MEMORANDUM OF COOPERATION AND UNDERSTANDING

BETWEEN

IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY
AMES, IOWA, USA

AND

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
KUMASI, GHANA

1. This Memorandum of Cooperation and Understanding ("MOU"), effective the 15th day of December, 2017 is entered into between Iowa State University of Science and Technology ("ISU") an Institution of Higher Education located in Ames, Iowa, USA, and Kwame Nkrumah University of Science and Technology ("KNUST"), Kumasi an Institution of Higher Education located at Kumasi, Ghana, to establish a program of academic exchange, cooperation and collaboration in areas of interest and benefit to both institutions.

2. The purposes of the academic exchange, cooperation and collaboration between ISU and KNUST are as follows:

   • to promote interest in the teaching and research activities of the respective institutions; and,
   • to deepen the understanding of the economic, cultural and social issues environment of the respective institutions.

3. To achieve these goals, ISU and KNUST will, insofar as the resources of each institution allow and upon the mutual agreement of both institutions:

   • promote institutional exchanges by inviting faculty and staff of the cooperating institutions to participate in a variety of teaching and/or research activities and professional development;
   • receive undergraduate and graduate students from the cooperating institution for periods of study and/or research;
   • organize coordinated teaching activities;
   • organize symposia, conferences, short courses and other meetings on academic and research issues;
   • carry out joint research and continuing education programs; and,
   • exchange information pertaining to developments in teaching, student development and research at each institution.
4. Each institution shall designate a coordinator to oversee and facilitate the implementation of this MOU. In the event the designated coordinator changes, each cooperating institution agrees to promptly communicate that change including the name and contact information for the new coordinator. The coordinators, working with other appropriate administrators at the respective universities, shall have the following responsibilities:

- to promote academic collaboration at both faculty, graduate and undergraduate student levels for research and study;
- to act as principal contacts for individual and group activities and to plan and coordinate all activities within their institutions as well as with the cooperating institution;
- to distribute to each institution information about the faculty, facilities, research, publications, library materials and educational resources of the other institution; and
- to meet periodically to review and evaluate past activities and to work out new ideas for future academic exchange, cooperation and collaboration.

The names and contacts for the designated Coordinators are:

For KNUST:
Prof. Oppong Asase
Dean, International Programs Office
KNUST
Kumasi, Ghana
E-mail: rexfordoppong600@hotmail.com
Phone: 233 208 126 621

For ISU:
Denise Bjelland
Director, Global Programs
College of Agriculture and Life Sciences
111 Curtiss Hall, Ames, IA 50011-4054
E-mail: bjelland@iastate.edu
Phone: 1-515-294-2883

5. This MOU shall be identified as the foundational document for any additional specific program agreement contemplated between the cooperating institutions. No implementation of this MOU or commencement of any specific exchange program may be initiated without the cooperating institutions entering into a specific Educational Program Agreement relating to that program.

6. An Educational Program Agreement concerning any specific program or project shall provide details concerning the specific commitments made by each cooperating institution including, but not limited to, such topics as orientation for visitors from other institution, financial responsibilities, tuition and fees, use of facilities, student admission and enrollment, faculty assignment, curriculum and academic standards, research protocols and other services provided to assure a successful program. Any Educational Program Agreement shall not become effective until it has been reduced to writing and executed by the duly authorized representatives of the cooperating institutions.
7. The scope of the activities to be undertaken under this MOU shall be determined by the funds regularly available at both cooperating institutions for the types of academic and/or research collaboration undertaken and by any financial assistance as may be obtained by either cooperating institution from external sources to support the activity.

8. Except as may be stipulated in any specific Educational Program Agreement, each cooperating institution shall be responsible for any travel, living or operational expenses incurred by its employees or agents under this MOU.

9. Each cooperating institution agrees to be responsible for the liabilities arising out of their own conduct and the conduct of their officers, employees and agents as related to the academic exchange, cooperation and collaboration activities undertaken pursuant to this MOU.

10. Each cooperating institution agrees that their business relationship is as an independent contractor and nothing in this MOU shall be construed to create a legal partnership, joint venture, employment or agency relationship. Each cooperating institution is responsible for its own debts and liabilities created under this MOU. With respect to employee compensation for services provided pursuant to this MOU, each cooperating institution shall be responsible for withholding of taxes, workers' compensation and other employment related taxes and benefits regarding its own employees.

11. The cooperating institutions agree to comply with all applicable laws and regulations in their respective countries in performing their obligations under the MOU. This MOU shall be governed and construed under the laws of the State of Iowa and the United States of America with respect to ISU and the laws and regulations of Ghana with respect to KNUST.

12. Neither cooperating institution shall use the other institution's name, trademarks or logos or the names of any of its employees in any publicity or advertising, including endorsements, without the prior written consent of the other institution. However, the foregoing shall not prohibit either cooperating institution from disclosing general factual information about the existence of this MOU or the other institution for purposes other than publicity, advertisement or endorsement.

13. Upon approval by each institution, this MOU shall remain in effect for a period of five (5) years in the first instance, and may be renewed by the cooperating institutions, unless terminated earlier by either institution as permitted under this MOU.

14. Termination by one cooperating institution shall be effected by providing the other cooperating institution at least ninety (90) days advance written notice of its intention to terminate. If such notice is given, this MOU shall terminate: (a) at the end of such ninety (90) days; or (b) when all students enrolled in a course of study under the MOU at the time such notice is given have completed their respective courses of study under the agreement, whichever event occurs last. Termination shall be without penalty.
If this agreement is terminated, neither ISU nor KNUST shall be liable to the other for any monetary or other losses which may result.

15. Either cooperating institution has the right to terminate its obligations under this MOU for reasons of force majeure, which is defined as circumstances beyond the control of the institution that effectively prevents the institution from performing its obligations under the MOU.

16. This MOU and any Educational Program Agreements based on this MOU are created based on the common trust and good faith of the cooperating institutions. In the event of a dispute, the cooperating institutions shall make good faith efforts to communicate, understand, negotiate and obtain an amicable resolution.

SIGNED on behalf of Iowa State University of Science and Technology and Kwame Nkrumah University of Science and Technology by authorized officials from each cooperating institution in duplicate copies, each of which shall be deemed an original.

On behalf of

IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

Dr. Ann Marie VanDerZande 12/6/17
Associate Provost for Academic Affairs

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

Professor Kwasi Obiri-Danso 12-12-17
Vice-Chancellor

Andrews Kwasi Boateng 12/12/17
Registrar

Dr. Joe P. Colletti 12/5/2017
Interim Dean
College of Agriculture and Life Sciences
PLAN OF WORK

BETWEEN

IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

AND

KWAME NKRU Mah UNIVERSITY OF SCIENCE AND TECHNOLOGY

Project 1: Demonstrating Improved Solar Biomass Hybrid Dryers to Reduce Post-Harvest Loss, Strengthen the Legume and Maize Value Chains, and Encourage Private Sector Involvement in Ghana

Agricultural engineers from Iowa State University of Science and Technology ("ISU") and Kwame Nkrumah University of Science and Technology ("KNUST") are currently collaborating on improved dryer designs to allow for the timely drying early in the value chain, in order to reduce post-harvest losses and preserve crop quality to strengthen the legume and maize value chains and private sector involvement in Ghana.

Development and testing has been underway for the past two years to investigate three solar dryer designs (e.g., cabinet dryer, greenhouse dryer, solar bubble dryer) to meet the needs of nucleus farmers, Farmer Based Organizations/Enterprises, and private crop aggregators (e.g., processors and buyer firms) in Ghana. An engineering analysis has been completed utilizing computer modeling to describe the performance of each solar dryer design and to determine what improvements optimize efficiency, effectiveness, costs and payback. One improvement that has already been implemented for the greenhouse dryer is to add a biomass burner to increase the drying air temperature whenever the solar heating effect is lost, such as during cloudy periods or at nighttime. The improved design of the solar biomass hybrid dryer (SBHD) and an additional dryer design that can be built from local materials (e.g., combination AflaStop/STR dryer) are being tested by measuring process temperatures, drying capacity, mold and insect activity, grain quality, and drying costs. The data will be utilized to refine and validate the computer models for each design, which will be subsequently used optimization simulations.

Project 2: USDA FAS Food for Progress Ghana Poultry Layer and Feed Value Chain Project

Agricultural engineers from ISU and KNUST as part of a larger team of U.S. and Ghana university collaborators are collaborating on improving the design of drying, handling and storage systems as well as feed manufacturing processes. The primary objectives of the project are to (1) increase agricultural productivity in the Ghana poultry value chain by increasing the quantity and lowering the cost of poultry feed through the reduction of post-harvest loss and procurement inefficiencies of primary feed ingredients; (2) increase agricultural productivity in the Ghana poultry sector by improving poultry feed quality through the improvement of feed testing capacity and the demonstration of the benefits of quality feed; and (3) increase trade of eggs through
awareness campaigns and the trade of commercialized poultry feed through improved
distribution networks and marketing in Ghana.

**Project 3: Plant Breeding E-Learning in Africa**

Plant Breeding E-Learning in Africa (PBEA) is contributing to capacity building in plant
breeding in Africa by delivering a suite of high-quality, open-source, post-graduate-level
course materials, which comprise a comprehensive Master's e-curriculum in plant
breeding and genetics. ISU faculty members from Agronomy, Agricultural Eduations
Studies, Agriculture & Biosystems Engineering, and Horticulture are contributing
knowledge and expertise to the PBEA project. KNUST is a key partner on the PBEA
project, working together with the PBEA team to deliver e-learning resources that hone
essential capabilities with real-world challenges of cultivar development in Africa using
Applied Learning Activities.