James Seutra Kaba, PhD

Senior Lecturer in Agronomy/Soil Science and Agroforestry

College of Agriculture and Natural Resources
Kwame Nkrumah University of Science and Technology
Tel: (+233) 247788011 / 501682533
Email: seutra@yahoo.com / jskaba@knust.edu.gh
Scopus Author ID: 57204876680
Google Scholar: https://scholar.google.com/citations?user=71YxoxgAAAAJ&hl=en

Profile

- Agronomist and Agroforestry Scientist
- Certified Expert in Financing Nationally Determined Contributions (NDCs)
- Specialist in integrated nutrient/soil fertility management and Climate change adaptation
- Specialist in integrating Science with farmers' knowledge.

Educational Background

Institution	Qualification	Year
Libera Università di Bozen (Italy)	PhD in Management of Mountain Environment and Agriculture	2014 – 2017
University of Ghana, Legon (Ghana)	M. Phil Crop Science	2009-2011
University for Development Studies (Ghana)	B.Sc. Agricultural Technology	2003-2007
Ghana Secondary School, Tamale (Ghana)	SSSC (Agriculture Science)	2000-2002

Additional Academic qualification

Institution	Qualification	Year
Frankfurt School of Finance and Management (Germany)	Certificate: Certified Expert in Financing Nationally Determined Contributions (NDCs)	2020-2021
Institute of Natural research and Agronomy (INRA), (Nancy, France)	Certificate: Stable Isotopes in Forest Ecosystem Research	2015

Employment History

2022-Date:
Position: Senior Lecturer
Organization: Kwame Nkrumah University of Science and Technology, Ghana

2018-2022:
Position: Lecturer
Organization: Kwame Nkrumah University of Science and Technology, Ghana

2013-2014:
Position: Crop officer (Upper East Region)
Organization: Canadian Hunger foundation-ACDEP.

2008 – 2010:
Position: Credit Officer (Operations)
Organization: World Vision Ghana -APED, Tamale - Northern Region

2007 – 2008:
Position: Agronomist and Research assistant.
Organization: University for Development Studies (UDS) Tamale, Ghana.

Addition Research Experience

2024-2025:
Position: Postdoctoral Research Fellow "Network of Excellence for Land Governance in Africa (NELGA)"
Organization: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) under DAAD

2020-2023:
Position: Research Fellow
Organization: Africa Research and Impact Network (ARIN), Kenya

2020-2021:
Position: Postdoctoral Research Fellow "Climate change research Alumni and Postdocs in Africa (climapAfrica programme)"
Organization: The German Academic Exchange Service (DAAD) and West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL)

Past and Current Research/Projects

1. "Exploiting the rhizosphere microbiome of cocoa trees to improve seedling survival under drought stress (2023-2024). DFG funded project under the African-German Scientific Exchange in the Field of Sustainable Intensification of Agriculture. Total amount of 53,615 Euros (Project No. 528791689)
2. "Improving Drought Tolerance and Survival Rate of Cocoa Seedlings with Potassium Fertilizers and Arbuscular Mycorrhiza" (**2020 to 2021)**, sponsored by KReF KNUST/the German Academic Exchange Service (DAAD) under the programme "Climate Research for Alumni and Postdocs in Africa, 2020". Total of 10,000 Euros (Funding ID: 57516494). Principal investigator.
3. "Climate-Smart Cocoa Agroforestry Research in Ghana" (**2020-2025)**, sponsored by the DANIDA Fellowship Center. Total amount of DKK 11, 750,000 (Project no. 19-11. GHA) Member of research team and co-lead investigator for Work package 2 (Climate-smart soils for sustainable Cocoa Agroforestry systems).
4. "Integrating Climate Smart Agri-Innovative Technology Adoption and Agribusiness Management Skills to Improve the Livelihoods of Smallholder Cocoa Farmers in Ghana" (**2019-2020**), sponsored by Birkbeck - University of London, UK. Total amount of 8,800 British pounds (Grant's ref:105123-23). Principal researcher for Ghana team.

International and National Awards Received

1. Japan Award 2021: Japan International Award for top three Young Agriculture Researcher from Developing Countries. By: Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF) and Japan International Research Center for Agricultural Sciences (JIRCAS). (https://www.affrc.maff.go.jp/kokusaikenkyu/japan_award_211029.html)
2. ISHS Student Award 2017: Best Oral Presentation at the VIII ISHS symposium on mineral nutrition of fruit crops. By: The International Society for Horticultural Sciences (ISHS).
3. South Tyrol Doctoral Award 2013-2017: By the Province of South Tyrol and Free University of Bozen-Bolzano, Italy.
4. GETFUND Award for 2005/2006 Brilliant and needy student. By: The Ghana Education Trust Fund and The University for Development Studies, Tamale.

List of current Research Publications

1. Abukari, A., Hashmiu, I..**Kaba, J.S**. et al. (2025). Farmers' perceptions and acceptability of Biochar as a soil amendment in the Tolon district of Ghana. Environ Dev Sustain (2025). https://doi.org/10.1007/s10668-025-06656-9
2. **Kaba**, J. S., Adusei, F. F., Ahenkorah, B., Ohui, O. I., Ntiamoah, P., Quansah, E. O., … Dompreh, D. (2025). Variations in soil biological and physicochemical properties of reclaimed artisanal mining sites under cocoa cultivation in Ghana across different reclamation ages. Sustainable Environment, 11(1). **https://doi.org/10.1080/27658511.2025.2508543**
3. Andoh, H., & **Kaba, J. S.** (2025). Assessment and projection of climate change impact on Ghana's agricultural crops: evidence from cassava (Manihot esculenta) production in the coastal Savannah agroecological zone. Theoretical and Applied Climatology, 156(4), 1-16. https://doi.org/10.1007/s00704-025-05428-9
4. Anokye, J., Adutwum Abunyewa, A., Jørgensen, U., **Kaba, JS.,** Twum-Ampofo, K., Dawoe, E., … Ulzen, J. (2025). Augmentation of mineral fertilizer with organic nutrient sources to improve soil quality and nutrient use efficiency in cocoa landscape in Ghana. *Journal of Plant Nutrition*, 1–24. https://doi.org/10.1080/01904167.2025.2481132
5. Muhammed H., **Kaba JS.,** Abunyewa AA, Kwashie KSG., Appiah-Kubi Z., Asare AY., Agyei EK., Yamoah FA., Issahaku I & Ntiamoah P (2025). Nurturing with nature: the efficacy of arbuscular mycorrhizal fungi microbe for cocoa sector environmental management, *Journal of Plant Nutrition*, 48(11) 1884-1900. **https://doi.org/10.1080/01904167.2025.2461276**
6. Abukari, A., **Kaba, JS.,** & Abunyewa, A. A. (2025). Agricultural Utilization of Biochar: A Review of Production Technologies. *Turkish Journal of Agriculture-Food Science and Technology*, *13*(3), 802-813. **https://doi.org/10.24925/turjaf.v13i3.802-813.7357**
7. **Kaba**, J. S., Agyei, E. K., Avilineni, M. K. C., Yamoah, F. A., Issahaku, I., Ntiamoah, P., ... & Mas-Ud, M. (2024). Agroforestry as an old approach to a new challenge of combating climate change: a critical analysis of the cocoa sector. *Discover Agriculture*, *2*(1), 1-10. https://doi.org/10.1007/s44279-024-00120-4
8. Boadu, KB., Soadwa, CO., Adamu, O., Ansong, M., **Kaba, JS**., Anokye, R (2024). The Impact of Varying Biochar Rate and Particle Size Derived from Bamboo Culm Residue and Coconut Husk Mixture on Lettuce (Lactuca sativa cv. 'Tiberius') Seed Germination and Leaf Morphology. J Sustain Res. 2024;6(3):e240054. https://doi.org/10.20900/jsr20240054
9. Meena, V. S., Rakshit, A., Meena, M. D., Baslam, M., Fattah, I. R., Lam, S. S., **Kaba, J. S**. (2024). Waste Management for Sustainable and Restored Agricultural Soil. Elsevier Inc. Academic Press. pages: 460 https://doi.org/10.1016/C2022-0-00048-9
10. Anokye, J., Abunyewa, A. A., Jorgensen, U., **Kaba, J. S.,** Twum-Ampofo, K., Dawoe, E., ... & Ulzen, J. (2024). Mitigation of greenhouse gas (GHG) emissions through shade systems and climate-smart soil fertility interventions in cocoa landscapes in the Semi-deciduous ecological zone of Ghana. Soil Advances, 100001. https://doi.org/10.1016/j.soilad.2024.100001
11. Yamoah F.A and **Kaba J.S** (2024). Integrating climate-smart agri-innovative technology adoption and agribusiness management skills to improve the livelihoods of smallholder female cocoa farmers in Ghana, *Climate and Development*, 16 (3):169–175 https://doi.org/10.1080/17565529.2021.2024125
12. Kwashie, G. K., **Kaba, J. S.,** Appiah-Kubi, Z., Abunyewa, A. A., Asare, A. Y., Agyei, E. K., & Muhammed, H. (2023). Synergic effect of Arbuscular mycorrhizal fungi and potassium fertilizer improves biomass-related characteristics of cocoa seedlings to enhance their drought resilience and field survival. *Open Agriculture*, *8*(1), 20220239. https://doi.org/10.1515/opag-2022-0239
13. Abukari, A.., **Kaba, J.S.,** Dawoe, E., Abunyewa A.A (2022). A comprehensive review of the effects of biochar on soil physicochemical properties and crop productivity. *Waste Dispos. Sustain. Energy*. https://doi.org/10.1007/s42768-022-00114-2

14. Yeboah O.S., Amponsah I.K., **Kaba J.S** & Abunyewa A.A (2022). Abundance, richness, and use of medicinal plants under different land uses in the Guinea Savanna Zone of Northern Ghana, *All Earth*. 34:1, 202-214. https://doi.org/10.1080/27669645.2022.2105485
15. Yeboah O.S., Amponsah I.K., **Kaba J.S** & Abunyewa A.A (2022). Variability of soil physicochemical properties under different land use types in the Guinea savanna zone of northern *Ghana*, *Cogent Food & Agriculture*, 8:1, 2105906. https://doi.org/10.1080/23311932.2022.2105906
16. **Kaba J.S**., Asare A.Y., Andoh H., Kwashie G K.S and Abunyewa A.A (2022). Towards sustainable cocoa (Theobroma cacao L) production: the role of potassium fertilizer in cocoa seedlings drought recovery and survival. *International Journal of Fruit Science*, 22:1, 618-627. **https://doi.org/**10.1080/15538362.2022.2092932
17. Saah Konadu J.A., **Kaba JS** and Abunyewa AA (2022). Inorganic nitrogen fertilizer, biochar particle size and rate of application on lettuce (*Lactuca sativa* L.) nitrogen use and yield, *All Life*, 15:1, 624-635, https://doi.org/10.1080/26895293.2022.2080282
18. Gorleku, D. O., Badu, G. P. A., Afele, J. T., **Kaba, J. S.,** & Abunyewa, A. A. (2022). Assessing the Efficiency of Moringa oleifera Leaf Meal on the Growth Performance of Broiler Chicken. Journal of Applied Life Sciences and Environment. 54 (4): 370-376. https://doi.org/10.46909/journalalse-2021-032
19. **Kaba J.S.,** Abunyewa A.A., Kugbe J., Kwashie K.S.G., Ansah O.E and Andoh H (2021). Arbuscular mycorrhizal fungi and potassium fertilizer as plant biostimulants and alternative research for enhancing plants adaptation to drought stress: Opportunities for enhancing drought tolerance in cocoa (*Theobroma cacao* L.), *Sustainable Environment*, 7:1, 1963927, https://doi.org/10.1080/27658511.2021.1963927
20. Mas-Ud M., Dokurugu F., **Kaba J.S** (2021). Effectiveness of cowpea (Vigna unguiculata L.) living mulch on weed suppression and yield of maize (Zea mays L.). *Open Agriculture. 6: 489–497.* https://doi.org/10.1515/opag-2021-0031.
21. **Kaba J.S** and Abunyewa A.A (2021). New aboveground biomass and nitrogen yield in different ages of gliricidia (*Gliricidia sepium* Jacq.) trees under different pruning intensities in moist semi-deciduous forest zone of Ghana. *Agroforest System* 95:835–842**.** https://doi.org/10.1007/s10457-019-00414-3
22. **Kaba J.S**, Yamoah F.A and Acquaye A (2021). Towards sustainable agroforestry management: Harnessing the nutritional soil value through cocoa mix waste. *Waste Management* 124:264–272. https://doi.org/10.1016/j.wasman.2021.02.021.
23. Yamoah FA., **Kaba J.S**, Botchie D and Amankwah-Amoah J (2021). Working towards Sustainable Innovation for Green Waste Benefits: The Role of Awareness of Consequences in the Adoption of Shaded Cocoa Agroforestry in Ghana. *Sustainability*, 13, 1453. https://doi.org/10.3390/su13031453
24. **Kaba JS**, Otu-Nyanteh A., Abunyewa A.A (2020). The role of shade trees in influencing farmers' adoption of cocoa agroforestry systems: Insight from semi-deciduous rain forest agroecological zone of Ghana. NJAS - *Wageningen Journal of Life Sciences*. *92:1, 1-7* https://doi.org/10.1016/j.njas.2020.100332
25. Yamoah F.A., **Kaba J.S.**, Amankwah-Amoah J and Acquaye A (2020). Stakeholder Collaboration in Climate-Smart Agricultural Production Innovations: Insights from the Cocoa Industry in Ghana. *Environmental Management*. https://doi.org/10.1007/s00267-020-01327-z
26. Ochire-Boadu K., Abunyewa A.A., **Kaba J.S.**, Twum-Ampofo K., Dawoe E.LK., Agbenyega O and Barnes VR (2020). Improved legume fallows: Influence on nitrogen and microbial dynamics, and maize (*Zea mays L*) grain yield in subhumid zone of West Africa. *Cogent Food & Agriculture*, 6:1, 1785778. https://doi.org/10.1080/23311932.2020.1785778
27. **Kaba J.S.**, Zerbe S., Agnolucci M., Scandellari F., Abunyewa AA., Giovannetti M., Tagliavini M (2019). Atmospheric nitrogen fixation by gliricidia trees (*Gliricidia sepium* (Jacq.) Kunth ex Walp.) intercropped with cocoa (*Theobroma cacao L.)* in agroforestry systems. *Plant Soil: 435:323-336.* https://doi.org/10.1007/s11104-018-3897-x
28. **Kaba J.S.,** Zerbe S., Abunyewa A.A and Tagliavini M (2019). Tracing the nitrogen flow between Gliricidia and cocoa trees in intercropping system using the ^{15}N natural abundant method. ***Acta Horticulturae*.** 1242: 587-592. https://doi.org/10.17660/ActaHortic.2019.1242.86

29. Badu E., **Kaba J.S.,** Abunyewa, Akwasi A., Dawoe, Evans K., Agbenyega Olivia and Barnes, Rex V (2019). Biochar and Inorganic Nitrogen Fertilizer Effects on Maize (Zea mays L) nitrogen use and yield in Moist Semi deciduous Forest zone of Ghana. *Journal of Plant Nutrition.* 42:19, 2407-2422. https://doi.org/10.1080/01904167.2019.1659347
30. **Kaba J.S,** Zerbe S., Zanotelli D., Abunyewa A.A., Tagliavini M (2018). Uptake of nitrogen by cocoa (*Theobroma cocoa* L) trees derived from soil decomposition of gliricidia (*Gliricidia sepium* Jacq.) shoots. *Acta Horticulturae.* Pp 263-269. https://doi.org/10.17660/ActaHortic.2018.1217.33
31. **Kaba J.S.,** Kumaga F.K., Ofori K (2014). Maximizing peanut (*Arachis hypogaea* L) yield in tropical soils: reducing harvest loss and increasing yield components, Germany. ISBN 978-3-659-22498-0. LAP LAMBERT Academic Publishing (BOOK CHAPTER).