



Policy, Innovation Systems and Impact Assessment Program

Transforming Agrifood Systems in West and Central Africa initiative
(TAFS-WCA)

Technical Report

E-registration and spatial referencing and tracking of farmers in three countries: Case study of Ghana, Nigeria and Cote d'Ivoire

© January 2023

ACKNOWLEDGEMENTS

The e-registration survey is an important component of the Transforming Agrifood Systems in West and Central Africa initiative (TAFS-WCA). This report presents the methodology of the research and results from the e-registration survey in Ghana, Nigeria and Cote d'Ivoire.

Authors would like to thank institutions that contributed financially to the survey especially the donors of the CGIAR and the Government of Belgium. We also thank Staffs of the CSIR-Crops Research Institute (Kumasi-Ghana), National Agricultural Research Center (CNRA) in Cote d'Ivoire. We are grateful to Dr. Jonas Osei-Adu, Senior Research Scientist (Agricultural Economist), CSIR-Crops Research Institute (Kumasi-Ghana); Richard Adabah, Agricultural Economist, Research Assistant at Crops Research Institute (CRI); Depieu Ernest Meougbe, Scientist in CNRA (Cote d'Ivoire); Kouassi Kouadio Edouard (Côte d'Ivoire) and Gaius Gambo, Chief Research officer (Agricultural Development Programme, Nasarawa state).

The report was written by Aminou Arouna, Impact Assessment Economist, leader of PII at AfricaRice and Regional Policy Task Force Coordinator at Africa Rice Center (AfricaRice) with technical assistance from Rachidi Aboudou, Research Assistant on Quantitative Impact Assessment and Wilfried Yergo, Research Assistant on Economic data management, Mathieu Ouedraogo (Alliance Bioversity-CIAT), and Tahirou Abdoulaye (IITA).

© Africa Rice Center (AfricaRice) 2023

AfricaRice encourages fair use of this material. Proper citation is requested. The designations used in the presentation of materials in this publication do not imply the expression of any opinion whatsoever by Africa Rice Center (AfricaRice) concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers and boundaries.

Citation

Arouna A., Aboudou R., and Yergo W., Ouedraogo M., and Abdoulaye T. (2022). E-registration and spatial referencing and tracking of farmers in three countries: Case study of Ghana, Nigeria and Cote d'Ivoire. Africa Rice Center (AfricaRice), Bouaké, Côte d'Ivoire. 19 pages.

Abstract

This report presents a dataset of the e-registration of farmers in Ghana, Nigeria and Cote d'Ivoire for assessing the adoption of innovations and the diffusion of new technologies. Data were collected from actors after a census conducted in three steps. In the first step, main crops production regions and value chain actors were identified. In the second step, we updated the list of actors based on membership of actors' associations. In third step, we did the census of all individual actors and geo-localized all farmers' fields and villages using GPS device. Data were collected for the 2022 growing seasons and the dataset contains 15,285 observations (5,041 in Cote d'Ivoire; 5,039 in Ghana and 5,205 in Nigeria) with 159 variables divided into six sections: (i) preliminary information on the respondents; (ii) socio-economic characteristics; (iii) information on the rice plots; (iv) knowledge, use and access to rice varieties; (v) knowledge, use and access to agricultural equipment and methods; and (vi) information on post-harvest activities. Seven categories of actors were identified: seed producers (542), crops producers (13,145), parboilers (289), millers (173), traders (1,323) and service providers (442). On average, a farmers grow two crops. The main crops of farmers are rice (4,087) following by maize (1,782), cassava (1,595), cocoa (1,256) and beans (1,240).

The dataset is valuable for the diffusion at large scale of improved technologies and an effective monitoring of the dissemination. Data can be used by scientists to have better understanding of crops value chains, production systems, the level of knowledge, accessibility and adoption of improved rice varieties and agricultural technologies, for further research regarding rice value chain development, technologies testing and socioeconomic study of rice value chain actors and others crops such as maize, cassava, cocoa, et beans. Because of the large number of observations (15,285 actors), data can be used as sampling frame for further experiment or surveys based on random samples. Moreover, the dataset has the potential of generating descriptive statistics at the most disaggregated level of administrative units or villages for different equipment, methods and varieties adopted by gender and country.

Keywords

Crops, census, agricultural technologies, improved rice varieties, out-scaling, production systems, West Africa.

Contents

ACKNOWLEDGEMENTS 2

Abstract 3

List of tables 4

List of figures 4

Major abbreviations and acronyms 5

1- Introduction..... 6

 1.1. Background..... 6

 1.2. Objectives of the e-registration in Ghana, Cote d’Ivoire and Nigeria..... 7

2. Specifications table 7

3. Value of the data 8

4. Data description..... 8

5. Experimental design, materials, and methods 16

6. Conclusion 17

Acknowledgements 18

References 19

List of tables

Table 1: Summary of the variables included in the dataset grouped by section 10

Table 2: Frequency of actors surveyed per country 12

Table 3: Selected socio-economic characteristics of actors registered in 2022 in Ghana, Cote d’Ivoire and Nigeria 13

Table 4: Frequency of producers surveyed in Ghana, Cote d’Ivoire and Nigeria in 2022 by crops 14

Table 5: Population adoption rates of technologies among producers registered in 2022 in Ghana, Cote d’Ivoire and Nigeria 15

List of figures

Figure 1: Map highlighting the study area of the E-registration 9

Figure 2: Distribution of actors surveyed..... 12

Major abbreviations and acronyms

AfricaRice	:	Africa Rice Center
GEM	:	Grain quality enhancer, Energy-efficient and durable Material
SSA	:	Sub-Saharan Africa
GDP	:	Gross Domestic Product
SDG	:	Sustainable Development Goals
TAFS WCA	:	Transforming Agrifood Systems in West and Central Africa initiative
ICT	:	Information and Communications Technology

1- Introduction

1.1. Background

Agriculture represents more than one-third of the gross domestic product (GDP) of African countries. It can contribute towards major continental priorities, such as eradicating poverty and hunger, boosting intra-Africa trade and investments, rapid industrialization and economic diversification, jobs creation and shared prosperity. Rice is one of the most important cereal crops in Africa and now represents the staple food for more than 750 million people in Sub-Saharan Africa. Rice consumption is faster growing in Africa and particularly West Africa than any part of the World. In West Africa, about 310 million people derived about 20% of their daily calorie from rice. However, rice demand in this region is growing faster than local supply, leading to substantial rice imports and dependence on international rice prices.

To reduce the importation bills and to achieve Sustainable Development Goals (SDG) in Africa, improved technologies including high yielding and climate smart varieties, good agronomic and postharvest practices are paramount. The diffusion of agricultural technologies faces enormous challenges in the region due to insufficient reach to the real actors in need. The diffusion at large scale of improved technologies, better targeting and effective monitoring of the dissemination required ex-ante information of the situation of the target population. Similarly, sampling frames required for assessing the achievements and impact are often lacking. In order to fill these gaps, an e-registration and spatial referencing and tracking of farmers and values chain actors are essential. Although, it was difficult in the past to map a whole population, digital solution offers today the possibility of ex-ante registration of the potential beneficiaries using simple ICT tools.

Based on the successful experience of the e-registration of rice value chain actors conducted recently in Benin and Cote d'Ivoire [2] (Arouna and Aboudou, 2020), this report presents the result obtained by extending the e-registration and spatial referencing and tracking system for rice value chain actors and others crops in other three West African countries: Ghana, Cote d'Ivoire and Nigeria.

This report presents the main results of the e-registration and spatial referencing and tracking system for rice value chain actors and others crops such as Maize, Cassava, Sweet potato, Yams, Banana, Cocoa, soybean, bean, Traditional African vegetables in Ghana, Cote d'Ivoire, Nigeria.

1.2. Objectives of the e-registration in Ghana, Cote d'Ivoire and Nigeria

The main objective of the e-registration is to collect reliable, accurate and sufficient data for better targeting and monitoring of interventions, and accelerating the delivery of inputs and services as well as the tracking of improved technologies and beneficiaries, through an e-registration and spatial referencing of farmers. Specific objectives of the e-registration are:

1. To collect simple and robust socio-economic and geographic data on different types of producers (producers of foundation seed, producers of certified seed, producer of crops for consumption) and other actors (milers, parboilers, traders and service providers) in Ghana, Cote d'Ivoire and Nigeria;
2. To collect GPS coordinates of actors surveyed;
3. To evaluate the knowledge, access to and use of agricultural technologies (new varieties, equipment and methods) by farmers.

2. Specifications table

Subject	Social Sciences
Specific subject area	Agriculture, varieties adoption, agricultural equipment and methods use, yield, ecology
Type of data	Table Figure Data in Excel format & STATA format (.dta)
How the data were acquired	Data were collected through census and surveys of rice value chain actors with structured questionnaire using android tablet.
Data format	Raw Analyzed Cleaned
Parameters for data collection	Face-to-face interviews using structured questionnaire and geographic locations obtained with GPS device.
Description of data collection	Census of all rice value chain actors and others crops such as <i>maize</i> , cassava, sweet potato, yams, banana, cocoa, soybean, bean, traditional African vegetables were done in three steps. In the first step, main rice production regions and rice value chain actors were identified. In the second step, we updated the list of actors based on memberships of actors' associations. Finally, we did the census and interviewed all actors and geo-localized farmers' fields and villages using GPS device.
Data source location	The data were collected in rice hubs in three countries: 1. Ghana: 4 regions 1.1. Ahafo 1.2. Ashanti 1.3. Bono 1.4. Bono East 2. Nigeria : 2 states

	2.1. Nasarawa 2.2. Benoue 3. Cote d'Ivoire : 5 regions 3.1. Gbeke 3.2. Gho-Djiboua 3.3. Montagnes 3.4. Sassandra-Marahoué 3.5. Savanes
Data accessibility	Repository name: Mendeley Data Data identification number: N/A Direct URL to data:

3. Value of the data

- The data in this article is useful because it is a large multidisciplinary dataset comprising 15,285 observations of seven different categories of actors (foundation seed producers, certified seed producers, crops producers, parboilers, millers, traders and service providers) for better understanding of the rice value chains, rice production systems and adoption of improved rice varieties and agricultural technologies.
- This dataset can be used by scientists, policy makers, extensions officers, NGO and development agencies such as United Nations organizations.
- The data is valuable for further research regarding rice value chain development, socioeconomics study of rice value chain actors, yield analysis (spatial distribution and yield gap), knowledge, accessibility and adoption of rice improved varieties and technologies [1] and to analyse rice cropping systems [2]. The dataset can be used to map and characterize rice value chain actors in West Africa and to develop appropriate technologies along the rice value chain. The dataset can be further analysed using advanced methods (e.g. econometric models, spatial analysis).
- The data is valuable for diffusion at large scale of improved technologies and an effective monitoring of the dissemination.
- Because of the large number of observations (15,285), dataset is valuable as sampling frame for future experiment or surveys based on random samples.

4. Data description

The diffusion of agricultural technologies faces enormous challenges such as the identification and the geolocation of the real actors in need [1]. Sampling frames required for surveys are often missing. In order to fill these gaps and better fit the preference of actors, a census and interviews of all Rice, Maize, Cassava, Sweet potato, Yams, Banana, Cocoa, soybean, bean,

and Traditional African vegetables value chain actors were conducted in production zones in three West African countries (including Ghana, Nigeria and Cote d'Ivoire).

The questionnaire which is submitted as supplementary file (Appendix) was used to collect information on farmers and other actors' demographic characteristics and specific sections related to each category of actors. For producers (seeds producers, producers of each crop for consumption), 150 variables were grouped in five sections: preliminary information on the respondents; socio-economic characteristics; information on the rice plots; knowledge, use, and access to rice varieties; and knowledge, use and access to agricultural equipment and methods. Parboilers, millers and traders were interviewed, in addition to preliminary information on the respondents and socio-economic characteristics (sections 1 and 2), on nine questions related to post-harvest activities (section 6 of the questionnaire). Table 1 summarizes the dataset and variables. The dataset is in Microsoft Excel (in one sheet) and STATA format (Appendix). The questionnaire, the Excel sheet and STATA format provide labels and variable names definition.

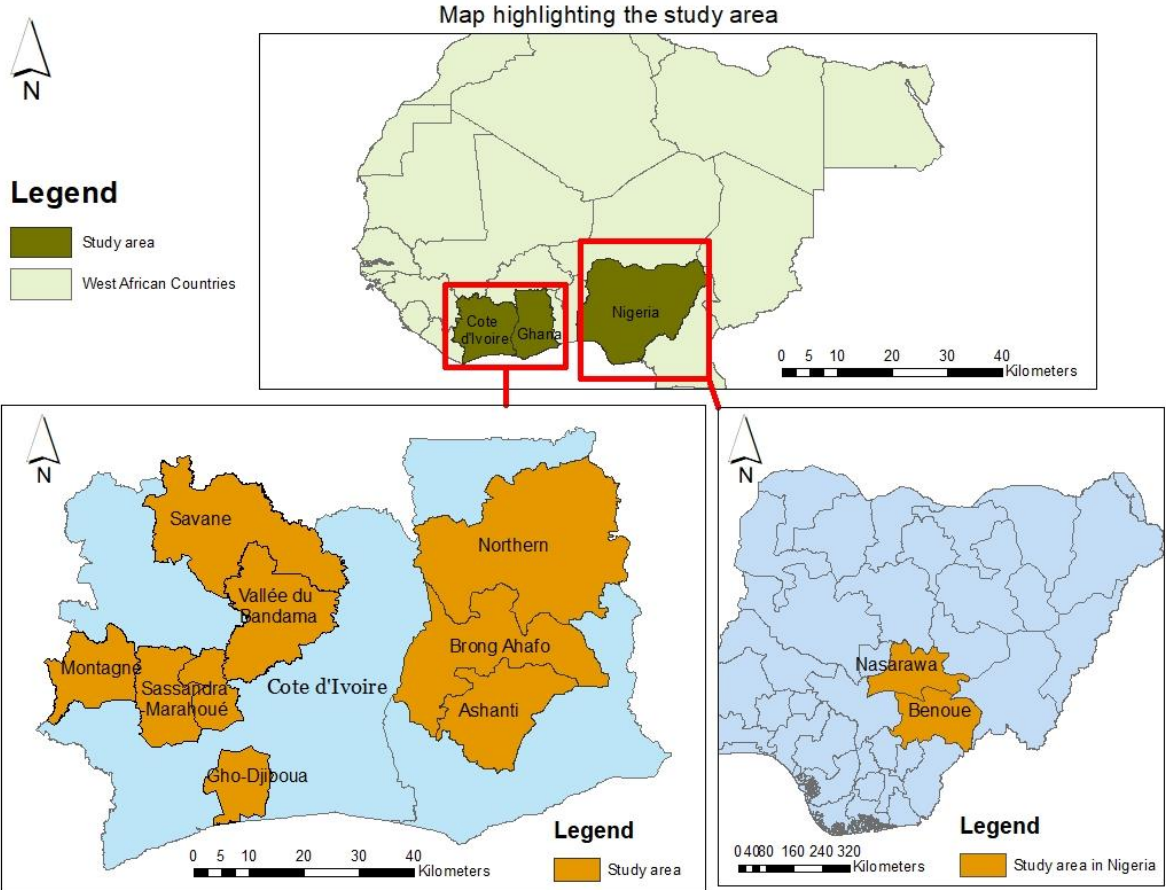


Figure 1: Map highlighting the study area of the E-registration

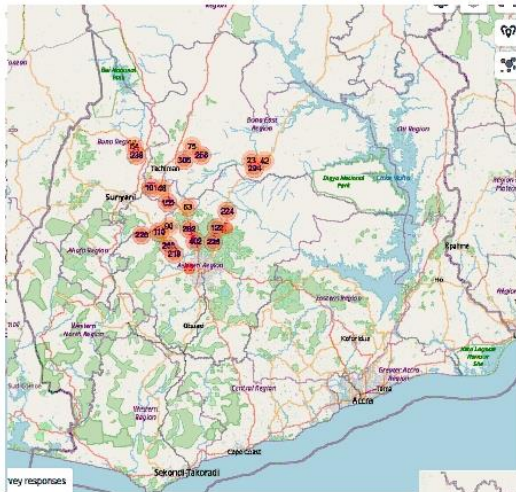
The data resulted from surveys of seven main categories of rice value chain actors: foundation seeds producers, certified seeds producers, producers, parboilers, millers, traders and service providers. A total of 15,285 actors (farmers, postharvest and service providers) were interviewed and geo-localized. Data were collected for the 2022 growing seasons (first and second seasons). As an example of the potential use of the dataset, Fig. 2 shows a map representing the spatial distribution of the different actors surveyed.

Table 1: Summary of the variables included in the dataset grouped by section

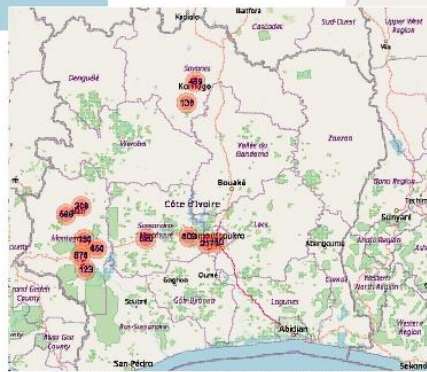
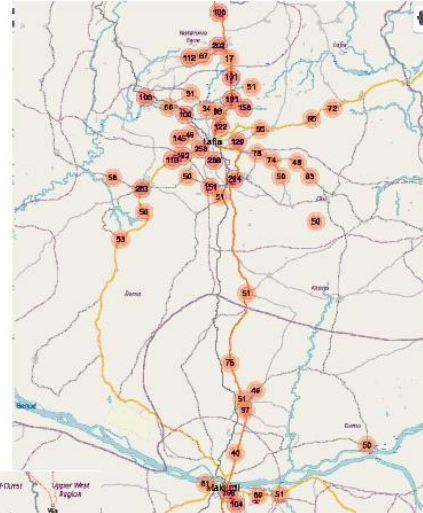
Variables	Scale type	Scale class	Source of data
Section 1: Preliminary information on respondents			
Code of the respondent	Numeric	Unique code	surveys
Name of country	Nominal	Ghana, Nigeria and Cote d'Ivoire	surveys
Name of region or district	Nominal		surveys
Name of town or village	Nominal		surveys
Date of survey	Numeric		surveys
Section 2: Socio-economic characteristics of respondents			
Name and surname of the actor	Nominal		surveys
Age	Numeric		surveys
Gender	Nominal	Female, Male	surveys
Education level attended	Ordinal	Illiterate, Primary, Junior high school, Senior high school, University.	surveys
Number of household members producing rice (Having a rice field)	Numeric		surveys
GPS coordinats	Numeric		surveys
Telephone number of the respondent	Numeric		surveys
Type of actors	Nominal	Foundation seeds producers, certified seeds producers, Producers of rice for consumption (paddy rice producers), Parboilers, Millers, Traders and Service providers.	surveys
Section 3: Information on the rice plots			
Number of crops cultivated	Numeric		surveys
Rice area for the first season 2022	Numeric		surveys
Production for the first season	Numeric		surveys
Rice area for the second season 2022	Numeric		surveys
Production for the second season 2022	Numeric		surveys
Section 4: Knowledge, use, access to rice varieties			
Name of variety	Nominal	NERICA, IR841, ARICA, SAHEL, WITA, FARO, BL, NL, BOUAKE, JT11, ORYLUX, AGRA, Jasmine.	surveys
Knowledge of the variety	Nominal	Yes, No	surveys
Name of the variety with its code if applicable	Nominal		surveys
Access to variety	Nominal	Yes, No	surveys

Grown at least once	Nominal	Yes, No	surveys
Grown the variety in 2018	Nominal	Yes, No	surveys
Section 5: Knowledge, use and access to equipment and methods			
Equipment or method	Nominal	ASI thresher (for threshing and winnowing paddy rice), GEM (for rice parboiling), RiceAdvice, Smart-valley, SRI (Intensive Rice Farming System), Manual weeder, Power tiller	surveys
Knowledge of the equipment	Nominal	Yes, No	surveys
Access to the equipment	Nominal	Yes, No	surveys
Use at least one of the equipment	Nominal	Yes, No	surveys
Use in 2018	Nominal	Yes, No	surveys
Section 6: Information on post-harvest activities (for parboilers, millers and traders)			
Quantity of parboiled rice per month	Numeric		surveys
Number of months of work in the year	Numeric		surveys
Knowledge of GEM equipment	Nominal	Yes, No	surveys
Access to GEM equipment	Nominal	Yes, No	surveys
Use of GEM equipment	Nominal	Yes, No	surveys
Quantity of milled rice per month	Numeric		surveys
Quantity of rice sold in the year	Numeric		surveys
Proportion of imported rice sold	Numeric		surveys
Proportion of local rice sold	Numeric		surveys

Distribution of actors surveyed in Ghana



Distribution of actors surveyed in Nigeria



Distribution of actors surveyed in Cote d'Ivoire

Figure 2: Distribution of actors surveyed

Table 2: Frequency of actors surveyed per country

Countries name	Frequency
Côte d'Ivoire	5,041
Ghana	5,039
Nigeria	5,205
Total	15,285

Data were collected for the 2022 growing seasons and the dataset contains 15,285 observations including 5,041; 5,039 and 5,205 observations in Cote d'Ivoire, Ghana and Nigeria, respectively (Table 2). Table 3 shows another use of the dataset by presenting the socioeconomic characteristics of farmers and others actors surveyed. The average age was 43 years old for all actors. Parboilers, millers and service providers tends to be younger (about 38 years old). Producers had about 32% illiterate, and 26% had primary level of education (Table 2). About 70% of actors surveyed are male. Producers are mainly male and parboilers are female.

Table 3: Selected socio-economic characteristics of actors registered in 2022 in Ghana, Cote d'Ivoire and Nigeria

Socioeconomic characteristics	Foundation seed producers	Certified seed producers	Crop producers	Parboilers	Millers	Traders	Service providers	Overall
Age	46.18 (12.90)	43.22 (9.33)	43.44 (7.94)	37.31 (8.78)	39.09 (10.67)	40.58 (10.22)	36.41 (19.85)	43 (11.54)
=1 if male (%)	67.96	77.78	72.09	14.53	82.08	42.93	85.52	69.61
Education level (%)	Illiterate	40	33.33	32.18	26.30	31.79	26.70	32.06
	Primary	38.45	48.15	25.80	31.14	28.90	31.14	26.77
	Junior high school	13.20	7.41	22.33	17.65	16.76	17.69	14.25
	Senior high school	6.99	11.11	15.41	22.49	19.08	17.76	19.68
	University	1.36	0	4.29	2.42	3.47	3.10	8.14

() standard deviation

Table 3 shows the distribution of the respondents by crops and country. Ten crops were involved in this study: rice, maize, cassava, sweet potato, yams, banana, cocoa, soybean, bean, traditional African vegetables in Ghana, cote d'Ivoire, Nigeria.

Among the producers in Cote d'Ivoire, 81.36% (3,672) are rice producers, 24.30% are maize producers, 31.53% are cocoa producers, 24.39% are cassava producers, 16.28% are yam producers. Among producers in Ghana, 25.05% (1,205) are rice producers, 53.91% (2,593) are maize producers, 30.64% (1,474) are cassava producers, 13.43% (646) are yams producers, 13.37% (643) are Banana producers, 26.86% (1,292) are cocoa producers, 16.67% (802) are bean producers and 20.81% (1,001) are traditional African vegetables producers. Also, among producers in Nigeria, 73.08% (3,209) are rice producers, 41% (1,802) are maize producers, 49%

(2,179) are cassava producers, 17.60% (773) are sweet potato producers, 34.16% (1,500) are yams producers, 9.95% (437) are Banana producers, 26.58% (1,167) are soybean producers, 24.37% (1,070) are bean producers and 11.20% (492) are traditional African vegetables producers. Data can be used as sampling frame based on random samples (Table 4).

Table 4: Frequency of producers surveyed in Ghana, Cote d'Ivoire and Nigeria in 2022 by crops

Type of crops	Cote d'Ivoire (N= 5,041)	Ghana (N= 5,039)	Nigeria (5,205)	Total (N=15,285)
Rice	81.36 (3,672)	25.05 (1,205)	73.08 (3,209)	58.96 (8,086)
Maize	24.30 (1,097)	53.91 (2,593)	41.03 (1,802)	40.04 (5,492)
Cassava	24.39 (1,101)	30.64 (1,474)	49.62 (2,179)	34.66 (4,754)
Sweet potato	3.05 (138)	0.02 (1)	17.60 (773)	6.65 (912)
Yams	16.28 (735)	13.43 (646)	34.16 (1,500)	21.01 (2,881)
Banana	4.94 (223)	13.36 (643)	9.95 (437)	9.50 (1,303)
Cocoa	31.53 (1,423)	26.86 (1,292)	00 (00)	19.79 (2,715)
Soybean	1.28 (58)	0.06 (3)	26.57 (1,167)	8.95 (1,228)
Bean	1.06 (48)	16.67 (802)	24.36 (1,070)	14.00 (1,920)
Traditional African vegetables	6.51 (294)	20.81 (1,001)	11.20 (492)	13.03 (1,787)

() Frequency

Table 5 shows the population adoption rates of technologies among producers registered in Ghana, Cote d'Ivoire and Nigeria. NERICA varieties were adopted in all three countries (5.62%, 0.17%, and 3.74% in Cote d'Ivoire, Ghana and Nigeria, respectively). WITA and JT varieties were the most used variety in Cote d'Ivoire (about 22.99% and 11.49%, respectively) (Table 5). AGRA variety is the most used in Ghana (about 19%), while FARO variety is the most used in Nigeria (about 66.88% of producers). ASI thresher and Smart-Valley are well known and adopted in all three countries and RiceAdvice is adopted only in Nigeria. RiceAdvice were adopted by about 10.71% of producers in Nigeria (Table 5).

Table 5: Population adoption rates of technologies among producers registered in 2022 in Ghana, Cote d'Ivoire and Nigeria

Technologies	Cote d'Ivoire		Ghana		Nigeria		Total	
	%	N	%	N	%	N	%	N
Varieties								
NERICA	5.62	254	0.17	8	5.79	249	3.74	511
IR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ARICA	0.44	20	0.02	1	0.00	0.00	0.15	21
SAHEL	0.02	1	0.00	0.00	0.00	0.00	0.01	1
WITA	22.99	1,042	0.6	29	6.8	291	10	1,362
FARO	0.00	0.00	0.02	1	66.88	3,039	21.86	3,040
JT	11.49	519	0.00	0.00	0.00	0.00	3.80	519
ORYLUX	4.4	198	0.00	0.00	3.80	199	2.25	462
AGRA	0.00	0.00	19.54	950	0.00	0.00	6.9	950
Jasmine	0.3	13	2.7	130	0.00	0.00	1.05	143
Technologies								
ASI	7.38	333	2.6	126	3.18	136	4.36	595
RiceAdvice	0.04	2	0.02	1	10.71	458	3.38	461
Developed inland valleys (Smart-Valley)	37.67	1,700	2.19	106	2.06	88	13.89	1,894
SRI	8.74	394	0.19	9	0.00	0.00	2.95	403
Mechanical weeder	13.45	607	0.97	47	30.09	1,287	14.23	1,941
Power tiller	16.60	749	4.27	207	6.15	263	8.94	1,219

5. Experimental design, materials, and methods

Data were collected from farmers after a census conducted in three steps. In the first step, rice value chain actors and the regions of rice production were identified in each country. Also, actors and regions of production of maize, cassava, sweet potato, yams, banana, cocoa, soybean, bean and traditional African vegetables were identified. For rice, the regions selected are the major rice growing areas named hubs. These hubs are zones of high potential impact where rice research innovations are integrated across the value chain to achieve development outcomes and impact [3]. In the hubs, Africa Rice Center (AfricaRice) and national scientists are introducing, evaluating and validating new rice technologies, and work with development partners to facilitate the training of farmers, out-scaling of technologies and establishment of linkages among actors along the rice value chain. Hubs were selected in participatory approach with national partners and value chain actors. Data were collected in the hubs selected in Cote d'Ivoire, Nigeria and Ghana. In the second step, the list of actors was obtained from actors' associations and updated through census. All individual actors were interviewed. The questionnaire and the design of an android-based application were developed for e-registration of farmers. Finally, enumerators were recruited and trained for data collection in each country. The questionnaire was pre-tested by enumerators before the beginning of the surveys. Data collection was coordinated and supervised by AfricaRice staffs, national agricultural research institutes in Cote d'Ivoire, Nigeria and Ghana (CRI in Ghana and CNRA in Cote d'Ivoire), government extension officers. Actors' leaders facilitated contact with respondents. Face-to-face interviews were conducted, and the location of all ten crops farmers' and villages were geo-referenced using GPS device. Data were analyzed using STATA 15 software.

6. Conclusion

The e-registration and spatial referencing and tracking of farmers have been conducted in Cote d'Ivoire, Ghana and Nigeria. The e-registration survey and spatial referencing and tracking of farmers were organized in the framework of the Transforming Agrifood Systems in West and Central Africa initiative (TAFS-WCA) for better targeting and effective monitoring of the diffusion at large scale of improved technologies. The purpose of the e-registration is to collect reliable, accurate and sufficient data that can be used as sampling frame based on random samples for TAFS-WCA baseline survey. The e-registration mainly focuses on ten crops: rice, maize, cassava, sweet potato, yams, banana, cocoa, soybean, bean, traditional African vegetables.

In Cote d'Ivoire, data were collected from 5,041 households in 7 regions including 999 in Guiglo, 800 in Duékoué, 799 in Man, 621 in Korhogo, 620 in Daloa, 602 in Yamoussoukro and 600 in Bouafle. Five categories of actors have been identified: producers (4487), millers (123), traders (212), service providers (201), and input sellers (17). Among the producers, 81.36% (3,672) are rice producers, 24.30% are maize producers, 31.53% are cocoa producers, 24.39% are cassava producers, 16.28% are yam producers..

In Ghana, data were collected from 5,039 actors including 2,698; 1,060; 296 and 983 farmers in Ashanti, Ahafo, Bono and Bono East regions, respectively. Seven categories of actors were identified: foundation seed producers (19), certified seed producers (03), producers for consumption (4,826), millers (53), traders (190) and service providers (52). On average, a producer grows five different crops. Rice, maize, cassava, bean and yams are growing as main crops by farmers. Among producers, 25.05% (1,205) are rice producers, 53.91% (2,593) are maize producers, 30.64% (1,474) are cassava producers, 13.43% (646) are yams producers, 13.37% (643) are Banana producers, 26.86% (1,292) are cocoa producers, 16.67% (802) are bean producers and 20.81% (1,001) are traditional African vegetables producers.

In Nigeria, data were collected from 5,205 actors including 4,380 and 825 farmers in Nasarawa and Benoue state, respectively. Seven categories of actors were identified: foundation seed producers (3), certified seed producers (4), producers for consumption (4,274), parboiler (233), millers (60), traders (783) and service providers (171). On average, a producer grows four crops. Rice, maize, cassava, bean and yams are growing as main crops by farmers. Among producers, 73.08% (3,209) are rice producers, 41% (1,802) are maize producers, 49% (2,179) are cassava producers, 17.60% (773) are sweet potato producers, 34.16% (1,500) are yams producers,

9.95% (437) are Banana producers, 26.58% (1,167) are soybean producers, 24.37% (1,070) are bean producers and 11.20% (492) are traditional African vegetables producers. Data can be used as sampling frame based on random samples.

Acknowledgements

The data were collected in the framework of the project “Transforming Agrifood Systems in West and Central Africa initiative (TAFS-WCA)”. Authors thank farmers, postharvest actors and their leaders for assistance and contribution in data collection. We are grateful to the staff of Ministry of Agriculture and the National Agricultural Research in Cote d’Ivoire, Ghana and Nigeria for the support during the field data collection.

References

- [1] A. Arouna, J.C. Lokossou, M.C.S. Wopereis, S. Bruce-Oliver, H. Roy-Macauley, Contribution of improved rice varieties to poverty reduction and food security in sub-Saharan Africa. *Global Food Secur.* 14 (2017) 54–60. <https://doi.org/10.1016/j.gfs.2017.03.001>.
- [2] J. Huat, E. Dossou-Yovo, M. Guindo, H. Avohou, T. Furlan, F. Sanogo, A. Touré, A spatial database of lowland cropping systems in Benin, Mali and Sierra Leone. *Data in Brief.* 24 (2019), 103876. <https://doi.org/10.1016/j.dib.2019.103876>.
- [3] E. Zossou, A. Arouna, A. Diagne, R.A. Agbo-Noameshie, Gender gap in acquisition and practice of agricultural knowledge: case study of rice farming in West Africa. *Exp. Agric.* 53 (2017) 566-577. DOI: 10.1017/S0014479716000582.
- [4] Arouna, A., Aboudou, R., ‘Dataset of the survey on e-registration and geo-referenced of rice value chain actors for the diffusion of technologies: Case of Benin and Cote d’Ivoire’, *Data in Brief*, (2020) pp. 1-09, doi: <https://doi.org/10.1016/j.dib.2020.105642>