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Nigeria Agriculture Policy Activity

September 2021

NAPA Highlights #9

Hands-on Field Work and A Brown Bag as Drivers for Agricultural Policy Dialogue: Participants Call for Soil Testing and Productivity Index Rating in Kebbi State

A hands-on training was carried out on August 30, 2021, at two locations in Jega Local Government Area of Kebbi State. The training was followed by a brown bag seminar at the Kebbi State University of Science and Technology Aliero (KSUSTA). Two locations, lowland and upland areas, were purposefully chosen within the University Teaching and Research Farm for the training event. The overarching aim of the training was to introduce the trainees to updated soil sampling procedures.

The participants were exposed and supported to identify sampling equipment needed for the determination of specific soil properties. Pits were dug to a depth of 90 cm and samples were collected at various depths for the soil productivity index (SPI) rating. The trainees comprised of 5 Researchers from KSUSTA and 5 Policy Personnel from the Kebbi State Ministry of Agriculture and Natural Resources.

Outputs and Outcomes of the training event and seminar

Participants got a deeper knowledge of the soil productivity index and how to properly use an auger to collect soil samples at different depths of 0 – 30cm, 30 – 60cm and 60 – 90cm. This was demonstrated on the field with participants taking turns to sample soils. Soil chemical properties measured in the laboratory include percentage Carbon and Cation Exchange Capacity (CEC). While the sensor soil tester took readings *in situ* (in its original place/location) of pH (measure of how acidic/basic soil and water samples were), electrical conductivity, Moisture content, Nitrogen, Phosphorus and Potassium. The core sampler was used to take undisturbed samples for bulk density determination

which is a physical property of soils. These bulk density values indicate how compact a soil is (based on FAO {Food and Agricultural Organization} standards) and its



DR. AGADA WITH PARTICIPANTS AT THE DRYLAND AREA OF THE RESEARCH FARM IN JEGA LGA

impacts on root elongation, water and air transmission in soils. A further probe (along with some calculations) gets derived soil properties such as total porosity and available water, both of which are critical for plant growth and development. The participants saw the usefulness of the sensor machine (which they had never seen before) in taking real time readings for soil properties such as the presence of phosphorus and potassium, pH, soil temperature and electrical conductivity. Participants downloaded mobile

applications- the *Landpks* app (used to assess soil potential on- the- spot) and the *Soil explorer* app (used to instantaneously access soil type at order level) and were taught how to use them.

Following the field sessions, the Kebbi State Agricultural Policy Brown Bag was convened. The Brown Bag Series is an initiative modeled after Michigan State University's Department of Agricultural Food and Resource Economics Brown Bags. In Kebbi State, the Brown Bag Series was introduced by Michigan State University under the USAID Funded Feed the Future Nigeria Agricultural Policy Project which is being sustained under the Feed the Future Nigeria Agricultural Policy Activity. The Brown Bags brings together diverse set of stakeholders (including academia, government and organized private sector) to dialogue on agricultural policy related issues, particularly relating to Kebbi State.



DR. AGADA A NAPP ALUMNI PRESENTING AT THE BROWN BAG SERIES IN KSUST

Dr. Blessing Agada presented a paper titled *Soil testing: Safeguarding food security, health, nutrition, and the environment*. Her presentation centered on the importance of soil testing, as well as defining the soil productivity index for the soils of the area. The presentation highlighted that with Kebbi State's agro-ecological zone (AEZ), soil tests for salts, boron, carbonates, and bicarbonates as well as water for irrigation is imperative so that soil and added soil amendments do not jeopardize crop growth. This will help to ensure proper fertility management, higher

yields, better nutrition as well as sustainability of the soils and the environment.

Policy implementers (among the participants, attested that despite billions of Naira of fertilizer purchased yearly, yields were still below global averages. The take home was to ensure farmers' fields should be immediately tested. With the second cropping season near, the results of soil tests would be that Kebbi could avoid blanket application of fertilizer. In the open forum session, participants made comments and suggestions and asked the facilitator questions relating to the presentation. One participant remarked that the presenter was able to capture the real-life problems of farmers having low yields despite adding fertilizer to their crops. He commented further that he and other smallholder farmers have never taken into cognizance the impacts of rainfall on soil particles and soil amendments including inorganic or organic fertilizer. He was pleased that he now understood the need for soil testing with respect to fertilizer types and crops. Another participant pointed out that there were other technologies other than inorganic fertilizers to improve the soil productivity. In this connection, organic amendment and cover crops were identified examples. The facilitator responded that by virtue of AEZ there was scarce vegetation and competing needs for some of the organic amendment so a plan to return residue back to the soil was needed and could be implemented through systems such as integrated farming (IF), integrated soil fertility management (ISFM) as well as a tradition of identifying and segregating farmers when proffering solutions.

Asked if soil quality could be determined by mere physical examination. Dr. Agada responded that preliminary, soil color, vegetation, earthworm cast and texture feel, play a vital role in that regard until further analysis is carried out in the laboratory. The Permanent Secretary Kebbi State Ministry of Agriculture & Natural Resources, Mr. Joel Aiki (representing the Commissioner for Agriculture & Natural Resources) commended the presenter for giving a true x ray of the state's soils and asked whether there are current products in the market in the name of liquid fertilizer that can heal the soil as usually claimed by prospective

sellers. Dr. Agada recommended the conduct of trials to determine and monitor dosage, crops, types, yield goals/ productivity and soil health. The permanent secretary remarked that of particular interest is the model where 400 Level industrial training students of Faculty of Agriculture KSUTA and Staff of the Ministry of Agriculture are paired as extension agents to give proper needed information/ guidance to the farmers. Oh! The synergy that will hold! he exclaimed in joy. His ministry was committed and keen to partner with the university, he concluded.

At the end of the seminar, it was resolved that the mechanism for the replication of the soil test and

productivity index across all the LGAs of Kebbi State be put on the front burner of the state's priorities. A meeting with the Vice Chancellor (VC) KSUST took place immediately after the presentation at the seminar. Policy documents were handed over to the VC by the Lead MSU/NAERLs team Professor Oyinkan Tasie of the Department of Agricultural Food and Resource Economics, Michigan State University.

By Blessing Iveren Agada PhD. FIMC, CMC. and Mr. Emmanuel Adejoh



THE VICE CHANCELLOR PROF B.L ALEIRO AND PRINCIPAL OFFICERS OF KSUSTA WITH THE MSU/NAERLS TEAM



MSU/ NAERLS TEAM WITH PARTICIPANTS AFTER THE BROWN BAG PRESENTATION

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