

OBAFEMI AWOLOWO UNIVERSITY, ILE IFE, NIGERIA

CURRICULUM VITAE

A. Personal Data:

1. Full Name: **OLUWARANTI** Abimbola (Nee Bademosi)
2. Date and Place of Birth: 5th September, 1971, Akure
3. Nationality: Nigerian
4. Marital Status: Married
5. Present Position: Senior Lecturer
6. Contact Details:
 - (a) Physical Address: Department of Crop Production and Protection, Obafemi Awolowo University, Ile Ife, Nigeria
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B. Academic and Professional Qualifications with dates

- i B.Agric., OAU, Ile-Ife 1998
- ii M.Sc. (Plant Science), OAU, Ife 2005
- iii Ph.D. (Plant Science) OAU, Ife 2011

C. Awards/Grants

i. Scholarships:

Federal Government Scholarship Award (2001/2002 Session) for the MSc. Programme

Carnegie Sponsored Scholarship Award (2005/2006) for tuition fees

Mashav Scholarship course on Biotechnology in Agriculture in a world of global environmental changes by Israel's Agency for international Development and Cooperation and Hebrew University of Jerusalem, Rehovot, Israel, February 6 – April 5, 2012

Kirkhouse Trust Fund on Plant Breeding for Drought Tolerance Training course held at Colorado State University, Fort Collins, US. June 11-22, 2012

ii Fellowships:

Netherland Fellowship Programme (NFP) fellowship for a short training course on "Contemporary approaches for genetics resources conservation and use" at Wageningen, the Netherlands from 15/04/2013 to 04/05/2013

Post-Doctoral Fellowship, CIRCLE (Climate Impacts Research Capacity and Leadership Enhancement) Visiting Fellowship by Department for International Development (DFID) of the United Kingdom (UK) at Makerere University, Kampala, Uganda from January 1 – December 31st 2016

iii **Research Grants:**
CIRCLE Research Uptake grant for “Distribution and evaluation of drought tolerant maize varieties by maize farmers in four locations of the rainforest agro-ecology during the late cropping season of 2017”, September – December

iv **International Awards:**
One of the finalists of the 2008 African-wide Women and Young Professionals in Science Competitions, organised by the Technical Center for Agricultural and Rural Cooperation (ACP- EU), the Forum for Agricultural Research in Africa (FARA), the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), the New Partnership for Africa’s Development (NEPAD), the Alliance for a Green revolution in Africa (AGRA) and the African Technology Policy Studies Network (ATPS) in Addis-Ababa, Ethiopia.

D. Publications

Contribution to Books:

- i. **Oluwaranti A.**, M.A.B Fakorede and B. Badu- Apraku (2009). Performance of maize varieties of different maturity groups under the marginal rainfall conditions of a rainforest location. in: Kevin Urama, Judith Francis, Marsden Momanyi, Sheila Ochugboju, Arnold Ominde, Nicholas Ozor and Guy Manners (Editors) *Agricultural Innovations for Sustainable Development*. (2)1:109-114 ISBN:98/9966-7434-3-X.

Published Journal Articles

- ii. **Oluwaranti A.** and Ajayi S. A. (2008) Determination of Moisture Content of Maize seed: Comparison of two Moisture meters with the oven method. *Ife Journal of Agriculture* vol. 23(1): 32-39.
- iii. **Oluwaranti A.**, M.A.B. Fakorede and B. Badu-Apraku. (2008) Grain yield of maize varieties of different maturity groups under marginal rainfall conditions. *Journal of Agricultural Sciences* vol. 53(3): 183-191.
- iv. Oziegbe M., J. O. Faluyi and **A. Oluwaranti.** (2010) Effect of seed age and soil texture on the germination of some *Ludwigia* species (Onagraceae) in Nigeria. *Acta Bot. Croat.* 69(2):249-257.
- v. Akinwale R.O., M.A.B. Fakorede, B.Badu-Apraku and **A.Oluwaranti** (2014) Assessing the Usefulness of GGE Biplot as a statistical Tool for Plant Breeders and Agronomists. *Cereal Research Communications* 42(3). Pp. 534-546.
- vi. **Oluwaranti A.** M.A.B. Fakorede, R.O. Akinwale, T. Popoola, A. Menkir and B. Badu-Apraku (2015) Drought tolerance at the vegetative and maturity growth stages of maize in a rainforest location of South-West Nigeria. *Australian Journal of Agriculture Research* 5(1):1-10.
- vii. **Oluwaranti A.**, M. A. B. Fakorede, A. Menkir and B. Badu-Apraku (2015) Climatic conditions requirements of maize germplasm for flowering in the rainforest Agro-ecology of Nigeria. *J. Plant Breed. Crop Sci.*7(6):170-176.

- viii **Oluwaranti A.**, M.A.B. Fakorede and F. A. Adeboye (2015) Maturity groups and Phenology of maize in a rainforest location. *International Journal of Agriculture Innovations and Research* 4(1): 124 – 127.
- ix. **Oluwaranti A.**, M.A. B. Fakorede, A. Menkir, A. Akinyooye, A. O. Bello (2015) Evaluation of late maturing maize varieties for late season planting in a rainforest location of Nigeria. *Int. J. Agri. Res.* 7(4):111 – 116.
- x. Akinwale R. O., M.A.B. Fakorede, **A. Oluwaranti**, B.Badu-Apraku and I.I. Adejumobi (2016) Selection Criteria for drought tolerance at the vegetative phase in early maturing maize. *African Journal of Biotechnology* 15:816 – 822.
- xi Ajani O. T., **A. Oluwaranti** and A. I. Awoniyi (2016) Assessment of water –use efficiency of drought tolerant maize (*Zea mays* L.) varieties in a rainforest location. *Journal of Agriculture and Ecology Research* 8(3): 1-10
- xii **Oluwaranti A.** and O. T. Ajani (2016) Evaluation of drought tolerant maize varieties under drought and rain-fed conditions. A rainforest location. *Journal of Agricultural Science* 8(7):153-162
- xiii **Oluwaranti A.**, R. Edema, S.A. Ajayi, C. J. Atkinson, G. Asea, D. Makumbi, D. B. Kwemoi (2018) Characterization of elite maize inbred lines for drought tolerance using simple sequence repeats markers. *International Journal of Agriculture and Environmental Research* 4(2): 552 – 566.
- xiv Okoye N.F., **A. Oluwaranti**, M. A. B. Fakorede and R.O Akinwale (2018) Seed Production, Growth and grain Yield of Self, Half-sib and Bulk-Sib progenies developed from an Early-maturing Maize (*Zea mays* L.) Population. *Asian Research Journal of Agriculture* 9(4):1-12.
- xv **Oluwaranti A.**, M.A.B. Fakorede and A. Menkir (2018) Validation of flowering models for classifying maize into maturity groups in the different Agro-ecologies of West and Central Africa. *Journal of Experimental Agriculture International* 28(1):1-17
- xvi **Oluwaranti A.**, Badmus T., Awoniyi S., Akintola B., Bankole O. O.and Awosanmi F. E. (2018) Comparative Analysis of Physiological Seed Quality and Field Performance of Single-, Three-way and Double-cross Hybrids of Tropical Maize Germplasm. *Ife Journal of Agriculture, 2018, Volume* 30(3): 83 – 98
- xvii Bankole O., **Oluwaranti A.** and Awosanmi F. E (2018) Water Use Efficiency of Maize Genotypes of Different Maturity Groups at Seedling and Grain filling Growth Stages in a Rainforest Location. *International Journal of Plant & Soil Science* 29(5): 1-11

Published Refereed and Edited Conference Proceedings:

- xviii. **Oluwaranti A.**, M.A.B. Fakorede and A. Menkir (2011) Evaluation of maize germplasm for adaptation in southwest Nigeria. *African Crop Science Conference Proceedings*, Vol. 10. pp. 597 – 601.
- xix. Fakorede M.A.B., **A. Oluwaranti**, B. Badu-Apraku and A. Menkir (2011) Trait association of maize varieties in contrasting seasons in the Rainforest of southwest Nigeria. *African Crop Science Conference Proceedings*, Vol. 10. pp. 541 – 544.
- xx. Fakorede M.A.B., **Oluwaranti A.** and Akinwale R.O. (2014) Teaching report writing in crop science to undergraduate agriculture students in a Nigerian University. *Fourth RUFORUM Biennial Conference July 2014*, Maputo Mozambique, PP: 71-75.
- xxi Bankole O. **Oluwaranti A.** Ajayi S. A. and Awosanmi F. E. (2018) Seed quality and Water Use Efficiency of Different Maturity Groups of Maize in a Rainforest Location. *Proceedings of Association of Seed Scientists of Nigeria Conference* held at Federal University of Technology Akure (FUTA) between 24 - 28 June, 2018, PP: 204 – 220.

Manuscripts submitted for Publication:

- i. Bankole O., **Oluwaranti A.**, Ajayi S.A and Awosanmi F. E. Genotypic variation of different maturity groups of Maize (*Zea mays* L.) for seed physiological quality. *Submitted to Plant Breeding and Seed Science Journal*

E. Papers and Works in Preparation:

- i. Agronomic Performance of Half-sib Progenies Developed from an Early Maturing Maize (*Zea mays* L.) Population in a Rain-Forest Location.
- ii. Direct and indirect methods of determining seed yield in maize (*Zea mays* L.)
- iii. Impacts of climate variability on the performance of elite maize parental lines evaluated in Uganda.
- iv. Assessment of 40 open-pollinated maize (*Zea mays* L.) varieties for VCU and DUS traits

F. Current Research Activities:

Maize Programme

- i. Assessment of efficiency of water usage of the different maize maturity groups at the seedling and grain-filling growth stages in the face of the current resilience climate change in the rainforest Agro-ecology of Nigeria for a more efficient development of drought tolerant maize varieties.

- ii. Response of different maturity groups of maize to macro and micro nutrients as influenced by Mycorrhiza for Increased maize production.
- iii. Generation of maize progenies resistant to army worm infestation for the development of army worm resistant maize hybrids in the rainforest agro-ecology of Nigeria .

Coconut Research Programme

Characterization of coconut collections from marginal areas of production for further improvements

G. Training/Conferences/Workshops Attended Within the Last Five Years

- (i) 11th International Conference of the African Association of Remote Sensing of the Environment at Kampala, Uganda, 24-28 October, 2016
- (ii) 2016 International Annual Meetings of the American Society of Agronomy, ASA, Crop Science Society of America, CSSA and Soil Science Society of America, SSSA held at Phoenix, AZ, of United States of America from 6th – 9th November, 2016.
- (iii) National Agricultural Research Organisation (NARO) - Makerere University (MAK) Joint Agricultural Dissemination Conference at the Speke Resort Munyonyo in Kampala, Uganda, 21-24 November 2016
- (iv) 2017 CIRCLE Visiting Fellowship Completion Workshop at the African Academy of Science in Nairobi, Kenya, 6th – 8th February, 2017.
- (v) Cambridge-Africa Molecular Laboratory Training Workshop at the Department of Plant Sciences, University of Cambridge, Cambridge, UK, March 27th – 5th April, 2017
- (vi) 4th Annual Conference of the Association of Seed Scientists of Nigeria (ASSN) held at Federal University of Technology Akure, (FUTA) between 24 - 28 June, 2018.
- (vii) 2018/2019 African Plant Breeding Academy Class IV in Nairobi, Kenya

H. Research Contributions to Knowledge

I have identified maize varieties that are adaptable to the early and late cropping seasons of the rainforest Agro-ecology of Nigeria, which have been impacted negatively by the current global climatic change, thereby causing reduction in the duration of the cropping seasons.

The impact of my research has been seen in the availability of early and extra-early maize varieties, two month old maize varieties as they are being called by our rural farmers in this agro-ecology. This has led to increased maize production in this agro-ecology despite the unfavourable weather condition that is recently being experienced due to the global climatic change. The results of the study have helped to identify promising varieties during the unfavourable weather conditions in the rainforest agro-ecology which has helped to produce

grains for consumption and industrial purposes when the succeeding year's early season planting is yet to be ready for consumption as green maize, hence improving food security. The result of this study has also been disseminated through seminars that involved extension agents. These extension agents have been very helpful in the promotion of these early and extra-early varieties to areas that are characterized by marginal rainfall conditions in this rainforest ecology thereby making maize available almost throughout the year.

Several varieties of the intermediate-to-late maturity group produce high grain yield in both early and late cropping seasons. The results of my research revealed that intermediate to late maturity maize maturity groups emerged faster than the extra-early and early groups. Intermediate and late maturity groups have higher dry matter accumulation in comparison to extra-early and early maturity groups. Furthermore, the result of the study showed that emergence %, emergence index and days to anthesis and/or silking contributed significantly to maturity classification in maize unlike growth rate (GR), relative growth rate (RGR). Evaluation of maize of different maturity groups showed that regardless of maturity group, varieties having the ability to produce more –filled ears per unit land area are desirable for improved grain yield in either the early or the late season of the rainforest agro-ecology.

Several varieties of the intermediate-to-late maturity group produced high grain yield in both early and late seasons. Most of the high yielding varieties are those previously improved for low-N tolerance. The study also revealed that TZEE-WPOPSTRQPMCO, an extra-early *Striga*-tolerant QPM population has good adaptation to early season in the *Striga*-free-location.

My research work showed that late season planting should not be delayed beyond last week in August because maize planted as from September would not silk until the end of October thus predisposing the maize crop to terminal drought which normally starts late October/early November. Furthermore, the result of this investigation revealed that the early and late seasons are clearly distinct and thus require different varieties. It also indicated that development of varieties should be season specific for optimum yield.

I developed new indices for classifying maize into maturity groups in all the agro-ecologies of West and Central Africa, the development rate from sowing to flowering (days to 50% tasseling, anthesis and silking) was affected mainly by temperature and Heat Units in the rainforest agro-ecology since use of photoperiod and accumulated heat units as additional parameters in predictive models did not improve goodness of fit of the models. The thermal model correctly classified over 40% of the 100 maize varieties into maturity groups, with coefficient of determination (r^2) ranging from 0.94 to 0.97.

The development of drought tolerant maize has been limited by the suggested complexity of the environment on drought phenotypic traits. However, some simple sequence repeats (SSRs) molecular markers linked to drought tolerance via quantitative trait loci (QTL) have

been identified in maize but their use requires validation on newly developed elite maize inbred lines. My research efforts validated 19 selected SSR markers linked to maize drought tolerance and determined the genetic diversity of sixty-eight elite maize inbred lines. The study revealed that some of the markers that were informative included P-bnlg238, Phi037, P-bnlg1179 and Umc2214 and these showed significant group differentiation among these newly developed drought tolerant maize inbred lines which has been used to develop drought tolerant maize hybrids.

Secondary methods of seed moisture determination like seed moisture meters are calibrated against the ground oven method. However, the oven method is cumbersome and time-consuming. Faster methods involving moisture meters are now available commercially. My research efforts revealed that moisture meter is the best equipment for determining moisture content of maize seed for research purpose.

I had hand-on experience on statistical tools such as SAS, SPSS, GENSTAT and GGEBiplot in analyzing agricultural and biological research data.

Signature:

Date: April 25, 2019