INITIATIVE ON
West and Central African Food Systems Transformation

Transforming Agrifood Systems in West and Central Africa Initiative

(TAFS-WCA)

VALUE CHAIN AND MULTICROP BASELINE OF TAFS-WCA:

Case of Democratic Republic of Congo (DRC)

Africa Rice Center

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Abstract

This report presents the results of the baseline survey of the Transforming Agrifood Systems in West and Central Africa (TAFS-WCA) initiative in DRC. Three regions of DRC were surveyed. Data were collected using a smart tablet with the CSPro application. A total of 1,024 actors in agricultural production and value chain were surveyed during the baseline data collection in DRC. Actors involved in the baseline data collection are producers of rice, maize, soybean, beans, cassava, sweet potato, inputs dealer, traders, processors and service providers. All data analyses were carried out with the STATA 16 software.

Among the actors interviewed, 13.87% (142) are rice producers, 20.02% (205) maize producers, 8.01% (82) soybean producers, 10.53% (200) bean producers, 13.57% (139) cassava producers, 10.66% (61) sweet potato producers, 0.29% (3) inputs dealer, 14.45% (148) traders, 1.27% (13) processors and 2.64% (27) service providers. The average age of actors is 41 years old and ranges from 17 to 79 years old, and the average household size is 7 persons. About 60% of actors are male and 82% are married. In addition, 70% of the actors have received formal education and 79% have crop production has main activity. Moreover, 76 % of producers produce during the rainy season, 5% during dry season while 19% in both seasons.

With regard to climate change information's, about 2.5% of producers have access to forecasts of water level of dams and rivers and 1.32% to information to forecasts of pest or disease outbreak.

In relation to food security and the poverty index, preliminary results show that the vast majority of actors have an acceptable level of dietary diversity, meal frequency and nutritional importance of the food groups consumed; and according to the poverty index, the rate of poor actors is 74%.

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Major abbreviations and acronyms

AfricaRice	:	Africa Rice Center
CGIAR	:	Consortium of International Agricultural Research Centers
FAOSTAT	:	Food and Agriculture Organization Corporate Statistical Database
GDP	:	Gross Domestic Product
IPCC	:	Intergovernmental Panel on Climate Change
SDG	:	Sustainable Development Goals
WFP	:	World Food Program

1. Introduction

1.1. Context

In West and Central African, agriculture contributes 30-50% to GDP and provides income and livelihoods to 70-80% of the population[1]. Out of the 65% of the labor force in the rural areas, 42% of the women practice smallholder farming. Agriculture 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. It provides employment for about two-thirds of the African working population and for each country contributes an average of 30 to 60% of GDP and about 30% of the value of exports[2]. Agriculture, food and nutrition security, and the livelihoods of millions of people are affected by climate change (Yadav *et al.*, 2019). Climate Change is likely to trigger food insecurity, human migration, economic, and social depression, environmental and political crisis, thereby affecting development (IPCC 2007; World Bank 2010). Innovations, practices, or services that i) increase or sustain productivity over time, ii) boost farmers' climate resilience, and iii) reduce greenhouse gas emissions are considered climate-smart (Andrieu *et al.*, 2017). About 552 million people live in West and Central Africa (WCA), the majority in rural areas[1], but with some of the highest growth rates of urbanization in the world (>4% annually). Economic activity in 2020 contracted by 2.1%, due to a weaker external environment and measures to contain the COVID-19 pandemic and the climate crisis resulting in, high unemployment rates (AfDB, 2021).

To reduce the importation bills and to achieve Sustainable Development Goals (SDG) in West and Central Africa, improved technologies including high yielding and climate smart varieties, good agronomic and postharvest practices were developed and disseminated by CGIAR centers and other research and development center. The objective of the One CGIAR focused mainly on three action areas, namely: (i) Genetic Innovation, (ii) Resilient Agri-Food Systems, and (iii) Systems Transformation. Each of these action areas houses is home for a number of global theme-based Initiatives. There are six regional integrated initiatives, which are affiliated with the Resilient Agri-Food Systems action area. Among the six initiatives, we have the One CGIAR Regional Integrated Initiative for West and Central Africa (WCA). By focusing primarily on food and nutrition security and making agrifood systems more climate adapted,

[1] https://www.ifad.org/nl/web/operations/regions/wca
[2] https://www.britannica.com/place/Africa/Fruits-and-vegetables

the Initiative will make contributions to the five Impact Areas of the One CGIAR. Access to quality, nutrient-dense seed and climate-smart good agricultural practices (GAP) and reduced post-harvest losses will have a positive impact on food and nutrition and health security.

The aims of the TAFS-WCA initiatives are: to develop a sustainable agro-food system; to overcome social barriers to accessing innovations; and to enhance the scaling of innovations. The five axes of the program were: (i) Making food systems more nutritious, safe and resilient to climate change; (ii) Promoting digitalized information systems in bundling innovations at landscape level; (iii) Developp a set of participatory tools for inclusive landscape management and citizen science for one health; (iv) Addressing social barriers to create equality for women and youth doing business in value chains; (v) Scale Innovations with proven impact in the region. The TAFS-WCA initiative is regional and aims to eventually benefit the 22 countries of the region. The start-up phase includes six countries, three of which are from Central Africa (DRC, Rwanda and Burundi) and three others from West Africa (Côte d'Ivoire, Ghana and Nigeria). Before the implementation of projects in West and Central Africa, a baseline survey is important in all target countries. Indeed, after the stakeholder's engagement and launch workshop in Abidjan (21-22 June, 2022), the baseline survey will aim to collect reference values on the impact indicators of the project. This document presents the methodology of the baseline survey of the TAFS-WCA initiative that will be conducted in DRC.

1.2.Objectives of baseline survey

The baseline study aims to collect reliable, accurate and sufficient reference values on the impact indicators that can be drawn upon to undertake impact studies with the view to evaluating the changes induced by the One CGIAR regional integrated. Specifically, the baseline study aims:

1. To collect robust socio-economic and geographic data on producers and post-harvest actors in DRC;
2. To estimate the baseline values of outcomes and impact indicators;
3. To contribute to the monitoring and evaluation of the outcome;
4. And to contribute to ex-post impact assessment of the TAFS-WCA initiative.

2. Methodology

2.1. Study area and sample size

The survey was conducted in DRC. In this country, the TAFS-WCA initiative baseline survey has been conducted during the month of April 2023. The baseline data collection was collected in Kabare, Ruzizi Plain and Walungu in DRC (Figure 1).

Prior to the data collection, the questionnaire was designed and automated on tablets. A total of 20 enumerators (03 women and 17 men) were trained and used for the study data collection

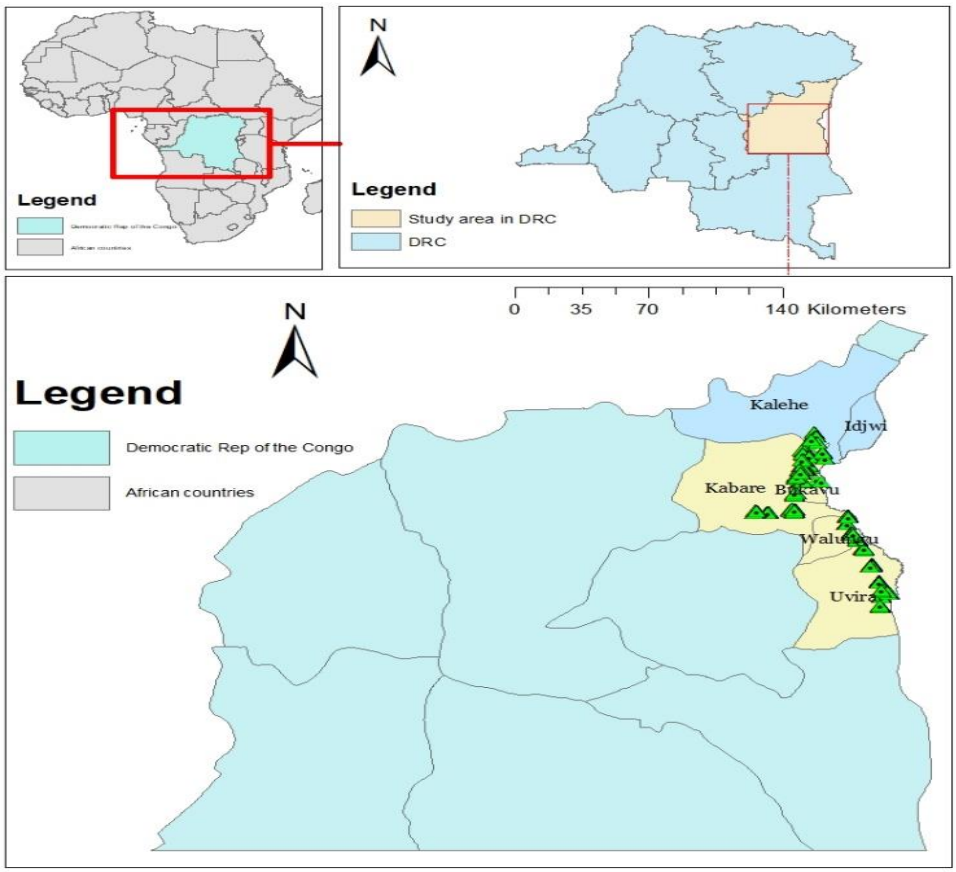

Figure 1: Map of survey countries

In order to conduct the baseline survey, an e-registration of farmers was first conducted, and the registered farmers then were used as the sampling frame for the baseline study. The e-registration in DRC mainly focuses on five crops: rice, cassava, sweet potato, banana, and bean.

Initially, 3,550 actors were registered during the e-registration in DRC. Then, 1,204 actors were randomly selected to be interviewed including 20 farmers and 4 other actors per village.

2.2.Data collection and quality assurance procedure

Data were collected from sampled households by means of the CSPro application using android tablets. The data collected for this study include: (i) socio-economic and household characteristics; (ii) plots information; (iii) varieties information; (iv) information on agricultural equipment and methods; (v) household food security and welfare information, and (vi) climate change information.

To ensure the quality of data, a supervision team, closely monitored field data collection and provided support to enumerators in the field. Supervisors could therefore quickly address any challenge faced by enumerators. Any mistakes were reported to enumerators for immediate action and correction while still on the field. The field arrangement, in addition to different "filter and skip" rules implemented in the questionnaire, helped ensure a high degree of quality for the primary data collected. The data used were collected from actor's households during 2023.

2.3.Data analysis

Statistical methods were used for data analysis. The tools used in the analysis of the data collected were descriptive statistics. Descriptive statistics (i.e., average, minimum, maximum and standard deviation) were calculated for socioeconomic characteristics of producer in the hubs.

The knowledge rates of agricultural technologies and methods were estimated as the percentage of the sample that reported being aware of the technologies, while the use or adoption rates are the percentage of those that accessed the technologies among the total sample.

The food-security analysis was performed by using food consumption score (FCS) developed by the World Food Programme (WFP, 2009). It is an indicator reflecting on food availability, food accessibility and food consumption at the household level. The FCS is therefore a good indicator to evaluate the food security situation of a household. According to the World Food Programme (WFP, 2009), a household has an acceptable, a middle and a poor level of consumption if FCS>35, 21<FCS<35 and FCS<21 respectively.

Additionally, we used the Household Food Insecurity Access Scale (HFIAS) developed by Coates et al. (2007). HFIAS score is a continuous measure of the degree of food insecurity by evaluating responses to a set of standard questions representative of three universal domains of

food access in terms of a household's anxiety and uncertainty about (i) inadequate food supply; (ii) insufficient quality; and (iii) insufficient food intake within a 30-day recall period during the lean period (Coates et al., 2007). The HFIAS score was calculated for each household by adding the coded frequency for each of the 9 occurrence questions relating to household-level food access. Each of the 9 questions has a maximum score of 3 and when summed have and a maximum of 27 and a minimum score of 0. The higher the score of the household, the more food insecurity is experienced, and the lower the score, the household is more food secure.

3. Results

The TAFS-WCA baseline data collection were collected from 1,024 actors Kabare, Ruzizi Plain and Walungu in DRC. Actors involved in the baseline data collection are producers of rice, maize, soybean, beans, cassava, sweet potato, inputs dealer, traders, processors and service providers.

Among the people interviewed in this study, 13.87% (142) are rice producers, 20.02% (205) are maize producers, 8.01% (82) are soybean producers, 10.53% (200) are bean producers, 13.57% (139) are cassava producers, 10.66% (61) are sweet potato producers, 0.29% (3) are inputs dealer, 14.45% (148) are traders, 1.27% (13) are processors, and 2.64% (27) are service providers (Table 1).

Table 1: Distribution of actors

Actors	**Actors**	**Frequency**
Producers	Rice	142 (13.87)
	Maize	205 (20.02)
	Soybean	82 (8.01)
	Bean	200 (19.53)
	Cassava	139 (13.57)
	Sweet potato	61 (10.66)
Other actors	Inputs dealer	3 (0.29)
	Trader	148 (14.45)
	Processors	13 (1.27)
	Service provider	27 (2.64)
Total		**1,024**

() percentage

3.1. Socio-economic characteristics of actors

3.1.1. Gender, marital status, educational level, household size and age of actors

Majority of the study respondents are women (with 610 women and 414 men). The average age of farmers is 41 years. This shows that the household's heads were relatively young. In addition, women are 4 years younger than men and the difference was statistically significant (Table 2). The average household size is 7 persons and the number of years of experience in the activity is 17 years in the whole population, with a statistical difference of about 1 year more for men.

The distribution of the educational status of the respondents showed that the majority of actors (70.20%) have formal education, up to around 2.44% have university education, around 16.70% have senior secondary school, 21.48% have junior secondary school and 29.59% have primary education level (Table 2). The vast majority of actors are married (82.32%), but only 78.69% of female actors are married. The majority of men and women (79.30%) have agriculture as their main activity.

Table 2: Household characteristics of farmers by actors and gender

Variables		Producers (833)			Other actors (191)			Overall (1024)		
		Female (n=487)	Male (n=346)	Overall (n= 833)	Female (n=123)	Male (n=68)	Overall (n= 191)	Female (n=610)	Male (n=414)	Overall (n= 1024)
Age	Mean	40.08	44.02	41.72	34.30	38.84	35.92	38.92	43.17	40.63
	Median	38.00	42.00	40.00	32.00	38.00	35.00	37.00	40.00	39.00
	Std. Dev	13.62	14.59	14.15	9.89	11.47	10.68	13.15	14.24	13.75
Number of years of experience (year)	Mean	17.50	19.12	18.17	11.14	10.96	11.07	16.21	17.78	16.85
	Median	15.00	15.50	15.00	9.00	10.00	9.00	13.00	15.00	14.00
	Std. Dev	12.78	13.38	13.05	8.66	8.47	8.57	12.32	13.06	12.64
Household size	Mean	7.22	7.62	7.38	6.89	6.84	6.87	7.15	7.49	7.29
	Median	7.00	7.00	7.00	6.00	6.50	6.00	7.00	7.00	7.00
	Std. Dev	2.65	3.14	2.87	2.68	3.02	2.80	2.66	3.13	2.86
Formal education (%)	None	40.66	14.74	29.89	36.59	16.18	29.32	39.84	14.98	29.79
	Primary	29.77	29.77	29.77	30.08	26.47	28.80	29.84	29.23	29.59
	Junior high school	18.07	25.43	21.13	22.76	23.53	23.04	19.02	25.12	21.48
	Senior high school	10.47	25.72	16.81	9.76	27.94	16.23	10.33	26.09	16.70
	University	1.03	4.34	2.40	0.81	5.88	2.62	0.98	4.59	2.44
Marital status (%)	Married	77.41	89.02	82.23	83.74	80.88	82.72	78.69	87.68	82.32
	Single	5.54	6.94	6.12	4.88	16.18	8.90	5.41	8.45	6.64
	Widow	12.32	3.76	8.76	5.69	1.47	4.19	10.98	3.38	7.91
	Divorced	4.72	0.29	2.88	5.69	1.47	4.19	4.92	0.48	3.13
Agriculture as main activity (%)		98.97	95.09	97.36	0.81	0.00	0.52	79.18	79.47	79.30
Growing season (%)	Rainy season	79.47	71.39	76.11	79.47	71.39	76.11	79.47	71.39	76.11
	Dry season	2.46	7.51	4.56	2.46	7.51	4.56	2.46	7.51	4.56
	Both season	18.07	21.10	19.33	18.07	21.10	19.33	18.07	21.10	19.33

3.1.2. Institutional characteristics of actors

- **Access to credit, extension service and market information**

Table 3 indicates that a majority of the actors have access to the selling price of crop on the market (65.87% for female and 64.73% of Male). The results also show that a low proportion (10.98% of female and 9.90% of male) of actors have access to production credit. However, women have more access to credit than men. In addition, less than 1% of farmers have access to extension services. This can be explained by the fact that the villages surveyed in DRC are not closer to extension services (on average 23 km) (Table 3). It should also be noted that less than half of farmers have the news information's about the technologies developed (22%). However, many of them (56.19%) participate in training on these new technologies developed to increase the production. On the other hand, 33.50% of the actors have information on new rice varieties.

Table 3: Institutional characterizes of farmers by country and gender

		Producers (833)			Other actors (191)			Overall (1024)		
		Female (n=487)	Male (n=346)	Overall (n= 833)	Female (n=123)	Male (n=68)	Overall (n= 191)	Female (n=610)	Male (n=414)	Overall (n= 1024)
Access to credit for production (%)		12.11	10.40	11.40	6.50	7.35	6.81	10.98	9.90	10.55
Information on new crop varieties (%)		34.29	39.02	36.25	22.76	19.12	21.47	31.97	35.75	33.50
Information on new technologies developed (%)		24.85	22.25	23.77	13.01	17.65	14.66	22.46	21.50	22.07
Participation in training on new technologies developed (%)		60.33	57.14	59.09	43.75	25.00	35.71	58.39	52.81	56.19
Access to the selling price of crops on the market (%)		63.86	63.29	63.63	69.92	72.06	70.68	65.08	64.73	64.94
Contact with structure or organization (%)		11.29	20.81	15.25	8.94	17.65	12.04	10.82	20.29	14.65
Contact with extension service (%)		0.41	0.00	0.24	-	-	-	0.33	0.00	0.20
Distance between the village and the extension service (Km)	Mean	25.42	22.59	24.24	21.07	9.69	17.02	24.54	20.47	22.89
	Median	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	Std. Dev	78.79	75.38	77.36	68.43	31.76	58.24	76.78	70.24	74.20
Distance between the village and the nearest input dealer (Km)	Mean	23.43	17.36	20.91	18.27	8.48	14.78	22.39	15.90	19.77
	Median	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	Std. Dev	72.84	76.07	74.21	71.22	36.25	61.18	72.49	71.12	71.97
Distance between the village and the nearest mechanical service provider (Km)	Mean	25.66	16.41	21.82	18.51	5.61	13.92	24.22	14.64	20.35
	Median	2.00	2.00	2.00	2.00	1.25	2.00	2.00	2.00	2.00
	Std. Dev	85.77	72.37	80.56	79.15	24.24	65.33	84.46	66.98	77.97
Distance between the village and the nearest periodical market (Km)	Mean	17.04	12.27	15.06	11.96	4.97	9.47	16.01	11.07	14.01
	Median	2.00	1.50	2.00	2.00	2.00	2.00	2.00	1.50	2.00
	Std. Dev	58.79	52.61	56.32	46.32	18.13	38.79	56.50	48.71	53.52

3.1.3. Gender and decision-making in the household

In terms of decision-making in the household, Figure 2 shows that decisions in the household rest with the husband. Indeed, 42% of decisions in the household are taken jointly but the husband dominates the decision-making. This shows that women did not have a great deal of responsibility in decision-making within the household.

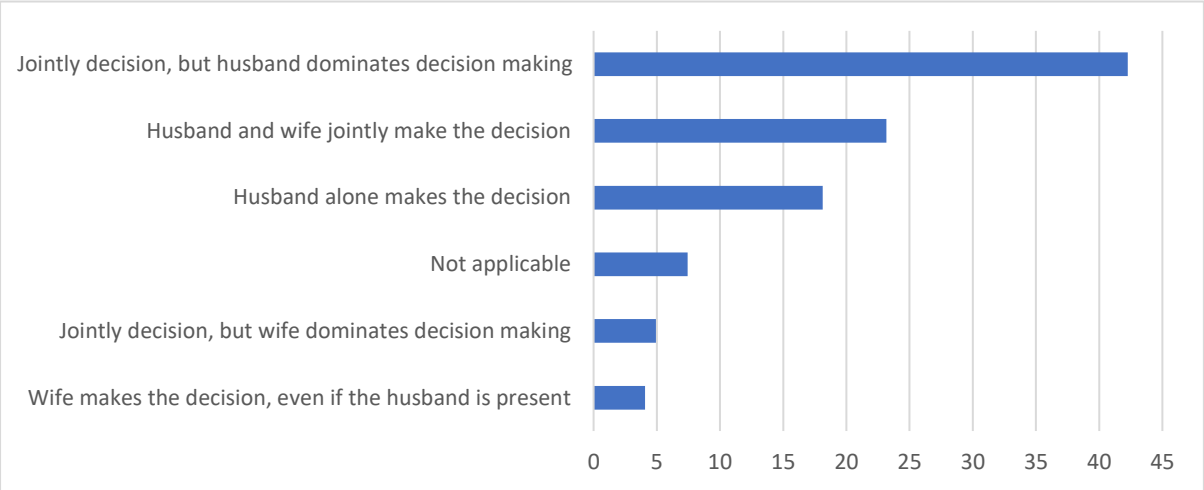

Figure 2: Decision-making in the household

3.2. Knowledge, use of agricultural equipment and methods

3.2.1. Knowledge and use of agricultural equipment

This subsection presents information on agricultural equipment and methods. The information covers knowledge and use of equipment and methods in production systems. In DRC the main equipment known is the tractor (74.55%) but still with a rate of use (42.35%) (Table 4). In addition to the tractor, the net (for bird hunting) is one of the best known and used technologies in DRC, with about 16.21% awareness and 41.48% use.

Table 4: Knowledge and use of agricultural equipment for production activities by gender

Equipment	Knowledge (%)			Use at least once (%)		
	Female	Male	Overall	Female	Male	Overall
Tractor	66.94	85.26	74.55	40.80	44.07	42.35
Motorcycle	6.57	15.03	10.08	37.50	26.92	30.95
Mechanical transplant	1.03	0.29	0.72	-	-	-
Mechanical weeders	3.29	3.47	3.36	25.00	41.67	32.14
Mechanical seeders	0.41	2.02	1.08	100.00	14.29	33.33
Mechanical Salmer (Circular Binette)	0.21	0.87	0.48	100.00	0.00	25.00
Filet (bird struggle)	11.29	23.12	16.21	34.55	46.25	41.48
Mini combine harvester	0.00	1.16	0.48	-	-	-
ASI thresher	0.00	0.29	0.12	-	-	-
RiceAdvice	0.21	0.00	0.12	-	-	-
GEM equipment	-	-	-	-	-	-
Video on the control of the striga	-	-	-	-	-	-
Rice-other crop integration system	1.80	2.42	2.05	100.00	80.00	90.48
Improved storage bag (double) seeds	5.95	7.23	6.48	62.07	88.00	74.07

3.2.2. Knowledge and use of agricultural methods

In terms of knowledge and use of agricultural methods, the main method known and used in DRC is row sowing, with 73.71% and 96.25% respectively for knowledge and use (Table 5). The other most used methods observed are the use the fertilizers (90.43%) and the transplanting method (83.33%) in DRC.

Table 5: Knowledge and use of agricultural methods for production activities by gender

Equipment	Knowledge (%)			Use at least once (%)		
	Female	Male	Overall	Female	Male	Overall
Cropping calendar construction	17.45	22.25	19.45	83.53	72.73	78.40
Alternate wetting and drying	5.95	3.76	5.04	89.66	69.23	83.33
Mulching in the field	34.09	53.76	42.26	82.53	84.95	83.81
Smart Valley / Sawah (Small and Great Dams)	6.37	22.54	13.09	90.32	96.15	94.50
Alternation of dry and wet irrigation phases	1.23	3.76	2.28	16.67	84.62	63.16
Drip irrigation	1.23	2.60	1.80	66.67	77.78	73.33
Mechanical levelling	2.05	1.45	1.80	70.00	80.00	73.33
Row sowing	75.15	71.68	73.71	97.81	93.95	96.25
Transplant	25.67	45.38	33.85	74.40	90.45	83.33
Use of fertilizers	29.16	46.53	36.37	87.32	93.17	90.43
System of Rice Intensification	0.82	5.20	2.64	100.00	77.78	81.82
Livestock diversity	6.16	10.12	7.80	86.67	74.29	80.00
Agroforestry	8.42	9.25	8.76	29.27	43.75	35.62
Cover crop	5.13	8.67	6.60	60.00	60.00	60.00
Crop rotation	41.89	46.24	43.70	83.33	85.00	84.07
Other improved method	0.41	0.58	0.48	-	-	-

3.3.Perception of climate change

This section presents producers' perceptions of climate change. Figure 3 shows that less than 3% of DRC producers have less access to climate information. With respect to access to climate information services, Figure 3 also shows that about 2.5% of producers have access to forecasts of water level of dams and rivers and 1.32% to information to forecasts of pest or disease outbreak. The results also reveal that the producers perceive the indicators of climate change (Figure 4). The main known indicators are: late rains (32%), decrease in yield (31%), and decrease in soil fertility (28%).

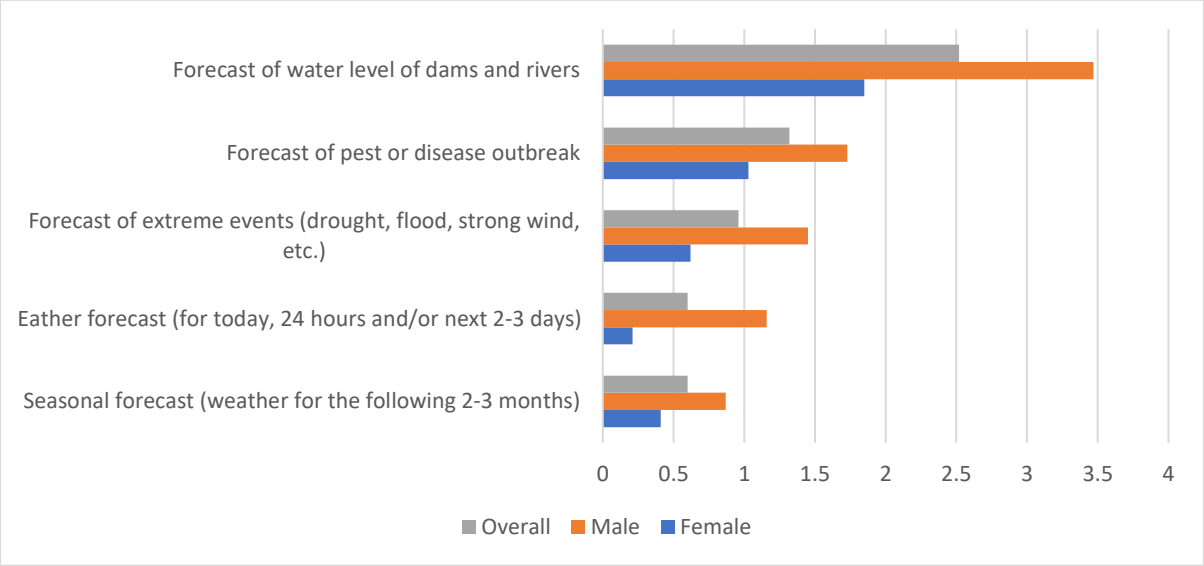

Figure 3: Access of producers to climate information services

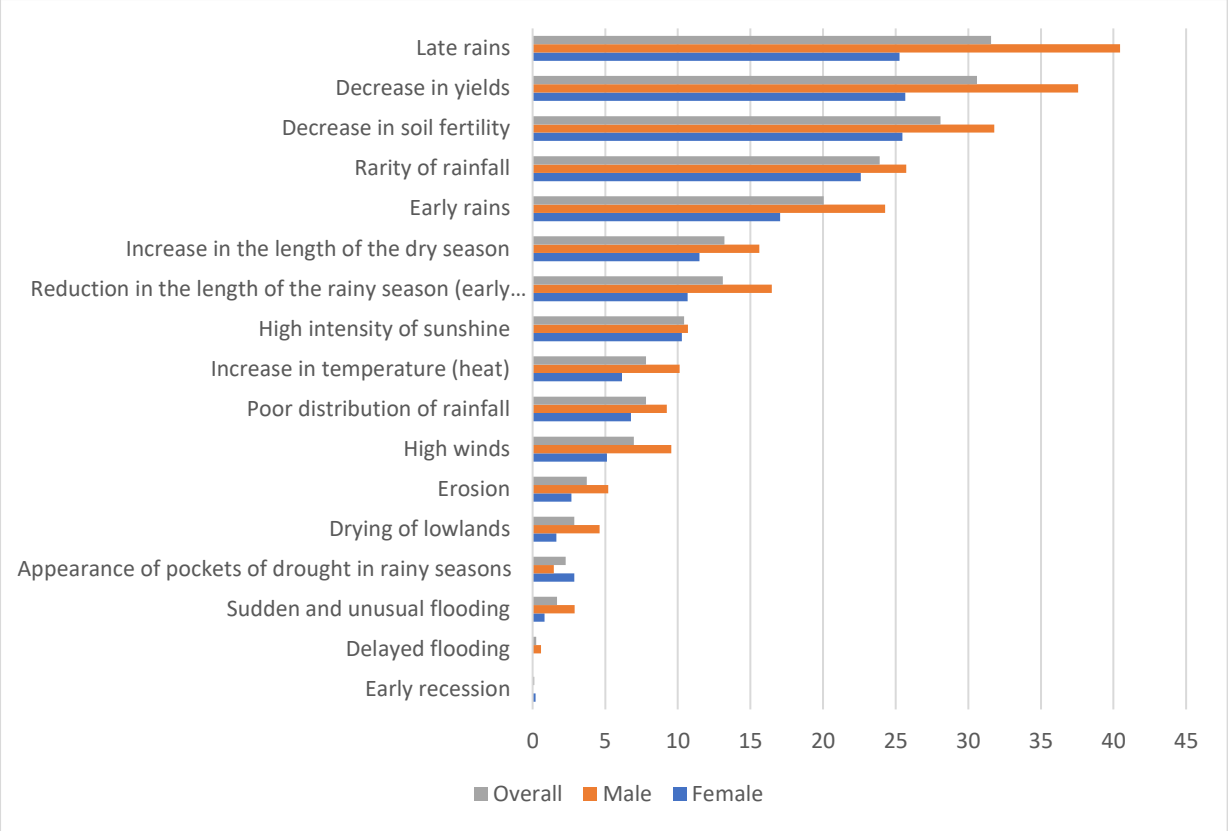

Figure 4: Knowledge of producers on climate change indicators

3.4. Yield gap

The average yield of crops ranges from 0.51 t ha^{-1} and 3.58 t ha^{-1} for bean and rice, respectively (Table 6). In addition, the highest and lowest yield gap are observed for maize (80%) and for sweet potato (63%), respectively. This shows that producers are not yet reaching their yield potential.

Table 6: Sample mean, attainable (top decile) mean and gaps in yield

		Rice	Maize	Soybean	Bean	Cassava	Sweet potato
Yield (t/ha)	Mean	3.58	2.31	0.94	0.51	1.36	3.10
	Median	3.20	1.23	0.72	0.40	1.05	2.85
	Std. Dev	2.15	8.27	0.90	0.44	1.07	1.91
Attainable yield (Top decile)		9.55	11.73	3.31	1.58	3.72	7.71
Yield gap		5.97	9.42	2.37	1.07	2.36	4.61
Gap (%)		62.50	80.30	71.58	67.66	63.45	59.78

3.5. Income, expenses, poverty ratio and food security

3.5.1. Income, expense and poverty rate

This section presents income and expenditure estimates for the actors surveyed.

In terms of income, the analysis shows that women's total annual income per capita is higher than men's in the sampling (Table 7). In fact, women earn about US$125 and US$50 more than men among producers and other actors, respectively.

In terms of total expenditure per capita, we find that between actor's men spend more than women (Table 7), the difference is around US$58 for men but the difference is not significant.

In terms of poverty rates, the poverty index of the population remains high (74%) (Table 7). In the producer group, the poverty rate for women is 9% higher than for men. In contrast, there is an opposite trend among other actors, where men have a higher poverty rate of 5%.

Table 7: Income and expenses by actor and gender

Variables		Producers (833)			Other actors (191)			Other actors (1024)		
		Female (n=487)	Male (n=346)	Overall (n= 833)	Female (n=123)	Male (n=68)	Overall (n= 191)	Female (n=610)	Male (n=414)	Overall (n= 1024)
Annual agricultural income per capita ($US)	Mean	130.80	35.20	91.09	20.50	21.32	20.79	108.56	32.92	77.98
	Median	2.86	4.59	3.58	0.00	0.00	0.00	2.34	3.95	2.95
	Std. Dev	2081.86	114.83	1593.55	50.19	39.15	46.46	1860.44	106.26	1437.51
Annual non-agricultural income per capita ($US)	Mean	45.81	16.54	33.65	95.86	45.10	77.79	55.90	21.23	41.88
	Median	0.00	0.00	0.00	15.61	4.35	12.22	0.00	0.00	0.00
	Std. Dev	468.14	57.75	360.01	241.41	68.80	199.21	432.40	60.55	336.27
Total annual income per capita ($US)	Mean	176.61	51.74	124.74	116.36	66.43	98.58	164.46	54.15	119.86
	Median	5.82	6.74	6.39	26.76	42.29	38.27	9.88	8.70	9.15
	Std. Dev	2144.95	134.94	1642.82	254.52	80.56	210.86	1919.68	127.64	1484.36
Per capita food expenditure ($US)	Mean	124.93	150.89	135.71	122.03	94.95	112.39	124.35	141.70	131.36
	Median	56.21	69.52	63.30	65.74	50.18	61.63	58.55	66.44	62.98
	Std. Dev	443.82	374.52	416.40	153.06	117.00	141.56	402.35	346.15	380.55
Per capita non-food Expenditure ($US)	Mean	119.68	169.73	140.47	90.98	77.07	86.03	113.90	154.51	130.32
	Median	42.15	40.34	41.60	55.98	41.55	49.77	44.54	40.64	42.98
	Std. Dev	1247.85	1586.23	1397.69	144.42	147.21	145.19	1116.67	1451.40	1262.2
Per capita total expenditure ($US)	Mean	244.61	320.62	276.18	213.02	172.02	198.42	238.24	296.21	261.68
	Median	109.86	122.08	115.40	139.05	89.13	126.53	114.37	120.07	118.51
	Std. Dev	1333.02	1736.94	1513.41	218.93	213.81	217.45	1194.91	1590.81	1368.38
Poverty headcount ratio (%)		78.85	70.23	75.27	66.67	72.06	68.59	76.39	70.53	74.02

3.5.2. *Food security analysis*

In terms of food security, Table 8 shows that the food consumption score is relatively high in the sample. The average score is 40 and 44 respectively for women and men, which could mean that households are in acceptable food situations (>35 acceptable levels). This means that the vast majority of farmers' households in both countries have an acceptable level of dietary diversity, meal frequency, and nutritional importance of the food groups consumed.

Interpreting sample statistics of the HFIAS is founded on observing the proportion of households that responded ‘never’ to all sub-domains (Coates et al., 2007). Table 9 shows that in our case the proportion of ‘never’ responses in the first sub-domain is about 7% and 5% for producers and other actors, respectively, implying that at least 95% of producers and other actors are worried about fulfilling their food needs. Similarly, at least 95% of producers and other actors have insufficient food quality (unweighted mean of three sub-domains in domain II). In addition, for the sub-domains III, Table 9 shows that 80% and 83% have insufficient food quantity intake due to physical unavailability (domain III) for producers and others actors, respectively. However, the average HFIAS score for the sample is 13.13 which indicates that around half of the households are relatively food secure because the higher the score, the more food insecure a household becomes.

Table 8: Food consumption score by actor and gender

Variables		Producers (833)			Other actors (191)			Other actors (1024)		
		Female (n=487)	Male (n=346)	Overall (n= 833)	Female (n=123)	Male (n=68)	Overall (n= 191)	Female (n=610)	Male (n=414)	Overall (n= 1024)
Food consomption score	Mean	39.66	43.73	41.35	41.27	46.55	43.15	39.99	44.19	41.69
	Median	38.50	42.00	40.00	40.00	47.00	41.50	39.00	42.75	40.50
	Std. Dev	16.53	16.90	16.79	15.61	20.01	17.44	16.34	17.45	16.92

Table 9: Household Food Insecurity Access Scale (HFIAS) by actor and gender

		Producers (833)			Other actors (191)			Other actors (1024)		
		Female (n=487)	Male (n=346)	Overall (n= 833)	Female (n=123)	Male (n=68)	Overall (n= 191)	Female (n=610)	Male (n=414)	Overall (n= 1024)
I. Anxiety and uncertainty about household food supply										
Did you worry that your household would not have enough food?		6.37	7.51	6.84	2.44	8.82	4.71	5.57	7.73	6.45
II. Insufficient quality (includes food variety and preferences)										
Were you or any household member not able to eat the kind of foods you preferred because of lack of resources?		6.57	9.83	7.92	1.63	8.82	4.19	5.57	9.66	7.23
Did you or any household member eat just a few kinds of food day after day due to lack of resources?		5.54	6.36	5.88	1.63	5.88	3.14	4.75	6.28	5.37
Did you or any household member eat food that you preferred not to eat because of a lack of resources to obtain other types of food?		6.78	5.49	6.24	3.25	11.76	6.28	6.07	6.52	6.25
III. Insufficient food intake and physical consequences										
Did you or any household member eat a smaller meal than you felt you needed because there was not enough food?		10.27	10.69	10.44	9.76	14.71	11.52	10.16	11.35	10.64
Did you or any household member eat fewer meals in a day because there was not enough food?		11.5	9.83	10.8	7.32	16.18	10.47	10.66	10.87	10.74
Did you or any household member go to sleep at night hungry because there was not enough food?		17.66	21.1	19.09	8.13	25	14.14	15.74	21.74	18.16
Did you or any household member go a whole day without eating anything because there was not enough food?		23.82	25.43	24.49	17.07	26.47	20.42	22.46	25.6	23.73
Did you or anyone in your household go a whole day and night without eating because there was not enough food?		33.26	38.15	35.29	23.58	36.76	28.27	31.31	37.92	33.98
Household Food Insecurity Access Score (HFIAS)	Mean	13.15	13.13	13.14	14.11	11.18	13.06	13.34	12.81	13.13
	Median	13	14	14	14	9	13	14	14	14
	Std. Dev	5.66	5.79	5.71	5.36	5.51	5.58	5.61	5.79	5.68

4. Conclusion

The purpose of the Transforming Agrifood Systems in West and Central Africa (TAFS-WCA) initiative's baseline survey was to collect reliable, accurate and sufficient reference values on the impact indicators that can be drawn upon to undertake impact studies with the view of evaluating the changes induced by the One CGIAR regional integrated initiative in target countries.

Preliminary analysis of the study shows that the majority of respondents are women. The data show that the majority of respondents have received a formal education and the survey population are relatively young. However, access to credit for production is very low in both groups.

In terms of food security, the result shows that the vast majority of farmers households in DRC have an acceptable level of dietary diversity, meal frequency and nutritional importance of the food groups consumed. The scientific report will analyze the data with more details.

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