

CURRICULUM VITAE OF PROF. EMMANUEL Y.H. BOBOBEE, PHD.



Brief Summary

Dr. Emmanuel Bobobee is an Associate Professor of Agricultural Machinery Engineering in the Department of Agricultural and Biosystems Engineering, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana. From 2013 – 2015, he was a Specialist Researcher in Mechanisation at the Agricultural Research Council’s Institute for Agricultural Engineering in Pretoria, South Africa (ARC-IAE). Emmanuel has consulted for IFPRI, FAO, GIZ, World Bank, UNOPS and MoFA-Ghana. He is currently the Coordinator of the MPhil Programme in Intellectual Property at KNUST since 2018. Emmanuel holds PhD in Agricultural Machinery Engineering from the Swedish University of Agricultural Sciences (SLU), Uppsala, MSc degree in Agricultural Machinery Engineering from Cranfield University UK, and BSc (Hons) degree in Agricultural Engineering Kumasi, Ghana. Prof. Bobobee has vast experience in Agricultural and Biosystems Engineering, Agricultural Equipment Development and Mechanization. He has invented the innovative mechanical cassava harvester (OAPI *patent 17219: www.tekcassavaharvester.com*) that is ideal for harvesting all tropical root and tuber crops, for which he was shortlisted by the Royal Academy of Engineering, UK among 12 finalists for the 2016 Africa Prize in Engineering Innovation (APEI). For the same invention, Prof Bobobee has received the 1st Engineering Excellence Award, from the Ghana Institution of Engineers (GhIE) in December 2014, and 3rd prize from the Royal Academy of Engineering’s Newton Fund for Leadership in Innovation Fellowship (LIF), London in March 2015. He also developed the “Tek Groundnut Cracker Winnower” machine that cracks and winnows groundnut in a single operation. The Tek groundnut cracker is modified to crack Jatropha seed, castor seed and sunflower seeds. He has adapted, developed and tested a Brazilian Jab punter that plants and dispenses fertilizer at the same time. Emmanuel has developed a 120-140 egg capacity ostrich incubator, a table-top maize sheller, a motorised table-top rice thresher, a motorised forage chopper, abrasive wear testing equipment and wear resistant ploughshares suitable for all tillage implements. Emmanuel’s other research competences are in draught animal technology studies. In pursuit of his duties as a scientist and researcher, Emmanuel has authored and co-authored over 50 scientific and technical publications in Agricultural Engineering. He has travelled extensively to several countries to present scientific papers. He is a member of several professional bodies. He is a Council Member of the Pan African Society for Agricultural Engineering (PASAE), Fellow of the South African Institution of Agricultural Engineers

(FSAIAE/SAILI), Senior member of the Ghana Institution of Engineers (MGhIE), a founding member and past executive secretary of the West Africa Society of Agricultural Engineers (WASAE), founding member and Vice President of the Ghana Society of Agricultural Engineering (GSAE), a founding member of African Conservation Tillage Network (ACT). He also serves as editor, associate editor and technical reviewer of manuscripts for engineering and other scientific journals. He teaches at the undergraduate and graduate levels in universities in Ghana, Namibia and Sweden. Prof. Bobobee has supervised over 300 students' undergraduate final year theses, 14 Masters Theses, and currently supervising three doctoral students. He is married with children.

PERSONAL DETAILS

Name: BOBOBEE, Emmanuel Yaovi Hunnuor
Date & place of birth: 26/02/1956
Civil Status: Married with children
Address: Department of Agricultural and Biosystems Engineering, Kwame Nkrumah University of Science and Technology, Kumasi. Ghana.
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url: www.knust.edu.gh
www.tekcassavaharvester.com

QUALIFICATIONS (DEGREE/EDUCATION)

Highest Qualification	Year obtained	Institution attended with dates
PhD (Agricultural Machinery Engineering)	2007	Swedish University of Agricultural Sciences (SLU) Uppsala, Sweden. (2003-2007).
M.Sc (Agricultural Machinery Engineering)	1995	Cranfield University, UK. (1994-1985).
B.Sc. (Hons) Agricultural Engineering	1981	Kumasi, Ghana. (1977-1981)

AREA OF SPECIALISATION

Agricultural Machinery & Mechanisation Engineering and Conservation Agriculture.

RESEARCH INTEREST

- Mechanical Cassava Harvesting Techniques
- Development and Testing of post-harvest processing machines
- Conservation tillage agriculture and appropriate equipment development in the humid agro-ecozones of Ghana
- Draft Animal Technology and welfare in Ghana:
- Animal transport, logistics and welfare

EMPLOYMENT RECORDS & POSITION HELD

Associate Professor:	(2012 to date)
Coordinator, Masters in Intellectual Property at KNUST	(2018-date)
UNOPS Lead Agricultural Engineer (LICA Retainer), Ghana	(May 2020 -date)
Specialist Researcher in Mechanisation	(2013 -2015)
Head of Department	(2009 - 2010)
Head of Machinery Engineering Section	(2000–date)
Senior Lecturer	(1995 – 2012)
FAO Consultant to teach Agricultural Mechanisation at University of Namibia (UNAM) at Neudam Campus.	May 1999 – September 1999)
Lecturer	(1988-1995), KNUST

PROFESSIONAL/TEACHING EXPERIENCE

Course Code	Course Title	Year
MIP 551	Introduction to Intellectual Property	2018-date
MIP651	Integrated Study Assignment	2018-date
AE 552	Mechanised Agricultural Management	2008-date
AE 553	Tractor and Implements Mechanics	2008 -date
AE557	Mechanised Crop Production	2008-date
AE 460	Repairs and Maintenance of Agricultural Machinery	1989-date
AE459	Advanced Agricultural Power and Machinery	1989-date
AE456	Mechanised Conservation Agriculture	1989-date
AE461	Agricultural Field Machinery	2001-date
AE356	Farm Power	1988-date
AE 251	Agricultural Power Units	1988-date
AE252	Agricultural Machinery	1988-date
LDM 257	Landscape Development Machinery	2009-date
TN 0269	Technology for Developing Countries I & II. Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden	2003-2007
TN 0453	MDG and World Agriculture. (2007 Guest Lecturer). Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden	2007
AGE 3312	Agricultural Mechanisation Course at University of Namibia under FAO-TCDC Consultancy	1999

SUPERVISION OF GRADUATE STUDENTS THESES (CURRENT 2018-Date)

Degree	Name of Student	Year of Completion
PHD	Albert Arkoh	2016-2020
PHD	Asante Johnson	2019-2023
PHD	Francis Amoah	2020 – 2021
MPHIL	Nathaniel Madjire	2018-2020

PHD	Amoaku Randy	2021-2025
MPHIL	Duodu Paul	2019-2021
MPHIL	Budu Kwadwo	2019-2021
MPHIL	Selorm Segbedzi	2021-2022
MPHIL	Forster Worlanyo Onai	2021-2022

HONOURS & AWARDS

Year	Award
2016	African Women in Agricultural Research & Development (AWARD)
2014	Ghana Institution of Engineers. (2014). 1 st Engineering Excellence Award Category: Public Sector (State-Owned Enterprises) Individual.
2003	World Bank Scholarships. (2003-2007). PhD scholarship for studies at Swedish University of Agricultural Sciences, Uppsala, Sweden
1994	British Government Scholarship (1994-1995). MSc scholarship at Silsoe College, Cranfield University, U K.
1997	Ghana Government Scholarship (1997-1981). BSc scholarships at Kwame Nkrumah University of Science and Technology, Kumasi. Ghana.

ASSOCIATIONS/AFFILIATIONS (*CONTRIBUTION & CURRENT POSITION*)

Year	Affiliation
2019-date	Council Member, AfroAgEng. Pan African Society for Agricultural Engineering (PASAE)
2013 -date	Fellow, South African Institute of Agricultural Engineers (SAIAE).
2000-date	Member and General Secretary (2000-2004), West African Society of Agricultural Engineers (WASAE).
1994-date	Member & Secretary (2000-2004), Ghana Society for Agricultural Engineering (MGSAE).
1987-date	Member, Ghana Institution of Engineers (MGhIE)

RESEARCH PROJECTS (PAST AND ON-GOING PROJECTS)

- Mechanical cassava harvesting techniques to reduce drudgery and enhance efficiency in commercial cassava production. Prototype mechanical harvester developed, field-tested, demonstrated and deployed in Ghana, Nigeria, Jamaica and South Africa to support large-scale cassava production.
- Draught animal technology for increased productivity among small-scale farmers. A durable cast steel ploughshare developed, field tested and ready for mass production. This technology has the potential to be extended to other soil-engaging tillage tools drawn by tractors and other earth moving machinery. Improved yoke designs to promote animal welfare were also tested for eventual promotion among animal traction farmers

- The development of Tek-Groundnut Cracker, a multi-pulse cracker-winnower suitable for shelling groundnuts, castor seed, Jatropha and sunflower. This equipment decreases post-harvest losses, raises net profits for farmers and enhances the efficiency of oil extraction in the oil-bearing crops suitable for human consumption and as biofuels.
- Development of suitable Jab-planters for conservation agricultural crop establishment. Due to aging farming population and increased school enrolment, new and efficient crop production technologies need to be developed for sustainable development to reduce hunger and malnutrition.
- Development of motorised cassava peelers to support industrial cassava processing along the value chain
- Mechanised minisett yam planter to promote commercial seed yam production to attract the youth and reduce drudgery in agriculture

PUBLICATIONS (MAJOR ONES ONLY)

Patent:

1. OAPI *patent 17219*: Mechanical Cassava Harvester (2013-2033).

Scientific Publications:

1. Bright G. Adu, Alex Yeboah, Richard Akromah, **Emmanuel Bobobee**, Stephen Amoah, Alexander W. Kena , Richard A. Amoah. (2020). Whole genome SNPs and phenotypic characterization of cassava (*Manihot esculenta* Crantz) germplasm in the semi-deciduous forest ecology of Ghana. *Ecological Genetics and Genomics. Ecological Genetics and Genomics*. **17**:1-12
2. Ishmael Nartey Amanor and **Emmanuel Yaovi Hunnuor Bobobee**. (2020). Evaluation of a motorized cassava peeler with four lining materials. *African Journal of Agricultural Research*. **16**(10): 1342-1354
3. **Bobobee, E.Y.H**, Yakanu P.N, Marenya, M.O. and Ochanda, J.P.O. (2019). The Tek mechanical Cassava Harvester Development in Ghana –Challenges, Opportunities and Prospects for Cassava Production in Africa. *Journal of Engineering in Agriculture and the Environment*. **5** (1):41-60.
4. **Bobobee, E.Y.H** and Yakanu, P.N. (2018). Mechanized Cassava Production and Harvesting on Ridges-A Conservation Agricultural Approach. *Second Africa Congress on Conservation Agriculture (2ACCA) Proceedings 9-12th October, 2018 Johannesburg, South Africa*. pp 227-232.
5. Francis Amoah and **Emmanuel Bobobee**. (2018). Development and Performance Evaluation of a Motorized Jatropha curcas Seed Cracker-Winnower. *International Journal of Agricultural and Biosystems Engineering*; **3**(5): 103-111
<http://www.aascit.org/journal/ijabe>
6. Arkoh, A. K, and **Bobobee, E. Y. H** (2018). Effect of planting depth and sett orientation on germination of yam (*Dioscorea*) minisett. *International Journal for Research in Applied Science and Engineering Technology (IJRASET)* **6** (6):1227-1232.

7. Kojo Atta Aikins, J. K. Afriyie, I. N. Amanor, S. M. Ackah and **Emmanuel Bobobee**. (2016). Assessment of Tractor Maintenance Practices of Tractor Operators at Ejura, Ghana. *International Journal of Science and Engineering Applications*. **5** (5):2319-7560.
8. Nazaire Houssou, Shashidhara Kolavalli, **Emmanuel Bobobee** and Victor Owusu. (2015). Animal traction – potential and constraints. Rural 21. *The International Journal for Rural Development*. **49** (2):14-15.
9. **EYH Bobobee**, JB Okyere, WA Agyare, SK Amponsah, SR King, J Aveyire, (2014). Performance evaluation of prototype mechanical cassava harvester in three agro-ecological zones in Ghana. *Ghana Journal of Agricultural Science*. **48** (1): 3-19
10. SK Amponsah, **EYH Bobobee**, WA Agyare, JB Okyere, J Aveyire, SR King. (2014). Mechanical cassava harvesting as influenced by seedbed preparation and cassava variety. *Applied Engineering in Agriculture* 30 (3), 391-403
11. **EYH Bobobee**, F Kumi. (2013). Development and performance evaluation of an abrasive wear testing equipment for tillage tools. *Journal of University of Science and Technology (JUST)*. **33** (1): 55-67
12. N Houssou, S Kolavalli, **E Bobobee**, V Owusu. (2013). Animal traction in Ghana. *Ghana Strategy Support Program Working Paper* 34.
13. Samuel Frimpong, G Gebresenbet, **E Bobobee**, ED Aklaku, I Hamdu. (2012). Effect of transportation and pre-slaughter handling on welfare and meat quality of cattle: case study of Kumasi abattoir, Ghana. *Veterinary Sciences*. **1**(3):174-191.
14. Samuel Frimpong, G Gebresenbet, T Bosona, **E Bobobee**, E Aklaku. (2012). Animal supply and logistics activities of abattoir chain in developing countries: the case of Kumasi Abattoir, *Journal of Service Science and Management* **5**(1):20-27.
15. G Gebresenbet, T Bosona, **E Bobobee**. (2012). Improving loading facilities and methods to minimize stress on animals during transport from farm to abattoir. *2012 IX International Livestock Environment Symposium (ILES IX)*, 3
16. G Gebresenbet, I Wikner, **EYH Bobobee**, G Maria, M Villarroel. (2012). Effect of transport time and handling on physiological responses of cattle. *Journal of Agricultural Science and Technology*. **A 2** (6A): 800-814.
17. JM Seidu, **EYH Bobobee**, WKJ Kwenin, R Frimpong, SD Kubge, WJ Tevor. (2012). Preservation of indigenous vegetables by solar drying. *ARPN Journal Agricultural Biologic Sciences*. **7** (6): 466-473.
18. S Aradom, G Gebresenbet, FS Bulitta, **EY Bobobee**, M Adam. (2012). Effect of transport times on welfare of pigs. *Journal of Agricultural Science and Technology*. **A 2** (4A), 544
19. JM Seidu, **EYH Bobobee**, WJK Kwenin, WJ Tevor, AA Mahama. (2012). Drying of sweet potato (*Ipomoea batatas*) (chipped and grated) for quality flour using locally constructed solar dryers. *Journal of Agricultural and Biological Science*. **7** (6): 407-415.
20. **EYH Bobobee**, G Gebresenbet. (2007) Effect of cutting-edge thickness and state of wear of ploughshare on draught force and heart rates of Sanga oxen in Ghana. *Soil and Tillage Research* **9** (1-2):298-307.
21. **EYH Bobobee**, K Sraku-Lartey, SC Fialor, EA Canacoo, SK Agodzo, (2007). Wear rate of animal-drawn ploughshares in selected Ghanaian soils. *Soil and Tillage Research* **93** (2): 299-308.

22. **EYH Bobobee.** (2007). Performance analysis of draught animal-implement system to improve productivity and welfare. In PR Lawrence, K Lawrence, JT Dijkman, PH Starkey, (Eds). *Research for development of animal traction in West Africa. Proceedings of the fourth workshop of the West African Animal Traction Network.* ILCA
23. **EYH Bobobee.** (1999). Role of draft animal power in Ghanaian agriculture Conservation Tillage with Animal Traction. ATNESA, Harare, Zimbabwe, 61-66.
24. **EYH Bobobee,** JB Okyere, A Twum, RH Neumann, H Knechtges. (1994). Performance evaluation of a mechanical cassava harvester. *Proc. Intl. Commission of Agric. Eng. (CIGR) XII World Congress.*
25. SK Agodzo, **EYH Bobobee.** (1994). Policy issues of irrigation in Ghana: 1960-1990. *Proceedings of the 12th CIGR World Congress on Agricultural Engineering.*:335-343.
26. **EYH Bobobee.** (1993). Animal traction utilisation, constraints and research options in Ghana. Renard, G., Krieg, S., Lawrence, P., von Oppen, M. (Eds.). *Research for development of animal traction in West Africa. Proceedings of the fourth workshop of the West African Animal Traction Network*

CONFERENCES ATTENDED WITH DATES (2019-2020)

2020

- i. Problem Based learning: Teaching engineers to tackle the SDGS, organised by the Royal Academy of Engineers (RAEng), London, UK. 3-4 March, 2020

2019

- i. WIPO-ARIPO-GHIPO Intellectual Property Workshop on trainer of trainers (ToT), Accra 10-15 November, 2019
- ii. WIPO-ARIPO-OAPI Intellectual Property Conference on IP in Universities and Research Institutions, Harare, Zimbabwe. 5-9 November 2019
- iii. Calestous Juma Executive Dialogue (CJED) Meeting at AU Headquarters, Addis Ababa, Oct 2019
- iv. WIPO-ARIPO-OAPI (WAO) Regional Conference on Intellectual Property in Africa, Harare, Zimbabwe. November, 2019
- v. Calestous Juma Executive Dialogue (CJED) Meeting at Johannesburg, South Africa. 3-7 March, 20219

1988-2018

Since joining the University as a lecturer in 1988, I have travelled to attend and present papers on conservation agriculture and agricultural mechanisation and engineering disciplines at several conferences and workshop/symposia/colloquia in several countries including Brazil, Burkina Faso, Canada, China, Denmark, Ethiopia, Finland, Germany, Italy, India, Kenya, Latvia, Namibia, Nigeria, South Africa, Tanzania, The Gambia, The Netherlands, Uganda, USA, UK, Zambia, Zimbabwe.

CONSULTANCY (MAJOR ONES ONLY)

Date	Location	Job description	Client
2020-2021	Accra, Ghana	Lead Agricultural Engineer (Retainer LICA)	UNOPS, Ghana
Nov – Dec 2019	Brazil	Agricultural Specialist Services for pre-shipment Inspection of Agricultural Machinery imported by Ghana Government from Brazil	Ministry of Food and Agriculture (MOFA) Ghana,
2018-date	Kumasi, Ghana	Coordinator of the ARIPO-KNUST MPhil Programme in Intellectual Property.	ARIPO-KNUST
2018-date	South Africa and Ethiopia	Provision of Technical advice to African Governments in Innovative and Emerging Technology in Agriculture. Capacity strengthening to African Policy & Decision makers and other stakeholders. Collaborating with African Institutes to deliver Innovative Technologies to address the challenges of COVID-19 pandemic.	AUDA/NEPAD
2017-2018	Accra	Strengthening Cassava Value Chain in Africa	FAO, Accra
2013-2015	Pretoria South Africa	Specialist Researcher in Agricultural Engineering and Mechanisation	Agricultural Research Council, South Africa
2012	Accra, Ghana	Individual Consultant on assessing animal traction technology use in Ghana	IFPRI, Ghana
2006-2010	Uppsala, Sweden	Post-doctoral research and teaching of agricultural mechanisation in developing countries to graduate students intending to work in developing countries.	SLU, Sweden
2002-2003	Accra, Ghana	Development and Texting of Jab planter for conservation agriculture in the humid and transitional zones of Ghana	FAO, Accra
2002	Kumasi, Ghana	Technical Services Agency (TSA) for the design, construction and commissioning of Market at Dama Nkwanta in Brong Ahafo Region of Ghana	MOFA, Ghana
2001	Kumasi, Ghana	Member of the National Technical Backstopping team on Conservation Agriculture in the humid agro-ecozone in Ghana	MOFA, Ghana
1999	Windhoek, Namibia	FAO-TCDC Consultant in teaching farm mechanisation at the Faculty of Agriculture, University of Namibia (UNAM)	FAO, Accra
1996-1997		Consultant on Animal Traction Technology for the National Agricultural Extension Project (NAEP) for the Department of Agricultural Extension Services of MOFA	MOFA & World Bank

HOBBIES

Mentoring, Music, Reading and Travelling.

REFEREES

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