

FERARI FOCUS

FERARI STAFF ANGELA ANOKYE TRAINED IN LAB ANALYSIS



FERARI is committed to improving nutrition and food security in Ghana. To contribute to this goal, one of our staff members, Angela Anokye, is undergoing laboratory training in grain sample preparation, extraction and analysis of amino acids, nutrient elements, and phytic acid at the ICAR-Indian Agricultural Research Institute in New Delhi. She is being supervised by Dr. Renu Pandey, a principal scientist of ICAR-IARI. Concurrently Angela is performing lab analyses of grain samples from FERARI field trials. The goal of this analysis is to evaluate the impact of fertilization on the nutritional quality of grains for human health.



Angela has expressed enthusiasm for this research experience, recognizing the potential for enhancing her scientific skills and contributing meaningfully to sustainable agriculture. We are confident that the knowledge and expertise gained through this training will be of great value in our concerted efforts to promote food security and improve nutrition in Ghana. ■

FERARI FEATURE

FERARI PARTICIPATES IN IFDC@50 OPEN DOOR EVENT IN GHANA



▲ Prof. Irene Egyir of the University of Ghana addressed the participants at the Open Door event.

IFDC begins to mark its 50th Anniversary with Open Door events starting from Ghana. The Open-Door events bring together both public and private stakeholders and partners and offer the opportunity to display IFDC's expertise, history, and goals for agriculture in West Africa.

FERARI's enthusiastic team members contributed to the success of the open-door event. Among others, Edward Addo, the program's Data Entry assistant, efficiently supported media registration, ensuring smooth operations at the outset of the event. FERARI's agronomy and crop science analyst, Hulda Sakyi, co-presented the event with her charismatic interactive communication skills, engaging the audience throughout the program. The program coordinator, Williams Atakora delivered a concise introduction to the FERARI program and its goals, captivating the audience's attention. The program's economist, William Adzawla was also a panelist in the discussion on the role of public-private partnership in soil health. He offered valuable insights into the topics discussed, especially highlighting the need to take soil restoration efforts aggressively given the high threats to



▲ Panelists (left to right) Edith Wheatland, Aisha Mohammed, William Adzawla, Dr. Sansan Youl, Dr. Kofi Debrah, and Kido Kouassi discussed issues facing Ghana’s agricultural sector.

land degradation in the country. Other FERARI staff showcased the project’s innovations and achievements at the exhibition booth to the event participants. FERARI’s dynamic participation underscored its commitment to excellence and innovation in the industry.

Also at the event were representatives of FERARI’s lead partners, Dr. Kwadwo Gyasi Santo from the University of Energy and Natural Resources and the University of Ghana’s Professor Irene Egyir. They delivered messages of solidarity by specially highlighting the role of improving fertilizer experimental research design and the significance of FERARI’s internship opportunities on their students’ research output and capacity development. ■



▲ FERARI staff in a happy mood at the FERARI booth.



▲ Alfred Ocansey and Hulda Sakyi co-emcees’d the event.



▲ Williams providing overview and updates on FERARI.

FERARI USES LINTUL2 CROP MODELING METHODOLOGY TO PREDICT MAIZE YIELD POTENTIAL UNDER WATER LIMITATION

FERARI's work continues to improve our understanding of the interactions between crops, the environment, and management. These interactions are generally too complex to be explained even by many field trials, but crop models can give insight into how crops respond to climate variability, particularly rainfall, knowledge essential for maintaining food security and improving yields.

However, simulating realistic crop conditions for crop models requires accurate and reliable weather and soil data - and lots of that data, which means making good predictions is particularly challenging under data scarcity. In addition, differences in data sources can introduce significant uncertainty in crop simulation results.

Remote sensing data collection can help remedy the data scarcity problem, and FERARI has employed drone technology to assist in this area. FERARI also uses the LINTUL2 model to simulate the water-limited potential yield of maize in Ghana and to evaluate how well weather datasets from the same or different sources performed. The LINTUL2 model is a summary model and is based on the idea that, under favorable conditions, crop growth rate is the product of the amount of intercepted radiation and light use efficiency. The model simulates the potential yield of a crop under optimal conditions with only water as a limiting factor. The model consists mainly of the crop module (LINTUL1) and the soil water balance module. The soil water balance module is based on the "tipping bucket approach", which allows estimation of the daily change in soil water content within the



▲ Benjamin working on LINTUL2.

plant root zone from rainfall, soil evaporation, plant transpiration and deep percolation. In the model, the crop experiences water stress when the available soil water is either above the field capacity or between a certain critical point and the wilting point.

FERARI's work showed the model performed satisfactorily in simulating maize yield under the different data sets. The results help explain that single-source (satellite-based) weather datasets have less variability in simulated yields than when combined with observed measurements (multi-source). FERARI also established that physical consistency between meteorological input variables should be considered when simulating crop yields under rainfed conditions. ■

FERARI STAFF DEVELOP TRAINING MANUALS TO TRAIN 6 COUNTRIES IN FERARI METHODOLOGIES TO PERFORM VALID FERTILIZER RECOMMENDATION TRIALS

The entire FERARI technical team, including agronomists, crop modeling experts, drone and mapping specialists, crop-soil simulation modeling and mapping experts, and data analysts, convened with a professional trainer at the FERARI project office. Together, they meticulously crafted a comprehensive training manual designed to serve as a blueprint for other researchers seeking to replicate their successful methodologies in Ghana.

The manual is expected to be used in Mali, Niger, Senegal, Gambia, Guinea, and Sierra Leone to train researchers and industry actors in the steps FERARI has proven to be effective in documenting and evaluating fertilizer use trials, and developing valid fertilizer recommendations based on the trial results.

This collaborative effort not only showcased the team's collective expertise but also underscored FERARI's commitment to knowledge sharing and

capacity building across borders, furthering its mission to revolutionize agricultural practices on a global scale. ■



▲ FERARI staff develop training manuals to train 6 countries.

FERARI STAKEHOLDERS WORKSHOP BUILDS THE FOUNDATION FOR A SECOND PHASE, BASED ON PROGRAM ACHIEVEMENTS AND SUCCESSES

FERARI organized a two-day workshop in January in Morocco to update stakeholders on the achievements of the program in the past four years and to identify and co-design areas of intervention for a second phase of the program. The workshop includes representatives from Ghana's Ministry of Food and Agriculture, UM6P, OCP Africa, OCP NutriCrop, OCP Ghana, professors/researchers of Ghanaian and Wageningen universities, IFDC and FERARI staff and students.

On the first day, FERARI staff gave a detailed presentation on the key achievements of the program including highlights on the rigorous methodologies used by FERARI to develop solid fertilizer recommendations, the program's capacity building efforts for the next generation of fertilizer and soil health scientists, and the establishment of the Fertilizer Platform Ghana and a modeling and mapping unit.

The representative of OCP NutriCrop, Mr. Hamza Addam, mentioned that there is a need to strengthen a pull-push relation between FERARI and NutriCrop to maximize mutual gains. He further stressed the strategic change of their organization to straight fertilizers which requires that appropriate education must be given to the farmers, a challenge for FERARI to pursue.

Throughout the workshop, there was a general appreciation by the participants for the crosscutting achievements of FERARI, and significant good-will



▲ Kouame Anselme takes a group photo of the stakeholders workshop participants.

and support for a second phase of the activities of the program. This led to discussion on which areas require further attention in a second phase. Importantly, while other new areas were identified, a second phase is seen as a golden opportunity to further consolidate the achievements made in the first phase.

Currently, FERARI staff are developing the proposal for a second phase based on the discussion outcomes of the workshop. ■

FERARI
FERTILIZER RESEARCH & RESPONSIBLE IMPLEMENTATION

IFDC
Developing Agriculture from the Ground Up

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