



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

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*Borlaug Higher Education for
Agricultural Research and Development*

Final Scholar Report: Mali

By

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Executive Summary

Michigan State University (MSU) is the implementing entity of the Borlaug Higher Education for Agricultural Research and Development (BHEARD) program. As part of the United States government's Feed the Future initiative, BHEARD is funded by the United States Agency for International Development (USAID), through the International Maize and Wheat Improvement Center (CIMMYT).

Honoring the legacy of Nobel Peace Prize Laureate Norman Borlaug, the program increases the number of agricultural scientists and strengthens scientific institutions in partner countries. BHEARD supports long-term training of agricultural researchers at the master's and doctoral levels, linking scientific and higher education communities in Feed the Future priority countries and the United States.



A BHEARD scholarship supports coursework at U.S. and regional universities in Africa, Brazil, Bangladesh, and India; providing funding for research and post completion research in the student's home country. In addition, the program provides a variety of allowances to cover training costs and laboratory fees. BHEARD also aims to develop, test and evaluate new models of small-scale institutional capacity development. This report documents BHEARD programmatic activities from October 1, 2018 through September 30, 2019. It includes a program overview, financial summaries, and student updates for Mali.

Acknowledgement and thank you to all BHEARD staff who have worked for this program and contributed to this report.

- John Medendorp, Director
- Mathias Ndizihwe, Student Progress Coordinator
- Cait Goddard, Institutional Capacity Development Lead
- Jen Riebow, Fiscal Officer

Activity Summary

The Borlaug Higher Education for Agriculture and Development (BHEARD) program, supported by US Agency for International Development (USAID) develops agricultural scientists and increases agricultural research capacity in Feed the Future partner countries including Mali.

BHEARD has provided scholarships to students seeking masters and doctorate degrees at US and regional academic institutions and has provided funding for agricultural research in their home countries. The program also developed, tested, and evaluated new models of small-scale institutional capacity development. BHEARD sponsored 23 scholars from Mali and 21 of them successfully completed their program and went back to their home institutions after completion of their degree programs.

Successes

The notable success of the Mali BHEARD program is the very high completion rate. A total of 91% of the scholars were able to complete their program, although COVID played an important role in delaying the completion dates of four of the scholars, who were forced to complete their degree programs after the conclusion of the BHEARD scholars program.

Challenges

Two scholars were suspended due to violation of Conditions of sponsorship contract and low grades respectively. Four PhD scholars completed their degree programs after the conclusion of the BHEARD scholars program in September, 2021.

LIST OF ALL SCHOLARS

The complete list of BHEARD scholars from Mali is as follows:

NAME (first and last)	SEX	COHORT	STUDENT STATUS	UNIVERSITY	SUBJECT AREA	ACADEMIC LEVEL	GRADUATION YEAR
1. Keita, Adam	F	COHORT 5	COMPLETED	KNUST	Meteorology and Climate Science	MPhil	FY2020
2. Abdoulaye, Moussa	M	COHORT 4	COMPLETED	University of Ghana	Seed Science and Technology	MPhil	FY2019
3. Bouare, Adama	M	COHORT 4	COMPLETED	University of Ghana	Agricultural Economics	MPhil	FY2019
4. Diallo, Aboubacar	M	COHORT 4	COMPLETED	KNUST	SUSTAINABLE AND INTEGRATED RURAL DEV	MPhil	FY2018
5. Diarra, Fatimata	F	COHORT 4	COMPLETED	KNUST	SUSTAINABLE AND INTEGRATED RURAL DEV	MPhil	FY2018
6. Macalou, Moussa	M	COHORT 4	COMPLETED*	University of Ghana	Agricultural Economics	PhD	2021
7. Maiga, Alfousseiny	M	COHORT 4	COMPLETED*	University of Ghana	Plant Breeding	PhD	2021
8. Sissoko, Aminata	F	COHORT 4	COMPLETED*	University of Ghana	Food Science	PhD	2021
9. Traore, Sanata	F	COHORT 4	COMPLETED*	University of Ghana	Crop Science and Agronomy	PhD	2021
10. Sidibe, Salif	M	COHORT 4	WITHDRAWN	University of Ghana	Agricultural Economics	MSc	-

11. Samasse, Kaboro	M	COHORT 3	COMPLETED	South Dakota State University	Geospatial Science and Engineering	PhD	FY2021
12. Coulibaly, Ayouba	M	COHORT 3	COMPLETED	Egerton University	Agricultural Economics	MSc	FY2019
13. Dembele, Bandiougou	M	COHORT 3	COMPLETED	Egerton University	Agricultural Economics	PhD	FY2018
14. Camara, Mounirou	M	COHORT 3	COMPLETED	University of Nairobi	Biotechnology	MSc	FY2021
15. Dembele, Kadidia	F	COHORT 3	COMPLETED	Egerton University	Agribusiness Management	MSc	FY2018
16. Kane, Abdoulah	M	COHORT 3	COMPLETED	Egerton University	Agricultural Economic and Management	PhD	FY2019
17. Kante, Macire	M	COHORT 3	COMPLETED	University of Nairobi	Information Systems	PhD	FY2018
18. Keita, Mahamadou	M	COHORT 3	COMPLETED	Egerton University	Environmental Science	PhD	FY2019
19. Macalou, Salouma	M	COHORT 3	COMPLETED	Egerton University	Soil Science	MSc	FY2018
20. Nientao, Abdoulaye	M	COHORT 3	COMPLETED	Egerton University	Agricultural Economics	MSc	FY2019
21. Thiam, Sidibe	F	COHORT 3	COMPLETED	Egerton University	Agricultural Information and Communication Management	MSc	FY2018
22. Guindo, Modibo	M	COHORT 3	COMPLETED	Egerton University	Agricultural Economics	MSc	FY2019
23. Konte, Mahamadou	M	COHORT 3	WITHDRAWN	Egerton University	Agricultural Economics	MSc	-

PAPER PUBLICATIONS BY SCHOLARS

The BHEARD scholars from Mali had a respectable 1.7 publications per graduating scholar. Although this is not the highest publication rate for the BHEARD program, it places the Malian scholars in the top ten percent of country programs for publication rates.

STUDENT NAME	TITLE	AUTHORS	PUBLISHED IN	PUBLICATION DATE
1. Aboubacar Diallo	Climate change adaptation strategies, productivity and sustainable food security in southern Mali	Aboubacar Diallo, Emmanuel Donkor, Victor Owusu	Climatic Change	03/19/20
2. Aboubacar Diallo	Determinants of Food Insecurity among Maize Farming Households in the Southern Region of Mali	Aboubacar Diallo, Asiamah Maxwell Toah2	Journal of Food Security	09/06/19

3. KANE ABDOUL AH MAMARY	Economic Efficiency of Vegetable Production under Small Scale Irrigation Systems in Koulikoro and Mopti Regions in Mali/West Africa	Kane Abdoulah Mamary, Diakalia Sogodogo, Ginette Dembele, Kalifa Traore, J K Lagat	Springer	12/01/21
4. Sanata Traoré	Efficacité des traitements de lavage courants pour reduire les niveaux microbiens sur la laitue au Mali	Sanata Traoré, Fassé Samaké, Eric W. Cornelius, Amadou H. Babana, Gloria L. Essilfie, Daouda Diabaté, Mamoutou Bengaly, Abou Koné, Habibatou Cissé	Malian Symposium for Applied Science	08/06/21
5. Sanata Traoré	Production de légumes irrigués avec des eaux usées: connaissance et perception des acteurs de la chaîne de valeur à Bamako, Kati et Baguineda	Sanata Traoré, Fassé Samaké, Amadou Hamadou Babana, Eric W. Cornelius, Gloria Essilfie, Abou Koné, Mamoutou Bengaly, Lassine Doumbia, Timothé A. Dara, Sognan Dao	Malian Symposium for Applied Science	12/25/20
6. Alfoussei ny Maiga	Development of female parent sorghum with high lysine and threonine content in Mali	A.M. Maiga, A.G. Diallo, , A. Daou, A. Touré, A. Danquah , E. Danquah	Journal of Genetics, Genomics & Plant Breeding	07/11/21
7. Alfoussei ny Maiga	Combining ability for grain yield and grain components of sorghum hybrid containing high lysine, threonine, iron and zinc content in Mali	A.M. Maiga, A.G. Diallo, A. Touré, B. Nebie, A. Danquah, E. Danquah	Journal of Genetics, Genomics & Plant Breeding	07/15/21
8. Sanata Traoré	Efficiency of common washing treatments in reducing microbial levels on lettuce in Mali	Sanata Traoré, Eric Williams Cornelius, Fassé Samaké, Gloria Essilfie, Amadou Hamadoun Babana, Mamoutou Bengaly, Abou Koné, Habibatou Cissé, Mavis Agyeiwaa Acheampong	West African Journal of Applied Ecology	12/31/20
9. Kaboro Samasse	A High-Resolution Cropland Map for the West African Sahel Based on High-Density Training Data, Google Earth Engine, and Locally Optimized Machine Learning	"Kaboro Samasse Niall P. Hanan Julius Y. Anchang and Yacouba Diallo"	Remote Sensing	05/01/20
10. Kaboro Samasse	Assessing Cropland Area in West Africa for Agricultural Yield Analysis	"Kaboro Samasse Niall P. Hanan Gray Tappan and Yacouba Diallo"	Remote Sensing	11/10/18
11. Abdoulaye, Moussa	Micropropagation de deux variétés de papayer (<i>Carica papaya</i> L.) à l'IPR/IFRA de Katibougou, Mali	Abdoulaye Sidibé, Maman Sani Ladan Harouna, Bakary Mamourou Traoré, Moussa Abdoulaye, and Ousmane Niangaly	International Journal of Biological and Chemical Sciences	10/01/17
12. Coulibaly , Ayouba	Effects of Zai Pits and Half-Moon Technologies on Smallholder Farmers' Income in Kita Cercle, Mali	Ayoubou Coulibaly	The International Journal of	10/29/18

			Humanities & Social Studies	
13. Dembele, Bandiougu	Factors influencing crop diversification strategies among smallholder farmers in cotton production zone in Mali	Dembele, B., Bett, H., Kariuki, I., Bars, M., Ouku, K.	Advances in Agricultural Science	05/16/18
14. Dembele, Bandiougu	UNDERSTANDING THE MULTIPLE SOURCES DRIVERS OF AGRICULTURAL INCOME AMONGST SMALLHOLDER FARMERS IN SOUTHERN MALI	Dembele, B., Bett, H., Kariuki, I., Bars, M.	Review of Agricultural and Applied Economics	11/01/18
15. Dembele, Bandiougu	Dynamics and adaptation of agricultural farming systems in the boost of cotton cropping in southern Mali	Dembele, B., Bett, H., Mutai, M., Bars, M.	Academic Journals	03/15/17
16. Diarra, Fatimata	"An Be Jigi": Collective cooking, whole grains, and technology transfer in Mali	Wenda K. Bauchspies, Fatimata Diarra, Fred Rattunde, Eva Weltzien	FACETS	11/30/17
17. Guindo, Modibo	Determinants of Market Participation Among Pearl Millet Farmers in Dioila Cercle, Mali	"Modibo Guindo, Bett K. Hillary, Amadou Guindo, Assoumane Maiga, Lassina Diakite"	Journal of Economics and Sustainable Development	
18. Kane Abdoulah Mamary	An Assessment of Early Warning Systems to Drought Resilience among Agricultural Communities in Tanzania, Kenya and Mali	Paschal Arsein Mugabe, Fiona Mwaniki, Kane Abdoulah Mamary, H.M.Ngibuini	Elsevier, ScienceDirect	02/01/19
19. Kane, Abdoulah	Economic Viability of Alternative Small- Scale Irrigation Systems Used in Vegetables Production in Koulikoro and Mopti Regions, Mali	A. M. Kane, J. K. Lagat, T. Fane, J. K. Langat, and B. Teme	Springer International Publishing AG, part of Springer Nature	07/26/18
20. Kane, Abdoulah	Economic efficiency of water use in the small scale irrigation systems used in vegetables production in Koulikoro and Mopti regions, Mali	Abdoulah Mamary Kane, Job Kibiwot Lagat, Jackson Kipnetich, Bino Teme, Samuel Ngunjiri Wamuyu	Advances in Agricultural Science	09/11/18
21. Kante, Macire	Farmers' perceptions of ICTs and its effects on access and use of agricultural input information in developing countries: Case of Sikasso, Mali	Kante, M., Oboko, R., Chepken, C., Hamunyela, S.	IST Africa	11/08/17
22. Kante, Macire	An ICT model for increased adoption of farm input information in developing countries: A case in Sikasso, Mali	Kante, M., Oboko, R., Chepken, C.	Information Processing in Agriculture	09/01/18
23. Kante, Macire	Influence of perception and quality of ICT-based agricultural input information on use of ICTs by farmers	Kante, M., Oboko, R., Chepken, C.	The Electronic Journal of Information Systems in	11/01/17

	in developing countries: Case of Sikasso in Mali		Developing Countries; Hong Kong	
24. Kante, Macire	Factors affecting the use of ICT s on agricultural input information by farmers in developing countries	Kante, M., Oboko, R., Chepken, C.	Journal of Information Systems and Technology Management	08/01/17
25. Kante, Macire	A knowledge management system for indigenous crops production: Case of sorghum farming in south Tharaka, Kenya	Oboko, R., Kimani, J., Kante, M., Chepken, C., Wario, R., Kiai, R.N.	AIMS Press	04/01/16
26. Kante, Macire	Effects of Farmers' Peer Influence on the Use of ICT-based Farm Input Information in Developing Countries: A Case in Sikasso, Mali	Macire Kante, Christopher Chepken, Robert Oboko	Journal of Digital Media & Interaction	
27. Kante, Macire	ICT's Model for Cereal Farmers in the Access and Use of Agricultural Input Information in Developing Countries: Questionnaire Validation Using SEM	Macire Kante, Robert Oboko, and Christopher Chepken	American Journal of Information Systems	
28. Kante, Macire	Revisitant les facteurs affectant l'utilisation des Tics sur l'information relative aux intrants agricoles par les paysans dans les pays en voie de développement	Macire Kante, Christopher Chepken, and Robert Oboko	Journal of Information Systems and Technology Management	05/01/17
29. Kante, Macire	Partial Least Square Structural Equation Modelling' Use in Information Systems: An Updated Guideline of Practices in Exploratory Settings	Macire Kante, Christopher Chepken and Robert Oboko	Kabarak Journal of Research and Innovation	03/15/18
30. Keita, Mahamadou	Impacts of Artisanal Gold Mining on Water Quality: A Case Study of Tangandougou Commune in Sikasso Region, Mali	Mahamadou Moussa Keita, George Morara Ogendi, George Owuor, Wycliff N. Nyamao	Journal of Environmental Health and Sustainable Development	10/20/18
31. Macalou, Moussa	Perennial Grain Crops in the West Soudanian Savanna of Mail: Perspectives from Agroecology and Gendered Spaces	Paul Rogé, Tidiane Diarisso, Fatoumata Diallo, Youssef Boiré, Diakaridia Goïta, Brad Peter, Moussa Macalou, Eva Weltzien, & Sieglinde Snapp	International Journal of Agricultural Sustainability	09/06/17
32. Macalou, Salouma	The Cassava genotypes N P K nutrient uptake in leave and its growth and yield parameters regression under inorganic NPK (15-15-15) application rates in southern Mali, West Africa	Salouma Macalou, Amos Musandu, and Samuel Mwonga	Advances in Agricultural Science	09/05/18

33. Nientao, Abdoulaye	Resource Optimization in Crop Livestock Integrated Production System among Small-Scale Cotton Farmers in Southern Mali	Abdoulaye Nientao, Dave Mwangi, Oscar Ingasia Ayuya, Alpha Oumar Kergna	Advances in Agricultural Science	11/06/18
34. Samasse, Kaboro	Assessing Cropland Area in West Africa for Agricultural Yield Analysis	Kaboro Samasse, Niall P. Hanan, Gray Tappan, and Yacouba Diallo	MDPI	11/10/18
35. Sissoko, Aminata	"Détermination de la teneur en résidus de cinq pesticides organochlorés dans le lait des grands bassins laitiers au Mali-Sud"	Boubacar Madio dit Aladiogo MAÏGA, Ibrahima Koné, Oumou HAÏDARA, Salimata Koné, Fousseni Diallo Alimata Berthée, Idrissa Traoré, Aminata Sissoko	International Journal of Biological and Chemical Sciences	01/08/12
36. Thiam, Sidibe	The Role of Information and Communication Sharing Pathway in Improving Peri-Urban Dairy System of Bamako, Mali	Sidibe M'baye Thiam, Joseph Wafula Matofari	American Journal of Science, Engineering and Technology	03/06/18