

TRAINING REPORT

Training for Fertilizer Quality Inspectors on Fertilizer Quality Assessments in Markets of Burkina Faso, Ghana, and Nigeria



June 13-14, 2022: Tomreik Hotel – Accra, Ghana

June 16-17, 2022: Hôtel Prestige – Ouagadougou, Burkina Faso

June 20-21, 2022: Bolton White Hotel – Abuja, Nigeria

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1 Background

In collaboration with the Ministries of Agriculture, the International Fertilizer Development Center (IFDC) conducted fertilizer quality assessments (FQAs) between 2010 and 2015 in nine West African countries, including Burkina Faso, Ghana, and Nigeria. These studies have identified and quantified quality problems associated with chemical and physical properties of fertilizers as well as fraud issues, particularly bag weight shortages.

The FQAs in Nigeria and Ghana (2010) and in Burkina Faso (2014) evidenced serious quality problems in terms of highly frequent and severe nutrient shortages in locally manufactured blends and imported compound NPKs, as well as frequent and severe bag weight shortages. The nutrient shortages in the blends manufactured in West Africa are attributed mainly to manufacturing with inappropriate blending technology and some cases of fraud. Nutrient shortage in imported fertilizers is explained by insufficient control in ports that allow products of deficient quality to reach the fertilize markets. Large bag weight shortages are explained only by the deliberate intention of defrauding the customer.

The FQAs provided references to develop and implement the ECOWAS Fertilizer Quality Regulation C/REG.13/12/12 for controlling the quality of fertilizer products traded in the region. Now, about ten years following the initial study, the Feed the Future Enhancing Growth through Regional Agricultural Input Systems (EnGRAIS) project for West Africa, in collaboration with the Africa Fertilizer Financing Mechanism/African Development Bank, is updating these FQAs in three countries to observe any changes that might have occurred in the quality of fertilizer. Eventually, the assessment will be extended to evaluate the agronomic and economic impacts of using poor quality fertilizers in these countries.

The assessments are designed to be conducted in partnership with local regulatory bodies to whom EnGRAIS would provide grants to collect data and samples in the field. For this purpose, EnGRAIS organized the training sessions reported here for the inspectors who will participate in the data and sample collection.

2 Training Objectives

The training of inspectors is part of the FQA studies planned in the selected countries, with the objective to build the capacity of inspectors whose mission is to monitor the quality of fertilizers in their respective countries. More specifically, it is to strengthen the knowledge of inspectors on:

- Inspection procedures and methods of taking fertilizer samples from randomly selected agrodealers;
- Tools and instruments for fertilizer inspection and quality assessment; and
- KoboCollect application to be used for collection and posting of survey data on fertilizer quality during inspections.

The knowledge gained from the training will be directly applied to field work and other post-training activities, including wrap-up meeting of the fertilizer inspection teams and transfer of the

collected fertilizer samples to the laboratory for analysis. In addition, the framework of this training will allow participants to hold a consultation meeting to organize field activities following the training.

3 Participants

The training brought together fifty-eight (58) inspectors and supervisors (see Annex i for lists of participants) selected from the respective bodies in charge of fertilizer quality control in the selected countries, namely:

- The General Directorate of Crop Production (DGPV) in Burkina Faso
- The Plant Protection and Regulatory Services Directorate (PPRSD) in Ghana
- The Farm Inputs Support Services (FISS) Department in Nigeria

4 Resource Persons

The training was delivered by the IFDC and EnGRAIS project’s technical team, composed of a Fertilizer Quality (FQ) Specialist and Statistician, a FQ Regulation Specialist and two sub-Regional Coordinators, with expertise in agrobusiness and plant nutrition. Below in Table 1 is a brief description of the trainers along with the sessions conducted by them (See Annex ii for detailed agenda).

Table 1: Description of the trainers

#	Name	Designation	Session/Topic
1	Joaquin Sanabria	FQ Specialist and Statistician	Concept of fertilizer (theory and practice)
2	Emmanuel K.M. Alognikou	FQ Regulation Specialist	Fertilizer regulatory systems (theory and practice)
3	Kido J. J. Kouassi Olive M’Bahia	Sub-Regional Coordinators	Collection of data on fertilizer quality with KoboCollect (theory and practice)

5 Venues and Dates

Trainings for the fertilizer quality inspectors from the Ghana, Burkina Faso, and Nigeria Ministries of Agriculture and fertilizer regulatory bodies were conducted on June 13 – 21, 2022 in Accra, Ghana; Ouagadougou, Burkina Faso; and Abuja, Nigeria. Table 2 shows specific dates and venues in the three countries.

Table 2: Key facts about the training sessions

Country	Venue	Dates	Partner/ Beneficiary	Participants
Ghana	Tomreik Hotel, Accra	13-14 June 2022	PPRSD	16
Burkina Faso	Prestige Hotel, Ouagadougou	16-17 June 2022	DGPV	18
Nigeria	Bolton White Hotel, Abuja	20-21 June 2022	FISS	24

The training in Ghana was attended by the Head of Fertilizer Service, Mrs. Gifty Boakye, and the Deputy Director, Mr. Eric Dzimado. Most of the inspectors came from the regions. In Burkina Faso, the recently appointed Head of Fertilizer Service, Mr. Boureima Niampa, was among the participants and the Director of the DGPV, Mr. Pascal Zongo, participated in the opening ceremony. In Nigeria, eight inspectors came from the States where the sampling and data collection will occur, and the remaining participants were from the headquarters. The Deputy Director, Mr. Buba Ishaku, represented FISS at the training.

6 Proceedings

Training content for the three countries was essentially the same. However, the development of the dealers' random sample for the conduct of the fertilizer quality survey in the fertilizer markets of each country had important differences, depending on characteristics of the dealers' inventories provided by the three countries.

6.1 Concepts of Fertilizer Quality

The training started covering basic concepts related to the quality of fertilizers such as the two types of FQAs that can be conducted, one for the implementation of existing regulatory systems to check dealers' and products' compliance with the regulations, and the other for the development of a baseline to be used as reference for the creation of new regulatory systems, or for the performance evaluation of existing regulatory systems. The three trainings conducted at this time were of the second type, for the performance assessment of regulatory systems in Ghana and Burkina Faso, and for data collection to be used for continuing the development of the regulatory system in Nigeria.

Following with the training schedule, the chemical and physical properties, as well as the storage, packing, and handling of fertilizers were explained as factors with direct effect on fertilizer quality. Characteristics of markets and dealers, interventions of government and the private sector, and implementation of regulatory systems were explained as factors that have indirect effect on fertilizer quality.

The next training component was associated with the procedures and the sequence of activities to be followed by inspectors during their time inside fertilizer shops or warehouses. The trainees were composed of inspectors that had been trained before and inspectors that were attending a FQA training for the first time. This trainee's diversity demanded to cover even basic procedures during the theoretical presentations and the practical exercises. Specific instructions were delivered for the three types of information collected during an inspection: data, fertilizer samples, and photographs. The electronic survey questionnaire was explained in detail, for the inspectors to get



Figure 1: Demonstration of usage of the sieve box for evaluating physical properties of fertilizer products

a good understanding of every piece of data captured during the inspection. Possible answers, response formats, and units to be used were explained as well.

The procedure for the obtention of composite fertilizer samples, and the sampling strategy to give priority to the most market important products were explained first theoretically and then practically doing exercises with fertilizer bags and the survey equipment in the training room.

Inspectors were instructed in the practices they need to follow to preserve the integrity of fertilizer samples. The explanation of concepts and procedures related to physical properties data capture also had theoretical and practical coverage. Many fertilizer quality situations inside a shop or warehouse need illustrations with photographs, that is the case of storage, packing, bag labeling conditions and many other situations specially associated with fertilizer quality abnormalities. Trainees received instructions about how to take pictures of good quality using smart phones.

6.2 The Regulatory Systems

A specific training section was dedicated to the regulatory system, which focused on topics that are directly linked to the type of FQAs to be conducted in the selected countries. This section started with a brief point of order regarding the primary and secondary benefits of a Fertilizer Legal and Regulatory System: 1) consumer protection, protection for honest fertilizer enterprises, access to useful data, enhancement of agricultural development, and financial protection for the government; 2) key components of laws and regulations; as well as 3) the six administrative areas.

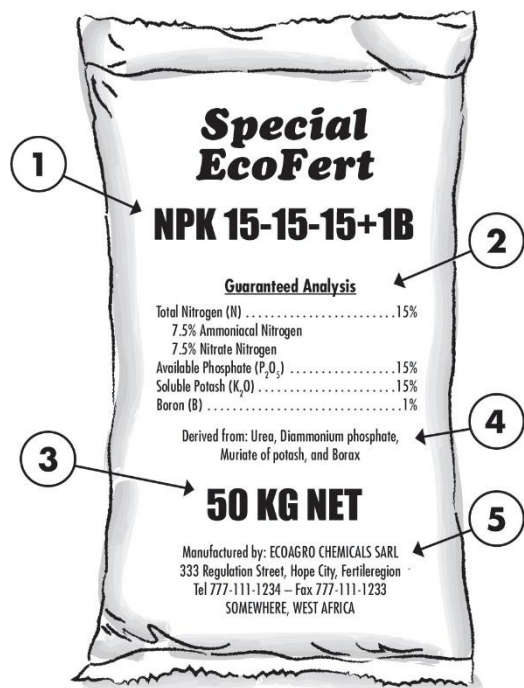


Figure 3: The Big 5

The second topic on the regulatory system specifically covered in detail the fertilizer labeling requirements consisting of **The Big 5** (Figure 2), as adopted by the ECOWAS: 1) grade, 2) guaranteed analysis, 3) net weight, 4) nutrient sources, and 5) name and address of the manufacturer, importer, or re-packing agent. The presentation and discussions were based on illustrations of the adopted relevant regulations as well as several pictures of sample fertilizer bag labels from various countries in West Africa, in the US and in Myanmar. These also included pictures taken in situ from the bags of fertilizer provided by the national regulatory bodies for the practical training sessions. The trainer exposed participants to how to inspect fertilizer containers/bags to determine whether the labeling complies with existing ECOWAS regulations and how to record findings in the KoboCollect platform. He also demonstrated that labelling was an element to assess

when controlling the quality of the fertilizer, because inadequate labelling would not allow the user of the fertilizer to make the best use of it. It could also make inspection and analysis difficult. A good example of that was observed in Ghana where a sample of one of the blended products showed an important amount of dust (about 3%). However, because of the lack of information about the source of nutrients in the bag, it was difficult to precisely infer the origin of the dust, which could come from granule degradation, filler material, or micronutrient. This helped emphasize the importance of proper labelling. At the end of the day, all the participants agreed that three requirements out of The Big 5 are generally missing on the fertilizer label either partially or completely: the breakdown of the various forms of Nitrogen (N) that form the total N, nutrient sources, and the full address of the manufacturer, importer, and re-packing agent.



Figure 2: Sample fertilizer label

6.3 Data Collection with KoboCollect

Another section was dedicated to the digital data capture system, KoboCollect. For this assessment, EnGRAIS opted to use a digital system for data collection because such system makes the process faster and easier to monitor. The selected system for this assessment is KoboCollect, which was new to trainees in Ghana and Burkina Faso as well as inspectors from Nigeria receiving this FQA training for the first time. KoboCollect is a data collection tool developed by Harvard University for humanitarian purposes. The training on this topic covered mainly how to install and configure the tool. A set up session was followed by a practical exercise where participants practiced using the form on KoboCollect. In Nigeria, the project has previously delivered a training on KoboCollect, so the set-up part was only a refresher.

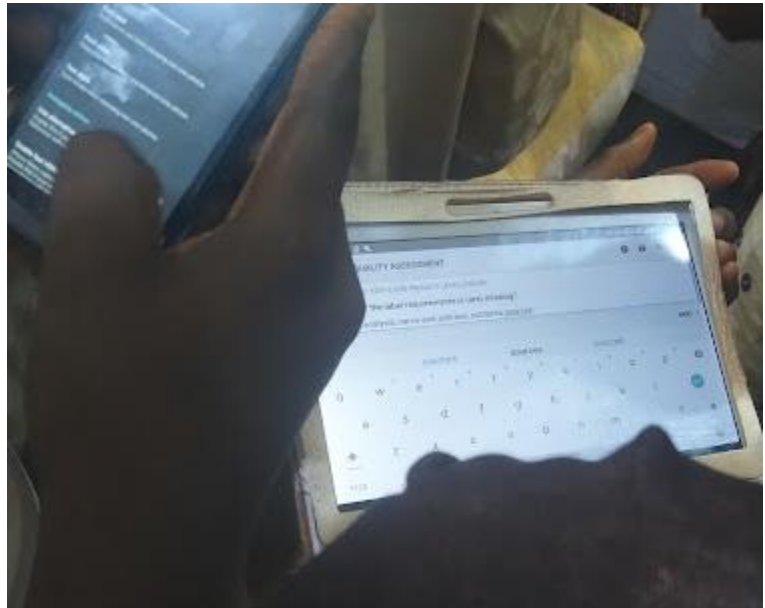


Figure 4: Inspectors practice data collection with KoboCollect using tablet or smart phone

Upon using the form, the inspectors made several comments. These comments were later used to update the structure of the form.

In the three countries, we recommended to the Inspectors to use their smart phones for the KoboCollect for ease of manipulation, but the idea was met with some resistance in Ghana.

6.4 Field Work

In the afternoon of the second training day, there was a section for an internal consultation meeting in each country, which allowed FQA teams and supervisors to discuss the way forward including management of the associated grants and plans for the field work that must follow the trainings. EnGRAIS experts took that opportunity to explain and finalize the dealers' random sample to be used by the teams from each country. Table 3 presents the procedure for sampling of agro-dealers in each country.

Table 3: Sampling of dealers for the fertilizer quality assessments in Burkina Faso, Ghana and Nigeria

Country	Characteristics of dealer samples
Burkina Faso	The fertilizer list available of registered dealers in Burkina Faso contained 152 members classified by region, town, and category (importer, wholesaler, retailer). It is believed that these 152 fertilizer dealers are just a fraction of dealers found in the market. For this reason, the five inspection teams were asked to randomly select a number of wholesalers and retailers in the markets where they are operating. The number of wholesalers and retailers to add to the random sample was given to the inspection teams depending on the region where they will conduct the FQA. At the end of the exercise, the Burkina Faso dealer sample will contain 198 fertilizer dealers.
Ghana	The PPRSD of the Ministry of Food and Agriculture presented a list of 6,182 fertilizer dealers registered and classified by region, district/municipality, and dealer category (distributor, retailer) to be used as “conceptual population” of dealers in the country to be the basis of the dealers’ random sample for the FQA conducted by five inspection teams. Fifty dealers selected at random made up the dealers’ sample for each team. An additional randomly selected list of dealers was provided to each team to make substitution of sample members in cases where the dealer is not found or has no fertilizer available for sale.
Nigeria	The FISS Department of the Ministry of Agriculture and Rural Development provided a list of 1,761 fertilizer dealers that have joined the Ministry platform with the intention of starting the process of their registration. They are classified by State but are not classified by category, but it is likely that this set of dealers represents the same dealer category distribution as in the markets. The States of Kaduna, Kano, Bauchi, Taraba, Benue, Oyo, Kogi, Osun and the Abuja FCT were selected for conduct of the FQA. There will be an inspection team per State; the allocation of inspection days and size of the dealers’ sample per team vary from one State to another. Few States do not have enough number of dealers in the original list to complete the sample size. In these cases, inspectors were asked to randomly select dealers in the markets to complete the dealers’ sample size.

During the discussion session, the inspection teams in Ghana mentioned that the funds would be available to them for use about ten working days after they were transferred by IFDC. They also mentioned that the month of July was the best period for the activity. Thus, they urged IFDC to complete the grant procedure as early as possible.

The teams in Burkina Faso and Nigeria advised on the locations that were safe considering the increased insecurity in the countries.

7 Conclusion

From June 13 to June 21 a team from IFDC trained 58 inspectors under the EnGRAIS project. At the end of the training sessions, the trainees were equipped with the materials and tools as well as specific instructions, modalities and step-by-step procedures for electronic collection and upload of data into KoboCollect, checks of fertilizer container weight, sampling of fertilizer products, and evaluation of their physical properties in the field. With the knowledge acquired, the trained

inspectors were then ready to go to the field to carry on the fieldwork for the FQA in Burkina Faso, Ghana, and Nigeria.

In addition, it is expected that participants would transfer the knowledge acquired to other appointed fertilizer inspectors in their respective countries and incorporate it into their routine fertilizer inspections and quality control activities.



8 Annexes

Annex i: Lists of Participants

 Workshop Title: FQA - Ghana Date: June 13-14, 2022 Venue: Tomreik Hotel, Accra											
 											
N0	Country	Name	Gender	Age Category 15-29	Age Category 30-above	Job Title	Institutions	Sector	Telephone	Email	Signature
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25	Ghana	Cherubin Parku	M		X	DRIVER	MOFA				

N0	Country	Name	Gender	Age Category	Age Category 30-above	Job Title	Institutions	Sector	Telephone	Email	Signature
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18	Togo	Emmanuel Alognikou	M		X	Policy Expert IRTL3	IFDC	PIO	+22898185498	egalognikou@ifdc.org	
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4	Kano	Dahiru Abbas Jahun	M		x	State Inspectors	FMARD	Public			
5	Kogi	Janiu Isah Omuya	M		x	State Inspectors	FMARD	Public	08030623643	jamiuisah088@gmail.com	
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7	Oyo	Abdullateef Biliqis Folake	F		x	State Inspectors	FMARD	Public	08052259054	biliqisabdullateef@gmail.com	
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Annex ii: Training Agenda

AGENDA		
TRAINING FOR FERTILIZER INSPECTORS ON FERTILIZER QUALITY ASSESSMENTS		
Time	Topic/Activity	Facilitator
Day 1		
8:00 - 8:30	Registration	IFDC
8:30 - 8:45	Opening Ceremony	PPRSD/DGPV/FISS
8:45-9:00	Objectives and Agenda	IFDC
9:00 - 11:00	Concepts of Fertilizer	Joaquin
11:00 - 11:30	Tea/Coffee Break	IFDC
11:30 - 12:30	Concepts of Fertilizer (Cont'd)	Joaquin
12:30 - 13:30	Fertilizer Regulatory Systems	Emmanuel
13:30 - 14:30	Lunch Break	IFDC
14:30 - 15:00	Introduction to Data Collection with KoboCollect	Kido
15:00 -17:00	Practical Session on Physical Properties of Fertilizer	IFDC
17:00 -17:30	Tea/Coffee Break	IFDC
End of Day 1		
Day 2		
8:30 - 9:30	Practical Exercise on Data Collection	Kido / Olive
9:30 - 11:00	Practical Exercise on Fertilizer Quality Assessment	PPRSD/DGPV/FISS
11:00 - 11:30	Tea/Coffee Break	IFDC
11:30 - 13:30	Practical Exercise on Fertilizer Quality Assessment (Cont'd)	Joaquin
13:30 - 14:30	Lunch Break	IFDC
14:30 - 16:30	Coordination of Field Work	PPRSD/DGPV/FISS
16:30 -16:40	Tea/Coffee Break	IFDC
16:40 -17:30	Coordination of Field Work (Cont'd)	PPRSD/DGPV/FISS
End of Day 2		

Annex iii: Photo Gallery



Figure 5: Trainees practice fertilizer inspection, data collection, and sampling in Ghana, Burkina Faso and Nigeria