analysis (R, Stata, and QGIS), writing, and reviewing of research manuscripts.

 **University of Nairobi**, Assistant Lecturer

**Supervisor:** Dr. Evans L. Chimoita

Nairobi, Kenya  
Sept. 2022 to Mar.  
2024  
1 year 7 months

- ✔ Developed instructional materials, lectured, and developed, administered and graded tests for final year undergraduate students on Food Economics and Policy (AEX404) and Environmental Education (AEX406).

## Working papers

-  Fuchs, L.E., Orero, L., van Dien, L.C., Apondi, V., Kipkorir, L., and **Owili, S.O.** (2026). **Farmer dashboards as catalysts for improved gender relations and sustainable use of forest, tree and agroforestry systems: qualitative perspectives from smallholders in Western Kenya.** *Working paper* Working paper  
Journal article
-  **Owili, S.O.**, Korir, H., Onyango, K.O., Bolo, P.O., Baijukya, F.P., Nyawira, S.S., Anyango, E., Adoyo, B., and Geck, M. (2026). **Behavioural mechanisms and social capital in pro-agroecological transitions – a comparative analysis of two case studies in Kenya.** *Working paper* Working paper  
Journal article
- ✓  Nyawira, S.S., Bolo, P.O., Onyango, K.O., Korir, H., **Owili, S.O.**, Baijukya, F.P., Sanchez, A.C., and Jones, S.K. (2026). **Assessing the agroecological performance of smallholder households in Kiambu and Makueni counties in Kenya.** *Working paper* Working paper  
Journal article
-  Nyawira, S.S., Bolo, P.O., Onyango, K.O., Korir, H., **Owili, S.O.**, Baijukya, F.P., Sanchez, A.C., and Jones, S.K. (2025). **Assessing the agroecological performance of smallholder households in Kiambu and Makueni counties in Kenya.** *Tropentag 2025. September 10–12, 2025, Bonn, Germany. Reconciling land system changes with planetary health.* Poster. [Link to PDF](#) 
-  Fuchs, L.E., Orero, L., van Dien, L.C., Apondi, V., Kipkorir, L., Kamau, A., Muia, D., Michuki, G., Njiru, R., and **Owili, S.O.** (2026). **Heterogeneous pathways of an asset-based, agency-focused approach to sustainable land and livelihoods restoration in Kenya: A mixed-methods approach.** *Preprint* Under review  
Journal article

## Recent publications

-   **Owili, SO.** (2026). **metafrontier: Metafrontier Analysis in R.** *R package version 1.0.0.* [Github](#). Developer version: [SulmanOlieko/metafrontier](#)  February, 2026  
R package
- ✓  **Owili, S.O.**, Otieno, D.J., Chimoita, E.L., and Baijukya, F.P. (2026). **Heterogeneous multi-dimensional efficiency effects of agro-ecological pest management transition and intensification in smallholder systems – evidence from mango fruit fly control in Kenya.** *Discover Agriculture.* DOI:10.1007/s44279-026-00521-7  February 25, 2026  
Journal article
-  **Owili, S.O.**, Otieno, D.J., Chimoita, E.L., and Baijukya, F.P. (2024). **Heterogeneous efficiency effects of agro-ecological fruit fly management transition and intensification among smallholder mango farmers: A latent class stochastic metafrontier approach.** *Agroecology Stakeholder Workshop. December 12, 2024, Nairobi, Kenya –ICRAF Conference Hall & Online. CGSpace.* Poster. Handle: 10568/170186 
-  Nyawira, S., Korir, H., Bolo, P., Onyango, K., **Owili, S.O.**, Letty, B., Wamaitha, C., Njogu, M., Anyango, E., and Baijukya, F. (2024) **Performance assessment of agroecology in Makueni and Kiambu counties, Kenya.** *CGSpace.* Handle: 10568/169052  DOI: 10.13140/RG.2.2.22137.99689  December 31, 2024  
Technical report
- ✓  Fuchs, L.E., Orero, L., Kipkorir, L., Apondi, V., and **Owili, S.O.** (2024). **Scaling models for Regreening Africa: Enhancing agroecological integration through smallholders' assets and agency in Kenya.** *Frontiers in Sustainable Food Systems.* 1-22: 8(4). DOI: 10.3389/fsufs.2024.1449615 . Associated dataset: DOI: 10.7910/DVN/TQJ2PJ  November 11, 2024  
Journal article
-  Fuchs, L.E., Orero, L., Kipkorir, L., Apondi, V., and **Owili, S.O.** (2024). **Sustainable scaling models for Regreening Africa: Focusing on smallholders' assets and agency to increase agroecological integration in Kenya.** *Agroecology TPP 2nd Annual Members Forum Meeting 2024 Conference. 12–13 March 2024, Nairobi, Kenya –ICRAF Conference Hall & Online.* Poster. Handle: 10568/170186  DOI: 10.13140/RG.2.2.32738.13766 
-  **Owili, S.O.**, Otieno, D.J., Chimoita, E.L., and Baijukya, F.P. (2024). **Factors influencing adoption of agro-ecological pest management options for mango fruit fly under information constraints: A two-part fractional regression approach.** *International Journal of Pest Management.* 1–19. DOI: 10.1080/09670874.2024.2413592  November 4, 2024  
Journal article
-  Nyawira, S., Bolo, P., Ntinyari, W., Orero, L., Onyango, K., Manjella, A., Sakha, M., **Owili, S.O.**, Gumo, P., Mbelwa, M., Korir, H., and Fuchs, L.E. (2023). **Kenya context assessment report: A desk-top review of the context of agroecological principles of Kiambu and Makueni counties.** *CGSpace.* Handle: 10568/137468  DOI: 10.13140/RG.2.2.36127.53928  December 31, 2023  
Technical report

## Awards

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- 🏆 **Best CMAAE SFSE 2022 Student Award** (see on pp. 32 [↗](#) & (pp. 56) [↗](#), (Aug. 2023). Best overall in the joint third semester in Agricultural and Applied programme participated by eight major universities across Eastern and Southern Africa.
- 🏆 **CMAAE Academic Advisory Board Prize Winner** [↗](#), (Aug. 2023)
- 🏆 **Second-Best Masters Student, Faculty of Agriculture** (pp. 22) [↗](#), (May 2023). Among those recognised as the best students in the University of Nairobi, academic year 2021/2022. See Certificate of Merit here [↗](#)

## Programming projects

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### 🔗 **metafrontier** [↗](#) [↗](#):

An R package for implementing various metafrontier analyses for productivity/performance benchmarking. It contains routines for implementing (i) the deterministic envelope metafrontier following Battese et al. (2004) [↗](#) and O'Donnell et al. (2008) [↗](#) via linear and quadratic programming, as well as (ii) the stochastic metafrontier proposed by O'Donnell et al. (2008) [↗](#) and stochastic two-stage metafrontier proposed by Huang et al. (2014) [↗](#). The package also has functionalities for implementing latent class stochastic metafrontier analysis following Greene and Hensher (2003) [↗](#), Orea and Kumbhakar (2004) [↗](#), Greene (2005) [↗](#), Parmeter and Kumbhakar (2014) [↗](#) and sample selection correction stochastic metafrontier models following Heckman (1979) [↗](#), Greene (2010) [↗](#), Greene (2003) [↗](#). The package depends on sfaR by Dakpo et al. (2023) [↗](#).

## Programming skills

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- 🔗 **Data Cleaning, Wrangling & Analysis Languages:** R (advanced), Stata (advanced), SQL (intermediate), Python (intermediate), Julia (beginner).
- 📊 **Data Visualisation:** TikZ (advanced), L<sup>A</sup>T<sub>E</sub>X (advanced), Stata (advanced), R (advanced), QGIS (advanced), Python (intermediate).
- 🖋️ **Scientific Writing:** L<sup>A</sup>T<sub>E</sub>X (advanced), Microsoft Office (advanced).
- 💻 **Dashboard, Web- & Web-App Development Languages:** HTML (advanced), CSS (advanced), R (advanced), JavaScript (intermediate), Python (intermediate), Shiny (advanced).

## Referees

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👤 **Prof. Jonathan M. Nzuma,**  
Chairman and Associate professor,  
Department of Agricultural Economics,  
University of Nairobi.  
✉ [j.nzuma@uonbi.ac.ke](mailto:j.nzuma@uonbi.ac.ke) [↗](#)

👤 **Prof. David J. Otieno,**  
Supervisor and Associate professor,  
Department of Agricultural Economics,  
University of Nairobi.  
✉ [david.jakinda@uonbi.ac.ke](mailto:david.jakinda@uonbi.ac.ke) [↗](#)

👤 **Dr. Lucy K. Njeru,**  
Senior lecturer,  
Department of Agricultural Economics,  
University of Nairobi.  
✉ [Inkarega@uonbi.ac.ke](mailto:Inkarega@uonbi.ac.ke) [↗](#)