



Inception report on the consumers' socio-economic and dietary conditions and on first experimental results

D2.3

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Short Description
This Deliverable serves as an inception report on consumers' socio-economic conditions, conscious and non-conscious decision processes, and on first experimental results. It details the data collection process undertaken in 12 cities across 5 African countries (Kenya, Morocco, Tanzania, Tunisia, and Uganda), its research objectives, as well as preliminary comparative assessments across countries and cities.

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1 Introduction

1.1 Rationale and Objectives of Tasks 2.1, 2.2 and Deliverable D2.3

The main objective of WP2 is providing background knowledge of African **consumers' food preferences and behaviours and of their socioeconomic drivers** and measuring the current level of **dietary diversity**. Task 2.1 detects, gathers, and organizes primary and secondary data on consumers' food choices, nutritional status and imbalances, and socio-economic conditions in 12 African urban contexts. T2.2 combines ethnographic (observations, focus groups, in-depth surveys), bio-metric experiments (eye-tracking, GSR), and structured behavioural economic experiments to get insights for new market opportunities for novel food products.

This Deliverable serves as an inception report on **consumers' socio-economic conditions, conscious and non-conscious decision processes, and on first experimental results**. It details the data collection process undertaken in 12 cities across 5 African countries (Kenya, Morocco, Tanzania, Tunisia, and Uganda)¹, its research objectives, as well as preliminary comparative assessments across countries and cities.

The assessment of urban consumers' food preferences and behaviours, and identification of their socio-economic drivers, aims at eliciting their propensity / willingness to include incentivising the purchasing and consumption of healthier, more nutritious, sustainable, local foods so as to increase the diversity of their diet., thus contributing to the public good. These results will be key for the development in WP4 and WP5 of nutrition-responsive food supply systems, the production of local, novel foods, the design of marketing strategies, and the development and implementation of tailored nutritional recommendations.

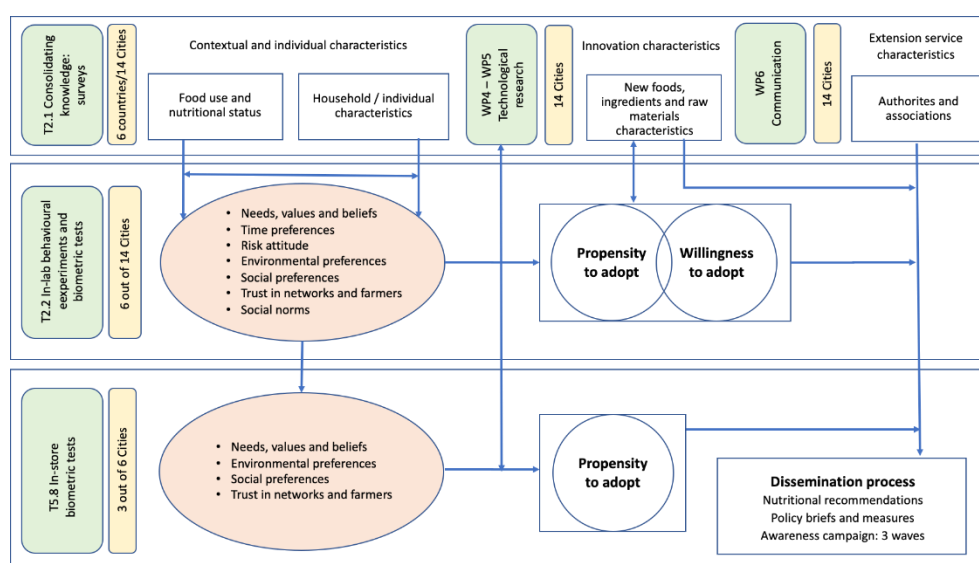


Figure 1. WP2 research workflow

¹ Data collection in Ethiopia was postponed due to the ongoing Tigray war since November 30, 2020, and the interruption of any communication with the local partners (UoM, REST). This affected research activities in 2 Ethiopian cities (Mekelle and Addis Abeba).

1.2 Scope of the document

The scope of Deliverable D2.3 is to report on the approach to the data collection, analysis, and production of preliminary results on consumers. The data gathered includes:

1. A **baseline, gender-sensitive survey** with randomized samples of **urban consumers** measuring **the consumers' socio-economic conditions, socio-demographic** (e.g., migration), **food provisioning habits, diets, food prices, and contextual conditions and services**.
2. **Structured and incentivized behavioural economic experiments** to identify behavioural factors influencing consumers' decision-making, as well as getting insights for new market opportunities for novel food products.
3. **Biometric testing** (e.g., eye-tracking) and **experimental auctions** to map how product labels and other product elements influence consumers' food choices and their willingness to pay.
4. **A survey with rural consumers in 5 Food Hubs (pairs women-child)**. The surveys will include the gender perspective, devote special attention to maternal and child diets and health, and collect data on consumers' socio-economic conditions, socio-demographic (e.g., migration) characteristics, food provisioning and preparation habits, diets, food prices, and community conditions and services to be analysed in T2.3.

The main objectives expected from this research are (but not limited to):

1. Assessing to what extent **African urban consumers' propensity to buy innovative food products** with high nutritional contents depends on local context (e.g., food affordability, setbacks) and household-level characteristics (e.g., income level, healthy diet, household dietary diversity, etc.) as well as on the consumers' risk attitudes (e.g., food behavioural change), intertemporal choices, and trust towards producers of high nutritional foods.
2. Assessing to what extent **African urban consumers' propensity to buy food products sourced locally** depends on contextual conditions (e.g., food availability and culture), household-level characteristics (e.g., income level, food habits, household food diet, etc.), the consumer's network of relationships (social capital), as well as their cooperative and prosocial behaviour (e.g., environmental concern) and their level of trust over the food supply chain (versus peers and local producers).

These objectives will be pursued blending information arising from the assessment of survey-based results delivered to urban consumers (**stated preferences**) and preferences and attitudes revealed by studying the actual decisions consumers make, in experimental settings (**revealed preferences**). The structure of this research mirrors the surveys and behavioural experiments for small-scale farmers (T3.1, T3.2) reported in D3.3.

1.3 Structure of the document

This document is structured in six sections:

1. An introduction to the scope of the document (Section 1);
2. An overview of the research objectives (Section 2);
3. An overview of the methodological approach and research procedure followed, with details on local pilots, ethical considerations, and gender perspective (Section 3);



4. A presentation of the data collection methods and tools used (Section 4);
5. A presentation of the first results on urban consumers (surveys and economic behavioural experiments) including first comparative assessments across countries and/or cities (Section 5);
6. A concluding chapter highlighting planned future steps on results' exploitation (Section 6).

The report is concluded with a series of appendices illustrating the data collection tools used as well as the full preliminary descriptive results.

2 Research Objectives

The research objectives of the activities conducted with consumers include both General Objectives and Specific Objectives. **General objectives** are those pursued at project level, to achieve nutrition-responsive Key Performance Indicators (KPIs) and address nutritional needs. FoodLAND's overall objective is *developing, implementing, and validating innovative, scalable, and sustainable technologies aimed at supporting the nutrition performance of local food systems in Africa, while strengthening agro-biodiversity and food diversity as well as diversity of healthy diets*.

Along these lines, FoodLAND consumers' research aims at:

- A. Orienting R&I as well as the production activities toward consumers' needs.
- B. Contributing to the reduction of consumers' malnutrition, promoting diversified (healthier and more nutritious) diets based on local products.

Objectives A and B will be achieved through the detection of socio-economic determinants and preferences of urban consumers' propensity to adopt healthier and more nutritious diets (e.g., risk and time preferences, demographic factors such as gender and age, income levels, trust levels, cooperative behaviours, etc.).

Specific objectives of this research are those objectives directly linked to consumers' food choices with the aim of further advancing the current state-of-the-art on African consumers' research. These will be pursued at either local level (city, Food Hub), country level (by comparing/contrasting findings from 2 or more cities), cross-country level (comparing findings across one or more countries), and project level (comparing emerging trends across all countries and cities). D2.3's specific objectives are:

1. To detect and analyse current consumers' food needs, values, motivations and choices (and namely their propensity and willingness to diversify their diet), and their major socio-economic determinants.
2. To measure and analyse the urban consumers' behavioural responses toward (propensity and willingness to adopt) new foods and packaging solutions.
3. To implement consumer awareness raising campaigns based on tailored nutritional recommendations and on new healthy food products.
4. To detect possible market opportunities for the local farmers (D3.3).

Additional research questions to be tested with the collected data, includes:

- Interrelationships occurring between different behavioural factors (e.g., risk aversion and trust; time preferences and prosocial attitude, etc.).
- Assessing differences between stated and revealed preferences.



- Identifying if different consumer segments (e.g., income brackets, gender, ethnicity, and country) have different preferences when it comes to nutritional and local food choices.
- Socio-economic-psychological determinants of the diversity of food choices.
- Similarities and differences between revealed preferences of consumers and farmers, using a mirroring set of experimental data collected with African farmers.

3 Methodological approach

The methodological approach followed with the consumers' research, relies on five complementary activities, implemented in a coordinated way (Fig. Figure 1; Table 1):

- 1 a standardised out-of-store/in-the-household survey for urban consumers delivered in 7 African cities across four countries;
- 2 a set of in-lab standardised economic behavioural experiments, including a survey for urban consumers run in 5 African cities;
- 3 biometric tests (i.e., eye-tracking) to gain insights on consumers' conscious and non-conscious decision-making processes, to be run in 3 African cities;
- 4 An experimental auction, to understand consumers' preferences for different attributes of olive oil to increase its quality available in the market, and promote the consumption of higher quality products, to be run in 2 African cities;
- 5 Standardised surveys with rural consumers (500 pairs of women and child) in 5 Food Hubs .

Data collection in Ethiopia was postponed due to the ongoing Tigray war since November 03, 2020, and the interruption of any communication with the local partners (UoM, REST). This affected research activities in 2 Ethiopian cities (Mekelle and Addis Abeba). In the following sections we describe how these activities were developed.

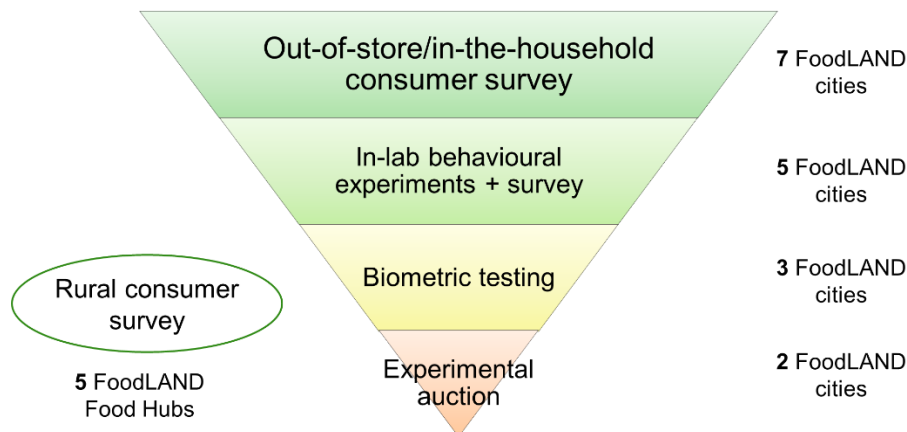


Figure 1. A graphical overview of the methodological approach for the consumers' research.

Table 1. Urban consumers' research activities per city and country.

City	Country	Targeted sample size	Activities with consumers ^{2,3}
Mekelle ¹	Ethiopia	500	In-lab Experiments + Survey



Addis Ababa ¹		500	In the households / out-of-store Survey
Kitui	Kenya	500	In-lab Experiments + Survey
Nyeri		500	In the households / out-of-store Survey
Kisumu		500	In the households / out-of-store Survey
Meknès		500 (200)	In-lab Experiments + Survey (Joint auction/eye-tracking experiments)
Beni Mellal	Morocco	500	In the households / out-of-store Survey
Sousse	Tunisia	500 (200)	In-lab Experiments + Survey (Joint auction/eye-tracking experiments)
Tunis		500	In the households / out-of-store Survey
Morogoro	Tanzania	500	In-lab Experiments + Survey
Dar es Salaam		500	In the households / out-of-store Survey
Kalerwe	Uganda	500	In-lab Experiments + Survey
Kapeeka		500	In the households / out-of-store Survey
Kampala		500	In the households / out-of-store Survey

¹ Data collection in Ethiopia was postponed due to the ongoing Tigray war since 3 November, 2020, and the interruption of any communication with the local partners (UoM, REST). This table indicate the type of experiments chosen to be run prior to the start of the war.

² CBS will run bio-metric tests in 3 Food Hubs (T2.2): 2 Food Hubs will be in MA and TN (combined with experimental auctions led by JHI), the 3rd one is to be carried out in TZ or UG, following similar protocol as in the Food Hubs in MA and TN.

³ The Food Hubs hosting the rural consumer research are yet to be identified.

3.1 Urban consumers' survey instrument

A first version of the urban consumers' surveys was developed by UNIBO with regular feedback sought from local partners' team to adjust the content of the questionnaire to the local contexts. The survey was built mirroring the approach used for small-scale farmers, to ensure the comparability of the results (D3.3). To overcome data collection and data entry problems, the survey (as well as the economic behavioural experiments; see Section 3.2) was run using a virtual survey software developed by ENAM.

The initial survey draft version was tested and refined - conjointly with the behavioural experiments' protocol - in Morocco by ENAM during July 2021. The aim of this pilot with 20 participants was to: (i) verify the feasibility of the survey and economic behavioural experiments drafts (in terms of lengths, wording, structure, appropriateness, etc.); (ii) test the online survey software developed for the urban consumers' research (ENAM's app and oTree; Section 3.2). This initial survey version was also shared with all local teams during Summer 2021. Feedback was received from all teams, followed up by bilateral and core T2.1 and T2.1 team meetings to finalise the survey instrument, experimental protocols and accompanying material to maximise the homogeneity of data collection across countries, while providing, where possible, flexibility to adapt to local constraint without compromising data quality. Additional local teams (e.g., INAT in Tunisia) tested the survey and experimental tools during winter 2021 to ensure a smooth implementation of the protocol.



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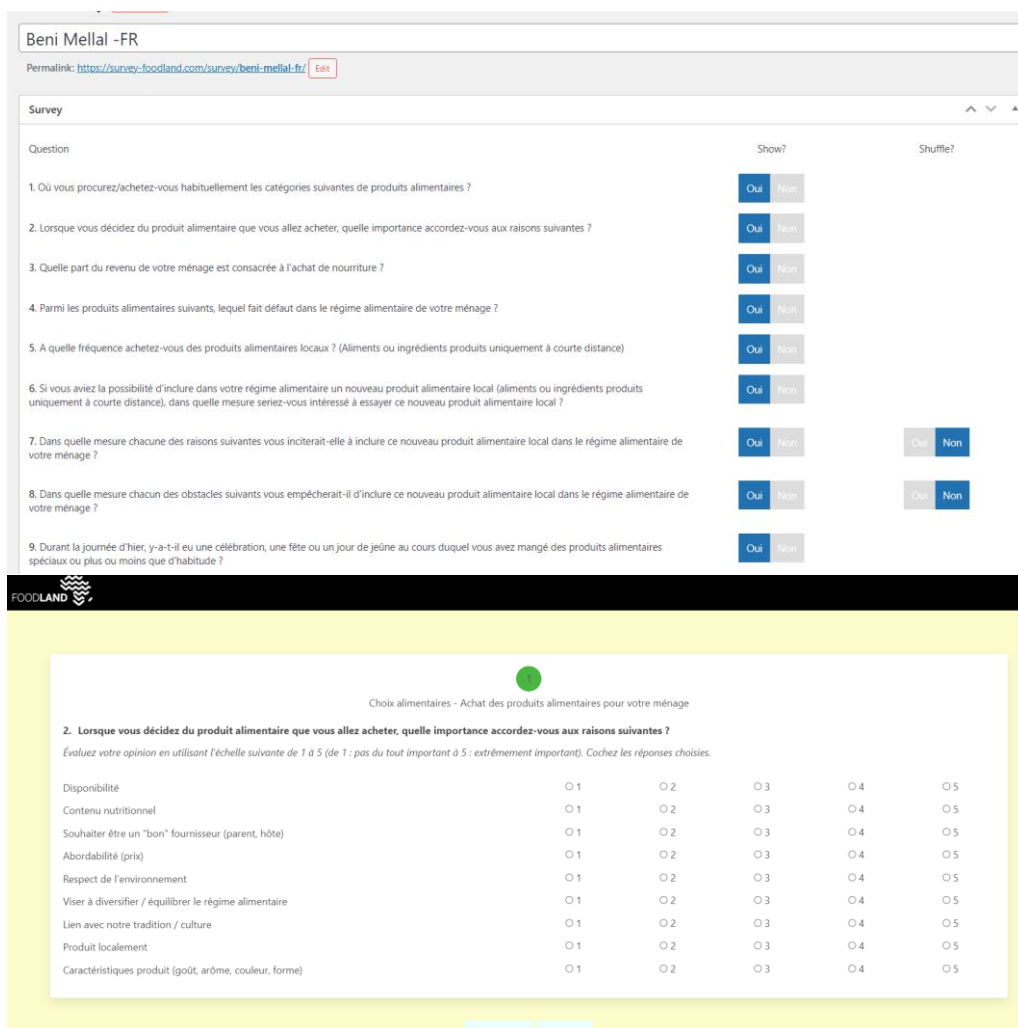
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One of the main criticalities identified was the survey length, which could become an important operative barrier when delivering it in the field (in-the-household or out-of-store). To overcome this issue, a shorter and more agile version of the survey was prepared (19 questions), to be used by enumerators when collecting data in the field. The full survey (30 questions) was instead used for the in-lab data collection (Table 1), as to allow comparing urban consumers stated and revealed preferences.

To ensure a standardised data collection process, the survey was compiled using an ad-hoc app developed by ENAM in WordPress. This app creates an online replication of the survey questionnaire (Figure 2). It was built and refined from an initial trial version employed by the Moroccan local team during the farmers' data collection (D3.3, p.11). The app was directly used to collect data (through tablets) in all cities where internet conditions allowed for it. In cities where internet access was limited (i.e., Kapeeka, Kalerwe, Kampala UG, Kisumu KE, Tunis TN), data was collected with the help of enumerators using pen and paper, and subsequently entered in the online app by enumerators, to ensure data consistency. The survey was translated by all local teams in local languages and inputted directly into the survey's app interface. Appendix 2: Urban consumers' survey instrument presents the final survey instruments (full and shorter versions) in English adopted by all teams.





Beni Mellal -FR

Permalink: <https://survey-foodland.com/survey/beni-mellal-fr/>

Survey

Question

Show? Shuffle?

1. Où vous procurez/achetez-vous habituellement les catégories suivantes de produits alimentaires ?

2. Lorsque vous décidez du produit alimentaire que vous allez acheter, quelle importance accordez-vous aux raisons suivantes ?

3. Quelle part du revenu de votre ménage est consacrée à l'achat de nourriture ?

4. Parmi les produits alimentaires suivants, lequel fait défaut dans le régime alimentaire de votre ménage ?

5. A quelle fréquence achetez-vous des produits alimentaires locaux ? (Aliments ou ingrédients produits uniquement à courte distance)

6. Si vous aviez la possibilité d'inclure dans votre régime alimentaire un nouveau produit alimentaire local (aliments ou ingrédients produits uniquement à courte distance), dans quelle mesure seriez-vous intéressé à essayer ce nouveau produit alimentaire local ?

7. Dans quelle mesure chacune des raisons suivantes vous inciterait-elle à inclure ce nouveau produit alimentaire local dans le régime alimentaire de votre ménage ?

8. Dans quelle mesure chacun des obstacles suivants vous empêcherait-il d'inclure ce nouveau produit alimentaire local dans le régime alimentaire de votre ménage ?

9. Durant la journée d'hier, y-a-t-il eu une célébration, une fête ou un jour de jeûne au cours duquel vous avez mangé des produits alimentaires spéciaux ou plus ou moins que d'habitude ?

Choix alimentaires - Achat des produits alimentaires pour votre ménage

2. Lorsque vous décidez du produit alimentaire que vous allez acheter, quelle importance accordez-vous aux raisons suivantes ?

Évaluez votre opinion en utilisant l'échelle suivante de 1 à 5 (de 1 : pas du tout important à 5 : extrêmement important). Cochez les réponses choisies.

	○ 1	○ 2	○ 3	○ 4	○ 5
Disponibilité	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contenu nutritionnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Souhaiter être un "bon" fournisseur (parent, hôte)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abordabilité (prix)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Respect de l'environnement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Viser à diversifier / équilibrer le régime alimentaire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lien avec notre tradition / culture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Produit localement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Caractéristiques produit (goût, arôme, couleur, forme)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Précédent Suivant

Figure 2. Snapshots from the ENAM's survey app. The first figure shows the app's functionality, allowing for randomization of the order of multiple answer questions. The second figure shows how the survey (French version, used in Morocco) was visualized by participants.

A rigorous approach was followed for drawing questions related to household and individual dietary patterns (Q10 and Q17; Appendix 2: Urban consumers' survey instrument). These questions assess the diversity of the household's food consumption and the dietary diversity of individuals by scoring the consumption of predefined food groups (FAO, 2021). In particular:

- Q10 measures **diet quality indicators at the individual (the interviewed consumer) level** following the guidelines of the minimum dietary diversity for women indicator (FAO, 2021). The methodology used is based in food groups listing, and food items included in each food group are the "sentinel foods" or the most frequently consumed items within a food group in a given population. The questionnaires were adapted to the local context through a collaboration with the Global Diet Quality Project (<https://www.globaldietquality.org/dqq>) for all FoodLAND countries except Ethiopia. The Global Diet Quality Project provided the preliminary versions of the questionnaires for each country and the local teams provided feedback on food items to include/exclude and on appropriate local translations. The outcomes of this questionnaire are the



minimum dietary diversity for women indicator and **dietary diversity scores and global dietary recommendations scores for the general population.**

- Q17, on the other hand, assesses the **Household Dietary Diversity Score** (a qualitative measure of food consumption that reflects household access to a variety of foods; FAO, 2010), and uses food groups listing based on extensive (comprehensive) food items lists within each food group. The outcome of this question will be interpreted from the **food security/economic perspective.**

During summer 2021, bilateral meetings were organised with all local partners, UNIBO representatives, and Dr. Estefanía Custodio (FoodLAND scientific advisor and nutrition, food security, and global health expert). The aim of these meetings was to agree on a common implementation process for adapting and translating locally the food items included in the Diet Quality Questionnaire (DQQ) and Household dietary diversity Score (HDDS) measurements. This process was undertaken in collaboration with the [Global Diet Quality Project](https://foodland-africa.eu/2022/01/10/foodland-project-the-global-diet-quality-project-a-fruitful-collaboration/) (GDQP) as to foster knowledge transfer and mutual collaboration across projects. GDQP shared with FoodLAND the pre-published DQQ (after an official collaboration statement was signed by both projects) adapted to Kenya, Morocco, Tanzania, Uganda and Tunisia. This joint collaboration was also announced in the FoodLAND website (<https://foodland-africa.eu/2022/01/10/foodland-project-the-global-diet-quality-project-a-fruitful-collaboration/>). HDDS questionnaires were adapted and translated to local specificities by local teams, with support of Dr. Custodio. Final DQQ and HDDS questionnaires in English and local languages are presented in Appendix 3: DQQ and HDDS questions adapted to national consumption patterns.

The estimated sample size per cities was of 500 consumers. Detailed research procedures were shared with all local teams, with additional information on sample stratification (by age and gender), as well as tips on participant's recruitments (Appendix 1: Urban consumers' research procedure).

3.2 Behavioural economic experiments

Parallel to the survey instruments, a series of economic behavioural experiments were developed for the analysis to be conducted in 6 cities (Table 1). The structure of the experiments was standardised across countries, to allow for cross-country comparisons (Table 2). Experiments were run in two alternated blocks, so to reduce the length of the experimental sessions. A sample of 500 consumers was foreseen for each city (250 per session).



Table 2. The structure of the experimental session in the 5 FoodLAND cities.

	Block 1	Block 2
1	DG – Dictator (2 rounds)	
2	TG – Trust (2 rounds)	PGG - standard / identity (2 rounds)
3	Risk attitude	Risk attitude
4	Time preferences	Time preferences
	N: 250 consumers per city	N: 250 consumers per city

500 consumers

As for the survey, the experiments were pretested in Morocco, as well as an initial version was circulated with all local teams, so to collect feedback on the proposed approach. The final experimental protocol (Available in D2.2, Section 3.3) was coded in oTree to allow performing data collection through virtual web-based software. oTree “is an open-source platform for web-based interactive tasks” (<https://www.otree.org/>), freely accessible and usable (<https://opensource.org/licenses/MIT>), and can be downloaded from <https://otree.readthedocs.io/en/latest/install.html>. The reference languages for programming an oTree experiment are Python and HTML.

The benefit of using oTree for the economic behavioural experiments was twofold: on one side it eased the data collection and data cleaning process, on the other side, it supported knowledge transfer, as all the cities in which the experiments were conducted will be equipped with computers, as well as with a version of oTree which can be reused for future behavioural studies. Finally, oTree is an Open Access software, and this support FoodLAND Open Science principles. Figure 3 shows an example on how experiments were visualised in oTree. A live demo version in English of the experimental protocol is available at the following link: <https://foodland-demo-en.herokuapp.com/demo>



Game 1 (DG)

General Instructions

In this game, each of you will be asked to make a decision on the use of assigned tokens that will influence both your earnings, and the earnings of one other participant. Your final payoff will depend on your own decisions and the decisions of other participants.

In this game you will interact with one other participant using the computer terminal. In this game there are two roles: *Sender* and *Receiver*. You will discover your actual role only at the end of the session. You will not be told who you have been paired with, either during or after the end of today's session. The participant you will be paired with is not necessarily the same of other games.

Choice

Your answers to the previous understanding questions were all correct.

We will now play the game.

You are now choosing as **Sender**

How many of your 100 Tokens do you choose to send to the Receiver?

Tokens

Figure 3. Snapshots from the behavioural experiments coded in oTree. Examples show pages as visualized by participants from the English version of the Dictator Game.

The experimental oTree codes were translated in local languages by local teams during Summer and Autumn 2021 (Arabic – Moroccan and Tunisian dialects-, French, Luganda, Swahili – Kenyan and Tanzanian dialects). The codes were built and stored in GitHub (<https://github.com/>) (open-source community for software repository) and shared with all local teams who opted for using local servers for performing the data collection. Additional local teams (e.g., INAT in Tunisia) tested the experimental tools during winter 2021 to ensure a smooth implementation of the protocol. A detailed oTree Lab Experiment & Installation guide, including a step-by-step guide for installing it (as well as the ENAM's app) in Windows Server 12 was shared with all local partners (Appendix 5: oTree lab experiment & installation guide).

Prior to the start of the experiments, several preliminary actions were performed by local teams in collaboration with UNIBO. These included:

- **Recruiting one local farmers' association and one local NGO partner as asynchronous participants to Dictator and Trust Games** (DG, TG). According to the protocol, they played as Receiver and will be paid depending on the results of the two games. Before running the games both the NGO and the farmers' association must be asked what amount of tokens they decide to send back to each participant for each possible choice the participant made (See experimental protocol in D2.2). This priori decision must be inputted into the oTree app prior to the start of the experimental sessions.



- The definition of a **salient show-up fee** and a comparable average payoff across the 6 urban locations, corresponding to the average half-day salary in the city (in 2020). Table 3 indicates the show-up fees and payoffs adopted in all countries.
- **The implementation of a lab**, equipped with 1 server and 20 workstations: participants will be accommodated to individual booths/cabins, screened on the sides – for instance through dividing panels – to avoid eye contact. Each individual workstation must be identified with a number associated with / equal to the ID provided to the accommodated participant. (Figure 2).



Figure 2. Running Behavioural experiments in Kenya (Kitui). Image on the top left: the local server set up having a router, LAN, PC computer with oTree software, UPS and power cables; image on the top right: oTree experiments sessions links generation and sharing exercise set up; image on the bottom-left: a participant in a cubicle responding to oTree experiments on a tablet and hard copy back up while paired with other participants. Photo credits: UoN.



Table 3. Show-up fees and reward

City	Country	Currency	Show-up fee	Show-up fee (€)	Average payoff	Payoff (€)
Kitui	Kenya	Kenyan shilling	501.09	3.93	848.00	6.65
Meknès	Morocco	Moroccan dirham	30.05	2.74	66.40	6.06
Sousse	Tunisia	Tunisian dinar	7.5	2.30	29.34	8.99
Morogoro	Tanzania	Tanzanian shilling	10,000.00	3.89	35,220.00	13.69
Kalerwe	Uganda	Ugandan shilling	17,157.89	4.30	65,200.00	16.36

3.3 Bio-metric measurements

The aim of the bio-metric tests is to gain insights on consumers' conscious and non-conscious decision-making processes. This experimental research will elicit consumers' ability to perceive embedded health values (testing their ability to put words on). Eventually, these bio-metric studies will offer indications for designing R&I strategies, bridging the farmers' and processors' activities with the consumers' preferences, detecting new market opportunities for novel food products and packaging solutions, and orienting marketing and communication strategies.

Bio-metric measurements will be conducted in three FoodLAND cities involving a sub-sample (N=200) of the consumers who conducted the experimental and survey research activities. In two of such cities, they will be conducted jointly with an experimental auction (Section 3.4). The biometric measurements' standard protocols including procedures, instructions for researchers and enumerators, logistic issues for the organization and management of the research activities are provided in D2.2.

The bio-metric tests are underway. The following table indicates the foreseen timeline for the biometric activities.

Table 4. Bio-metric measurements foreseen timeline

Activity	Date	Project month
Pre-testing of the experimental protocol in Copenhagen	Start of May	M21
Translation of the protocol refined based on the pre-test in the local languages	16-31 May 2022	M21
Implementation of the experiment in Meknes (MO)	6-19 June 2022 (2 weeks)	M22
Implementation of the experiment in Sousse (TN)	20 June – 3 July 2022 (2 weeks)	M22-M23
Translation of the protocol refined based on the pre-test in the local languages	16-31 May 2022	M21



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Protocol testing and experimental set-up' (in Lab / in-store) Plan for data collection	November/December 2022	M28-29
Testing in Food Hub #3 three weeks	January/February 2023	M30-31

3.4 Joint auction/eye-tracking experiment

This experiment aims to understand consumers' preferences (and thus willingness to pay) for different attributes of olive oil (defined as "extra virgin" in the local market but not necessarily according to EU regulations), including both sensory attributes (detected through tasting) and additional characteristics conveyed via labels or additional statements. The goal is to increase awareness about the quality of olive oil available to them on the market and promote the consumption of higher quality products. The auction/eye tracking experiment will be conducted in two cities (Meknes MA, and Sousse TN), targeting a sub-sample of urban consumers (N=200) who have previously conducted the experimental and survey research activities. The standard protocol for the joint auction/eye-tracking experiment, including procedures, instructions for researchers and enumerators, logistic aspects for an effective implementation of the experiment are provided in D2.2.

The auction/eye tracking experiments are underway. Table 5 indicates the foreseen timeline for the activities.

Table 5. Joint auction/eye-tracking experiment foreseen timeline

Activity	Date	Project month
Selection of the attributes to be tested	Finalised	M18
Selection of 4 olive oils per country representing all potential combinations of the attributes, and their shipment to Bologna	Selection finalised, shipment by 31 March 2022	M19
Evaluation of the oils for sensory characteristics by an official panel (IOC/T.20/Doc. N. 15) in Bologna	15 April 2022	M20
Pre-testing of the protocol in Copenhagen	1-15 May 2022 (3 days)	M21
Translation of the protocol refined based on the pre-test in the local languages	16-31 May 2022	M21
Implementation of the experiment in Meknes (MO)	6-19 June 2022 (2 weeks)	M22
Implementation of the experiment in Sousse (TN)	20 June – 3 July 2022 (2 weeks)	M22-M23



3.5 Survey with rural consumers

A series of surveys with randomized samples of rural consumers in 5 Food Hubs (one for each country) are also foreseen. This activity aims at sampling pairs of women of reproductive age and child between 6 to 23 months of age (500 pairs foreseen). The aim is to collect data on rural consumers' socio-economic conditions, socio-demographic (e.g., migration), food provisioning and preparation habits, food consumption and diet quality, food prices, and community conditions and services, while paying attention to the gender perspective. The survey will be developed mirroring the one used for urban consumers (Appendix 2: Urban consumers' survey instrument, and will be focused around eight research axes:

1. Food purchasing and gathering characteristics (information on the type of food purchased, produced, or gathered in the wild).
2. Consumer's propensity to introduce healthier and/or local novel/new foods in their diet (behavioural change)
3. Consumer's linkages with the local community and propensity to join/ or extent of usage of local networks/associations/groups of rural citizens and women (Social innovation)
4. Women's role in the household (e.g., household domestic work burden) and women's power over food purchasing habits
5. Food consumption and Individual Diet Quality Questionnaire (DQQ) and Household dietary diversity Score (HDDS) measurements.
6. Characteristics of the community and socio-economic and socio-demographic consumers' information (e.g., migration, women's work and empowerment) consumers' information.
7. Environmental and socio-economic setbacks experienced and worries for the future.
8. Trust towards players of the food value chain.

The activities targeting rural consumers will be initiated starting from May 2022 (M21). Table 5 indicates the foreseen timeline for these activities.

Table 6. Rural consumers research foreseen timeline

Activity	Date	Project month
Draft and finalisation of the survey tools	May-June 2022	M21-M22
Selection of 5 Food Hubs where undertake the analysis	May-June 2022	M21-M22
Translation of the protocol in the local languages	June-July 2022	M22-M23
Data collection	August-September 2022	M24-M25

3.6 Ethical and gender considerations

The FoodLAND project adopts a gender mainstreaming strategy, considering the gender perspective at every phase of the project, namely, preparation, design, implementation, monitoring and evaluation, with the aim of promoting equality between women and men, and combating discrimination. With regards to the consumers' activities, **gender perspective was considered in the sampling strategy** (Appendix 1: Urban consumers' research procedure), through the following actions:

- **Consumers' recruitment per city was conducted following consecutive sampling or stratified random sampling by gender and age** (Appendix 1: Urban



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consumers' research procedure). This as to guarantee that the sample selected was fairly representative of both female and male urban consumers, so to analyse results through a gender perspective (e.g., are female consumers more/less propense to consume healthier/local foods?; see Section 5.1)

- Ensure that the **enumerators are gender-balanced** and trained about the data collection tools and procedures.
- **Create a gender sensitive content** regarding the content of the survey and the protocols of the economic experiments, collaborating with FoodLAND gender experts.
- **Include the gender variable in the survey and in the economic experiments**, to be able to disaggregate all the gathered data, to be able to identify specific socio-economic conditions regarding women and men consumers (to identify gender biases), and to identify if there is any relevant aspect that differs between women and men consumers regarding innovation, cooperation, and trust.
- **running surveys with rural consumers focused on the gender perspective**, with special attention to maternal and child diets and health (Section 3.5).

Moreover, cultural sensitivity and autonomy of participants was also fostered, always ensuring that enumerators respect the context-based characteristics of each city (e.g., languages and dialects, traditions and costumes, local holidays, etc.). Finally, careful adaptations to the sampling procedure were undertaken to ensure that all materials and survey and experimental venues respect COVID19 minimum safety standards (hand hygiene, sanitization of tools and venues, social distancing), accordingly to national guidelines.

A consent form (in the local language of each City) was used to collect consent from participants to take part in the consumers' experimental and survey activities (Deliverable D7.1: H - Requirement No. 1). Local enumerators ensured that each participant understood the aforementioned information to make an informed decision. No sensitive personal data was collected. Primary data was pseudonymized and cleaned at the country level and provided at the project level only in the pseudonymized form, without any possibility to access personal identifiers. Datasets were merged at the project level and fully anonymized.

4 Data collection methods and tools

4.1 Data collection instruments development

Once the experimental protocols (Section 3.2) and survey instruments (3.1) were finalised, complementary material was prepared to support the data collection from local partners. This material included:

- The final version of the behavioural experiments protocol with instructions for enumerators (Appendix 1: in D2.2; Section 4.3). The protocol was distributed in English and translated into the local languages by the local teams.
- The research procedures to be followed to ensure sample representativeness and sufficient gender representation (Appendix 1: Urban consumers' research procedure). This document contains detailed prescriptions to be followed to ensure a smooth implementation of the survey and experimental activities in both in-the-household/out-of-store and in-lab settings, as well as prescriptions on the biometric measurements and the experimental auction.
- The survey instrument in either its short or longer format (Appendix 2: Urban consumers' survey instrument); including the final DQQ and HDDS set of questions



- developed bilaterally between the local teams and Dr. Custodio (Appendix 3: DQQ and HDDS questions adapted to national consumption patterns).
- An excel file summarizing the changes between the current survey version in use for in-lab session and the one for out-of-store/in-the-household settings (Appendix 4: Table summarising changes between in-the-household/out-of-store survey and in-lab survey).
- For the survey data collection: access links to the ENAM's app allowing local partners to: (i) translate the questionnaire into the local language, (ii) randomise the order of the multiple answer questions, (iii) collect the data in a standardised manner, (iv) download the final set of data in a csv. format (Legend available in D2.1).
- For the behavioural experiment data collection: the (translated to the local language) app oTree.zip to be installed on the server for the conduction of the experiments.
- Step-by-step instructions on how install and use oTree in Windows Server 12 (Appendix 5: oTree lab experiment & installation guide).
- Accompanying slides for training the enumerators on the data collection procedures (and especially the DQQ and HDDS assessments) (Appendix 6: Enumerator's guidelines for DQQ -HDDS training (PPTs)).
- The ethics consent forms to be signed (only) by the participants from the in-lab activities (informed consent; information on personal data). (Section 0).
- The standard Invitation form to invite consumers to participate in the incentivized in-lab activities (Appendix 7: Invitation form).
- Additional information guiding local partners in collecting a series of preliminary information necessary for initiating the behavioural experiments (see Section 3.2).

The final English version of the protocol was preregistered at OSF.io to enable the replicability of the research approach. The preregistration form followed the for pre-registration in Social Psychology template by van 'Veer & Giner-Sorolla (2016). The preregistration is publicly available at the following DOI: <https://doi.org/10.17605/OSF.IO/VTCR4> .

Once all the material was sent, with an accompanying explanatory email, to local partners by the core T2.1 and T2.2 teams, bilateral meetings were offered to local teams to clarify any remaining question ahead of the final data collection.

Additional materials are foreseen to be prepared for the implementation and running of the biometric measurements (Section 3.3), the joint auction/eye-tracking experiment (Section 3.4), and the survey with rural consumers (Section 3.5).

Regarding the joint auction/eye-tracking protocol has been planned from available material send from Morocco and Tunisia, and will be reviewed and revised based on the results of the pre-test in Copenhagen:

- A full script for the enumerators to be read during the implementation of the experiment (available in Appendix 8: Instruction and list of tools for the enumerators running the joint auction/eye-tracking experiment).
- A list of tools to be prepared ahead of each experimental session (Appendix 8: Instruction and list of tools for the enumerators running the joint auction/eye-tracking experiment).
- A randomisation plan to prevent order effects and ensure independence of the consumers' choices at each stage of the protocol (in preparation).
- A metadata table and data collection tool developed in the iMotions 9.0 biometric software (<https://imotions.com/platform/>) (in preparation and to be pre-tested).



4.2 Data collection implementation

The data collection with urban consumers started in September 2021 and was completed for all countries by the end of March 2022, with data collection being constrained by Covid 19 restrictions in many countries. Data collection in Ethiopia was postponed due to the ongoing Tigray war since November 3, 2020, and the interruption of any communication with the local partners (UoM, REST). Table 3 shows the completion date for data collection in all cities. In the cities with both experimental and survey activities the data collection was implemented jointly with participants attending sessions in which they took part in both activities. Unique identifiers of participants were used to match both datasets.

The data was collected through tablets (in-the-household/out-of-store) and computer (in-lab settings), using the ENAM's app and oTree server. Only where internet connection was instable, data was gathered through pen and paper and only after stored in the ENAM's app by enumerators.

Table 7. Targeted sample sizes and date at which data collection was completed in all cities.

City	Country	Targeted sample size	Dataset on survey results	Project month	Dataset on experimental results	Project month
Mekelle ¹	Ethiopia	500	-	-	-	-
Addis Ababa ¹		500	-	-	-	-
Kitui	Kenya	500	January 2022	M17	January 2022	M17
Nyeri		500	March 2022	M19	-	-
Kisumu		500	March 2022	M19	-	-
Meknès	Morocco	500	February 2022	M18	March 2022	M19
Beni Mellal		500	February 2022	M18	-	-
Sousse	Tunisia	500	March 2022	M19	March 2022	M19
Tunis		500	March 2022	M19	-	-
Morogoro	Tanzania	500	March 2022	M19	March 2022	M19
Dar es Salaam		500	February 2022	M18	-	-
Kalerwe	Uganda	500	February 2022	M18	February 2022	M18
Kapeeka		500	February 2022	M18	-	-
Kampala		500	February 2022	M18	-	-

¹ Data collection in Ethiopia was postponed due to the ongoing Tigray war since November 03, 2020, and the interruption of any communication with the local partners (UoM, REST).

4.3 Data validation and homogenisation

Between February 2022 and March 2022 (M18-M19), several iterations of validation checks, followed by verifications by local partners, were implemented to:

- Fill **missing data** and **entry errors** (e.g., values outside admitted range) by checking the paper version of the questionnaire or of the experimental data.
- Ensure coherence in experimental data
- Ensure coherence and standardisation of string variables
- Ensure that the **unique identifiers** match between experiments and surveys



In line with data management best practice, the initial raw data was archived, all edits made to the data during the validation checks were recorded using logs, and the final clean and homogenised datasets were shared with local partners.

5 First results

5.1 First results from urban consumers' surveys

In the following section, we present the first comparative results on urban consumers from the structured surveys. Results are grouped by thematic aspects (e.g., demographics, household structure and income levels, consumers' purchasing decisions over local and healthy foods, perceived setbacks, trust level, etc.) and include a gender-sensitive analysis, aimed at identifying whether demographic factors such as gender and age have a significant effect on the consumers' propensity to purchase and consume healthier and local food products.²

These analyses were based on a final sample of **5,939 valid observations** (Table 8). Data was gathered in 12 cities located in five countries (Kenya, Morocco, Tanzania, Tunisia, and Uganda). The survey was standardized across all cities (survey available in Appendix 2: Urban consumers' survey instrument), with few adaptations detailed in Section 3.1.

Table 8. The final sample of the urban consumers' survey by city and gender.

Country	City	Final sample	Male	Female	Prefer not to say/NA
KE	Kitui	508	244	259	5
KE	Nyeri	513	217	292	4
KE	Kisumu	493	184	307	2
MA	Meknès	500	338	162	0
MO	Beni Mellal	400	282	118	0
TN	Sousse	502	178	312	12
TN	Tunis	500	246	254	0
TZ	Morogoro	517	251	263	3
TZ	Dar es Salaam	489	218	270	1
UG	Kalerwe	500	213	287	0
UG	Kapeeka	511	153	358	0
UG	Kampala	506	129	375	2
TOTAL		5939	2653	3257	29

² First results on dietary diversity at individual and household level (DQQ and HDDS) are described in D2.5 where the "literature review on consumers' food consumption and nutritional statues and needs" conducted in the 6 countries is also reported.



Survey demographics

Female consumers average 54.8% across all cities, while male consumers are 44.7% of the total (Figure 4 **Errore. L'origine riferimento non è stata trovata.**). Consumers' age average to 38 years (Figure 5 **Errore. L'origine riferimento non è stata trovata.**). Concerning the consumers' educational level, 87.7% of the sample on average has attended some form of education (primary, secondary, or more than secondary) (Figure 6). Only 8.4% of the consumers are literate without any qualification. The most frequent form of employment is self-employment (20.7%), followed by casual workers (19.3%), and regular workers (18.5%). 6.3% of the sample is currently unemployed. (Figure 7)

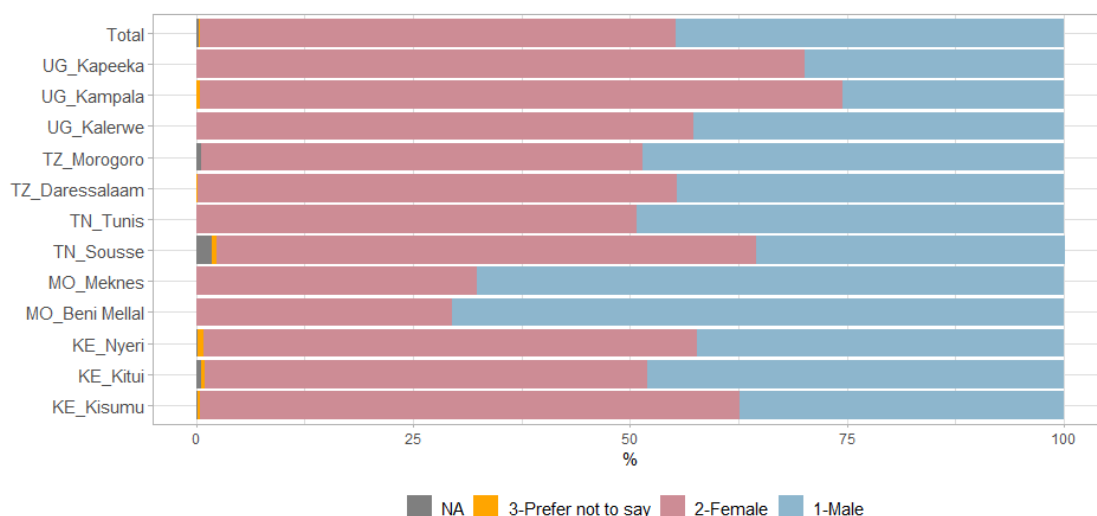


Figure 4. Consumers' gender in the 12 FoodLAND Cities.

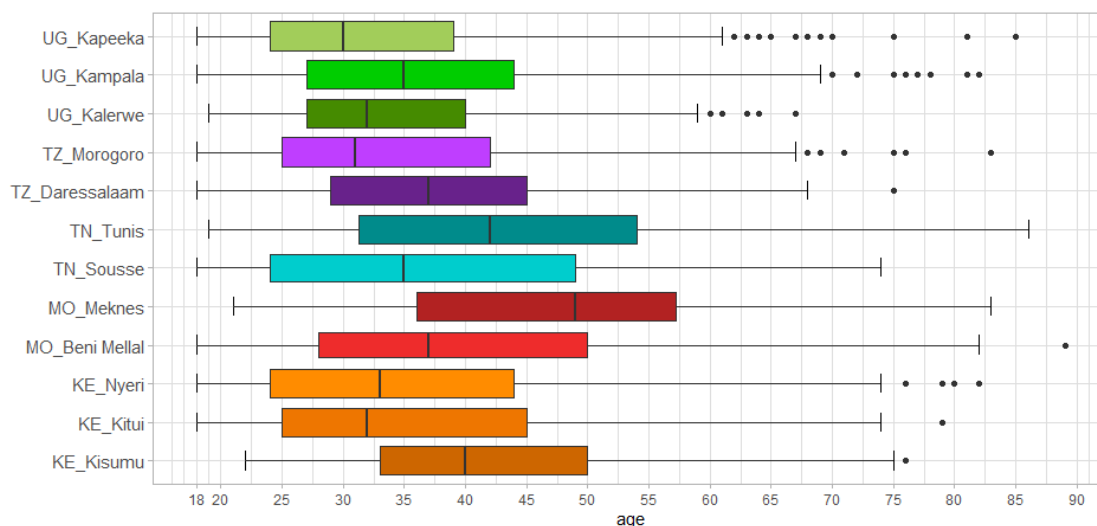


Figure 5. Consumers' age in the 12 FoodLAND Cities



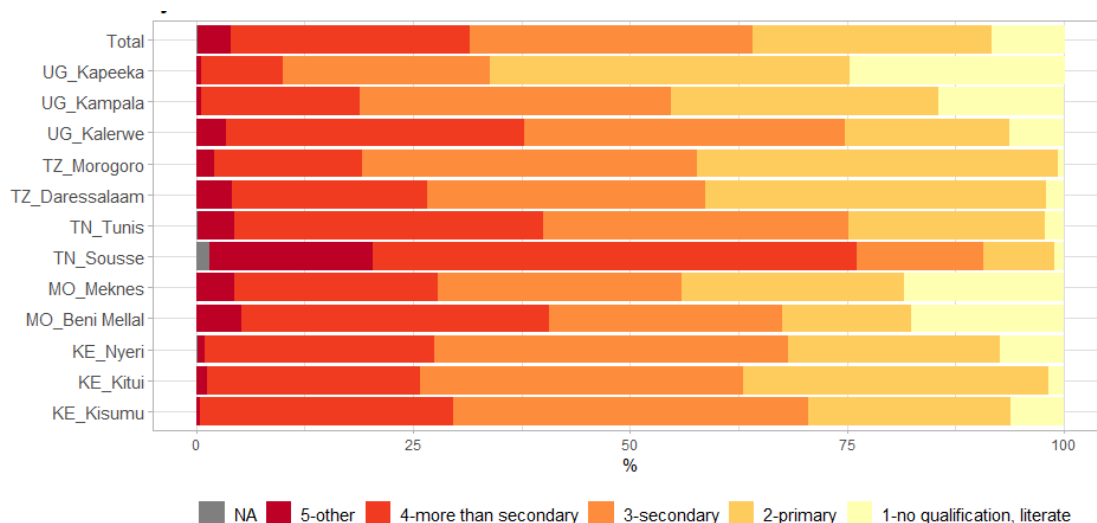


Figure 6. Consumers' educational level.

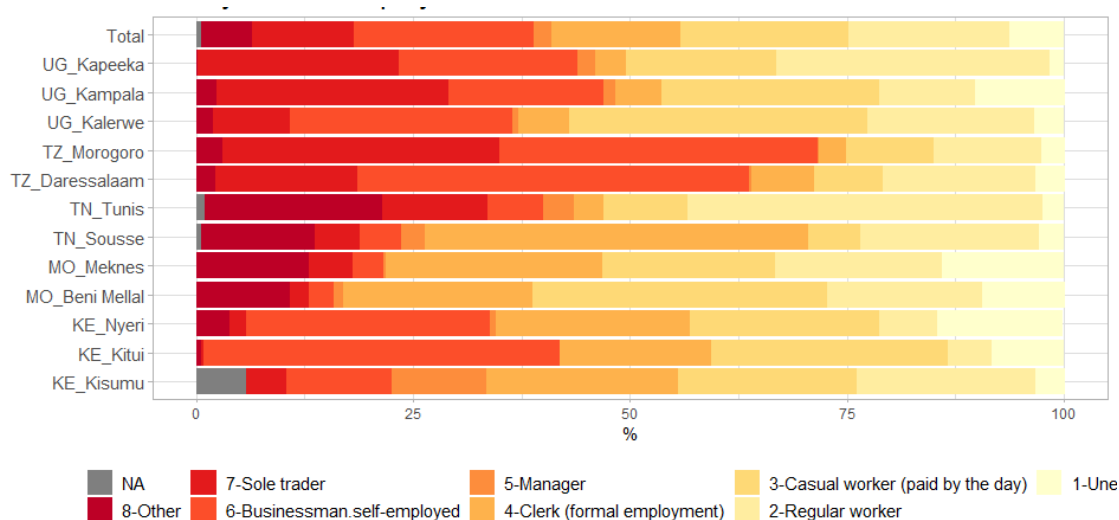


Figure 7. Consumers' form of employment in the 12 cities.

Household structure and income levels

The average household size is 4.8 members (Figure 8). On average 1.6 members have a revenue per household. Consumer's income across cities is perceived as being lower than the average income level in 20.8% of the cases (Figure 9). In Tunis, Sousse (TN), Kitui and Nyeri (KE) less than 10% of the consumers have an income level lower than the average. The consumer's share of household income spent on purchased food is more than half in 31.8% of the cases (Figure 10). 8% and 25.8% of the consumers experienced either serious food shortages or some difficulties in meeting household food needs (Figure 11). Dar Es Salaam (TZ) appears to be the city in which consumers have less difficulties in meeting food needs.



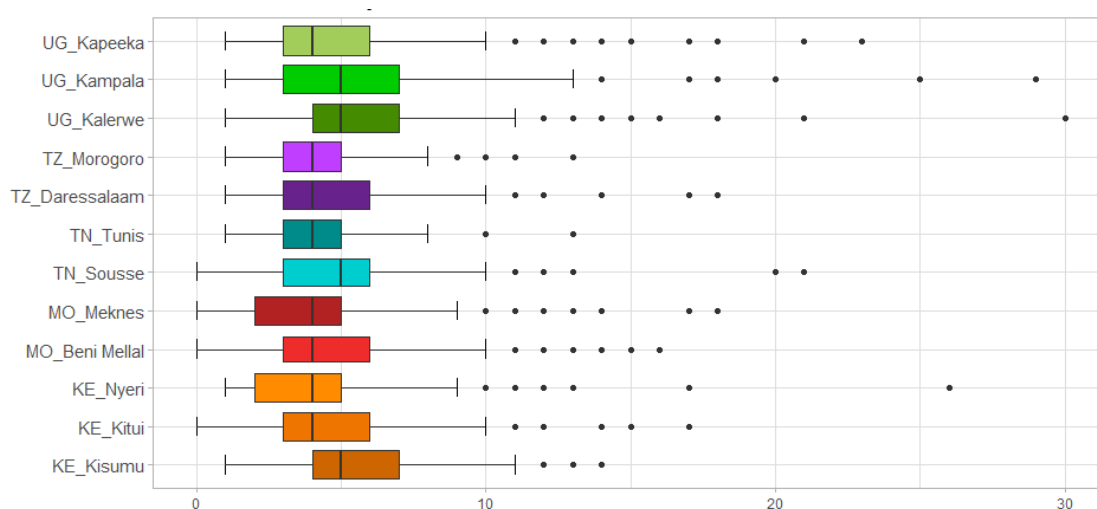


Figure 8. Consumers' household size in the 12 cities.

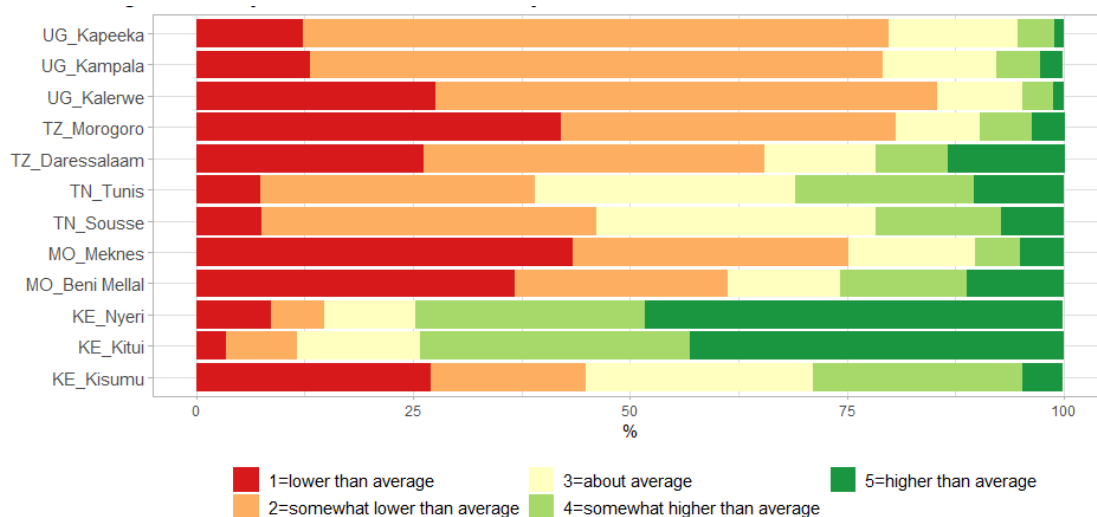


Figure 9. Consumers' average monthly household income in the 12 cities (Q21).



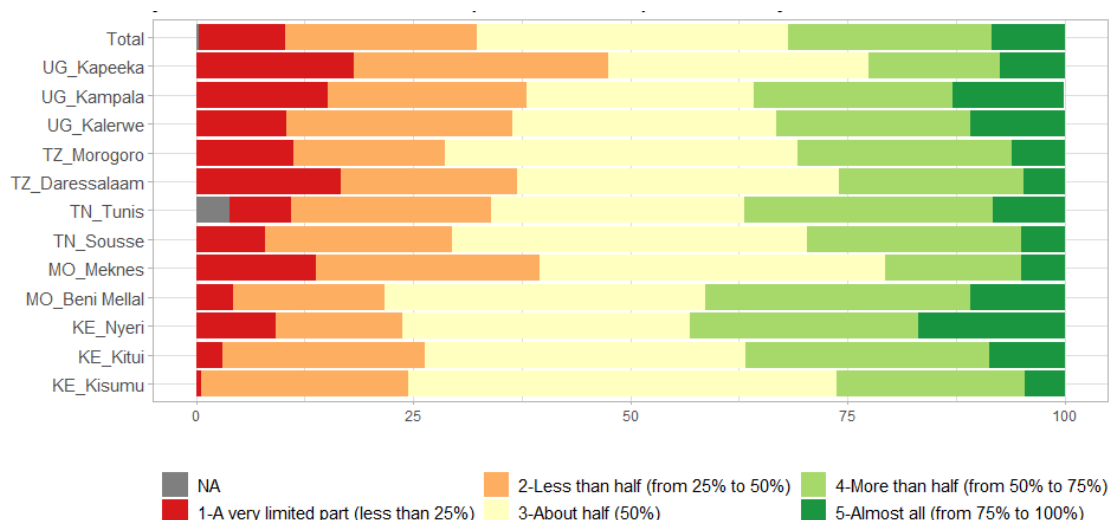


Figure 10. Consumer's share of household income spent on purchased food (Q3).



Figure 11. Consumer's ability to meet food needs in the 12 cities. (Q16).

Food purchasing decisions

When looking at the reasons behind food purchasing behaviours, respondents rate the most on average food affordability (price) (4.29 on a scale to 5), Product characteristics (taste, aroma, colour, shape) (4.12), availability (4.06), and the nutrition content (4.00). (Figure 12). The food categories mostly lacking in the consumer's household diet are on average oils (4.09 on a scale to 5), vegetables (4.06) and cereals (4.02) (Figure 13).



Q2 Important reasons in the decision to buy a food product by country

average value on a scale from 1=Not at all important to 5=Extremely important

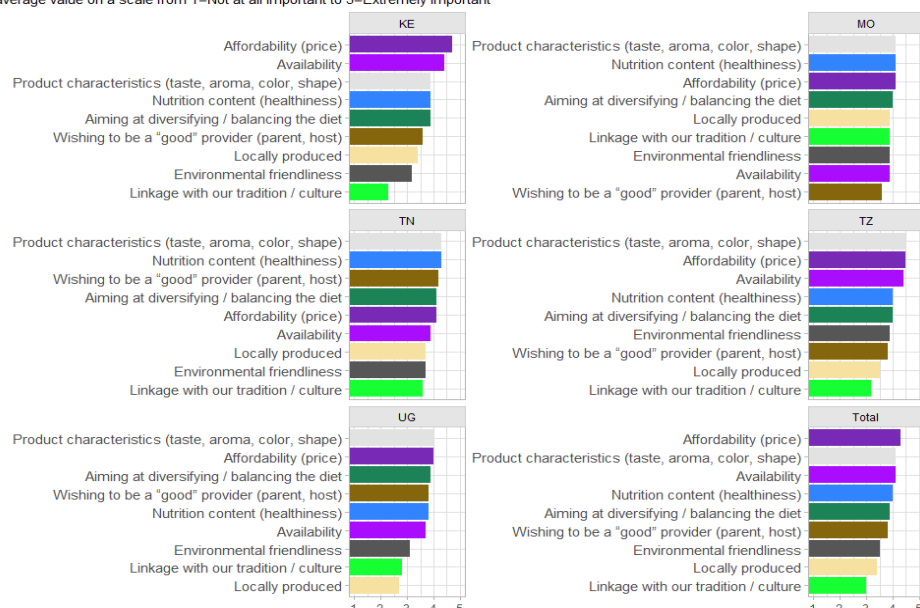


Figure 12. Consumer's average answer to the question: When you decide what food product you are going to buy, how important are the following reasons? (Q2).

Q4 Food products lacking in your household diet by country

average value on a scale from 1: completely lacking; to 5: extremely present

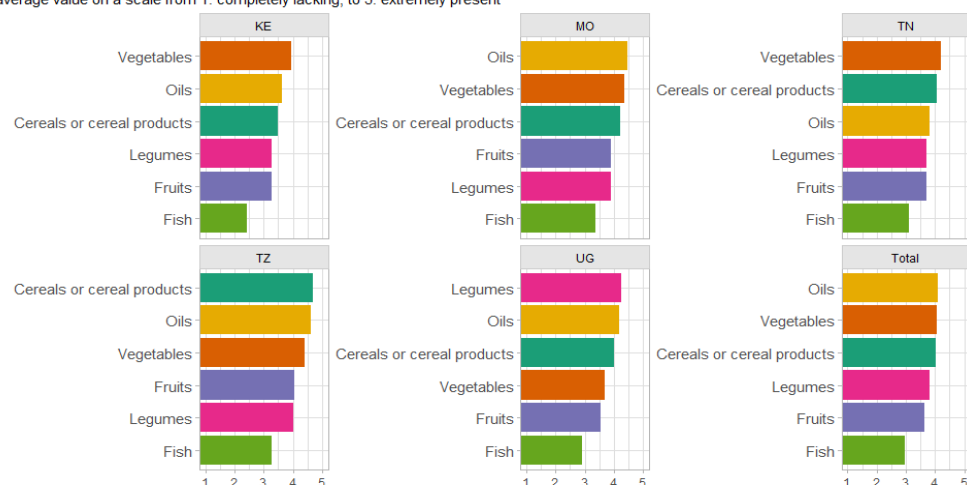


Figure 13. Consumer's average answer to the question: which of the following food products is lacking in your household diet? (Q4).

Consumer's preferences towards local food products

Urban consumers purchase local food products somewhat frequently (3.67 on a scale to 5), with the lowest level recorded in Kalerwe (2.87) and Kampala (2.37) (UG) (Figure 14). When asked about their **propensity to include in their diets foods or ingredients only produced within a short distance**, consumers report high level of interest (on average 3.98) (Figure 15). When

looking at the reasons behind the inclusion of a new local food, consumers rate the most affordability (4.10 on a scale to 5), and food availability (4.02) (Figure 16). The most rated obstacles are price (3.79) and lacking information about the food healthiness (3.70).

Q5 Frequency of buying local food products - distribution of values by country



Figure 14. Consumer's average answer to the question: How often do you buy local food products? (foods or ingredients only produced within a short distance) (Q5)

Q6 Interested in buying new local food product - distribution of values by country

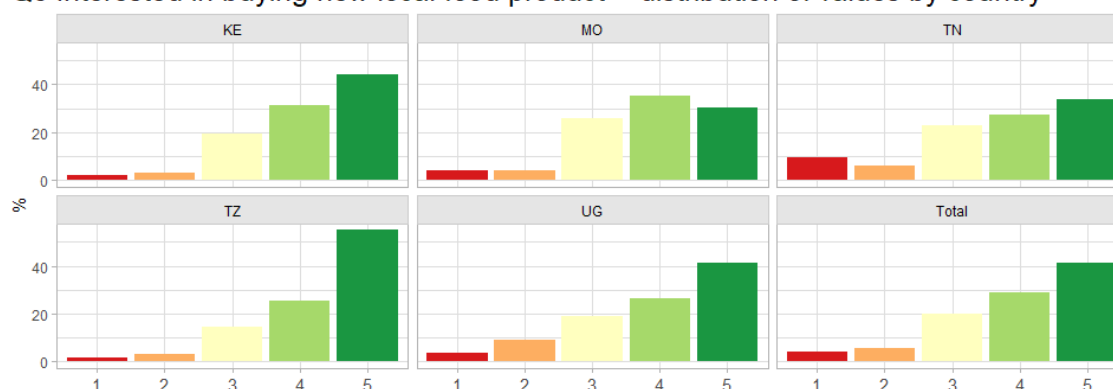


Figure 15. Consumer's average answer to the question: If you were given the option to include in your household diet a new local food product (foods or ingredients only produced within a short distance), to what extent would you be interested in buying this new local food product? (Q6)



Q7 Reasons to include a new local food product in your household diet by country

average value on a scale from 1: Very unlikely; to 5: Very likely

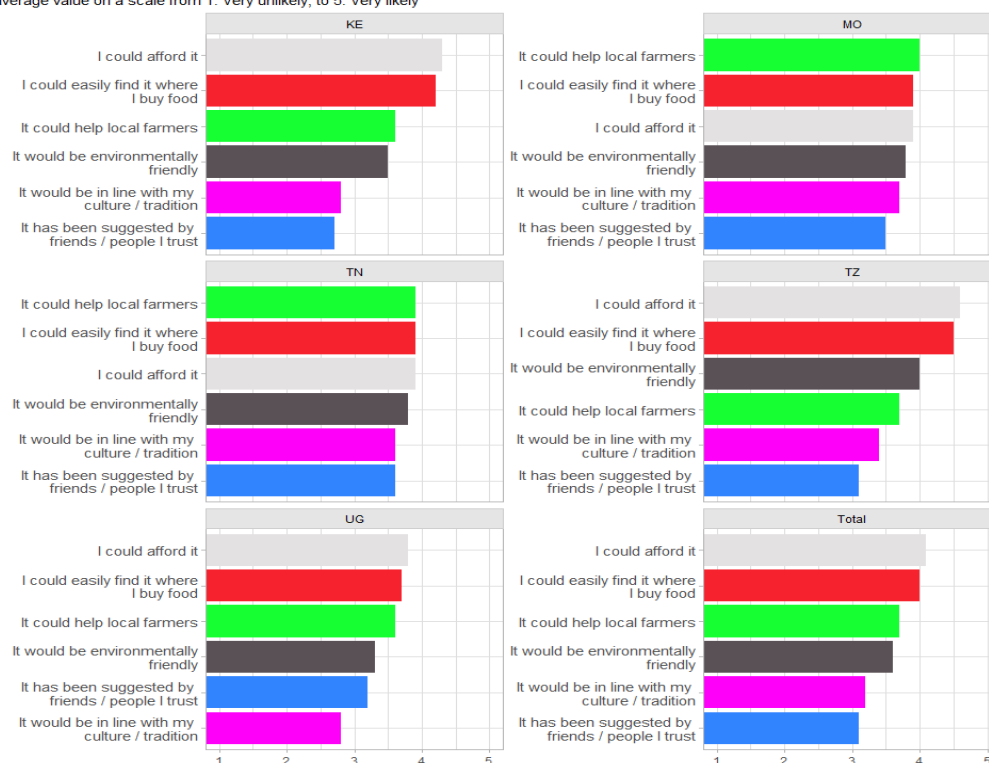


Figure 16. Consumer's average answer to the question: How likely would each of the following reasons make you include this new local food product in your household diet? (Q7).



Q8 Obstacles from including new local food product in the household diet by country

average value on a scale from 1: Very unlikely; to 5: Very likely

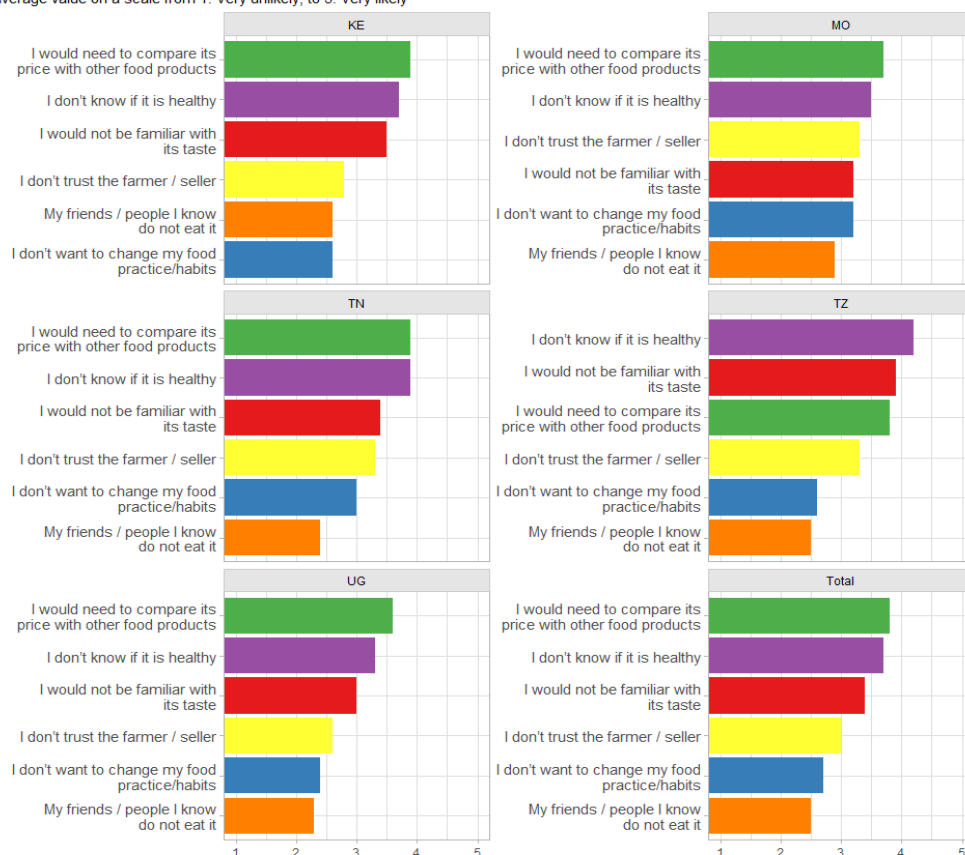


Figure 17. Consumer's average answer to the question: prevent you from including this new local food product in your household diet? (Q8).

Consumer's preferences towards healthy food products

Urban consumers consider on average their household diet as moderately healthy (3.69 on a scale to 5). The lowest levels are recorded in Kalerwe (3.45) and Kampala (3.23) (UG) (Figure 18). When asked, most consumers (80.9%) are willing to introduce a new food product – such as a new iron-fortified flour – that is likely to reinforce their immunity to infections or reduce the likelihood of having an infection. These first findings will need to be validated contrasting them with the revealed preferences emerging from the economic behavioural experiments (Section 0).

When asked about their **propensity to include in their diets a new food product with augmented nutrient content** (e.g., naturally improved bean with high levels of proteins and minerals) that could complement their current household diet, consumers report high level of interest (on average 4.15) (Figure 19Figure 15). When looking at the reasons behind the inclusion of a new nutrient-dense food, consumers rate the most the possibility of enhancing the healthiness of their diet (3.80 on a scale to 5), doctor's recommendations (3.71), and affordability (3.67) (Figure 20). The most rated obstacles are price (3.65) and food safety (3.29) (Figure 21).

average value on a scale from 1: No, totally unhealthy; to 5: Yes, totally healthy

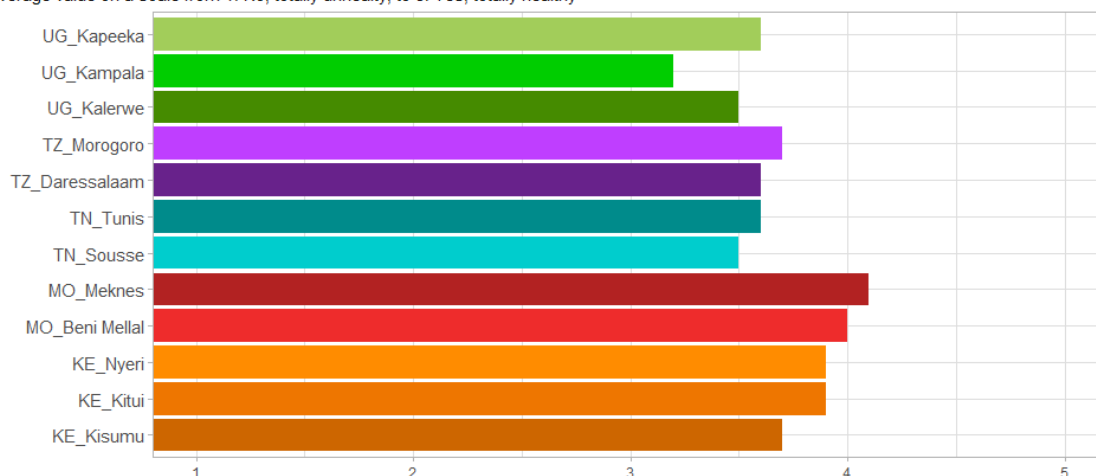


Figure 18. Consumer's rate of healthy household diet (According to this definition: "A healthy diet is one that provides adequacy of nutrients, with-out health-harming substances and excess of nutrients", do you consider your household diet as healthy?) (Q11)

Q13 Interest for a new nutrient dense food product

average value on a scale from 1: Not at all interested; to 5: Extremely interested

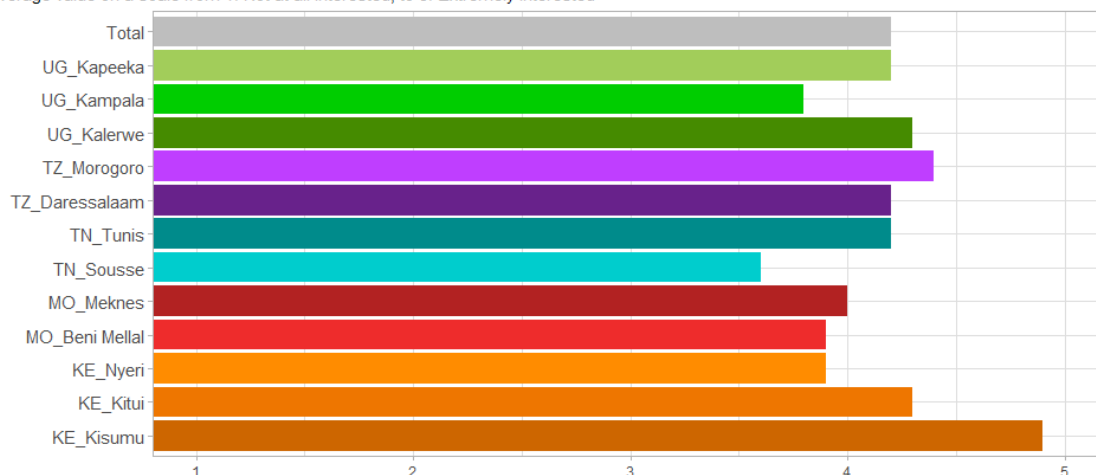


Figure 19. Consumers average answer to question: If you were given the option to include in your household diet a new food product with augmented nutrient content (e.g., naturally improved bean with high levels of proteins and minerals) that could complement your current household diet, to what extent would you be interested in buying this new nutrient-dense food product? (Q13)



average value on a scale from 1: Very unlikely; to 5: Very likely

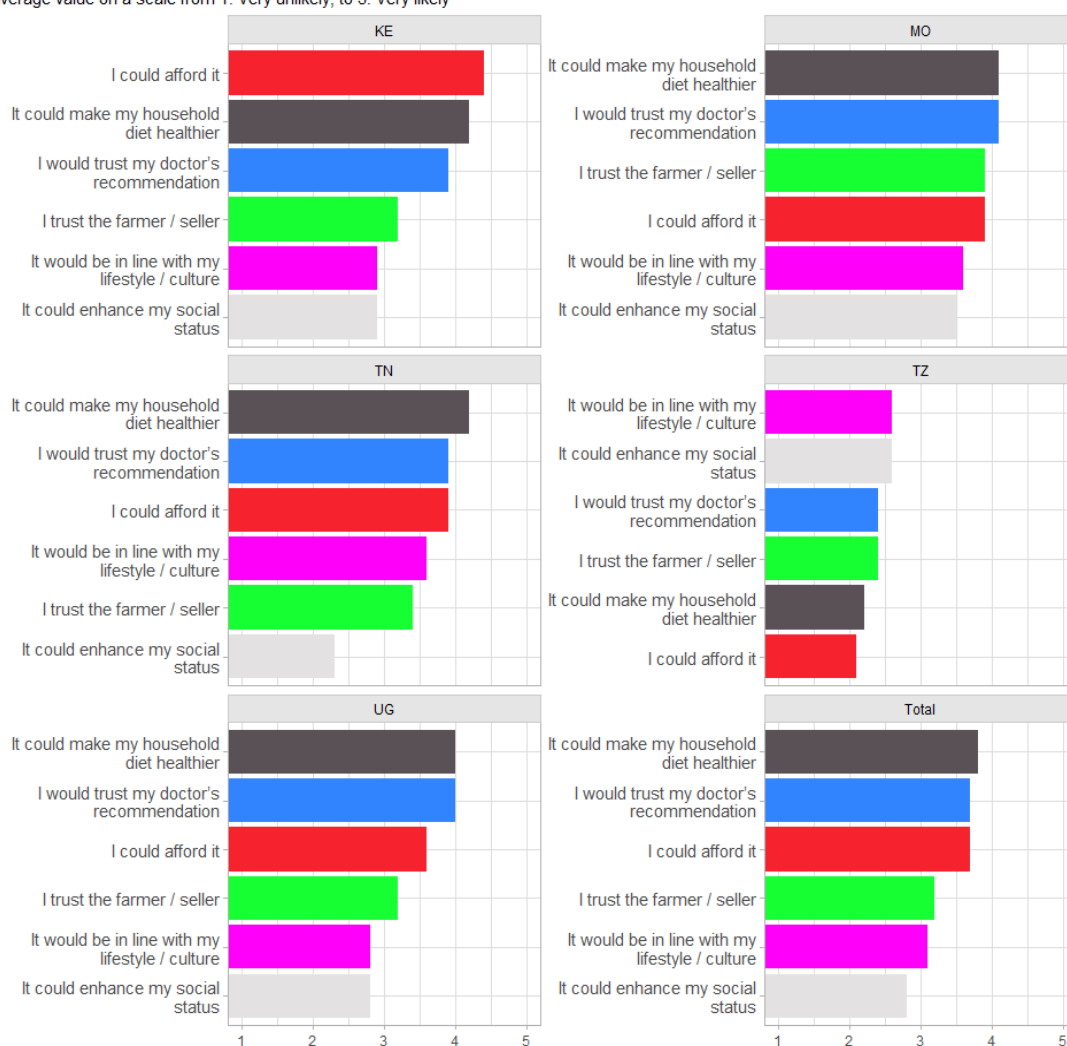


Figure 20. Consumer's average answer to the question: How likely would each of the following reasons make you include this new nutrient dense food product in your household diet? (Q14).



average value on a scale from 1: Very unlikely; to 5: Very likely



Figure 21. Consumer's average answer to the question: which of the following obstacles might prevent you from including this new nutrient-dense food product in your household diet? (Q15).

Current setbacks and worries about the future

Figure 22 shows the most common experienced setbacks by the consumers during the last year, while consumer's worries concerning the near future are presented in Figure 23. **Error. L'origine riferimento non è stata trovata.** The most frequent setbacks are on average the increase of food prices (3.57 on a scale to 5), income reduction (3.24) and diseases (2.95). The strongest worries about the future are the increase of food prices (3.62), diseases (3.08), and food shortages (2.88).



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Q25 Setbacks during the past year and their impact

average value on a scale from 1: Not at all important, to 5: Extremely important

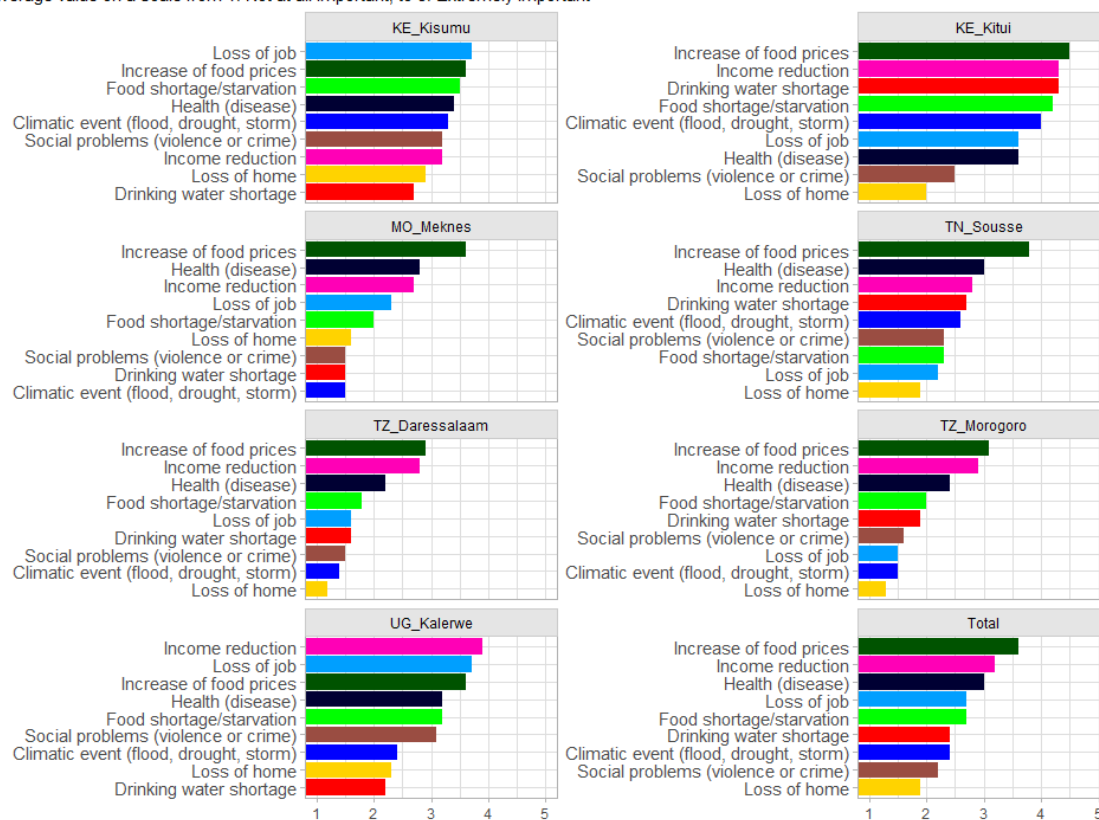


Figure 22. Consumer's average answer to the question: did you experience any of the following setbacks during the last year? If so, how impactful were they? (Q25).



Q26 Future risks and their importance

average value on a scale from 1: Not at all important; to 5: Extremely important

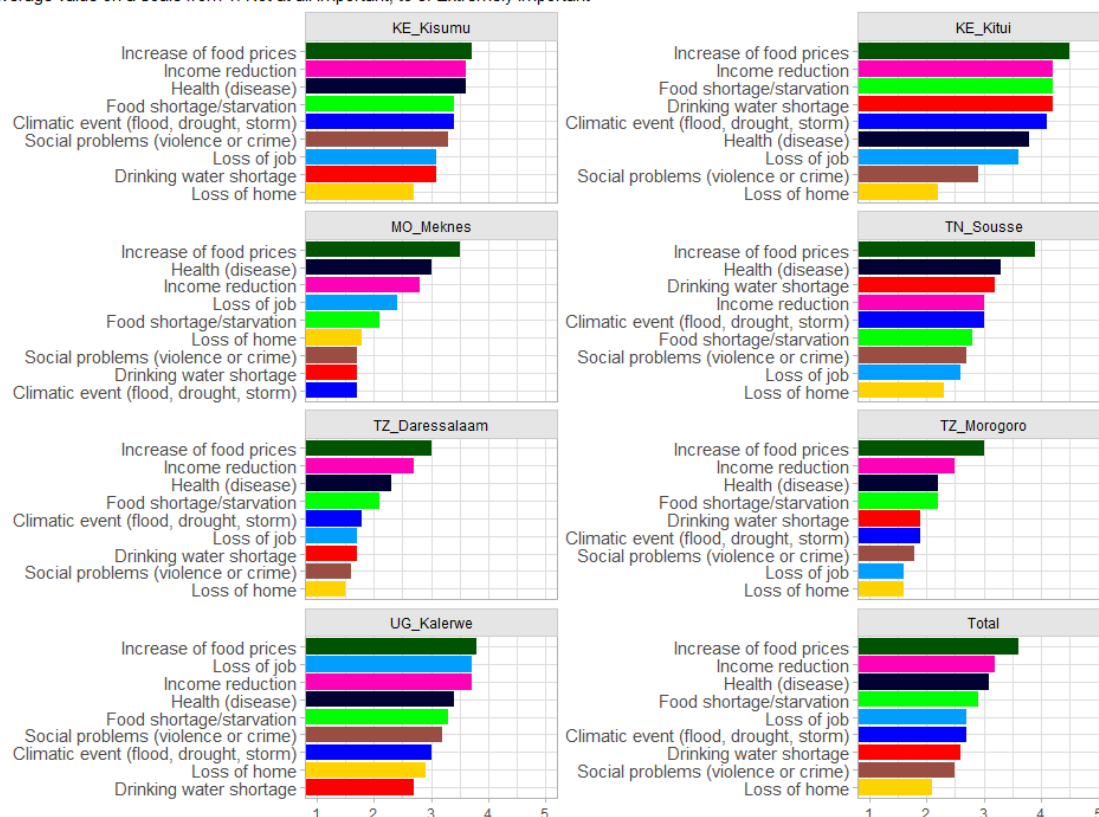


Figure 23. Consumer's average answer to the question: Thinking about your near future, do you consider yourself and your household at risk of the following? If so, how important do you consider the risk to be? (Q26).

Connection to local territory and consumer's trust

Generally speaking, most of the consumers have a strong sense of place attachment to their local territory (Figure 24; 3.67 on a scale to 5) and their peers (Figure 25; 3.76), with the lowest level recorded in Kisumu (KE – 2.70). The general consumer's trust level emerged from the survey is rather low. Only 20.5% of the sample on average believes that most people can be trusted. The lowest level recorded are in Meknes (MA) (6.8%) Kalerwe (UG), and Sousse (12%) (Figure 26). The highest level of trust are towards farmers (3.75 on a scale to 5), small grocery storers (3.50), and food vendors in the supermarket (3.49) (Figure 27).



Q27 To what extent do you feel attached to your local territory?

average value on a scale from 1: Not at all attached; to 5: Extremely attached



Figure 24. Consumer's attachment to its local territory (Q27). Question asked in cities only where in-lab experiments were performed.

Q28 Attachement to your peers (your local community)

average value on a scale from 1: Not at all attached; to 5: Extremely attached

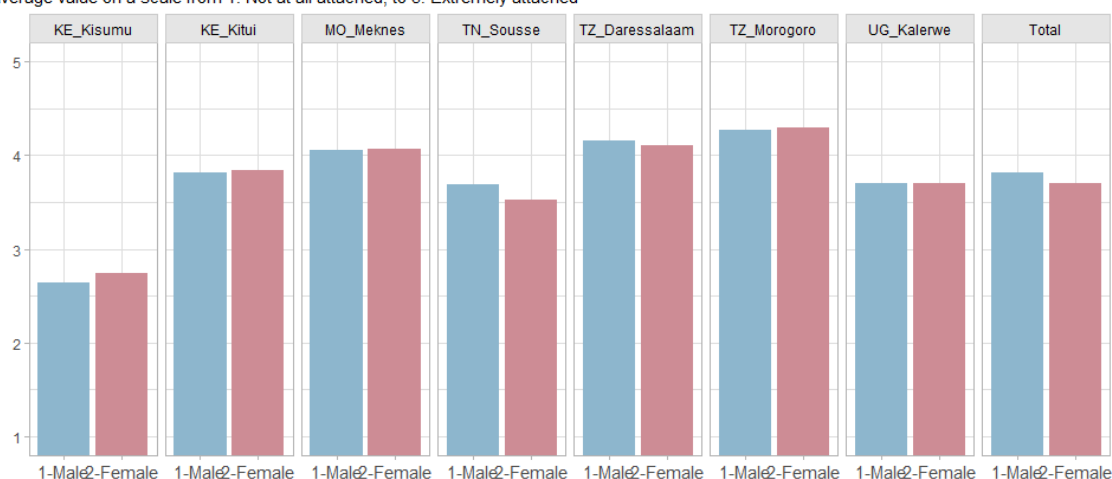


Figure 25. Consumer's attachment to peers (Q28). Question asked in cities only where in-lab experiments were performed.



Q29 Trust in people

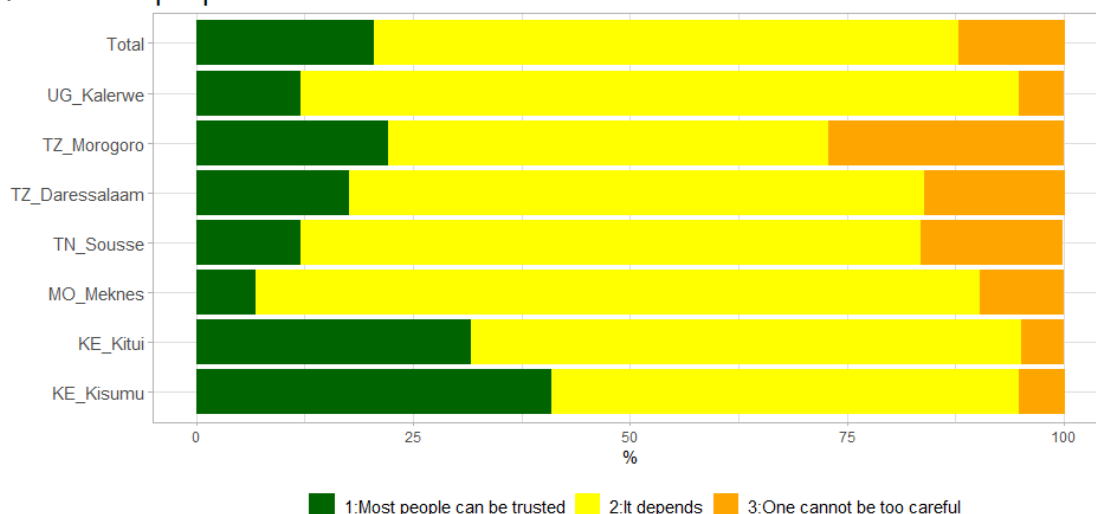


Figure 26. Consumer's trust level in people (Q29). Question asked in cities only where in-lab experiments were performed.

Q30 How much do you trust

average value on a scale from 1: No trust at all; to 5: A lot of trust

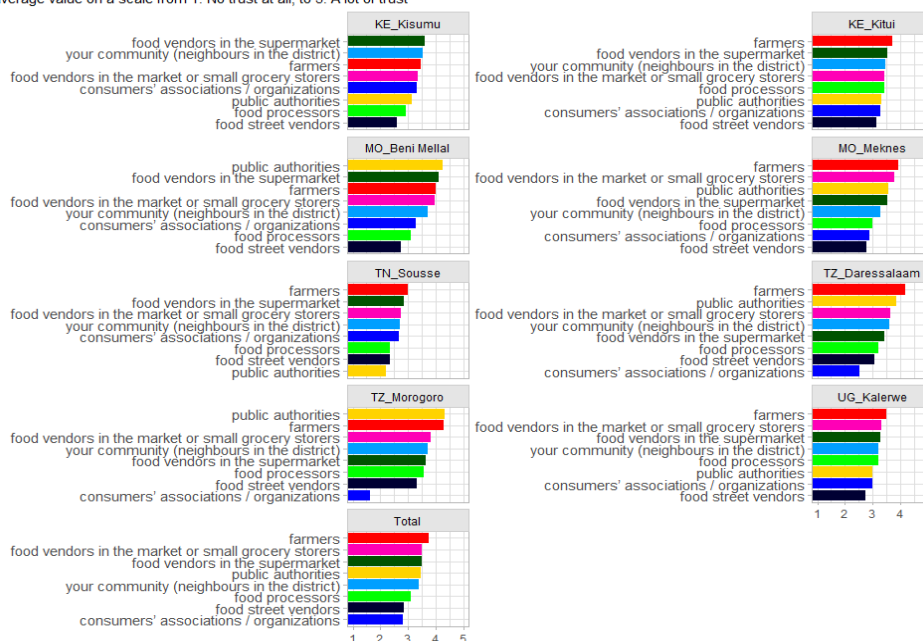


Figure 27. Consumer's trust towards actors of the local food value chain (Q30). Question asked in cities only where in-lab experiments were performed.

Gender perspective

The following figures explore some of the first results by gender. They tend to indicate that a gender perspective is relevant, amongst other, when:



FOODLAND has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement (GA No 862802).

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- Assessing household income (female consumers have a lower income compared to male consumers) (Figure 28),
- Assessing household healthiness (female consumers tend to rate their household diet less healthy than male consumers) (Figure 29),
- Assessing propensity towards nutrition-dense food products (female consumers tend to be more willing to introduce new food products at higher cost that can reduce the probability of getting infections),
- analysing consumer's trust level (male consumers tend to have higher level of trust in people) (Figure 30).

These initial results will be further exploited in the next reporting deliverables on consumers' results.

Q21 Average monthly household income by gender and country

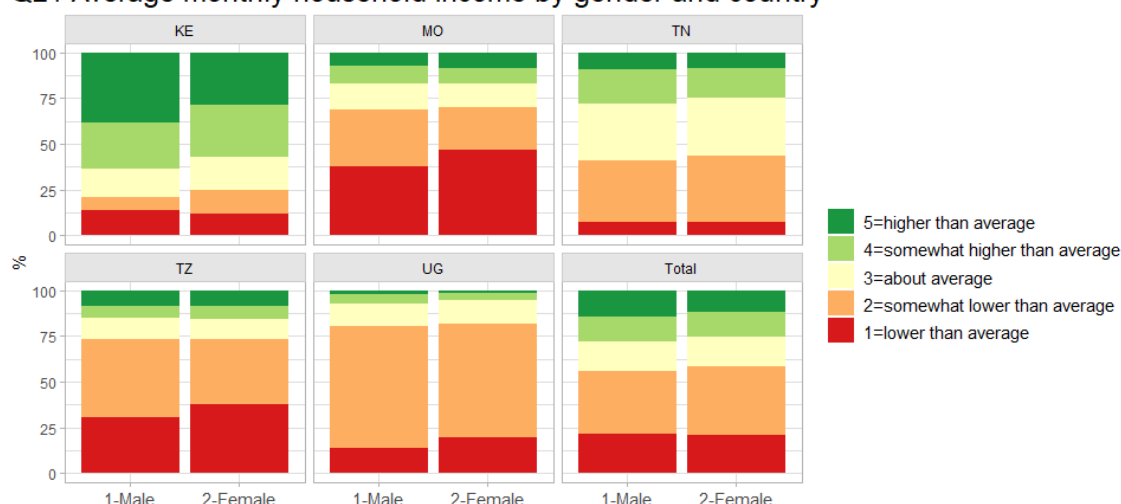


Figure 28. Consumers' average income by gender and country

Q11 Healthy Household Diet by gender and country

average value on a scale from 1: No, totally unhealthy; to 5: Yes, totally healthy

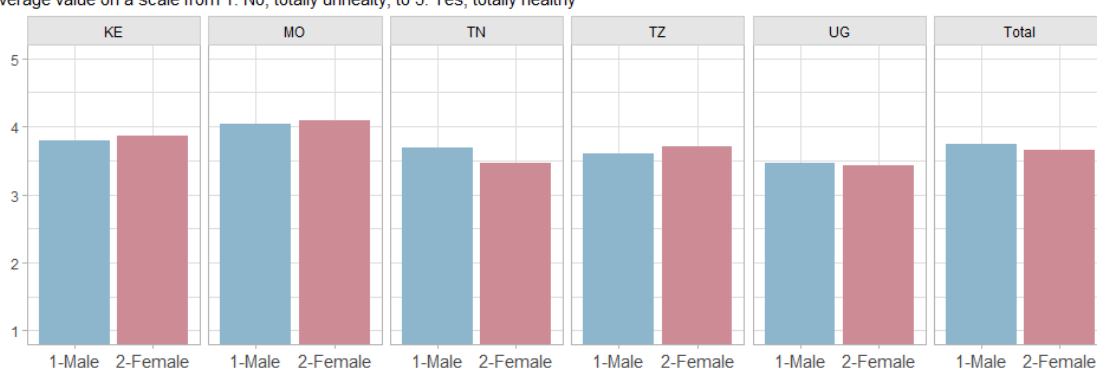


Figure 29. Consumer's level of household diet rated as healthy by country and gender.



Q29 Trust in people by gender and food hub



Figure 30. Consumer's level of trust by city and gender.

5.2 First results from behavioural experiments

In the following section, we present the first comparative results on urban consumers from the economic behavioural experiments. Results are grouped by games (risk preferences, time preferences, public good game, dictator game, trust game). The analyses were based on a final sample ranging from **1,057 valid observations** for the Public Good Game and **2,531** for the Risk and Time preferences experiments. Data was gathered in 5 cities located in five countries (Kenya, Morocco, Tanzania, Tunisia, and Uganda).

Table 9. The sample of the urban consumers' economic behavioural experiments by city and game.

Country	City	Risk game	Time preferences	Public Good Game	Dictator game	Trust game
KE	Kitui	508	508	248	240	260
MA	Meknès	501	501	261	240	240
TN	Sousse	502	502	268	234	234
TZ	Morogoro	520	520	0	520	520
UG	Kalerwe	500	500	280	220	220
TOTAL		2531	2531	1057	1454	1474

Consumers' attitude to risk

Consumers' attitudes to risk are presented here using a 0 to 10 score, with 0 showing a null willingness to take risks and 10 a high willingness to take risks. These scores correspond to the switching point at which consumers start choosing the high stakes lottery in the series of



10 choices, rather than the low stakes lottery. Inconsistent choices (e.g., multiple switching) are excluded from these preliminary analyses.

Figure 31 shows that risk taking attitudes are **distributed around average values** with a global average of 4.71 ± 2.75 . A cross country comparison of risk-taking scores (Table 10) shows that the highest risk-taking score are found in Uganda (4.99), while the lowest ones in Kenya (4.24). The distributions of risk aversion (Figure 32) also show different patterns depending on the countries, with for example large numbers of consumers being either very risk averse or very risk takers in Uganda, while farmers are more evenly distributed (around average levels of risk aversion) in Tunisia, Tanzania, and Morocco.

Risk preferences - Distribution of risk-taking scores

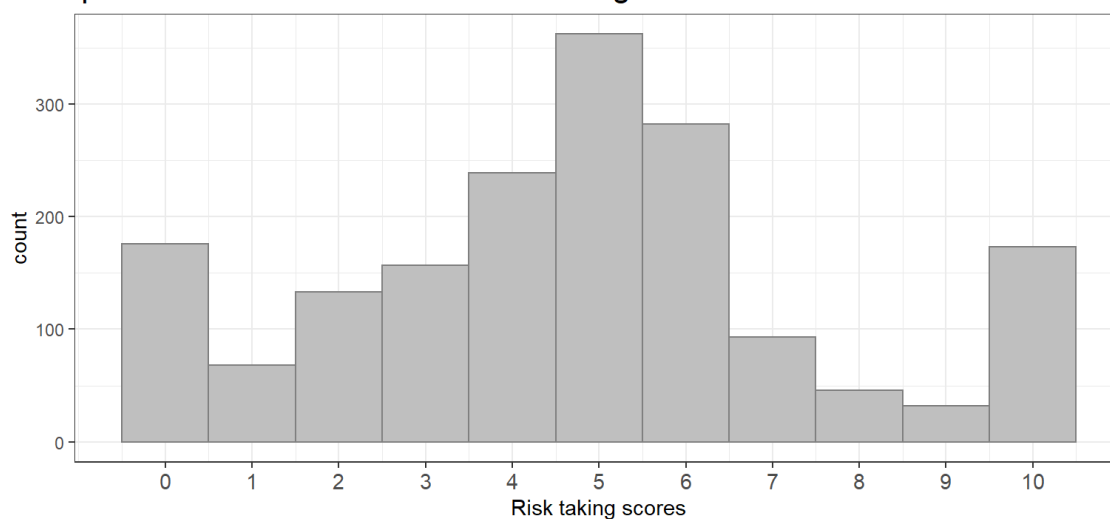


Figure 31. Distribution of risk-taking scores (all countries pooled together)

Risk preferences - Distribution of risk-taking scores by country

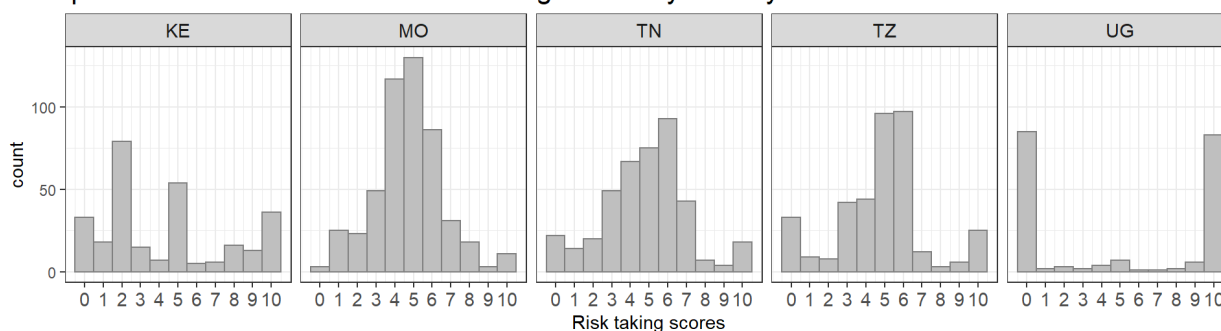


Figure 32. Distribution of risk-taking scores per country (0 = low willingness to take risks to 10 = high willingness to take risks)



Table 10. Risk preferences average and median values by country.

country	n	avg	stDev	median
KE	282	4.24	3.27	3
MO	496	4.74	1.83	5
TN	412	4.79	2.23	5
TZ	375	4.80	2.39	5
UG	196	4.99	4.74	5

Consumers' time preferences

Consumers' time preferences are presented using a 0 to 10 patience score. Consumers with a low patience score are more impatient while those with higher score tend to be more willing to wait to receive the benefits of a dietary switch. This score is based on the switching point from which consumers start choosing to wait for 2 more weeks (they choose the payment in 4 weeks rather than in 2 weeks), to get a higher payment. This switching point shows how much more they need to be paid, at least, to accept to wait before being paid. Consumers who accept to wait for 2 more weeks even for small amounts of additional payments are more patient than those who require larger sums to prefer the pater payment.

The **distribution** of time preferences (Figure 33) is **skewed** towards **high levels of patience**. The most patient consumers are to be found on average in Tanzania (6.70), while the least patient are consumers from Morocco (5.40) (Table 11).

Peaks at 0 and 10 are mostly present in consumers from Tanzania and Uganda (Figure 34). In the remaining countries, consumers' time preferences are **more evenly distributed**.

Time preferences - Distribution of patience scores

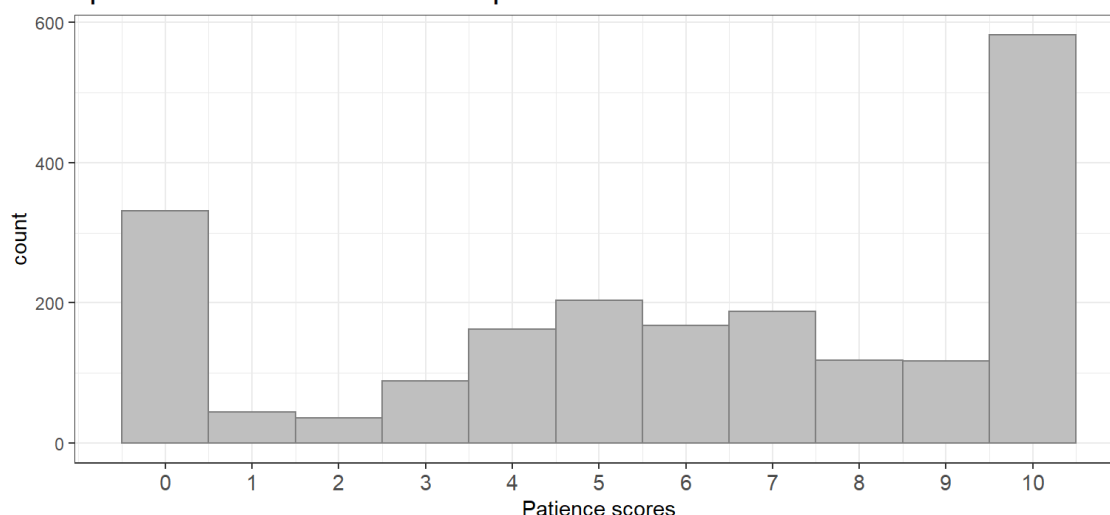


Figure 33. Distribution of consumer's patience scores, in opting for a later payment (all countries pooled together)



Table 11. Time preferences average and median values by country.

country	n	avg	stDev	median
KE	355	5.75	3.18	6
MA	491	5.40	3.15	5
TN	466	5.87	3.10	6
TZ	395	6.70	4.15	9
UG	331	6.39	4.30	9
Total	2,038	5.98	3.59	6

Time preferences - Distribution of patience scores by country

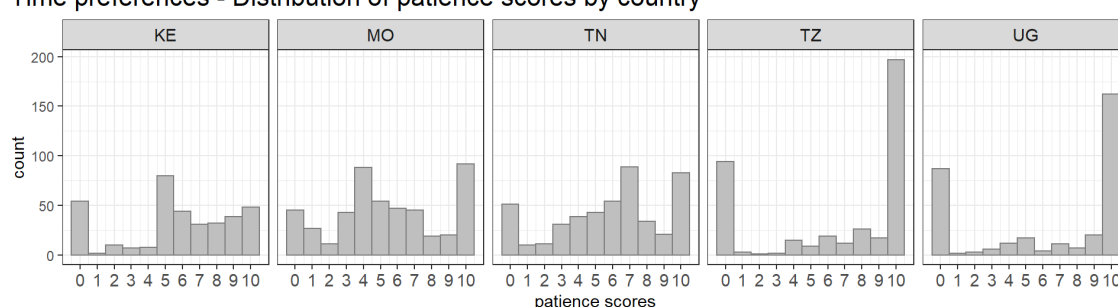


Figure 34. Distribution of time preferences per country.

Consumers' propensity to collaborate

In the public good game, consumers received an initial endowment of 150 tokens (Protocols available in D2.2). The more they invest in the common account, the more the group will benefit as a whole. However, individually, they would be better off keeping their own endowment and free-riding on everyone else's investment in the common account. Therefore, the number of tokens that a consumer invests in the common account is an indication of their willingness to collaborate with others.

The average contribution in the standard round is **72.4 tokens** (Table 12). A large share of consumers donated 1/3 of the tokens, around 20% donated 2/3, and smaller groups donated all 150 (fully cooperative). The **most cooperative** consumers are in **Tunisia** (77.4) followed by Uganda (75.4), Morocco (73.1), and Kenya (62.8). (Figure 36).

A second round of the public good game was played, following the same rule of the previous one (150 tokens as initial endowment), yet preceded by a task aiming at strengthening the group identity of the group. This so to test whether consumers with pre-existing ties, show higher willingness to collaborate. The results of this second round (Table 12) show no statistically significant differences from those of the first round. Country specific distributions are not detected (Figure 36).



Table 12. Average amount of tokens contributions to the common account by round and country.

country	n	Avg contribution round 1	Avg contribution round 2
KE	508	62.8	62.6
MA	501	73.1	70.1
TN	502	77.4	78.5
UG	500	75.4	77.6
Total	2,531	72.4	72.4

Amount of tokens contributed to the common account by round and country
Average value with standard error

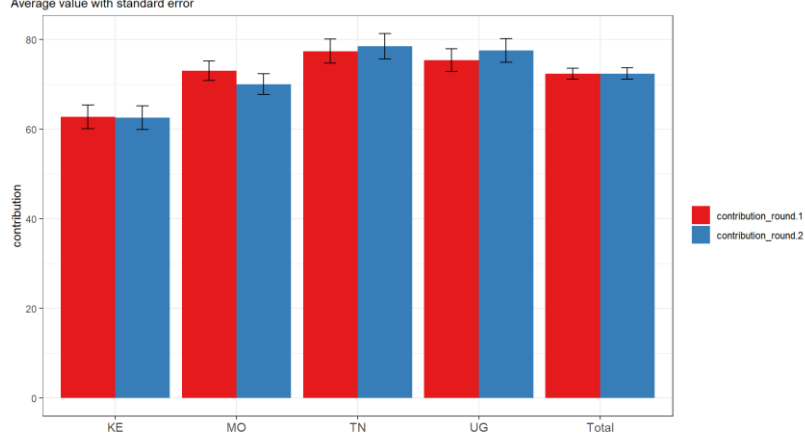


Figure 35. Average consumer's token contributions to the common account in the Public Good Game by country and round.

Amount of tokens contributed to the common account in the Public Good Game by country and round

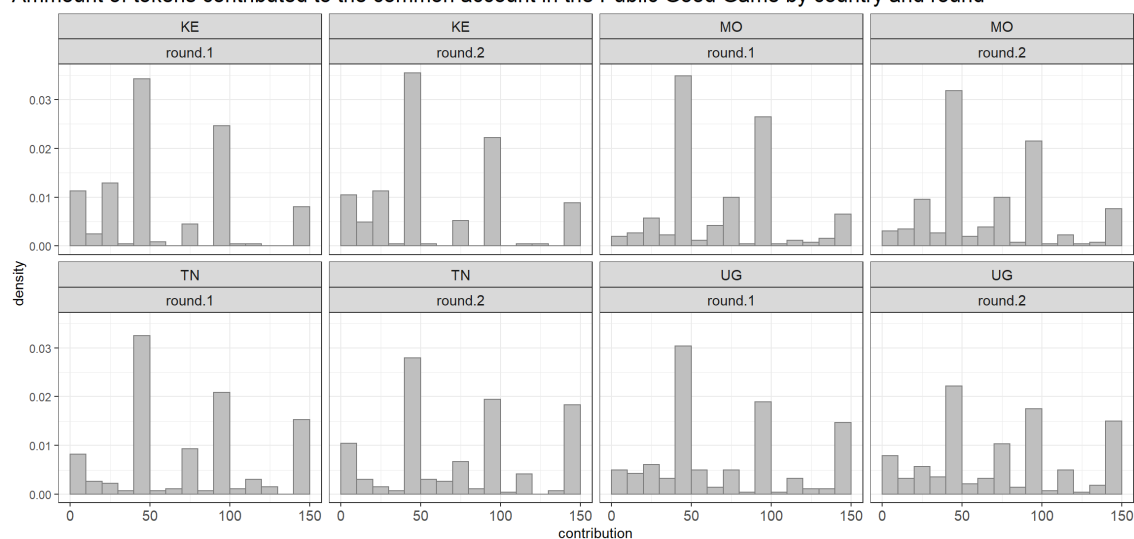


Figure 36. Distribution of consumer's token contributions to the common account in the Public Good Game by country and round.



Consumers' altruism

Consumers' altruism is measured through a dictator game. In this experimental setting, consumers received an initial endowment of 100 tokens (Protocols available in D2.2). They can choose to send part of their endowment to another anonymous participant, measuring altruism in motivating consumer's behaviour.

Results show that on average **40.5 tokens** are sent to the anonymous participant (Table 13; Figure 37). The highest contributions are found in Uganda (46.5), while the lowest contributions are those of Kenyan consumers (33.0).

A second round of the public good game was played, following the same rule of the previous one (100 tokens as initial endowment), with the difference that a local NGO or a farmers' associations will be the game Receiver. This variation of the dictator game measures consumer's altruism towards players of the food value chain. The tokens sent in this second round (Table 13) are higher than the first one in Tunisia, Tanzania, and Uganda, the latter two showing significant differences from those of the first round. The average contribution to the institution is **44.0 tokens** (Table 13; Figure 37).

Table 13. Average amount of tokens sent to an anonymous participant by country and round.

country	n	avg.sent	stDev.sent	avg.sent 2 round	stDev.se nt 2 round
KE	240	33.0	24.6	31.0	25.2
MA	240	40.4	22.1	38.8	23.9
TN	234	40.2	26.0	45.2	28.2
TZ	520	41.7	23.5	48.3	24.2
UG	220	46.5	23.3	52.5	25.5
Total	1,454	40.5	24.1	44.0	26.1



DG - Contribution sent to the receiver

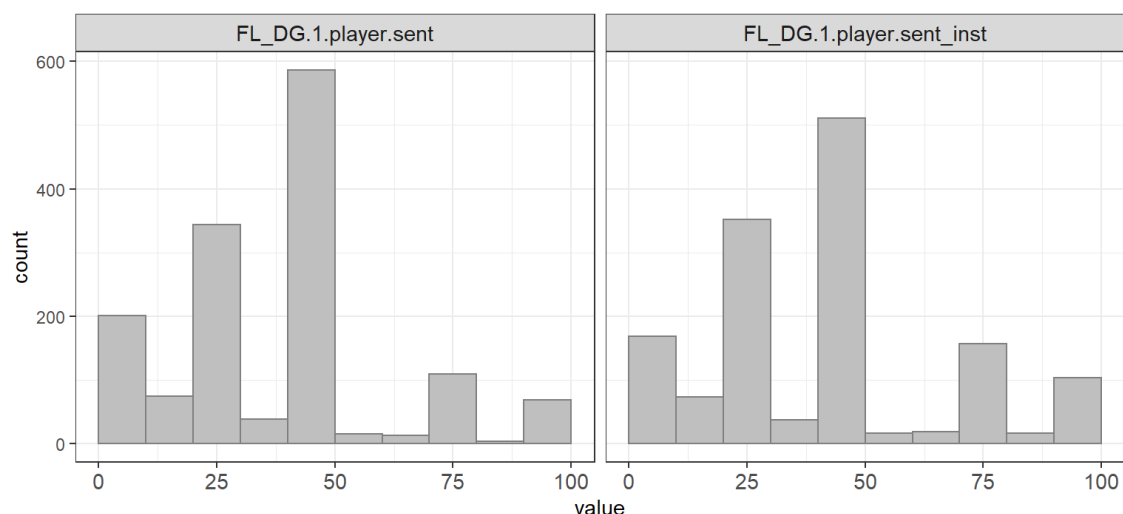


Figure 37. Distribution of contributions to the anonymous participant (graph to the left) and to the institution (graph to the right), (all countries pooled together)

Consumers' trust

In the trust game the objective was detecting consumers' trust towards peers as well as towards institutions of the food value chain. Two rounds were played, similarly to the dictator game (100 tokens initial endowment). Table 14 shows the results of the first round of the trust game: the number of tokens sent back from the receiver to the sender for each possible level of token received³ (0=0 tokens; 1=75 tokens; 2=150 tokens; 3=225 tokens; 4=300 tokens). With the lowest transfer (75 tokens) receivers accept to transfer back on average 34.2 tokens, 45.6% of the amount received. With a transfer of 150 tokens, receivers send back 62.6 tokens on average (41.7%). With a 225 tokens transfer, receivers send back 94.9 tokens (42.2%), while with the highest transfer (300 tokens), receivers send back on average 128.0 tokens (42.7%).

When looking at the amount transferred back by country, it is possible to observe that Kenyan consumers transfer the lowest number of tokens on average (**41.6**), while Tanzanian consumers show the highest transfer (**79.7**) (Table 14).

Table 14. Mean contributions sent back from the receivers for each possible choice of the sender (by country).

country	0	1	2	3	4	Total
KE	0	22.4	41.2	60.9	83.2	41.6
MA	0	31.4	57.8	84.8	122.6	59.3
TN	0	33.7	58.5	90.3	118.8	60.2
TZ	0	42.6	77.5	119.6	158.7	79.7
UG	0	32.2	62.2	92.4	123.8	62.1
Total	0	34.2	62.6	94.9	128.0	63.9

³ The sender was constrained to choose one over 5 possible levels of its endowment



6 Next steps: planned exploitation and Open science strategy

Consumers' data and initial results will be the basis for:

- gaining insights on **consumers' conscious and non-conscious decision processes** with a view to incentivising the purchasing and consumption of **healthy, nutritious foods**.
- gaining **insights in both attitudes** (e.g., status quo and social norms) and **uncertainty on dietary changes**. Further, the assessment will elicit **consumers' propensity of contributing to the public good**, by purchasing sustainable and local food, and of **trusting local producers and associations**.
- The preparation of joint publications on **consumers' preferences and socio-economic and dietary conditions**.

Research hypotheses will be addressed at different levels:

- **City/Food Hub** (e.g., descriptive study on the context-based results of one City/Food Hub);
- **Country** (e.g., comparative study assessing 2 or more cities/Food Hubs within a given country)
- **Cross-country** (e.g., cross-country comparative studies)
- **Project** (e.g., assessing broader FoodLAND research questions using the entire pool of data)

Examples of these initial publication ideas include (but not limited to):

1. Assessing African urban consumers' propensity to buy innovative food products with high nutritional contents.
2. Assessing African urban consumers' propensity to buy food products sourced locally.
3. Interrelationships occurring between different behavioural factors (e.g., risk aversion and trust; time preferences and prosocial attitude, etc.).
4. Assessing difference between stated and revealed preferences.
5. Identifying if different consumer segments (e.g., income brackets, gender, ethnicity, and country) have different preferences when it comes to nutritional and local food choices;
6. Socio-economic-psychological determinants of the diversity of food choices
7. Similarities and differences between revealed preferences of consumers and farmers, using a mirroring set of experimental data collected with African farmers.

Additional research outlets will involve the data emerging from the biometric measurements (3.3), experimental auction (3.4), and survey with rural consumers (3.5), currently in preparation.

Collaborative analysis groups (by publications line) will be kickstarted (as done for the small—scale farmers) as to develop scientific publications on the consumers' research, involving interested FoodLAND partners. A detail presentation of the consumers' results will be



included in Deliverable 2.4 Report on consumers' food behaviours and on dietary diversity and associated factors).

The publication process will follow FoodLAND Guidelines on Open Science (inclusive, favouring Open Access Journals, and with prior signal to EB). The Consumers' research protocol has been preregistered through OSF (<https://osf.io/au34r/>) and will be made available through the Open Access Repository Zenodo.

7 References

FAO, 2010. Guidelines for measuring household and individual dietary diversity.

FAO, 2021. *Minimum dietary diversity for women*. Rome. <https://doi.org/10.4060/cb3434en>

van 't Veer, A.E & Giner-Sorolla R. (2016). Pre-Registration in Social Psychology – a Discussion and Suggested Template. <https://osf.io/sn6by/>



8 Appendices

Appendix 1: Urban consumers' research procedure

General Objectives:

- A. To orient the R&I as well as the production activities toward urban consumers' needs.
- B. To contribute to the reduction of urban consumers' malnutrition.

Specific Objectives - at urban, country, and project level:

- 1) To detect and analyse current urban consumers' food needs, values, motivations and choices (and namely their propensity and willingness to diversify their diet), and their major socio-economic determinants;
- 2) To measure and analyse the urban consumers' behavioural responses toward (propensity and willingness to adopt) new foods and packaging solutions;
- 3) To implement urban consumer awareness raising campaigns based on tailored nutritional recommendations and on new healthy food products;
- 4) To detect possible market opportunities for the local farmers.

Target:

Household members with a residence in an urban area (a place that can be counted as a household, where they often sleep) and responsible for food shopping within the household.

Inclusion criteria are defined in sections II.5 and III.12

Where relevant, housemaid can be interviewed in addition to the member.

The research procedures are divided into five thematic sections:

- (i) general procedures (applicable to all 14 FoodLAND cities);
- (ii) procedures for the in the household / out-of-store survey (applicable to 8 cities);
- (iii) procedures for the implementation of the in-lab behavioural experiments + survey (applicable to 6 cities);
- (iv) procedures for the implementation of the biometric test (1 cities);
- (v) procedures for the implementation of the join auction/eye-tracking experiment (2 cities).

i. GENERAL PROCEDURES

This strategy should be adopted in all 14 FoodLAND cities.



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1. As a preliminary stage, you should define **clear boundaries of the study area**, which should correspond to the municipality area under study. This will be used as a reference area to calculate all statistics and run all activities included in these research procedures.
2. Within this area, you should **recruit at least 500 urban consumers** through simple random sampling.
3. Since each city has a different size and administrative partitioning, you should consider adopting a two-stage sampling: firstly by **distributing your random sample across a good representation of the different city neighbourhoods and different food distribution systems** (e.g., supermarkets, grocery stores, wet and food markets, areas with many street vendors, etc.). This will ensure that the final sample is representative of the whole city and its districts/neighbourhoods. Please contact UNIBO if you need to further discuss the selection of sample across neighbourhoods.
4. Secondly, to ensure that the **sample is well stratified according to the city population**, you should (prior to the sampling) calculate the size of the population strata **by gender and age** based on official and recent urban population statistics (e.g., females/males with age 18-24, between 25-55 and over than 55 years old). Using these shares, you should calculate how many of the 500 consumers should belong to each stratum. These initial estimations will support you to recruit consumers the closest possible to the theoretical repartition across both gender and age. Table 2 (provided also in a pre-compiled excel table) gives an example of how the calculation of sample strata should be undertaken. Once the quota is achieved you can stop the recruitment of people belonging to that quota.

Sample strata: age ⁴	City population (over 18)	Male population	Share (%)	Female population	Share (%)	Sample (male)	Sample (female)
18-24	367,050	212,889	37.1%	154,161	30.4%	98	71
25-55	577,973	298,636	52.0%	279,337	55.1%	138	129
55+	136,809	62,932	11.0%	73,877	14.6%	29	34
TOTAL	1,081,832	574,458 (53.1%)	100%	507,374 (46.9%)	100%	266	234

When you recruit consumers, you need to align to the shares calculated as above; thus, if you see that, for example, too many women have been recruited (for example because male population is not responsible for food shopping within the household), in the following you should recruit more men to compensate; equally, if you see that too many old consumers have attended, you should try to recruit more young consumers; etc. It would be beneficial to replicate this strategy

⁴ This is just an example of potential strata, and the final thresholds between groups should be defined by the local partners based on recent local population data.



from the beginning so as to avoid ending up with a need of a specific population strata.

5. Parallel to the sample identification, you should **adapt the following questions**:
 - Question 18.5: *If relevant, please provide options (closed ended) relevant to local tribe/ethnic groups.*
 - Question 21: *Please adapt the proposed classes according to the local average income in local currency (LC).*
 - Q10 and Q17 local food categories aimed at assessing the diet diversity indicators will be derived from the Global Diet Quality Project (in collaboration with Estefania, ISCIII).

In order to keep the standard structure of the questionnaire, any further questions relevant to local food products or specific activity (e.g., dry fruits and vegetables, aquaculture, ...) must be included **at the end of the questionnaire as additional questions**.

The final standard set of questions provided to you should not be changed nor altered.

6. Include the additional questions on dried fruits & vegetables and aquaculture, only if relevant.
7. Once the survey is adapted to local specificities you should **translate it to the local language**, and format it – where relevant – to the computer assisted tools you will use (tablets, phones, ODK, ...) for data collection.
8. An app for the Survey's data collection has been developed by ENAM (FoodLAND Surveys). Please ensure to **read and understand the app specifications** before you start collecting data.

ii. URBAN CONSUMERS IN THE HOUSEHOLDS / OUT-OF-STORE SURVEY

This additional procedure should be adopted in the 8 FoodLAND cities where no behavioural experiment will run (Table 1), together with the specifications of Section I.

Table 15. Eight cities where the in the households / out-of-store survey will be undertaken.

City	Sample size	Activities with consumers
Beni Mellal (MO)	500	In the households / out-of-store Survey
Tunis (TN)	500	In the households / out-of-store Survey
Addis Ababa (ET)	500	In the households / out-of-store Survey
Nyeri (KE)	500	In the households / out-of-store Survey



City	Sample size	Activities with consumers
Kisumu (KE)	500	In the households / out-of-store Survey
Dar es Salaam (TZ)	500	In the households / out-of-store Survey
Kapeeka (UG)	500	In the households / out-of-store Survey
Kampala (UG)	500	In the households / out-of-store Survey

Sampling strategy

1. Ensure that the **enumerators are gender-balanced and trained** about the data collection tools and procedures detailed in Section I.
2. You should **recruit urban consumers either in the households or out of / in the proximity of local food stores**. These can be: supermarkets, grocery stores, wet and food markets, areas with many street vendors, etc. Try to vary the location you visit to recruit consumers so as to collect data from customers of different food distribution systems (along with different neighbourhoods, gender and population strata described in Section I).
3. **Avoid running the survey the day after a special day** (religious festival or celebration, fasting day) when an unusually varied or limited diet was eaten thus not reflecting a typical diet.
4. **Consider running the survey in some fixed and alternate times during the days** (e.g., in the mornings, afternoons, and evenings) so to interview different segments of the populations as well as different food consumption/purchasing habits.
5. When recruiting, **check the inclusion criteria** provided at the beginning of the survey: (1) urban consumers over 18; (2) responsible for food shopping within the household. If the criteria are not met, thank the person for her/his time, end the interview, and get another respondent.
6. Briefly **inform the participant about the research** you are conducting and the objectives of the study.
7. Please ensure **anonymization** of the respondent data.
8. Once the interview is performed **thank the participant** for his/her time and ensure that all **data are properly stored** in the data collection app developed by ENAM.



iii. IN-LAB BEHAVIOURAL EXPERIMENTS + SURVEY

This procedure should be adopted in the 6 cities where in-lab behavioural experiments are foreseen (Table 16), together with the specifications of Section I.

Table 16. Six cities where the in-lab behavioural experiments + survey will be undertaken.

City	Sample size	Activities with consumers
Meknès (MO)	500	In-lab Experiments + Survey
Sousse (TN)	500	In-lab Experiments + Survey
Mekelle (ET)	500	In-lab Experiments + Survey
Kitui (KE)	500	In-lab Experiments + Survey
Morogoro (TZ)	500	In-lab Experiments + Survey
Kalerwe (UG)	500	In-lab Experiments + Survey

Lab establishment and software preparation

1. **Implement the university lab**, which must be equipped with 1 server and 20 workstations: participants will be accommodated to individual booths/cabins, screened on the sides – for instance through dividing panels – to avoid eye contact. Each individual workstation must be identified with a number associated with / equal to the ID provided to the accommodated participant.

- Implementation settings

Two main environments allow users to interact with the app: a. *laboratory* and b. *remote*.

a. In a laboratory setting, users are generally present in a room with cubicles that warrant users' privacy. Each user had access to a terminal. The server and the terminals are usually located under the same local network. Typically, a lab is made of 1 Desktop PC that works as server and a number of terminals, usually Desktop PCs or Laptops or Notebooks, that are used individually by participants. When the client and server are not connected to the Internet it is important that they all inside a Local Area Network (LAN).

b. In a remote setting, the app is located on a web server and it is accessed by clients via the Internet. Clients can be located anywhere, as long as they can connect to the server via the session link. An example of a remote setting is the one that relies on the cloud hosting provider Heroku (<https://otree.readthedocs.io/en/latest/server/heroku.html>). The remote



setting requires a stable Internet connection to avoid problems in the client/server communication.



Specific lab implementations are required for running the biometric tests (Section IV) and experimental auction (Section V).

2. **Management of lab experiments:** oTree – an open-source platform for behavioural experiments. Experimental codes in oTree will be provided at due time and translated where relevant.

As reported in the opening of the project website (otree.org) “oTree is an open-source platform for web-based interactive tasks”. oTree is free (<https://opensource.org/licenses/MIT>) and can be downloaded from <https://otree.readthedocs.io/en/latest/install.html>

The reference languages for programming an oTree experiment are Python and HTML.

Each experiment can be thought as a web app (for live demos, see <https://otree-more-demos.herokuapp.com/demo>).

A detailed oTree Lab Experiment & Installation guide, including a step-by-step guide for installing it in Windows Server 12 will be shared with all local partners ([oTree Lab Experiment & Installation guide.pdf](#)).

- Server/client communication

Users can interact with an oTree app through an Internet browser in a client/server infrastructure. Typically, **the app is located on a server where oTree and its dependencies are installed**. When a session is opened on the server, **links are generated and distributed to users that will connect to the server by inserting the link in their client’s browser**. Potentially, any device with a browser can be a client and interact with the app.

Preparation of the in-lab behavioural experiments

3. **Translate the provided experimental (where relevant) and ethics forms to the local language.**



4. Implement all necessary **administrative procedures and documentation** (e.g., receipts/supporting evidence, recording of proof of ID and/or unique identifier number) for transferring the cash monetary incentives (i.e., show-up and reward) to the participants.
5. Ensure that **all enumerators are trained** about the data collection tools and procedures detailed in Sections I and III.
6. **Define a calendar for the in-lab activities:**
 - 6.1 Economic experiments + survey should last no more than 3 and a half hours (providing information on project and ethics: 15'; running the experiments: 1h30'; conducting the survey: 60'; paying the participants: 20').
 - 6.2 Each session should have a number of participants equal to 20 or, in alternative, multiple of 4 (e.g., 16).
 - 6.3 **Avoid running the in-lab activities (experiment + survey) the day after a special day** (religious festival or celebration, fasting day) when an unusually varied or limited diet was eaten thus not reflecting a typical diet.
7. Define the local **average hourly salary** to derive the amount of payment, according to the **token conversion.xlsx** provided.

Recruitment for the in-lab behavioural experiments and survey

8. You should **recruit each group of urban consumers** (point 6.2) **in the proximity of the date proposed** in the invitation to your economic laboratory (point 6.3).
9. **Consider recruiting at fixed and alternate times during the days** (e.g., in the mornings, afternoons, and evenings) so to interview different segments of the populations as well as different food consumption/purchasing habits.
10. You should **recruit urban consumers out or in the proximity of local food stores**. These can be: supermarkets, grocery stores, wet and food markets, areas with many street vendors, etc. Try to vary the location you visit to recruit consumers so as to collect data from customers of different food distribution systems (along with different neighbourhoods, gender and population strata as described in Section I).
11. Briefly **inform the participant about the research** you are conducting and the objectives of the study, thus giving them enough time to consider the invitation to take part in the research.
12. When recruiting, **check the inclusion criteria** provided at the beginning of the survey: (1) urban consumers over 18; (2) responsible for food shopping within the household, (3) literate. If the criteria are not met, thank the person for her/his time and look for another participant.

13. If the inclusion criteria are met, **register the name of the person** and **deliver him/her the customized invitation** to participate to the behavioural in-lab experiment.
14. Double check with the calendar you drafted (point 6.) so as to **recruit 20 consumers per session** according to the pre-established calendar. If you expect that some of the invited consumers will not show up at the lab, you can attempt to invite few more (e.g. 22-24) per session, to avoid running low with participants.
15. Involving a **local farmers' association** and the **local NGO** partner as asynchronous participants to Dictator and Trust Games (DG, TG). According to the protocol, they will play as Receiver and will be paid depending on the results of the two games. Before running the games both the NGO and the farmers' association must be asked what amount of tokens they decide to send back to each participant for each possible choice the participant made (see protocol). This a priori decision must be inputted into the app (oTree).

Conduction of in-lab behavioural experiments and survey

16. The behavioural experiments should be the first activities for participants, followed by the survey.
17. **Registration:** upon arrival at the local university lab, the participants will be registered (name, identity card, mobile number), provided with a unique identifier, and groups of 4 consumers in each session will be randomly formed (consumers not matching a multiple of 4 will be excluded and paid the show-up fee).
18. Providing participants with **adequate information about the research aims and process** (behavioural experiments and survey) and the **ethics forms** to be signed covering the voluntary participation and personal data protection.
19. Assign **each participant to the corresponding notebook station** (see point 1.) and ensure they get acquainted with the machine.
20. Participants will be required to make their **decisions in isolation and not to speak with each other**, but only with the enumerators (otherwise their participation will be terminated).
21. Participants will be given and read the instruction for taking part in the experiments.
22. **Enumerators will read aloud the instruction for running the experiments**, invite participants to run the comprehension tests with solutions, and provide explanations – privately – ensuring the possibility to raise questions after the instructions are explained, and during the control questions (participants cannot proceed until they got the right answer).



23. To facilitate the understanding of the experiments, **the instructions reported in the protocol should be made available not only through individual PC but also collectively on a big screen** using DataShow presentations and whiteboard explanations. You can consider projecting the Otree instruction pages on an external screen at the same time as these are displayed on the individual screens of the participants, to ensure maximum understanding of the provided guidelines. The enumerators will read the instructions aloud, scroll the projected pages, and answer any questions which might arise.
24. The experimental setup comprises a series of tasks/tests presented in random order to the participants, without giving feedback on the outcome of the single parts before the end of the whole session. To reduce the length of the experimental sessions, **games will be conducted in alternate blocks**. This means that half of your sample (250 consumers) will play Block 1 (DG, TG, RP, TP), while the other half (250) will play Block 2 (PGG, RP, TP). Practically this means that you should alternate the games in each session.
Take the following as an example. Imagine that you organize the first session (20 consumers) on the 16th of September. They will all play the games in Block 1. The subsequent session you will organize (on the 17th of September with other 20 consumers), will play the games in Block 2. This up until you will have (approximately) half of the sample having played Block 1 and the rest Block 2.
The starting Block does not matter. What matters is that roughly half of your total sample (250 consumers) will have played with Block 1 and the rest with Block 2. See the table below that exemplifies the approach:

	Block 1	Block 2
1	DG – Dictator (2 rounds)	
2	TG – Trust (2 rounds)	PGG - standard / identity (2 rounds)
3	Risk attitude	Risk attitude
4	Time preferences	Time preferences
	N: 250 consumers per city	N: 250 consumers per city

500 consumers

25. **Participants will play individually** knowing, where relevant, that they will interact with anonymous member(s) of the group. The identity of the members of each group will not be revealed after the experiment.



26. At the end of the experimental session, while ranking the participants based on the individual overall results (e.g., number of tokens earned), the **post-experimental survey will be conducted**.
27. At the end of each session, **payments will be made privately**, no information about individual payoffs will be disclosed by the enumerators, participants will be told that they could keep their reward secret, and the individual receipts will be signed.
28. According to the results from DG and TG, payments will be made to the NGO and Farmers' Association at the end of all sessions (see protocols).
29. **Primary data will be pseudonymized and cleaned at country level** and provided at project level only in the pseudonymized form, without any possibility to access personal identifiers.
30. Datasets will be merged at project level and fully anonymized.

iv. BIOMETRIC TESTS

These procedures should be adopted in the the FoodLAND city where only the biometric test is foreseen (Table 17), together with the specifications of Section I and III. For the procedures to be implemented in the countries where the joint auction/eye-tracking protocol is implemented, please see Section IV below.

Table 17. Three FoodLAND cities where the biometric tests will be undertaken.

City	Sample size	Activities with consumers
Sousse (TN)	200	Biometric test (jointly with auction)
Meknes (MO)	200	Biometric test(jointly with auction)
TBD	200	Biometric test

1. The biometric tests will be conducted by CBS with urban consumers from 3 cities (Table 3.): at least 200 consumers per city selected from the sample of 500 consumers (Section I.).
2. The tests will be conducted in 2 rooms (with one table and two chairs); CBS will provide the eye-trackers.
3. The tests will require 1 hour to record 4 person tests and will be conducted alternately with the economic experiments (Section III.) so that consumers will take part in the activities for no more than 4 hours:



Day	9 - 10 AM	10 AM - 1 PM	1 - 2 PM
Experiment	Biometric	Economic + survey	Biometric
Consumers	4	20	4

- When the biometric test is the starting activity of the session, participants will be provided with adequate information about the research aims and process (behavioural experiments and survey) and the ethics forms to be signed covering the voluntary participation and personal data protection.
- Selection of the food products and their attributes to evaluate the relevant consumers' values and motivations (cognitive, affective, and behavioural responses toward healthy local food products tested).
- Development of guidelines on photos of food products, where relevant.
- Preparation of photos of food products, physical food products, and relevant facilities – according to safety regulations – for biometric testing (and sensing: Section V.).
- The different product profiles will be displayed to the consumers via the notebooks or presented as physical products.
- Conduction of the biometric tests and training of the experimenters.
- Primary data will be collected in anonymous form without any possibility to access personal identifiers.
- Datasets will be merged at project level.

v. JOINT AUCTION / EYE TRACKING EXPERIMENT

These procedures should be adopted in 2 FoodLAND cities where the joint auction/eye tracking experiment is foreseen (Table 4), together with the specifications of Section I and III.

Table 4. FoodLAND cities where the joint auction/eye-tracking experiment will be undertaken.

City	Sample size	Activities with consumers
Sousse (TN)	200	Joint auction/eye-tracking experiment
Meknes (MO)	200	Joint auction/eye-tracking experiment



Procedure:

The joint auction/eye-tracking experiment will be conducted by JHI and CBS with 200 urban consumers in 2 cities (Table 4.).

1. Development of the joint auction/eye-tracking experimental protocol (D2.2) including guidelines on auction mechanism (Becker-DeGroot-Marschak, BDM), eye-tracking guidelines, and the joint implementation of willingness to pay (WTP) and eye-tracking measures. Please refer to the detailed protocol in D2.2 (Sub-section **Errore. L'origine riferimento non è stata trovata.**
2. Selection of the food products (olive oils) and their attributes of interest (origin and healthiness/pungency) to be evaluated during the laboratory experiments.
3. Preparation of photos and labels of food products and relevant facilities.
4. Preparation of food products – according to safety regulations – for sensing and biometric testing. Four olive oils will be compared in the laboratory experiment in each country, and will be tasted twice by each consumer. Consequently, 2 pieces of bread and 2 spoons of each olive oil need to be available per each consumer for the 2 stages of tasting the product included in the protocol.
5. Preparation of about 50 units of each product available for purchase by the consumers at the end of the experiment, i.e., up to 50 bottles of 1 l should be made available for purchase by the consumers at the end of the experiment for each of the olive oils selected for the test.
6. Preparation of products' unique identifiers (each product will have a unique identifier that will remain the same across all evaluation rounds) – this is not necessary if the consumers' WTP is gathered electronically through filling a cell under the image of the bottle of the oil being considered.
7. Preparation of product evaluation sheet for data collection. The evaluation will be conducted on a computer. Participants will record their WTP directly on the computer for each product that will be presented to them.
8. A data collection table will be constructed. The data will be stored in an Excel file that will contain the following information: ID of the participant, stage of the protocol, ID of the product evaluated, WTP for the product evaluated at each stage, eye-tracking measures for the product evaluated at each stage.
9. Conduction of a pre-test in Copenhagen to refine the practicalities of the protocol.
10. Training of the local enumerators before the first experimental session, and conduction of the joint auction/eye-tracking experiment.



11. In the lab where the joint protocol will be conducted, several rounds of information about the products and their characteristics will be provided. The willingness to pay (WTP) of each participant will be evaluated after each round of information.
12. In each of the two cities, the experiment will run for around two weeks, and each day, two consumers in turn will be invited to the experiment (since the consortium has access to two eye-trackers), for a duration of around 30 minutes. This equates to about 20 consumers a day, for 5 hours.
13. At the end of each session of two consumers, an auction will be run for the two consumers. Participants who have given the correct price of the product or a price above it will be able to purchase the product with money from their show-up fee, following the BDM mechanism (Becker et al., 1964).
14. At the end of each session, the participants are paid for their participation, minus the price of the product purchased (for those who have given the extracted price or a price above it).
15. Primary data will be pseudonymized and cleaned at country level and merged with the data from the surveys and behavioural experiments implemented with the same consumers.
16. The datasets will be provided at project level only in anonymised form, without any possibility to access personal identifiers.



Appendix 2: Urban consumers' survey instrument

This appendix provides a sample of the final urban consumers survey in English.

The survey comprises 30 questions. Questions in blue are to be removed when delivering it in-the-household/out-of-store (shorter version of 19 questions). The final questions highlighted in green, and blue are extra optional questions on dried fruits and vegetables and fish products respectively. Q10 and Q17 are country adapted and in this example refers to what used in Kenya.

Surveys with urban consumers

[Enumerator: avoid running the survey the day after a special day (religious festival or celebration) when an unusually varied or limited diet was eaten thus not reflecting a typical diet]

In the households / out-of-store, anonymous survey:

[city]

[Enumerator: before running the survey, check the following inclusion criteria: only urban consumers over 18 and responsible for food shopping within the household should take part in the survey]

Inclusion criteria: screening questions

1. Are you over 18?

If not, thank the person for her/his time, end the interview, and get another respondent.

2. How often do you shop for food products for your household? (single answer)

1. Not at all – I don't take care of it personally
2. From time to time – I do sometimes shop for food
3. Around half of the time – both I and others in my household shop for food
4. Most of the time – sometimes another household member does the food shopping
5. Always – I do all the food shopping for my household

If the criterion is met (from 3. to 5.), run the interview, otherwise get another respondent.

In-lab experiments and survey:

[city]

[Enumerator: before inviting the person, check the following inclusion criteria: only urban consumers over 18, responsible for food shopping within the household, and literate should be invited to take part in the activity]



Inclusion criteria: screening questions

1. Are you over 18?

If not, thank the person for her/his time, end the interview, and get another respondent.

2. How often do you shop for food products for your household? (single answer)

1. Not at all – I don't take care of it personally
2. From time to time – I do sometimes shop for food
3. Around half of the time – both I and others in my household shop for food
4. Most of the time – sometimes another household member does the food shopping
5. Always – I do all the food shopping for my household

If the criterion is not met (1. or 2.), thank the person for her/his time, end the interview, and get another respondent.

3. Please read the following: “Please tell me the name of one of the last food items you bought”

If the criterion is met (the person can read), invite the person to the university lab and deliver the invitation.

Survey

Urban Consumers

Before you start, please consider this!

This questionnaire does not require your name or any information with which you could be identified.

Filling in the questionnaire is voluntary - if you wish not to answer some of the questions, please, leave it blank!

*This questionnaire is not a test – **there are no good or bad answers.***

Please answer honestly and carefully

We are grateful for your help.

ID code [_____]



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Your food choices

Purchasing food products for your household

1. Where do you usually obtain/buy the following categories of food products? Tick the main sources with ✓ (leave blank if the food product is not produced or purchased)

Product	Produced in my household	Donated / produced by other households	Bought from crop or fish farm / Street vendor / Wet market	Bought from Village shop / Grocery stores	Bought from supermarkets
Cereals or cereal products					
Vegetables					
Fruits					
Legumes					
Fish					
Oils					

2. When you decide what food product you are going to buy, how important are the following reasons?

Rate your opinion using the following 1-5 scale (from 1: **not at all important**; to 5: **extremely important**). Tick ✓ the chosen answers.

Reason	1	2	3	4	5
Availability					
Nutrition content (healthiness)					
Wishing to be a "good" provider (parent, host)					
Affordability (price)					
Environmental friendliness					
Aiming at diversifying / balancing the diet					
Linkage with our tradition / culture					
Locally produced					
Product characteristics (taste, aroma, color, shape)					

3. What share of your household income is spent on purchased food? Tick ✓ the

☐ A very limited part (less than 25%)

☐ Less than half (from 25% to 50%)

☐



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About half (50%)

More than half (from 50% to 75%)

Almost all (from 75% to 100%)

4. Which of the following food products is lacking in your household diet?

Rate your opinion using the following 1-5 scale (from 1: **completely lacking**; to 5: **extremely present**). Tick ✓ the chosen answers.

Product	1	2	3	4	5
Cereals or cereal products					
Vegetables					
Fruits					
Legumes					
Fish					
Oils					

5. How often do you buy local food products? (foods or ingredients only produced within a short distance)

Rate your opinion using the following 1-5 scale (from 1: **Never**; to 5: **Always (most of the time)**). Tick ✓ the chosen answer.

1	2	3	4	5

6. If you were given the option to include in your household diet a new local food product (foods or ingredients only produced within a short distance), to what extent would you be interested in buying this new local food product?

Rate your opinion using the following 1-5 scale (from 1: **not at all interested**; to 5: **extremely interested**). Tick ✓ the chosen answer.

1	2	3	4	5

7. How likely would each of the following reasons make you include this new local food product in your household diet?

Rate your opinion using the following 1-5 scale (from 1: **Very unlikely**; to 5: **Very likely**). Tick ✓ the chosen answers.



Reason	1	2	3	4	5
It would be environmentally-friendly					
I could afford it					
I could easily find it where I buy food					
It would be in line with my culture / tradition					
It could help local farmers					
It has been suggested by friends / people I trust					

8. How likely would each of the following obstacles prevent you from including this new local food product in your household diet?

Rate your opinion using the following 1-5 scale (from 1: **Very unlikely**; to 5: **Very likely**).

Tick ✓ the chosen answers.

Obstacle	1	2	3	4	5
I would not be familiar with its taste					
I don't want to change my food practice/habits					
I would need to compare its price with other food products					
I don't know if it is healthy					
My friends / people I know do not eat it					
I don't trust the farmer / seller					

Eating habits within your household

9. Was yesterday a celebration or feast or fasting day in which you ate special food products or in which you ate more, or less than usual?

Yes

No

[Enumerator in in the households / out-of-store survey: please read the following text exactly as it is written to the interviewee and make sure the interviewee has understood the provided guidelines.]

Ensure that you read to the interviewee the list of foods and drinks provided and tick the corresponding boxes of those classes corresponding to food/drinks eaten or drunk by the interviewee.]

10. Now we would like to ask you some yes-or-no questions about foods and drinks that you consumed yesterday during the day or night, whether you had it at home or somewhere else.

First, we would like you to think about yesterday, from the time you woke up through the night.

Think to yourself about the first thing you ate or drank after you woke up in the morning ... Think about where you were when you had any food or drink in the middle



of the day ... Think about where you were when you had any evening meal ... and any food or drink you may have had in the evening or late-night... and any other snacks or drinks you may have had between meals throughout the day or night.

We are interested in whether you had the food items mentioned below even if they were combined with other foods.

[for the households / out-of-store survey only]

Please listen to the list of foods and drinks, and if you ate or drank ANY ONE OF THEM, say yes.

[for the in-lab survey only]

Please have a look to the list of foods and drinks, and if you ate or drank ANY ONE OF THEM, tick YES, otherwise NO. Leave blank if you don't know/prefer not to answer

ID		Eaten or Drunk? (Yes-No)
	Yesterday, did you eat any of the following foods?	
10.01	Maize ugali , maize porridge, rice, bread, chapati, pasta, or noodles?	
10.02	Ugali made from millet or sorghum, porridge made from millet or sorghum, green maize, githeri, oats, or popcorn?	
10.03	Irish potato, white sweet potato, green banana, arrowroot, yam, or cassava?	
10.04	Beans, githeri, green gram, black gram, green lentils, pigeon peas, or chickpeas?	
	Yesterday, did you eat any of the following vegetables?	
10.05	Carrots, pumpkin, butternut, sweet potato that is orange inside, or red capsicum?	
10.6.1	Sukuma wiki, spinach, nightshade leaves, amaranth leaves, African spider plant, or cowpea leaves?	
10.06.2	Jute mallow, pumpkin leaves, malabar spinach, mitoo, broccoli or Ethiopian kale?	
10.07.1	Tomatoes, cabbage, green capsicum, mushrooms, or cauliflower?	
10.07.2	Cucumber, French beans, lettuce, eggplant, or okra?	
	Yesterday, did you eat any of the following fruits?	
10.08	Ripe pawpaw, ripe mango, or passionfruit?	
10.09	Orange, tangerine, or grapefruit?	



10.10.1	Banana, pineapple, avocado, or watermelon?	
10.10.2	Apple, pear, grapes, or guava?	
	Yesterday, did you eat any of the following sweets?	
10.11	Cakes, cupcakes, or sweet biscuits?	
10.12	Candy, chocolates, ice cream, or ice lollies?	
	Yesterday, did you eat any of the following foods of animal origin?	
10.13	Eggs?	
10.14	Cheese?	
10.15	Yogurt or mala?	
10.16	Sausages, Smokies, hot dogs, salami, or ham?	
10.17	Goat, beef, minced beef, offal, mutton, or wild game?	
10.18	Pork, rabbit, or camel?	
10.19	Chicken, duck, turkey, quail, guinea fowl, or wild birds?	
10.20	Fish, dagaa, canned tuna, or seafood?	
	Yesterday, did you eat any of the following other foods?	
10.21	Groundnuts, cashews, pumpkin seeds, sesame seeds, or peanut butter?	
10.22	Crisps, Ringoz, Chooze, or Chevda?	
10.23	Indomie?	
10.24	Chips, ngumu, mandaazi, samosa, fried chicken, or bhajias?	
	Yesterday, did you have any of the following beverages?	
10.25	Milk, tea with milk, or powdered milk?	
10.26	Tea with sugar, coffee with sugar, Milo or cocoa?	
10.27	Fruit juice or fruit drinks?	
10.28	Soft drinks such as Coca-Cola, Fanta, or Sprite, or energy drinks?	
	Yesterday, did you get food from any place like...	
10.29	Kenchic, KFC, Burger King, Chicken Inn, Subway, Pizza Hut, or other places that serve pizza or burgers?	

11. According to this definition: “A healthy diet is one that provides adequacy of nutrients, without health-harming substances and excess of nutrients”, do you consider your household diet as healthy?



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Rate your opinion using the following 1-5 scale (from 1: **No, totally unhealthy**; to 5: **Yes, totally healthy**). Tick ✓ the chosen answer.

1	2	3	4	5

12. [Block 1] Think about a new food product – such as a new iron-fortified flour – that can reduce the likelihood of having an infection. What would you choose between:
Tick ✓ the chosen answer

<input type="checkbox"/> A. not including the new blended flour in your diet that implies for you: <ul style="list-style-type: none"> • no additional food costs and • 60% of probability of getting an infection at the end of next year. 	<input type="checkbox"/> B. including the new blended flour in your diet that implies for you: <ul style="list-style-type: none"> • some additional food cost now and • 40% of probability of getting an infection at the end of next year.
---	--

[Block 2] Think about a new food product – such as a new iron-fortified flour – that is likely to reinforce your immunity to infections. What would you choose between:
Tick ✓ the chosen answer

<input type="checkbox"/> A. not including the new blended flour in your diet that implies for you: <ul style="list-style-type: none"> • no additional food costs and • 40% of probability of being protected from an infection at the end of next year. 	<input type="checkbox"/> B. including the new blended flour in your diet that implies for you: <ul style="list-style-type: none"> • some additional food cost now and • 60% of probability of being protected from an infection at the end of next year.
--	---

13. If you were given the option to include in your household diet a new food product with augmented nutrient content (e.g., naturally improved bean with high levels of proteins and minerals) that could complement your current household diet, to what extent would you be interested in buying this new nutrient-dense food product?
Rate your opinion using the following 1-5 scale (from 1: **Not at all interested**; to 5: **Extremely interested**). Tick ✓ the chosen answer.

1	2	3	4	5

14. How likely would each of the following reasons make you include this new nutrient-dense food product in your household diet?
Rate your opinion using the following 1-5 scale (from 1: **Very unlikely**; to 5: **Very likely**).

Tick ✓ the chosen answers.

Reason	1	2	3	4	5
--------	---	---	---	---	---



It could make my household diet healthier					
It could enhance my social status					
I could afford it					
It would be in line with my lifestyle / culture					
I trust the farmer / seller					
I would trust my doctor's recommendation					

15. How likely would each of the following obstacles prevent you from including this new nutrient-dense food product in your household diet?

Rate your opinion using the following 1-5 scale (from 1: **Very unlikely**; to 5: **Very likely**).

Tick ✓ the chosen answers.

Obstacle	1	2	3	4	5
A new food product would make me feel less safe					
I would not be familiar with its taste					
I don't want to change my food practice/habits					
I would need to compare its price with other food products					
I would not have enough time to prepare it					
My friends / people I know do not eat it					

16. Were you and your household able to meet your food needs during the last year?

Tick ✓ the chosen answer

No, we experienced serious food shortages	We experienced some difficulties	We had about what we needed	Yes, we had what we needed	Yes, more than enough

[Enumerator in Nyeri or Kisumu (in the households / out-of-store survey): please read the following text exactly as it is written to the interviewee and make sure the interviewee has understood the provided guidelines.

Ensure that you read to the interviewee the list of foods/drinks provided and tick the corresponding boxes of those classes corresponding to food/drink eaten/drunk by the interviewee.]

17. Please select all the food product categories that ANY member of your household consumed yesterday during the day or night, in the household. Please exclude food products purchased AND eaten outside the home.

Tick with **YES** the categories with food/drink eaten/drunk by your household yesterday, and **NO** otherwise. Leave blank if you don't know/prefer not to answer.



ID	Food product categories	Eaten or Drunk? (Yes-No)
17.01	Cereals: Maize ugali , maize porridge, rice, bread, chapati, pasta, or noodles? Ugali made from mille, cassava or sorghum, porridge made from millet, cassava, soyabean or sorghum, green maize, githeri, oats, or popcorn? Pan cakes or indomie?	
17.02	White roots and tubers: Irish potato, white sweet potato, green banana, arrowroot, yam, or cassava?	
17.03	Orange fleshed roots/tubers or vegetables: Carrots, pumpkin, butternut, sweet potato that is orange inside, malenge, or red capsicum?	
17.04	Dark green leafy vegetables: Sukuma wiki, spinach, nightshade leaves, amaranth leaves, African spider plant, or cowpea leaves? Jute mallow, pumpkin leaves, malabar spinach, mitoo, or broccoli? African spinach, or Ethiopian Kale?	
17.05	Other vegetables: Tomatoes, cabbage, green capsicum, mushrooms, or cauliflower? Cucumber, French beans, lettuce, eggplant, or okra? Leeks, asparagus?	
17.06	Orange fleshed fruits: Ripe pawpaw, ripe mango, or passionfruit?	
17.07	Other fruits: Other fruits like orange, lemon, lime, tangerine, or grapefruit? Banana, pineapple, avocado, or watermelon? Apple, pear, grapes, or guava? Tomato fruit, tamarillo, tamarind, pomegranate or thorn melon?	
17.08	Organ meat: Offal	
17.09	Flesh meat: Sausages, Smokies, bacon, hot dogs, salami, mutura or ham? Goat, beef, minced beef, mutton, or wild game? Pork, rabbit, or camel? Chicken, duck, turkey, quail, guinea fowl, quail, or wild birds?	
17.1	Eggs: Eggs from any kind of birds	
17.11	Fish: Fish, dagaa, canned tuna, or seafood?	
17.12	Pulses: Beans, githeri, green gram, black gram, green lentils, pigeon peas, cowpeas lentils or chickpeas?	
17.13	Nuts and seeds: Groundnuts, cashews, pumpkin seeds, sesame seeds, or peanut butter?	



17.14	Milk and milk-products: Milk, tea with milk, or powdered milk? Cheese? Yogurt or mala?	
17.15	Oils/Fats: Animal/fish fat, butter, simsim/groundnut oil, margarine, sunflower oil or vegetables oil.	
17.16	Sugar and sweets: Cakes, cupcakes, or sweet biscuits? Candy, chocolates, ice cream, or ice lollies? Tea with sugar, coffee with sugar, Milo or cocoa? Soft drinks such as Coca-Cola, Fanta, Krest, Stoney, or Sprite, or energy drinks?	
17.17	Spices and Condiments: salt, seasalt, curry, ginger, garlic, green pepper, tropical onion, coriander, or rosemary? pepper, coriander, parsley or pili pili hoho?? Ash lye extracted from legumes? Coconut and pawpaw extracts? fish powder, tomato paste, flavor cubes such as royco, knorr?	
17.18	Beverages: coffee, tea, drinking chocolate, or cocoa drink and alcoholic beverages?	

About you and your household

18. Please indicate your:

18.1 Age: _____

18.2 Gender: Male ☐ Female ☐ Prefer not to say ☐

18.3 Education level:

[Enumerator (in the households / out-of-store survey): if the respondent is illiterate tick this box •]

☐ = no qualification, literate;

☐ = primary;

☐ = secondary;

☐ = more than secondary;

☐ = other



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18.4 Role in the household:

= parent;

= daughter / son;

= relative (grandmother, grandfather, aunt, uncle, ...)

= other (e.g., housemaid, ...)

[Enumerator: if relevant please provide options (closed ended); if not relevant go to the next question]

18.5 Tribe/Ethnic group:

[Enumerator: Household members are people present and include: (1) Head and his/her partner; (2) All of their unmarried children; (3) Their married children who are currently living and eating together; (4) Other relatives and non-relatives living and eating together for over 3 months.]

19. About your household, please indicate the:

19.1 No. of household members (adults 14 or older): _____

19.2 No. of children (aged 3-13 years): _____

19.3 No. of children (aged 0-2 years): _____

19.4 No. of household members with salary/revenue: _____

20. Please indicate the household head's form of employment. Tick ✓ the chosen answer

Form of employment	
Unemployed	
Regular worker	
Casual worker (paid by the day)	
Clerk (formal employment)	
Manager	
Businessman / self-employed	
Sole trader	
Other	

[Enumerator: please adapt the following classes according to the local average income in local currency (LC)]



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21. What is your average monthly household income from all sources (in-kind income included)

Less than ... (LC)	From ... to ... (LC)	From ... to ... (LC)	From ... to ... (LC)	Greater than ... (LC)

22. Did you or your wife/husband immigrate from another area?

☐ Yes ☐ No

23. Did any of your household members emigrate to another area (in the same country or in a different country) in search for a job? Tick ✓ the chosen answer

☐ Yes ☐ No → Go to question 25.

24. If they send you money, to what extent do those remittances contribute to your family welfare?

Rate your opinion using the following 1-5 scale (from 1: **Not at all important**; to 5: **Extremely important**). Tick ✓ the chosen answer.

1	2	3	4	5

25. Did you experience any of the following setbacks during the last year? If so, how impactful were they?

Rate your opinion using the following 1-5 scale (from 1: **Not at all impactful**; to 5: **Extremely impactful**). Tick ✓ the chosen answers.

Troubles	1	2	3	4	5
Food shortage/starvation					
Health (disease)					
Drinking water shortage					
Climatic event (flood, drought, storm)					
Loss of home					
Increase of food prices					
Loss of job					
Income reduction					
Social problems (violence or crime)					

26. Thinking about your near future, do you consider yourself and your household at risk of the following? If so, how important do you consider the risk to be?

Rate your opinion using the following 1-5 scale (from 1: **Not at all important**; to 5: **Extremely important**). Tick ✓ the chosen answers.



Reasons	1	2	3	4	5
Food shortage/starvation					
Health (disease)					
Drinking water shortage					
Climatic event (flood, drought, storm)					
Loss of home					
Increase of food prices					
Loss of job					
Income reduction					
Social problems (violence or crime)					

27. To what extent do you feel attached to your local territory (your city and its surroundings)?

Rate your opinion using the following 1-5 scale (from 1: **Not at all attached**; to 5: **Extremely attached**). Tick ✓ the chosen answer.

1	2	3	4	5

28. To what extent do you feel attached to your peers (your local community)?

Rate your opinion using the following 1-5 scale (from 1: **Not at all attached**; to 5: **Extremely attached**). Tick ✓ the chosen answer.

1	2	3	4	5

29. Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with them? Tick ✓ the chosen answer

☐ Most people can be trusted

☐ It depends

☐ One cannot be too careful

30. How much do you trust ...:

Rate your opinion using the following 1-5 scale (from 1: **No trust at all**; to 5: **A lot of trust**).

Tick ✓ the chosen answers.

	1	2	3	4	5
...public authorities					



...your community (neighbours in the district)					
...consumers' associations/organizations					
...farmers					
...food processors					
...food street vendors					
...food vendors in the market or small grocery storers					
...food vendors in the supermarket					

The questionnaire is complete. Thank you very much for your collaboration!

Information for dried fruits and vegetables:

[Enumerator: optional section that can be included as separate, final questions]

Regarding dried fruits and vegetables, do you eat them?

Rate your opinion using the following 1-5 scale (from 1: **Never** ; to 5: **Always (most of the time)**). Tick ✓ the chosen answer.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In your opinion, what are the main reasons why people consume dried fruits and vegetables?

Rate your opinion using the following 1-5 scale (from 1: **Not at all important**; to 5: **Extremely important**). Tick ✓ the chosen answers.

Reason	1	2	3	4	5
Because they keep better (last longer) when dried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For their good quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Because they appreciate their taste in cooked dishes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
They are the only ones available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Because of their health benefits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In your opinion, what are the main obstacles that prevent people from consuming dried fruits and vegetables?

Rate your opinion using the following 1-5 scale (from 1: **Not at all important**; to 5: **Extremely important**). Tick ✓ the chosen answers.

Obstacle	1	2	3	4	5
Unusual colour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bad taste and smell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Hard texture					
Lack of quality assurance					
Unavailability					
Expensiveness (cost)					
Not a common practice					

To what extent would you be interested in buying dried fruits and vegetables processed using a new drying technique that ensures better product quality?

Rate your opinion using the following 1-5 scale (from 1: **Not at all interested**; to 5: **Extremely interested**). Tick ✓ the chosen answer.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The questionnaire is complete. Thank you very much for your collaboration!

Information for fish products:

[Enumerator: optional section that can be included as separate, final questions]

Do you prefer farm raised or captured fish? Tick ✓ the chosen answer

farmed ☐ captured ☐ no preference ☐ →
skip next question

Please indicate the main reasons for your preference Tick ✓ the chosen answers

Reason	
It is healthier	<input type="checkbox"/>
It is cheaper	<input type="checkbox"/>
It is safer	<input type="checkbox"/>
It is more traditional	<input type="checkbox"/>
It is the only one that I know	<input type="checkbox"/>
It is easier to cook and eat	<input type="checkbox"/>
It is the only one available	<input type="checkbox"/>
Other	<input type="checkbox"/>

What kind of farmed fish do you prefer? Tick ✓ the chosen answer

farmed from fish pond ☐ farmed from the lake ☐ no preference ☐

What kind of captured fish do you prefer? Tick ✓ the chosen answer

captured from the river ☐ captured from the lake ☐ no preference ☐



What is the market price for the following fish types that you buy?

Fish species	Price per unit (specify the unit: kg, piece, ...)
Tilapia	
Catfish	
Labeo	
Barbus	

During the past 3 months, how often did you eat meals that included the following fish?

Tick ✓ the chosen answers

Fish species	Never	1 time / week	2 times / week	3-4 times / week	5-6 times / week	Everyday
Tilapia						
Catfish						
Labeo						
Barbus						
Other						

In which forms do you normally buy fish? Tick ✓ up to 3 answers

Fresh	Smoked	Salted	Sundried	Powdered	Deep fried	Other

[Enumerator: Please only ask to households whether children under 5 or pregnant women are present]

Do your children under 5 eat fish?

Y

N

Do expectant mothers eat fish?

Y

N

In your opinion, what are the main obstacles that prevent people from eating fish?



Rate your opinion using the following 1-5 scale (from 1: **Not at all important**; to 5: **Extremely important**). Tick ✓ the chosen answers.

Obstacle	Not at all important	Slightly important	Somewhat important	Moderately important	Extremely important
Expensiveness (cost)					
Bad smell					
I can not afford it					
Difficulty in preparing					
Difficulty in eating					
Allergy					
Unavailability					
Taboos / restrictions					
Other					

The questionnaire is complete. Thank you very much for your collaboration!



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Appendix 3: DQQ and HDDS questions adapted to national consumption patterns

This appendix presents the DQQ and HDDS tables adapted to national diets and translated in local languages for Kenya, Morocco, Tanzania, Tunisia, and Uganda.

Kenya - DQQ

	American English [en-US]	Swahili (Kenya) [swa-KE]
	Yesterday, did you eat any of the following foods?	Je, jana, ulikula yoyote ya vyakula vifuatavyo?
<i>01 staple foods made from grains</i>	Maize ugali , maize porridge, rice, bread, chapati, pasta, or noodles?	Ugali wa mahindi, uji wa mahindi, mchele, mkate, chapati, pasta/tambi, au noodles/tambi
<i>02 whole grains</i>	Ugali made from millet or sorghum, porridge made from millet or sorghum, green maize, githeri, oats, or popcorn?	Ugali iliyotengenezwa kwa millet/mtama au sorghum/mtama, uji uliotengenezwa kwa millet/mtama au sorghum/mtama, mahindi mabichi, githeri, shayiri/oats, au popcorn
<i>03 white roots/tubers</i>	Irish potato, white sweet potato, green banana, arrowroot, yam, or cassava?	Irish potato, viazi vitamu vyeupe, ndizi mbichi, arrowroot, yam, au muhogo
<i>04 legumes</i>	Beans, githeri, green gram, black gram, green lentils, pigeon peas, or chickpeas?	Maharagwe, githeri, green gram, black gram, ndengu za kijani, pigeon peas, or chickpeas
	Yesterday, did you eat any of the following vegetables?	Je, jana ulikula mboga yoyote ifuatayo?
<i>05 vitamin A-rich orange veg</i>	Carrots, pumpkin, butternut, sweet potato that is orange inside, or red capsicum?	Karoti, malenge, butternut, viazi vitamu ambavyo ni vya rangi ya machungwa ndani, au capsicum nyekundu
<i>06.1 dark green leafy vegetables</i>	Sukuma wiki, spinach, nightshade leaves, amaranth leaves, African spider plant, or cowpea leaves?	Sukuma wiki, mchicha, majani ya nightshade, majani ya amaranth, mmea wa buibui wa Kiafrika, au majani ya kunde
<i>06.2 dark green leafy vegetables</i>	Jute mallow, pumpkin leaves, malabar spinach, mitoo, broccoli or Ethiopian kale?	Jute mallow, majani ya malenge, nderema, mitoo, au broccoli
<i>07.1 other vegetables</i>	Tomatoes, cabbage, green capsicum, mushrooms, or cauliflower?	Nyanya, kabichi, hoho ya kijani kibichi, uyoga, au kolifulawa



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	American English [en-US]	Swahili (Kenya) [swa-KE]
<i>07.2 other vegetables</i>	Cucumber, French beans, lettuce, eggplant, or okra?	Tango, French beans/maharagwe ya Ufaransa, lettuce, biliganya, au bamia
	Yesterday, did you eat any of the following fruits?	Je, jana ulikula matunda yoyote yafuatayo?
<i>08 vitamin A-rich fruits</i>	Ripe pawpaw, ripe mango, or passionfruit?	Papai iliyoiva, embe lililoiva, au tunda la passioni
<i>09 citrus</i>	Orange, tangerine, or grapefruit?	Chungwa, tangerine, au grapefruit
<i>10.1 other fruits</i>	Banana, pineapple, avocado, or watermelon?	Ndizi, nanasi, parachichi, au tikiti maji
<i>10.2 other fruits</i>	Apple, pear, grapes, or guava?	Apple, pea, zabibu, au guava
	Yesterday, did you eat any of the following sweets?	Je, jana ulikula yoyote ya switi/pipi zifuatazo?
<i>11 grain sweets</i>	Cakes, cupcakes, or sweet biscuits?	Keki, keki ya kikombe, au biskuti tamu
<i>12 other sweets</i>	Candy, chocolates, ice cream, or ice lollies?	Pipi, chokoleti, aiskrimu, au aiskrimu za vijiti
	Yesterday, did you eat any of the following foods of animal origin?	Je, jana ulikula yoyote ya vyakula vifuatavyo vya asili ya wanyama?
<i>13 eggs</i>	Eggs?	Mayai
<i>14 cheese</i>	Cheese?	Jibini
<i>15 yogurt</i>	Yogurt or mala?	Mtindi au mala
<i>16 processed meat</i>	Sausages, Smokies, hot dogs, salami, or ham?	Sausage, Smokies, hot dogs, salami, or ham
<i>17 unprocessed red meat (ruminant)</i>	Goat, beef, minced beef, offal, mutton, or wild game?	Mbuzi, nyama ya ng'ombe, nyama ya kusaga ya ng'ombe, matumbo, nyama ya kondoo, au nyama ya porini
<i>18 unprocessed red meat (non-ruminant)</i>	Pork, rabbit, or camel?	Nguruwe, sungura, au ngamia
<i>19 poultry</i>	Chicken, duck, turkey, quail, guinea fowl, or wild birds?	Kuku, bata, bata mzinga, kware, kanga, au ndege wa porini



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	American English [en-US]	Swahili (Kenya) [swa-KE]
<i>20 fish & seafood</i>	Fish, dagaa, canned tuna, or seafood?	Samaki, dagaa, samaki wa tuna, au vyakula vya baharini
	Yesterday, did you eat any of the following other foods?	Je, jana ulikula chakula chochote kati ya vifuatavyo?
<i>21 nuts & seeds</i>	Groundnuts, cashews, pumpkin seeds, sesame seeds, or peanut butter?	Karanga, mikoroshu, mbegu za malenge, mbegu za ufuta, au siagi ya karanga
<i>22 ultra-processed packaged salty snacks</i>	Crisps, Ringoz, Chooze, or Chevda?	1
<i>23 instant noodles</i>	Indomie?	Indomie
<i>24 deep fried foods</i>	Chips, ngumu, mandaaazi, samosa, fried chicken, or bhajias?	Chips, ngumu, mandaaazi, samosa, kuku wa kukaanga, au bhajias
	Yesterday, did you have any of the following beverages?	Je, jana ulikunywa kinywaji chochote kati ya vifuatavyo?
<i>25 fluid milk</i>	Milk, tea with milk, or powdered milk?	Maziwa, chai ya maziwa, au maziwa ya unga
<i>26 sweetened tea/ coffee/ milk drinks</i>	Tea with sugar, coffee with sugar, Milo or cocoa?	Chai ikiwa na sukari, kahawa ikiwa na sukari, Milo au Cocoa
<i>27 fruit juice</i>	Fruit juice or fruit drinks?	Juisi ya matunda au vinywaji vya matunda
<i>28 SSBs (sodas)</i>	Soft drinks such as Coca-Cola, Fanta, or Sprite, or energy drinks?	Vinywaji baridi kama vile Coca-Cola, Fanta, au Sprite, au vinywaji vya nishati/energy drinks
	Yesterday, did you get food from any place like...	Jana, ulipata chakula kutoka sehemu yoyote kama
<i>29 fast food</i>	Kenchic, KFC, Burger King, Chicken Inn, Subway, Pizza Hut, or other places that serve pizza or burgers?	Kenchic, KFC, Burger King, Chicken Inn, Subway, Pizza Hut, au maeneo mengine ambayo huuza pizza au burger?

Kenya – HDDS



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.01	Cereals: Maize ugali , maize porridge, rice, bread, chapati, pasta, or noodles? Ugali made from mille, cassava or sorghum, porridge made from millet, cassava, soyabean or sorghum, green maize, githeri, oats, or popcorn? Pan cakes or indomie?	
17.02	White roots and tubers: Irish potato, white sweet potato, green banana, arrowroot, yam, or cassava?	
17.03	Orange fleshed roots/tubers or vegetables: Carrots, pumpkin, butternut, sweet potato that is orange inside, malenge, or red capsicum?	
17.04	Dark green leafy vegetables: Sukuma wiki, spinach, nightshade leaves, amaranth leaves, African spider plant, or cowpea leaves? Jute mallow, pumpkin leaves, malabar spinach, mitoo, or broccoli? African spinach, or Ethiopian Kale?	
17.05	Other vegetables: Tomatoes, cabbage, green capsicum, mushrooms, or cauliflower? Cucumber, French beans, lettuce, eggplant, or okra? Leeks, asparagus?	
17.06	Orange fleshed fruits: Ripe pawpaw, ripe mango, or passionfruit?	
17.07	Other fruits: Other fruits like orange, lemon, lime, tangerine, or grapefruit? Banana, pineapple, avocado, or watermelon? Apple, pear, grapes, or guava? Tomato fruit, tamarillo, tamarind, pomegranate or thorn melon?	
17.08	Organ meat: Offal	



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.09	Flesh meat: Sausages, Smokies, bacon, hot dogs, salami, mutura or ham?Goat, beef, minced beef, mutton, or wild game?Pork, rabbit, or camel? Chicken, duck, turkey, quail, guinea fowl, quail, or wild birds?	
17.1	Eggs: Eggs from any kind of birds	
17.11	Fish: Fish, dagaa, canned tuna, or seafood?	
17.12	Pulses: Beans, githeri, green gram, black gram, green lentils, pigeon peas, cowpeas lentils or chickpeas?	
17.13	Nuts and seeds: Groundnuts, cashews, pumpkin seeds, sesame seeds, or peanut butter?	
17.14	Milk and milk-products: Milk, tea with milk, or powdered milk? Cheese? Yogurt or mala?	
17.15	Oils/Fats: Animal/fish fat, butter, simsim/groundnut oil, margarine, sunflower oil or vegetables oil.	
17.16	Sugar and sweets: Cakes, cupcakes, or sweet biscuits? Candy, chocolates, ice cream, or ice lollies? Tea with sugar, coffee with sugar, Milo or cocoa? Soft drinks such as Coca-Cola, Fanta, Krest, Stoney, or Sprite, or energy drinks?	
17.17	Spices and Condiments: salt, seasalt, curry, ginger, garlic, green pepper, tropical onion, coriander, or rosemary? pepper, coriander, parsley or pili pili hoho?? Ash lye extracted from legumes? Coconut and pawpaw extracts?fish powder, tomato paste, flavor cubes such as royc, knorr?	



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.18	Beverages: coffee, tea, drinking chocolate, or cocoa drink and alcoholic beverages?	

Morocco – DQQ

	French [Fr]	Moroccan [ary-MA]
	Hier, avez-vous mangé l'un des aliments suivants ?	هل تناولت بالأمس أيًا من الأطعمة التالية؟
<i>01 aliments de base à base de céréales</i>	Riz, couscous à base de semoule ou de ferina, pain à base de ferina, pâtes, ou mhamssa ou berkoukesh.	الأرز، كسكس يحتوي على السميد أو الفرينا، خبز يحتوي على الفرينا، العجينة، المحمص أو برقوقيش.
<i>02 céréales complètes</i>	Millet, bouillie de maïs, maïs, orge ou blé complet transformé à domicile	إلأن، عصيدة الذرة، الذرة، الشعير أو القمح الكامل المصنوع في المنزل.
<i>03 racines blanches/tubercules</i>	Pomme de terre, navet ou topinambour	البطاطا، اللفت، البطاطا القصبية.
<i>04 légumineuses</i>	haricots blancs, lentilles, pois chiches, fèves ou bisara	اللوبيا البيضاء، العدس، الحمص، الفول، أو بيسارة.
	Hier, avez-vous mangé l'un des légumes suivants ?	هل أكلت بالأمس أيًا من الخضروات التالية؟
<i>05 légumes orange riches en vitamine A</i>	Carottes ou potiron dont l'intérieur est orange	جزر أو يقطين الذي يرتقالي من الداخل.
<i>06.1 légumes à feuilles vert foncé</i>	Khbiza/bekoula, feuilles de navet, pourpier, cresson ou luzerne	الخبيزا/البقولا، اللفت الأخضر، الرجل، الكرنوش، أو الفصة.
<i>06.2 légumes à feuilles vert foncé</i>	Aubergines, courgettes, choux, tomates, poivrons verts ou haricots verts.	باذنجان، كوسة، كرنب، طماطم، فلفل أخضر أو فاصوليا خضراء.
<i>07.1 autres légumes</i>	Artichauts, choux-fleurs, choux-raves, concombres, betteraves ou fenouils.	الخرشوف، شوفلور، الخيار، شمندر أحمر/البربا، البسباس.



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	French [Fr]	Moroccan [ary-MA]
	Hier, avez-vous mangé l'un des fruits suivants ?	هل أكلت بالأمس أيًا من الفواكه التالية؟
08 des fruits riches en vitamine A	Abricots, abricots secs, ou cantaloup	المشمش، المشمش المجفف، أو البطيخ الأصفر.
09 agrumes	Orange, mandarine ou pamplemousse	البرتقال، ماندرين، أو باميلوموس.
10.1 autres fruits	Figues séchées ou fraîches, prunes, raisins, dattes, grenade, pastèque ou melon vert.	الكرموس المجفف أو الطري، البرقوق، العنب، التمر، الرمان، الدلاح، أو البطيخ الأخضر.
10.2 autres fruits	Pomme, poire, coing, figue de Barbarie, pêche, cerise ou fraise.	التفاح، الاجاص، السفرجل، الكرموس الهندي، الخوخ، الكرز، أو الفرولة.
	Hier, avez-vous mangé l'une des sucreries suivantes ?	هل أكلت بالأمس أيًا من الحلويات التالية؟
11 les sucreries de céréales	Gâteaux, cookies/biscuits sucrés, briouate hlouwa, churros or shbekia	كيك، الحلوى، البريوات الحلوة، شورو أو الشباكية.
12 autres sucreries	Bonbons, chocolats, glaces ou nougats.	الفنيد، الشوكولاتة، المثلجات، أو نوكة.
	Hier, avez-vous consommé l'un des aliments d'origine animale suivants ?	هل تناولت بالأمس أيًا من الأطعمة التالية من أصل حيواني؟
13 Œufs	Œufs	البيض.
14 Fromage,	Fromage, la vache qui rit, or fromage lehmer	الجبن، فرماج لافاش كيري، أو الفرماج الأحمر.
15 yaourt	Rayb, yogurt, or lebn	الرايب، ياغورت، أو اللبن.
16 viande transformée	Kacher	كاشير.
17 viande rouge non transformée (ruminants)	Bœuf, chèvre, mouton ou organes de vache ou de mouton	لحم البقري، الماعز، الغنمي، أو أعضاء بقرية أو غنمية.
18 viande rouge non transformée (non ruminants)	Lapin ou chameau	الأرنب أو الجمل.
19 volaille	Poulet, dinde, pigeon, oiseaux sauvages ou foie de poulet	الدجاج، لاداند، الحمام، الطيور البرية، أو كبدة الدجاج.
20 poissons et fruits de mer	Poisson, fruits de mer ou poisson en conserve	الحوت، فواكه البحر، أو الحوت المعلب.
	Hier, avez-vous consommé l'un des autres aliments suivants ?	هل تناولت بالأمس أيًا من الأطعمة الأخرى التالية؟
21 noix et graines	Noix, cacahuètes, amandes, amlu, or selou/sfouf	الكركاغ، الفول السوداني/كاوكاو، اللوز، أملو، أو سلو/سفوف.



	French [Fr]	Moroccan [ary-MA]
22 snacks salés emballés ultra-transformés	Chips	شيبس.
23 nouilles instantanées	Indomie	إندومي.
24 aliments frits	Frites, maakouda, shfenj (arabe)/ beignet (français), légumes frits, aubergines frites, poisson frit ou fruits de mer frits.	فريت، معقودة، شفنج/بييني، خضر مقلية، باذنجان مقلي، حوت مقلي، أو فواكه البحر مقلية.
	Hier, avez-vous consommé l'une des boissons suivantes ?	هل تناولت بالأمس أيًا من المشروبات التالية؟
25 lait de consommation	Lait ou Nido	حليب أو نيدو.
26 thé/ café/ boissons lactées sucrées	Sucre dans le thé, sucre dans le café, ou Nesquik	سكر في أتا، سكر في القهوة، أو نسكويك.
27 jus de fruits	Jus de fruits, boissons aux fruits, Assiri, Raibi Jamila, ou du sirop	عصير الفواكه، مشروبات مصنوعة من الفواكه، عصيري، رايبى جميلة، أو سيرو.
28 SSBs (sodas)	limonades telles que Coca, Fanta, Hawaii, ou Tops	المونادا مثل كوكا، فانتا، هواي، أو طويس.
29 fast food	Hier, avez-vous mangé dans un endroit comme KFC, Pizza Hut, McDonald's ou Burger King ?	، هل أكلت بالأمس في مكان مثل كنتاكي، بيتزا هت، ماكدونالدز أو برجر كنج؟

Morocco – HDDS

ID	Food product categories	Eaten or Drunk? (Yes-No)
17.01	Céréales : Pain (pain de blé dur, pain de blé tendre, orge...), riz, nouilles (vermicelles), petits pains, beignets, pâtisseries, maïs bouilli ou tout aliment préparé principalement à base de céréales (blé, orge, maïs, riz, avoine, sorgho, ...): Couscous, Tchicha, Mlaoui, Harcha, Baghrir, Sefouf, Balboula, Assida, Krachel, R'fissa, Tafernoute, Zmitta, Chbakia, Fekkass, Briouat, Berkoukech, Baddaz, Pizza ou pâtisserie et gâteaux traditionnels (gâteaux cuits à la poêle ou à l'huile).	



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.02	Racines et tubercules blancs : Patates douces blanches, pommes de terre irlandaises, navet, ou toutes les racines et tubercules blancs ou les aliments fabriqués à partir de ces racines blanches.	
17.03	Racines/tubercules ou légumes à chair orange : Citrouille, épinards, carottes, chou frisé, courge, betterave, poivrons rouges ou orange, ou patates douces à l'intérieur jaune ou orange.	
17.04	Légumes à feuilles vert foncé : Tous les légumes à feuilles vert foncé, y compris les légumes sauvages et indigènes vert foncé comme le chou frisé, la laitue, les épinards ou les feuilles de navet, la luzerne, et le chou rond.	
17.05	Autres légumes : Tous les autres légumes, y compris les légumes sauvages tels que le chou, l'aubergine, tomates, oignons, ail, poivron vert, haricots verts/frais, champignons ou les radis, courgettes, concombre, Melloukhia (gombo), Bahamou, Gueninech, canalucula (Qanaria) , truffes, le chou-fleur, les choux de Bruxelles et le poireau.	
17.06	Fruits à chair orange(vit A riche) : Mangues mûres, kaki, abricot, melon, papaye, nectarine. Pêches (en jus ou en morceaux).	
17.07	Autres fruits : Tous les autres fruits, y compris les fruits sauvages tels que les oranges, les citrons, les mandarines, les bananes, les ananas, les avocats, les dattes, les figues, les pastèques, les kiwis, les pommes, les pamplemousses, les fraises, les cerises, les raisins, les prunes, les baies rouges, les grenades, les figues de Barbarie, les canneberge, les olivess.	
17.08	Viande d'organes : Organes de viande tels que le foie, les reins, le cœur, le pancréas, le sang ou les abats, les Qurains (ragoût), Errass, les intestins, les poumons.	
17.09	Viande de chair : Toute viande, y compris le bœuf, l'agneau, la chèvre, le chameau, la viande blanche de volaille, y compris le poulet, la dinde, le canard and le pigeon.	



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.1	Œufs : œufs de toutes sortes d'oiseaux.	
17.11	Poisson : Poisson frais ou séché, crustacés ou autres fruits de mer.	
17.12	Légumineuses : Tous les aliments fabriqués à partir de haricots, fèves (Bissaras ou Mengoub, loubia, Addasse), pois, lentilles ou pois chiches, soja.	
17.13	Noix et graines : Noix, cacahuètes, amandes, pistaches, akajou, graines de tournesol (Zriâa), graines de courge (Zriâa bayda), noisettes, gousses de caroube.	
17.14	Le lait et les produits laitiers : Lait, fromage, yaourt au beurre, petit-lait, ou Raib, Jben, Smen, beurre ranci.	
17.15	Huiles/grasses : toute matière grasse, huile, beurre frais, margarines, khliâa ou aliment fabriqué avec l'une de ces matières, huile d'olive, huile d'argan.	
17.16	Sucre et sucreries : Tous les aliments sucrés tels que les chocolats, le sucre, le miel, les sucreries, les bonbons, les gâteaux ou les biscuits, les sodas, les boissons chocolatées, le thé ou le café avec du sucre, les confitures, tahlaout, sirops, amlou.	
17.17	Condiments : Condiments pour la saveur, tels que le cumin, le poivre, le gingembre et autres épices, les herbes (persil, céleri, coriandre, Fliou, Zeater, ...), le fenouil, le sel, les sauces tomate, ou les cubes de saveur tels que Magi, Knor.	
17.18	Boissons : café, thé, verveine, menthe, infusions à base de PAM, boissons alcoolisées.	



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Tanzania – DQQ

	American English [en-US]	Swahili (Tanzania) [swa-TZ]
<i>(Do not read food group names)</i>	Yesterday, did you eat any of the following foods?	Je, jana ulikula chakula chochote kati ya hivi vifuatavyo?
01 staple foods made from grains	Refined maize ugali, rice, pasta, bread, chapati, or kitumbua	Ugali mweupe, mchele, tambi, mkate, chapati, au kitumbua
02 whole grains	Maize grains, roasted corn, boiled corn, wholegrain maize ugali, millet porridge, sorghum porridge, or sorghum ugali?	Mahindi, mahindi ya kuchoma, mahindi ya kuchemsha, ugali wa dona, uji wa ulezi, uji wa mtama, au ugali wantama
03 white roots/tubers	Cassava, cassava ugali, makopa, yam, green banana, Irish potato, or white sweet potato	Mhogo, ugali wa mhogo, makopa, magimbi, ndizi mbichi, viazi mviringo, au viazi vitamu vyeupe
04 legumes	Beans, green peas, cowpeas, green gram, pigeon peas, lentils, bambara nuts (njugu mawe), or makande	Maharage, njegere, njugumawe, green gram, mbaazi, dengue, njugu mawe, au makande
	Yesterday, did you eat any of the following vegetables?	Je jana, ulikula mboga za majani aina yoyote ile ya hizi zifuatazo?
05 vitamin A-rich orange veg	Carrots, orange pumpkin, or viazi lishe	Karoti, boga la manjano, au viazi lishe
06.1 dark green leafy vegetables	Kale, spinach, Chinese amaranth leaves, cowpea leaves, hares lettuce or cassava leaves	Sukuma wiki au figili, spinachi, majani ya mchicha wa kichina, majnai ya kunde, mchungu au kisamvu
06.2 dark green leafy vegetables	Nightshade leaves, spider flower leaves, jute mallow, sweet potato leaves, or pumpkin leaves	Mnafu, mgagani, mlenda, matembele, au mboga ya maboga
07 other vegetables	Cabbage, tomatoes, African eggplant, eggplant, sweet pepper, cucumber, or okra	Kabichi, nyanya, ngogwe, biringanya, pilipili hoho, tango, au bamia
	Yesterday, did you eat any of the following fruits?	Je, jana ulikula matunda yoyote ya haya yafuatayo?
08 vitamin A-rich fruits	Mango, papaya, or passion fruit	Embe, papai au tunda la pashoni
09 citrus	Orange or tangerine	Chungwa au chenza
10.1 other fruits	Banana, pineapple, avocado, grapes, pear, or apple	Ndizi, nanasi, parachichi, zabibu, peasi, au apple



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	American English [en-US]	Swahili (Tanzania) [swa-TZ]
10.2 other fruits	Watermelon, baobab, guava, plum or jackfruit	Tikiti maji, Ubuyu, pera, matunda damu au fenesi
	Yesterday, did you eat any of the following sweets?	Je, jana ulikula chochote cha hivi vitamu vifuatavyo?
11 baked sweets	Cakes, cookies, visheti, or sweet biscuits	Keki, biskuti kubwa, visheti, au biskuti tamu
12 other sweets	Candy, chocolates, or ice cream	Pipi, chokoleti, au isikrimu
	Yesterday, did you eat any of the following foods of animal origin?	Je, jana ulikula chakula chochote cha hivi vifuatavyo vyenye asili ya nyama?
13 eggs	Eggs	Mayai
14 cheese	Cheese	Chizi
15 yogurt	Mtindi or yogurt	Mtindi au yogurt
16 processed meat	Soseji, ham, or bologna	Soseji, ham, au bologna
17 unprocessed red meat (ruminant)	Beef, mutton, goat, offal, or grinded meat	Nyama ya ng'ombe, kondoo, mbuzi, utumbo, au nyama ya kusagwa
18 unprocessed red meat (non-ruminant)	Pork, rabbit, or bush meat	nyama ya nguruwe, sungura, au nyama pori
19 poultry	Chicken, duck, or guinea fowl	Kuku, bata, au kanga
20 fish & seafood	Fish, dagaa, dried small tilapia, shrimp, prawn, shellfish, or octopus	Samaki, dagaa, Vitoga, kamba, kamba koche, konokono wa baharini, au pweza
	Yesterday, did you eat any of the following other foods?	Je, jana ulikula chakula chochote cha hivi vifuatavyo?
21 nuts & seeds	Pumpkin seeds, kashata za ufuta, cashews, groundnuts, or groundnut paste	Mbegu za maboga, kashata za ufuta, korosho, karanga, au siagi ya karanga
22 ultra-processed packaged salty snacks	Packaged chips such as Lays, Pringles, or Doritos	Chips za kwenye pakiti kama vile Lays, Pringles, au Doritos
23 instant noodles	Instant noodles	Tambi za papo hapo
24 deep fried foods	Mandaazi, bagia, French fries, fried cassava, fried sweet potato, fried chicken, deep fried pork, or deep fried beef	Mandaazi, bagia, chips za viazi, mihogo ya kukaanga, viazi vitamu vya kukaanga, kuku wa kukaanga, nyama ya nguruwe iliyokaangwa kwenye mafuta mengi, au Nyama ya ng'ombe iliyokaangwa kwenye mafuta mengi



	American English [en-US]	Swahili (Tanzania) [swa-TZ]
	Yesterday, did you have any of the following beverages?	Je, jana ulikuwa na vinywaji vyovyote vifuatavyo?
25 fluid milk	Fresh milk, powdered or packaged milk, milk tea, or milk in porridge	Maziwa ya maji, unga au maziwa ya kwenye pakiti, chai ya maziwa, au uji wa maziwa
26 sweetened tea/coffee/milk drinks	Sweetened tea, sweetened coffee, Milo, or cocoa	chai iliyungwa sukari, kahawa iliyungwa sukari, Milo, au kokoa
27 fruit juice	Fruit juice or fruit drinks	Juisi ya matunda, au vinywaji vyenye radha ya matunda.
28 SSBs(sodas)	Soft drinks such as Coke, Pepsi, Fanta, or Mirinda	Vinywaji baridi kama vile Coke, Pepsi, Fanta, au Mirinda
	Yesterday, did you get food from any place like...	Je, jana ulipata chakula kutoka sehemu yoyote kama vile...
29 Fast food	Pizza Hut, KFC, Subway, Mary Brown, Mr. Burger, or any other burger place?	Pizza Hut, KFC, Subway, Mary Brown, Mr Burger, au sehemu yoyote ya burger?

Tanzania – HDDS

ID	Food product categories	Eaten or Drunk? (Y-N)
17.01	Cereals: Refined maize ugali, rice, pasta, bread, chapati, or kitumbua? Makande, roasted corn, boiled corn, wholegrain maize ugali, millet porridge, sorghum porridge, pilau, biryani, ugali wa mtama (sorghum ugali), ugali wa uwele (millet ugali), skonzi (Scones), maandazi (wheat buns), popcorn or instant noodles?	
17.02	White roots and tubers: Cassava, cassava ugali, makopa, yam, green banana, Irish potato, or white sweet potato?	



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ID	Food product categories	Eaten or Drunk? (Y-N)
17.03	Orange fleshed roots/tubers or vegetables: Carrots, orange pumpkin, or viazi lishe?	
17.04	Dark green leafy vegetables: Sukuma wiki, figili, spinach, Chinese amaranth leaves, cowpea leaves, or cassava leaves, spider flower leaves, jute mallow, sweet potato leaves, or pumpkin leaves, mlenda, mnavu or black jack (mashonanguo)?	
17.05	Other vegetables: Cabbage, tomatoes, African eggplant, eggplant, sweet pepper, cucumber, hares lettuce (Mchungu), figili (Kale) or okra?	
17.06	Orange fleshed fruits: Mango, papaya, or passion fruit?	
17.07	Other fruits: Orange, tangerine, banana, pineapple, avocado, grapes, pear, apple, watermelon, baobab, guava, tamarind (ukwaju), java plum (zambarau) (matunda damu) or jackfruit?	
17.08	Organ meat: Offal?	
17.09	Flesh meat: Any meat including soseji, ham, or bologna? Beef, mutton, goat, or grinded meat? Pork, rabbit, or bush meat? Chicken, duck, or guinea fowl?	
17.1	Eggs: Eggs from any kind of birds	
17.11	Fish: Fish, dagaa, salted or dried small tilapia, shrimp, prawn, shellfish, or octopus?	



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ID	Food product categories	Eaten or Drunk? (Y-N)
17.12	Pulses: Beans, green peas, cowpeas, green gram, pigeon peas, lentils, bambara nuts, or makande?	
17.13	Nuts and seeds: Pumpkin seeds, <i>kashata za ufuta</i> , cashews, groundnuts, or groundnut pastef?	
17.14	Milk and milk-products: Fresh milk, powdered or packaged milk, milk tea, or milk in porridge? Cheese? Mtindi or yogurt?	
17.15	Oils/Fats: Any fat, oil, sunflower oil, palm oil, coconut oil, cotton seed oil, simsim oil, or groundnut oil	
17.16	Sugar and sweets: Cakes, cookies, visheti, or sweet biscuits? Candy, chocolates, or ice cream? Sweetened tea, sweetened coffee, Milo, or cocoa? Fruit juice or fruit drinks? Soft drinks such as Coke, Pepsi, Fanta, or Mirinda?	
17.17	Spices, Condiments: spices (black pepper, salt), condiments for flavor, such as garlic, cinnamon, tumeric, cloves, pilau masala, tea masala, or fish powder, tomato paste, flavor cubes such as royco, knorr?	
17.18	Beverages: coffee, tea, alcoholic beverages, cocoa or soybean coffee?	



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Tunisia – DQQ

		Yesterday, did you eat any of the following foods?						
01 staple foods made from grains	Question formulation	Couscous, bread, macaroni, rice?						
	Common name	Couscous	bread	macaroni	rice			
	Suggested translation (in French)	Couscous	Pain	Macaroni	riz			
	Suggested translation (Arabic - tunisian)	كسكسي	خبز khubz	مقرونة	ارز-روز			
	Global definition	couscous	bread	pasta	rice			
02 whole grains	Question formulation	Barley, bulgur, sorghum, sohlob, oats, corn, popcorn?						
	Common name	Barley	bulgur	sorghum	sohlob	oats	corn	bsissa
	Suggested translation (in French)	Orge	boulgour	sorgho	bouillie de sorgho	avoine	maïs	bsissa
	Suggested translation (in Arabic)	شعير	برغل	درع	درع	شوفان	ذرة (قطانية)	bsissa



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		Yesterday, did you eat any of the following foods?						
	Global definition	barley	bulgur	sorghum	sorghum porridge	oats	corn	popcorn
03 white roots/tubers	Question formulation	Potatoes?						
	Common name	Potatoes?						
	Suggested translation (in French)	Pommes de terre						
	Suggested translation (in Arabic)	بطاطا						
	Global definition	Potatoes						
04 legumes	Question formulation	Beans, fava beans, lentils, chickpeas, peas?						
	Common name	Beans	fava beans	lentils	chickpeas	peas		
	Suggested translation (in French)	Haricots	fèves	lentilles	pois chiches	petit pois		
	Suggested translation (in Arabic)	لوبيا lubya	فول ful	عدس edes	حمص hamas	جلبانة jalbana		



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		Yesterday, did you eat any of the following foods?						
	Global definition	beans	fava beans	lentils	chickpeas	peas		
		Yesterday, did you eat any of the following vegetables?						
05 vitamin A-rich orange veg	Question formulation	Carrots, pumpkin?						
	Common name	Carrots	pumpkin					
	Suggested translation (in French)	Carottes	citrouille					
	Suggested translation (in Arabic)	سفنارية	قرع احمر					
	Global definition	carrots	pumpkin					
06.1 dark green leafy vegetables	Question formulation	Swiss chard, jute mallow, spinach, parsley, turnip greens?						
	Common name	Swiss chard	jute mallow	spinach	parsley	turnip greens	celery	
	Suggested translation (in French)	blette	mauve de jute	épinard	persil		céleri	



		Yesterday, did you eat any of the following foods?						
	Suggested translation (in Arabic)	سلق	ملوخية	سبناخ	معدنوس (بققدونس)	اللفت الأخضر	klafiz	
	Global definition	Swiss chard	jute mallow	spinach	parsley	turnip greens	celery	
07.1 other vegetables	Question formulation	Tomatoes, cucumber, lettuce, cabbage, zucchini, eggplant, cauliflower?						
	Common name	Tomatoes	cucumber	lettuce	cabbage	zucchini	eggplant	cauliflower
	Suggested translation (in French)	Tomates	concombre	laitue	chou	courgette	aubergine	chou-fleur
	Suggested translation (in Arabic)	طماطم	فقدوس	خس	كرنب	قرع اخضر	باذنجان	بروكلو
	Global definition	tomatoes	cucumber	lettuce	cabbage	zucchini	eggplant	cauliflower
07.2 other vegetables	Question formulation	okra, artichoke, radish, cardoon, fennel root, sweet green pepper, kohlrabi?						
	Common name	okra	artichoke	radish	cardoon	fennel root	sweet green pepper	kohlrabi
	Suggested translation (in French)	Gombo	Artichaut	Radis	Cardon	Racine de fenouil	Poivron doux	Le chou-rave



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Yesterday, did you eat any of the following foods?								
	Suggested translation (in Arabic)	قناوية	قنارية	فجل	كاردون	بسباس	فلفل حلو	جدره-بوثقالة
	Global definition	okra	artichoke	radish	cardoon (Cynara cardunculus)	fennel root	sweet green pepper	kohlrabi
Yesterday, did you eat any of the following fruits?								
08 vitamin A-rich fruits	Question formulation	Apricots, dried apricots, cantaloupe?						
	Common name	Apricots	dried apricots	cantaloupe				
	Suggested translation (in French)	Abricots	Abricots secs	cantaloup				
	Suggested translation (in Arabic)	مشماش	مشماش شايع	بطيخ				
	Global definition	apricots	dried apricots	cantaloupe				
09 citrus	Question formulation	Orange, mandarins, lim hlou?						
	Common name	Orange	mandarins	lim hlou	Grapefruit	lemon		



		Yesterday, did you eat any of the following foods?						
	Suggested translation (in French)	oranges	mandarines	bergamote				
	Suggested translation (in Arabic)	برتقال	مادلينة	ليم حلو-ليم سيدي عامر				
	Global definition	orange	mandarins	bergamot				
	Question formulation	Dried or fresh grapes, dates, pomegranate, watermelon, green melon, banana?						
10.1 other fruits	Common name	Dried or fresh grapes	dates	pomegranate	watermelon	green melon	banana	
	Suggested translation (in French)	raisins ou raisins secs	dattes	Grenade	pastèque	melon	banane	
	Suggested translation (in Arabic)	عنب أو زبيب	دقلة	رمان	دلاع	بطيخ	موز-بنان	
	Global definition	dried or fresh grapes	dates	pomegranate	watermelon	green melon	banana	
10.2 other fruits	Question formulation	apple, pear, peaches, plums, strawberries, cherries?						
	Common name	apple	pear	peaches	plums	strawberries	cherries	



		Yesterday, did you eat any of the following foods?						
	Suggested translation (in French)	pomme	poire	pêches	prunes	fraises	cerises	
	Suggested translation (in Arabic)	التفاح	إجاص	خوخ	عويينة	الفراولة	حب ملوك	
	Global definition	apple	pear	peaches	plums	strawberries	cherries	
		Yesterday, did you eat any of the following sweets?						
11 grain sweets	Question formulation	Cakes, biscuits, gauffrette, makroudh, baklawa, or other traditional Tunisian sweets?						
	Common name	Cakes	biscuits	gauffrette	makroudh	baklawa	or other traditional Tunisian sweets	
	Suggested translation (in French)	Gâteaux	biscuits	gauffrette	makroudh	baklawa	autres pâtisseries traditionnelles tunisiennes	
	Suggested translation (in Arabic)	كيك	بسكويت	قوفرات	مقروض makroudh	بقلاوة baklawa	حلويات تونسية أخرى	



		Yesterday, did you eat any of the following foods?						
	Global definition	cakes	biscuits	wafers	sweet pastry with dates filling	baklawa	or other traditional Tunisian sweets	
12 other sweets	Question formulation	Candies, chocolates, ice cream or popsicles, custard, mhalbiya?						
	Common name	Candies	chocolates	ice cream or popsicles	custard	mhalbiya		
	Suggested translation (in French)	bonbons	Chocolats	glace	crème dessert (in French)	crème patissière		
	Suggested translation (in Arabic)	halwa حلوى	شكلاطة	مثلجات	krima (كريمة)	كريمة		
	Global definition	candies	chocolates	ice cream or popsicles	custard	milk-based rice dessert		
		Yesterday, did you eat any of the following foods of animal origin?						
13 eggs	Question formulation	Eggs?						
	Common name	Eggs						



		Yesterday, did you eat any of the following foods?						
	Suggested translation (in French)	œufs						
	Suggested translation (in Arabic)	عصم (بيض)						
	Global definition	eggs						
14 cheese	Question formulation	Cheese?						
	Common name	Cheese						
	Suggested translation (in French)	fromage						
	Suggested translation (in Arabic)	جبين						
	Global definition	cheese						
15 yogurt	Question formulation	Yogurt, lben, rayeb?						
	Common name	Yogurt	lben	rayeb				



		Yesterday, did you eat any of the following foods?						
	Suggested translation (in French)	Yaourt	kéfir	lait fermenté		رايب		
	Suggested translation (in Arabic)	ياغورت	لبن	رايب rayeb		لبن		
	Global definition	yogurt	kefir	fermented milk				
16 processed meat	Question formulation	Ham, salami, kadid?						
	Common name	Ham	salami	kadid	Merguez			
	Suggested translation (in French)	jambon	salami	viande séchée salée	Merguez			
	Suggested translation (in Arabic)	جمبون	صلامي	كديد kadid	merguez			
	Global definition	ham	salami	dried salted meat	Tunisian sausage			
17 unprocessed red meat (ruminant)	Question formulation	Beef, lamb, goat?						
	Common name	Beef	lamb	goat				



		Yesterday, did you eat any of the following foods?						
	Suggested translation (in French)	Boeuf	Agneau	Chèvre				
	Suggested translation (in Arabic)	بقرى	علوش	برشنى-ماعز				
	Global definition	beef	lamb	goat				
18 unprocessed red meat (non-ruminant)	Question formulation	Camel?						
	Common name	Camel	Rabbit					
	Suggested translation (in French)	chameau	lapin					
	Suggested translation (in Arabic)	جمل	arneb					
	Global definition	camel	Rabbit					
19 poultry	Question formulation	Chicken, chicken liver, turkey?						
	Common name	Chicken	chicken liver	turkey				



		Yesterday, did you eat any of the following foods?						
	Suggested translation (in French)	Poulet	foie de poulet	dinde				
	Suggested translation (in Arabic)	دجاج	كبدية	ديك رومي				
	Global definition	chicken	chicken liver	turkey				
20 fish & seafood	Question formulation	Fish, ouzef, tuna, sardines, seafood such as shrimp?						
	Common name	Fish	ouzef	tuna	sardines	seafood such as shrimp		
	Suggested translation (in French)	poisson	anchois	thon	sardines	fruits de mer comme les crevettes		
	Suggested translation (in Arabic)	حوت	وزف	تن	سردينية	ماكولات البحرية مثل الجمبري		
	Global definition	fish	type of dried small fish	tuna	sardines	seafood such as shrimp		
		Yesterday, did you eat any of the following other foods?						



		Yesterday, did you eat any of the following foods?						
21 nuts & seeds	Question formulation	Almonds, peanuts, walnuts, hazelnuts, pistachios, kloub?						
	Common name	Almonds	peanuts	walnuts	hazelnuts	pistachios	kloub	
	Suggested translation (in French)	amandes	cacahuètes	noix	noisettes	pistaches	graines de tournesol et de courge	
	Suggested translation (in Arabic)	لوز	kakaouia كأكوية	جوزة	بوفريوة	فستق	كلوب	
	Global definition	almonds	peanuts	walnuts	hazelnuts	pistachios	sunflower and squash seeds	
22 ultra-processed packaged salty snacks	Question formulation	Chips?						
	Common name	Chips						
	Suggested translation (in French)	chips						
	Suggested translation (in Arabic)	شيبس						



		Yesterday, did you eat any of the following foods?						
	Global definition	chips						
23 instant noodles	Question formulation	Indomie?						
	Common name	Indomie						
	Suggested translation (in French)	Indomie						
	Suggested translation (in Arabic)	أندومي						
	Global definition	Indomie (brand of instant noodles)						
24 deep fried foods	Question formulation	French fries, fricasse, brik, bambaloni or ftayer, deep fried fish, deep fried chicken?						
	Common name	French fries	fricasse	brik	bambaloni or ftayer	deep fried fish	deep fried chicken	Kafteji
	Suggested translation (in French)	frites	fricasse	brik	bambaloni or ftayer	poisson frit	poulet frit	Kafteji



		Yesterday, did you eat any of the following foods?						
	Suggested translation (in Arabic)	بطاطا مقلية	فريكاسي	بريك	فطاير و بمبالوني	سمك مقلی	دجاج مقلي	Kafteji
	Global definition	French fries	deep fried bread with savoury filling	deep fried dough pastry with savoury filling	local donuts	deep fried fish	deep fried chicken	Fried vegetables (traditional food)
		Yesterday, did you have any of the following beverages?						
25 fluid milk	Question formulation	Milk, coffee with milk?						
	Common name	Milk	coffee with milk					
	Suggested translation (in French)	lait	café au lait					
	Suggested translation (in Arabic)	حليب	قهوة حليب					
	Global definition	milk	coffee with milk					
26 sweetened	Question formulation	Tea with sugar, coffee with sugar, chocolate drinks such as Chocoline?						



		Yesterday, did you eat any of the following foods?						
tea/ coffee/ milk drinks	Common name	Tea with sugar	coffee with sugar	chocolate drinks such as Choline				
	Suggested translation (in French)	thé avec sucre	café avec sucre	boissons chocolatés comme Choline				
	Suggested translation (in Arabic)	شاي بالسكر	قهوة بسكر	مشروبات الشوكولاتة مثل شوكولاتين				
	Global definition	tea with sugar	coffee with sugar	chocolate drinks such as Choline				
27 fruit juice	Question formulation	Fruit juice, fruit drinks?						
	Common name	Fruit juice	fruit drinks					
	Suggested translation (in French)	jus de fruit	boissons aux jus					
	Suggested translation (in Arabic)	عصير	مشروبات بالعصير					



		Yesterday, did you eat any of the following foods?						
	Global definition	fruit juice	fruit drinks					
28 SSBs (sodas)	Question formulation	Soda, such as, Coca, Fanta, Boga, energy drinks such as, Shark, Black Dog?						
	Common name	Soda	such as	Coca	Fanta	Boga	energy drinks such as	Shark
	Suggested translation (in French)	Boissons gazeuses	comme	Coca-Cola	Fanta	Boga	boissons énergisantes telles que	Shark
	Suggested translation (in Arabic)	مشروبات غازية	مثل	كوكاكولا	فانتا	بوقا	مشروبات الطاقة مثل	شارك
	Global definition	Soft drinks	such as	Coca-Cola	Fanta	Boga	energy drinks such as	Shark
		Yesterday, did you get food from any place like...						
29 fast food	Question formulation	KFC, Papa John's, Texas Food, Plan B, other places that serve pizza or burgers?						
	Common name	KFC	Papa John's	Baguette	Plan B	other places that serve pizza or burgers	Texas Food	



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		Yesterday, did you eat any of the following foods?						
	Suggested translation (in French)	KFC	Papa John's	Baguette	Plan B	أماكن أخرى تقدم البيتزا أو البرغر	Texas Food	
	Suggested translation (in Arabic)	KFC	Papa John's	Baguette	Plan B	other places that serve pizza or burgers	Texas Food	

Tunisia – HDDS

ID	Food product categories	Eaten or Drunk? (Yes-No)
17.01	Cereals: Couscous, bread, macaroni, or rice? Barley, bulgur, sorghum, sohlob, oats, corn, or popcorn, bsissa?	
17.02	White roots and tubers: Potatoes?	
17.03	Orange fleshed roots/tubers or vegetables: Carrots or pumpkin?	



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.04	Dark green leafy vegetables: Swiss chard, jute mallow, spinach, parsley or turnip greens?	
17.05	Other vegetables: Tomatoes, cucumber, lettuce, cabbage, zucchini, eggplant, or cauliflower? Okra, artichoke, radish, cardoon, fennel root, sweet green pepper, kohlrabi, or beets?	
17.06	Orange fleshed fruits: Apricots, dried apricots, or cantaloupe?	
17.07	Other fruits: Dried or fresh grapes, dates, pomegranate, watermelon, green melon, or banana? Apple, pear, peaches, plums, strawberries, or cherries?	
17.08	Organ meat: Offal or chicken liver, lamb heart, lamb liver, lamb kidney, osban, lamb stomach ?	
17.09	Flesh meat: Beef, lamb, or goat? Camel? Chicken, chicken liver, or turkey, rabbit, donkey?	
17.1	Eggs: Eggs from any kind of birds	
17.11	Fish, ouzef, tuna, sardines, or seafood such as shrimp?	
17.12	Pulses: Beans, fava beans, lentils, chickpeas, or peas?	



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.13	Nuts and seeds: Almonds, peanuts, walnuts, hazelnuts, pistachios, or kloub?	
17.14	Milk and milk-products: milk, cheese, yogurt, lben, or rayeb, keffir?	
17.15	Oils/Fats: Vegetable oils, olive oil, subsidised oils, butter, smen, liya, hydrogenized vegetable oils	
17.16	Sugar and sweets: Cakes, cookies, visheti, or biscuits? Candy, chocolates, or ice cream? Sweetened tea, sweetened coffee, Milo, or cocoa? Fruit juice or fruit drinks? Soft drinks such as Coca, Fanta, or Boga, or energy drinks such as Shark or Black Dog? Baklewa, Makroudh, Traditional Tunisian sweets ?	
17.17	Spices, Condiments: black pepper, salt, oregan, curcuma, rosemary, coriander, cumin, Tabel (mix of spices and condiments), red pepper, ginger?	
17.18	Beverages: coffee, tea, alcoholic beverages, juice, soda?	



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Uganda – DQQ

	American English [en-US]	Luganda (Uganda) [lug-UG]
<i>(Do not read food group names)</i>	Yesterday, did you eat any of the following foods?	Eggulo, walidde kumeere eno wamanga ?
01 staple foods made from grains	Rice, maize porridge, posho, macaroni, chapati, or bread	Omuchere, obuggi bwakasooli, posho, macaroni, chapati, oba omugaati
02 whole grains	Maize grains, boiled or roasted maize on the cob, kalo, bushera, sorghum bread, sorghum porridge, or popcorn	kasooli owempeke, kasooli okuva kukikongolirob(omwoky oba omufumbe), kalo, bushera, akawunga ko omuwemba, obuggi bwomuwemba, oba popcorn
03 white roots/tubers	Irish potato, boiled cassava, yam, sweet potato, cassava bread, matooke, kivuvu or gonja	Obumonde obuzungu, muwoggo omufumbe, ejjuni, amatooke, lumonde, akawunga ka muwogo, oba kivuvu
04 legumes	Beans, cowpeas, black eyed peas, soya porridge, pigeon peas, green gram, or bambara nuts	Ebijanjalo, kawo, empindi, obuggi bwasoya, pigeon peas/enkolimbo, bambara nuts oba choroko
	Yesterday, did you eat any of the following vegetables?	Eggulo, walidde ku enva endirwa zino wamanga?
05 vitamin A-rich orange vegetables	Carrots, pumpkin, or sweet potatoes that are orange inside	Caroti, ensujju, oba lumonde owekipapaali
06.1 dark green leafy vegetables	Nakati, sukuma wiki, spider plant leaves, green amaranth, red amaranth, hibiscus leaves, or eshwiga/ensuga	Nakati, sukuma wiki, ejoby, doodo, ebbuga, hibiscus leaves/lusaala, oba eshwiga/ensuga
06.2 dark green leafy vegetables	Cowpea leaves, pumpkin leaves, cassava leaves, yam leaves, spinach, sweet potato leaves, or jute mallow	Ebikoola byakawo, etimpa/esunsa, ebikoola byamuwoogo, ebikoola bya mayuuni, spinach, amalagaala, oba jute mallow
07 other vegetables	Tomatoes, cabbage, eggplant, garden egg, or African eggplant, katunkuma	Enyanya, emboga, biringanya, garden egg, oba entula, katunkuma
	Green pepper, okra, mushrooms, or bamboo	Grini pepa, okra, obutiiko, oba amabanda/ amalewa
	Yesterday, did you eat any of the following fruits?	Eggulo, walidde kubibala bino wamanga?
08 vitamin A-rich fruits	Mango, papaya, passionfruit, cantaloupe or tree tomato	Muyembe, paapali, obutunda, cantaloupe or oba ebinyanya



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	American English [en-US]	Luganda (Uganda) [lug-UG]
09 citrus	Orange or tangerine	Emichungwa oba mangada
10.1 other fruits	Banana fruit, guava, jackfruit, avocado, pineapple, watermelon, or soursop	Amenvu, amapeeraa, ffene, keddo, enanansi, watermelon, or ekitafeeri
10.2 other fruits	Pear, melon, apple, owelo, jumbula, ejuga, or raspberries	Pear, melon, apple, owelo, jumbula, ejuga, oba entuntunu
	Yesterday, did you eat any of the following sweets?	Eggulo, walidde ku biwomerera byona wamanga?
11 baked sweets	Cakes, cookies, biscuits, or daddies	Keki, cookies, biscuits, oba daddies
12 other sweets	Sweets, chocolates, or ice cream	Switi, chocolates, oba ice cream
	Yesterday, did you eat any of the following foods of animal origin?	Eggulo, walidde kubino wamanga emmere eva mubisoolo?
13 eggs	Eggs, rolex	Amaggi oba rolex
14 cheese	Cheese	Chizii
15 yogurt	Bongo, yogurt, or amacunda	Bongo, yogurt, or amacunda
16 processed meat	Sausages	Sossegi
17 unprocessed red meat (ruminant)	Beef, goat, sheep, offal, or bush meat	Enyama yente, embuzzit, endigga, ebyenda, oba enyama ye bisolo byomunsiko
18 unprocessed red meat (non-ruminant)	Pork, wild pig, rat, or rabbit	Enyama yembizzi, embizzi yo munsiko, emmese, oba obumyu
19 poultry	Chicken, duck, turkey, quail, or guinea fowl	Enkoko, embata, sekoko, enkwale, oba enkofu
20 fish & seafood	Fish, mukene, eel, catfish, or sardines	Ebyenyanja, mukene, eel, ensonzi, oba sardines
	Yesterday, did you eat any of the following other foods?	Eggulo, walidde kubino wamanga emmere endala?
21 nuts & seeds	Roasted gnuts, gnut sauce, boiled groundnuts in pod, sesame, oyster nuts, pumpkin seeds, or shea nuts	Ebinyebwa ebisiike, ebinyebwa ebyassupu, ebinyebwa by'empogola, simsim, ebinyebwa ebizungu, ensigo zensujju, oba shea nuts



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	American English [en-US]	Luganda (Uganda) [lug-UG]
22 ultra-processed packaged salty snacks	Crisps or Gorillos	Crisps oba Gorillos
23 instant noodles	Packaged instant noodles	Amakaroni agafumbirwa akaseera akatono nolirawo
24 deep fried foods	Kabalagala, mandaazi, samosa, fried cassava, fried sweet potato, fried meat, or fried fish	Kabalagala, mandaazi, sumbusa, muwogo omusiike, lumonde omusiike, enyama ensiike, oba ebyenyanja ebisiike
	Yesterday, did you have any of the following beverages?	Eggulo, wabadde nebyokunywa bino wamanga?
25 fluid milk	Milk or milk tea	Amatta oba kyayi wamatta
26 sweetened tea/coffee/milk drinks	Tea with sugar, milk tea with sugar, coffee with sugar, or flavoured milk	Kyayi alimu sukali, kyayi owamatta owa sukali, kaawa ngalimu nsukali, oba amatta agalimu ebilungo
27 fruit juice	Juice, hibiscus juice or tea, or omubisi	Juice, hibiscus juice oba chai, oba omubisi
28 SSBs(sodas)	Soda such as Coca-Cola, Fanta, or Riham	Soda okugeza nga Coca-Cola, Fanta, oba Riham
	Yesterday, did you get food from any place like	Eggulo, wafunye emmere okuva mukifo kyona nga
29 Fast food	KFC, Nandos, Chicken Tonight, Mr. Tasty, or other places that serve burgers?	KFC, Nandos, Chicken Tonight, Mr. Tasty, oba ebifo ebilala ebigaba ebichepere?

Uganda – HDDS

ID	Food product categories	Eaten or Drunk? (Yes-No)
17.01	Cereals: Rice, maize porridge, posho, macaroni, chapati, or bread? Maize grains, maize from the cob, kalo, bushera, sorghum bread, sorghum porridge, or popcorn? Packaged instant noodles ?	



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.02	White roots and tubers: Irish potato, boiled cassava, yam, sweet potato, cassava bread, matooke, climbing yam, cocoyams or kivuvu	
17.03	Orange fleshed roots/tubers or vegetables: Carrots, pumpkin, or sweet potatoes that are orange inside	
17.04	Dark green leafy vegetables: Nakati, sukuma wiki, spider plant leaves, green amaranth, red amaranth, hibiscus leaves, or eshwiga/ensuga? Cowpea leaves, pumpkin leaves, cassava leaves, yam leaves, spinach, sweet potato leaves, or jute mallow?	
17.05	Other vegetables: Tomatoes, cabbage, eggplant, garden egg, or African eggplant? Green pepper, okra, mushrooms, garlic or bamboo?	
17.06	Orange fleshed fruits: Mango, papaya, passionfruit, or tree tomato	
17.07	Other fruits: Orange, lemon, limes or tangerine, banana fruit, guava, jackfruit, avocado, pineapple, watermelon, or soursop? Pear, melon, apple, owelo, jumbula, ejuga, or raspberries?	
17.08	Organ meat: Offal or cow hooves	
17.09	Flesh meat: Sausages, beef, goat, sheep, bush meat, Pork, wild pig, rat, or rabbit? Chicken, duck, turkey, quail, or guinea fowl?	
17.1	Eggs: Eggs from any kind of birds	



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ID	Food product categories	Eaten or Drunk? (Yes-No)
17.11	Fish: Fish, mukene, eel, catfish, or sardines	
17.12	Pulses: Beans, cowpeas, black eyed peas, soya porridge, pigeon peas, green gram, or bambara nuts	
17.13	Nuts and seeds: Roasted gnuts, gnut sauce, sesame, oyster nuts, pumpkin seeds, or shea nuts.	
17.14	Milk and milk-products: Milk or milk tea? Cheese, bongo, yogurt, or amacunda.	
17.15	Oils/Fats: Any fat like ghee, or oils like palm oil such as kimbo or cowboy or any other vegetable oil, like sunflower oil?	
17.16	Sugar and sweets: Cakes, cookies, biscuits, or daddies? Sweets, chocolates, or ice cream? Tea with sugar, milk tea with sugar, coffee with sugar, or flavoured milk? Juice, hibiscus juice or tea, or omubisi? Soda such as Coca-Cola, Fanta, or Riham?	
17.17	Spices, Condiments: Royco,garlic, curry powder, salt, hot pepper, soysauce,soya powder for tea, , flavor cubes such as royco	
17.18	Beverages: tea, coffee, ginger,tumeric beverages pineapple drink(omunanansi), banana drink (omubisi),millet malt drink(bushera), beer	



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Appendix 4: Table summarising changes between in-the-household/out-of-store survey and in-lab survey

Extended version (in-lab survey)	Reduced version (out-of-store/ in-the-household)
Screening question 1	Screening question 1
Screening question 2	Screening question 2
Screening question 3	Not included
Q1	Not included
Q2	Q2
Q3	Q3
Q4	Q4
Q5	Q5
Q6	Q6
Q7	Q7
Q8	Q8
Q9	Q9
Q10	Q10
Q11	Q11
Q12	Not included
Q13	Q13
Q14	Q14
Q15	Q15
Q16	Q16
Q17	Q17
Q18.1	Q18.1
Q18.2	Q18.2
Q18.3	Q18.3
Q18.4	Q18.4
Q18.5	Q18.5



Q19.1	Q19.1
Q19.2	Q19.2
Q19.3	Q19.3
Q19.4	Q19.4
Q20	Q20
Q21	Q21
Q22	Not included
Q23	Not included
Q24	Not included
Q25	Not included
Q26	Not included
Q27	Not included
Q28	Not included
Q29	Not included
Q30	Not included



Appendix 5: oTree lab experiment & installation guide

Management of Lab Experiments in oTree

Description

As reported in the opening of the project website (otree.org) “oTree is an open-source platform for web-based interactive tasks”. Otree is free (<https://opensource.org/licenses/MIT>) and can be downloaded from <https://otree.readthedocs.io/en/latest/install.html>. It is rapidly becoming the reference platform for experiments in economics, both online and in the lab. The reference languages for programming an oTree experiment are Python and HTML. Each experiment can be thought as a web app (for live demos, see <https://otree-more-demos.herokuapp.com/demo>).

Server/client communication

Users can interact with an oTree app through an Internet browser in a client/server infrastructure. Typically, the app is located on a server where oTree and its dependencies are installed. When a session is opened on the server, links are generated and distributed to users that will connect to the server by inserting the link in their client's browser. Potentially, any device with a browser can be a client and interact with the app.

Implementation settings

Two main environments allow users to interact with the app: *laboratory* and *remote*.

Laboratory

In a laboratory setting, users are generally present in a room with cubicles that warrant users' privacy. Each user had access to a terminal. The server and the terminals are usually located under the same local network. Typically a lab is made of 1 Desktop PC that works as server and a number of terminals, usually Desktop PCs or Laptops, that are used Individually by participants. The number of terminals is generally between 20 and 30. When the client and server are not connected to the Internet it is important that they all inside a Local Area Network (LAN). To set up a LAN switches and cables are needed. Detailed instructions to configure one of your computers to be a server are provided in the [official documentation](#). Basically,

Find the IP address of the computer that works as server (usually something like *10.0.1.3*, or starting with *172* or *192*)

From this computer start the oTree server with command
otree prod server YOURIPHERE:8000

Open a browser on your clients and follow the instructions below to *How to setup a session*.

It is important that the IP address of your server does not change during the session!

Remote server

In a remote setting, the app is located on a web server and it is accessed by clients via the Internet. Clients can be located anywhere, as long as they can connect to the server via the session link. An example of a remote setting is the one that relies on the cloud hosting provider Heroku (<https://otree.readthedocs.io/en/latest/server/heroku.html>). The remote setting requires a stable Internet connection to avoid problems in the client/server communication.

How to setup a Room



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In the `settings.py` file (see below) setup a room with 40 places

```
ROOMS = [ dict( name='econ_lab', display_name='Experimental Economics Lab 40s',
participant_label_file='_rooms/labels.txt', use_secure_urls=False )]
```

Each PC will then receive a specific URL with a PC identifier (PC1 ,PC2, PC2)

http://YOURIPHERE:8000/room/econ_lab?participant_label=PC1
http://YOURIPHERE:8000/room/econ_lab?participant_label=PC2
http://YOURIPHERE:8000/room/econ_lab?participant_label=PC3
http://YOURIPHERE:8000/room/econ_lab?participant_label=PC4

From Computer 1 open the link

http://YOURIPHERE:8000/room/econ_lab?participant_label=PC1

How to setup a session

To setup a session

Start the otree server on your server machine with command

otree prodserver YUORIPHERE:8000


Open a browser on your server machine and write

<http://YUORIPHERE:8000/sessions>

Click the button Create new session

Choose your app and the configuration settings from the interface that opens

Create a new session



The screenshot shows the 'Create a new session' interface with several red annotations:

- A red box highlights the 'FL_block1' and 'FL_block2' options, with a red arrow pointing to 'FL_block2' and a red text box saying 'Choose here the block: 1 or 2'.
- A red box highlights the 'Number of participants' input field, with a red text box saying 'Set here the number of participants: this is the number of people actually taking part in the session. Remember that in block 2 you need a multiple of 4, while in block 1 a multiple of 2'.
- A red box highlights the 'Create' button.
- A red box highlights the 'Configure session' link, with a red arrow pointing to the 'General' section and a red text box saying 'Click here to define the parameters below'.
- A red box highlights the 'General' section, with a red text box saying '1) Define here the conversion rate of Tokens into local currency (earnings in LC=Tokens*real_world_currency_per_point). 2) Define here the show up fee in LC.'
- A red box highlights the 'participation_fee' and 'real_world_currency_per_point' input fields, with values '4.0' and '0.01' respectively.

When done, click the button **Create**



This will create a series of links. Now the clients can connect to the server with these links.
If you use Rooms (recommended), you follow a similar procedure but session is created directly from the Room

Ask your clients to connect to your room by writing the room address in their browser (see above for instructions)

Open a browser on your server machine and write

<http://YUORIPHERE:8000/rooms>

Choose your room from the list

Choose your app and the configuration settings from the interface that opens

When done, click the button **Create**

Now the session is active and clients connected to the room can start the session.

Our apps

Two main experiments are developed, *block 1 and block 2*, that differ in the sequence of apps that are presented to participants

Block 1

The following apps are contained in Block 1

- *FL_welcome*

This app must be the first in the sequence. It displays a welcome message and general instructions.

It also loads pieces of information about organizations from external .csv files.

choices_inst.csv

Example:

:Institution	Choice_other_0	Choice_other_3	Choice_other_6	Choice_other_9
		0	0	0
A	0	15	80	120
B	0	20	40	100

Inst_Name	Choice_other_0	Choice_other_3	Choice_other_6	Choice_other_9
	0	30	60	90
A	0	15	80	120
B	0	20	40	100

⚠ These files must be filled with the correct information about local organizations and preserving the original structure



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- *FL_DGA*
 - Dictator Game: 2 phases, first with a peer then with the organization
 - Both choose as Dictators and know afterwards their actual role
- *FL_TG*
 - A mini-investment game: 2 phases, first with a peer then with the organization
 - Play either as Recipient or as Sender
 - Both receive the endowment
 - Strategy method
- *FL_time*
 - A MPL estimation of time preferences
- *FL_risk*
 - A MPL estimation of risk preferences
- *FL_payments*
 - Displays all payments and feedbacks

The order of FL_DG, FL_TG, FL_time, FL_risk can be randomized in [settings.py](#) (see below).

Block 2

The following apps are contained in Block 2:

- *FL_welcome*
 - This app must be the first in the sequence. It displays a welcome message and general instructions.
- *FL_PGG*
 - A 4-player PGG over 2 rounds in a partner fashion
 - Round 1: PGG
 - Task: subjects are either assigned to an *identity task* (to create group identity) or to an *individual task*
 - Controlled from [settings.py](#) (see below)
 - Round 2: PGG
- *FL_time*
 - A MPL estimation of time preferences
- *FL_risk*



- A MPL estimation of risk preferences
- *FL_payments*
 - Displays all payments and feedbacks

Payments

Payments can be conveniently administered using the oTree interface

Participants are displayed in order of connection (in Rooms is the label order).

Total is the amount to be paid today in Local Currency (show-up fee included).

Translation

To translate the reference app (in English) into different languages follow these steps (*pybabel required*)

Create the template from the "source" folder (the original app)

```
pybabel extract ./ -F babel.ini -o messages.pot -k trans
```

This will create a template *messages.pot*. This is the template that serves as starting file for all the translations.

Copy *messages.pot* to the root folder of the project to be translated

Open a terminal in the root of the project to be translated

Create a folder in *_locale* in the root with a label identifying your "destination" language (*fr* in the example)

```
mkdir _locale/fr
```

Initialize *messages.po* file (first time) from the *messages.pot* file

```
pybabel init -i messages.pot -d _locale -l fr
```

Translate *messages.po*. The file looks like this

```
#:msgid "We will now play the game."msgstr "Nous allons maintenant jouer le jeu."
```

The translated text goes into *msgstr* ""

Compile the edited *messages.po* file

```
pybabel compile -i _locale/fr/LC_MESSAGES/messages.po -d _locale -l fr -f
```

If you need to **update** the *messages.po* from a new version of *messages.pot* (in case you make changes)

```
pybabel update -i messages.pot -d _locale -l fr
```

Set the destination language in [settings.py](#)

```
LANGUAGE_CODE = 'fr'
```

Download the data

Preferred format of download is *.csv*



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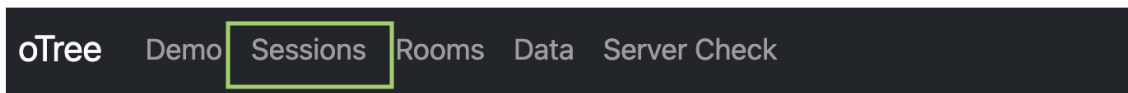
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At the end of the experiment, to download your session data, follow these steps:

Go to the list of *Sessions* from the main navigation bar

Click on the code of current session (7f1og28p in the example)



Sessions

Create new session ▼

Archive Delete

<input type="checkbox"/>	Code	Size	Config	Created	Label
<input type="checkbox"/>	7f1og28p	2	FL_block_1	< 1 hour ago	

Using Otree in Windows server- Installation guide

oTree is a software package designed to support the setup and management of multiple, production-ready oTree installations on the same server. Running in Docker containers, the individual instances run completely independent of each other while being less resource-intensive than traditional virtual machine setups. A convenient web interface provides both experimenters and laboratory managers with easy access to the most common actions and eliminates the need for command line interaction. Finally, oTree comes with a novel Lobby feature which makes laboratory experiments that use oTree's rooms feature more convenient to run

In this document, we present how to prepare our survey and share it on the web server using the Windows server by following these steps:

- Creating Firewall inbound rule in Windows Server 2012 R2
- Installing oTree
- Room configuration
- Creation of rooms



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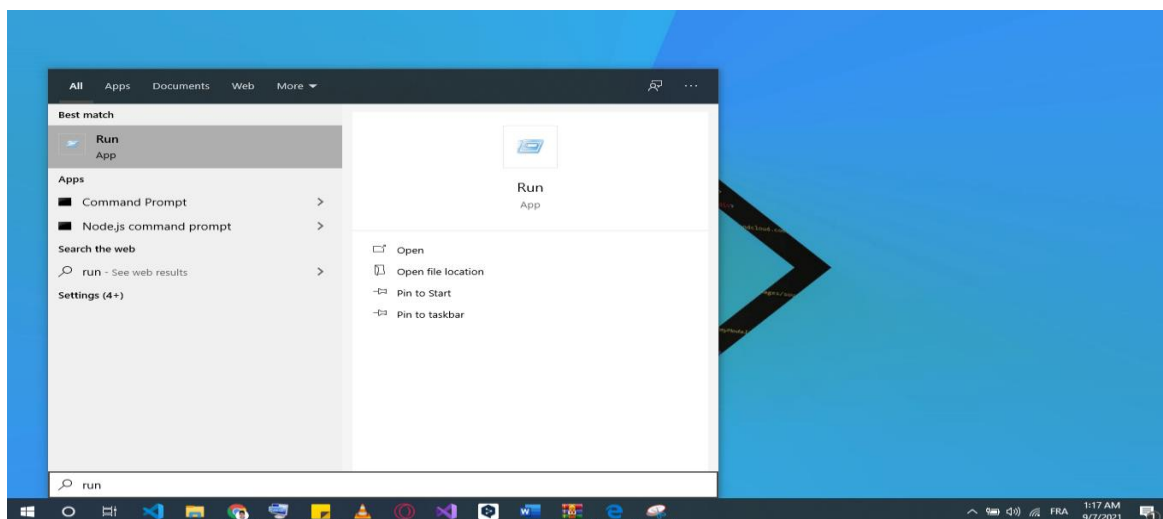
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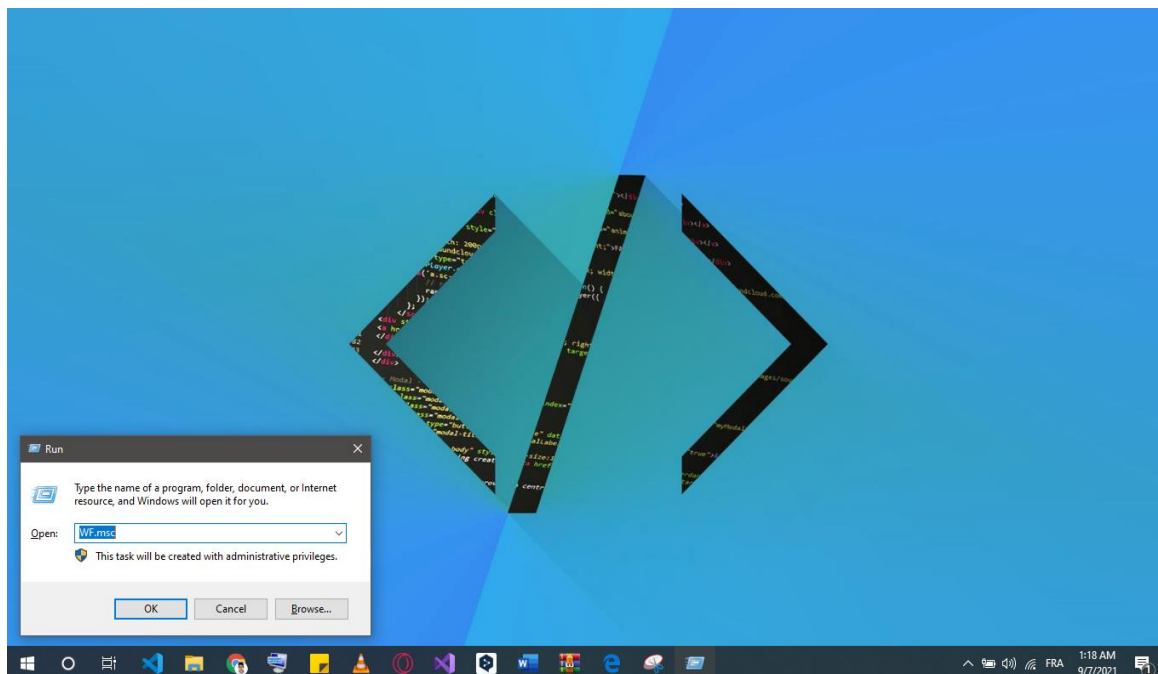
I. Create Firewall inbound rule in Windows Server 2012 R2

Windows Defender Firewall with Advanced Security provides host-based, two-way network traffic filtering and blocks unauthorized network traffic flowing into or out of the local device. Configuring our Windows Firewall based on the following best practices can help us optimize protection for devices in our network. These recommendations cover a wide range of deployments including home networks and enterprise desktop/server systems.

To open Windows Firewall, go to the **Start** menu

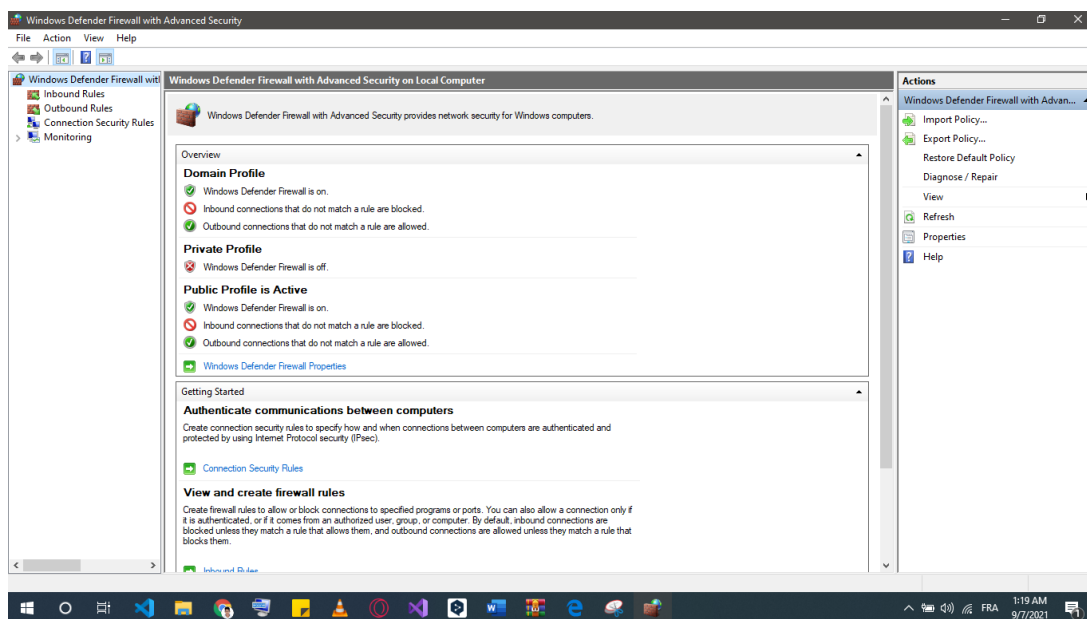


type **WF.msc**, and then select **OK**

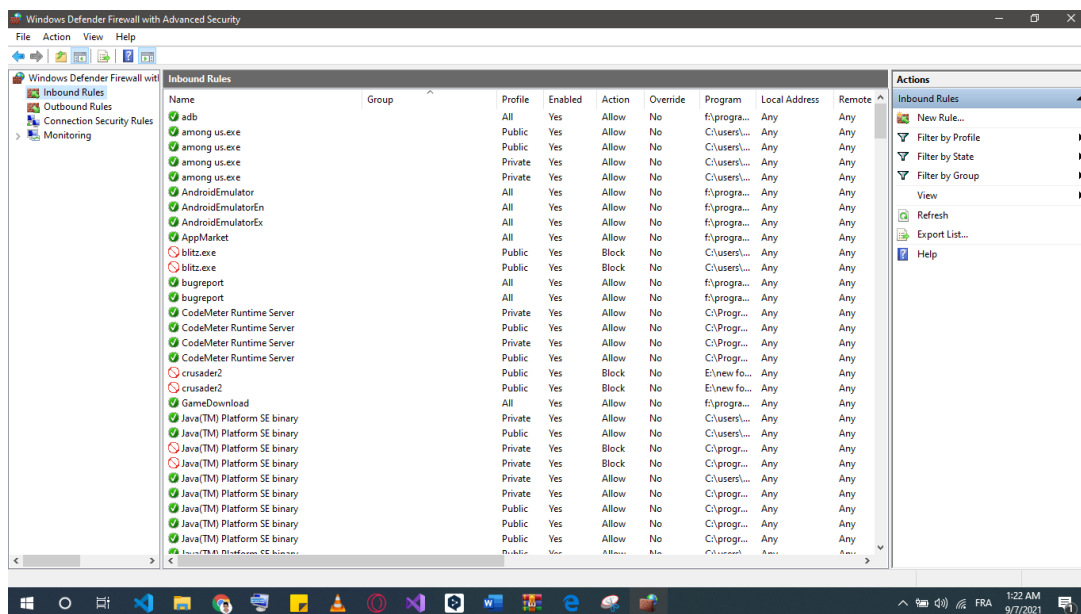


Windows Firewall console open. We going to Inbound Rules (left side) for our rule creation;





Click on New Rule;



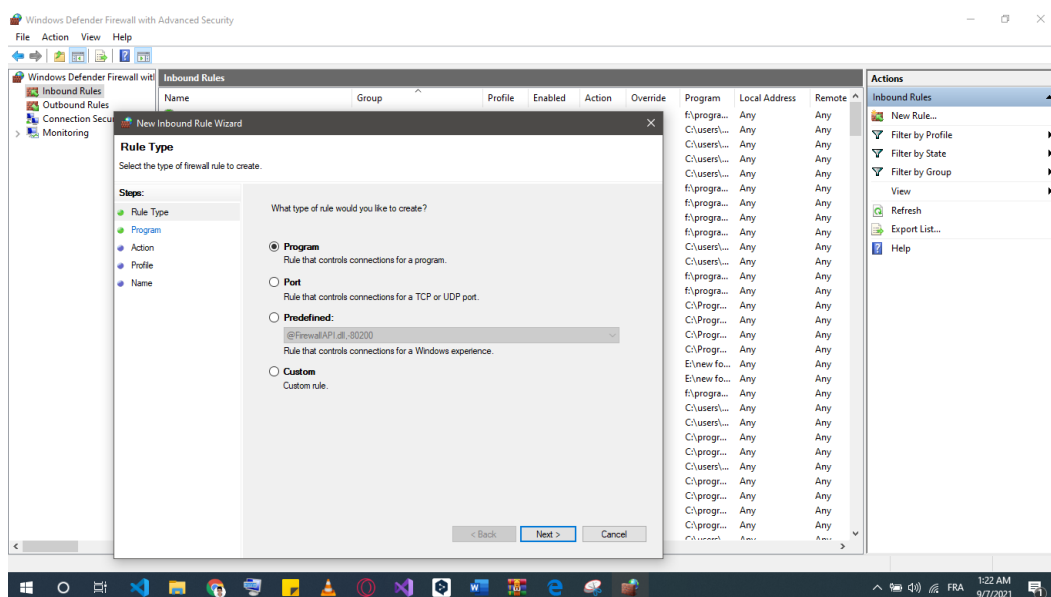
Rule creation process begin. In my case, I create rule for Inbound Program, For Rule Type select option Program and click Next;



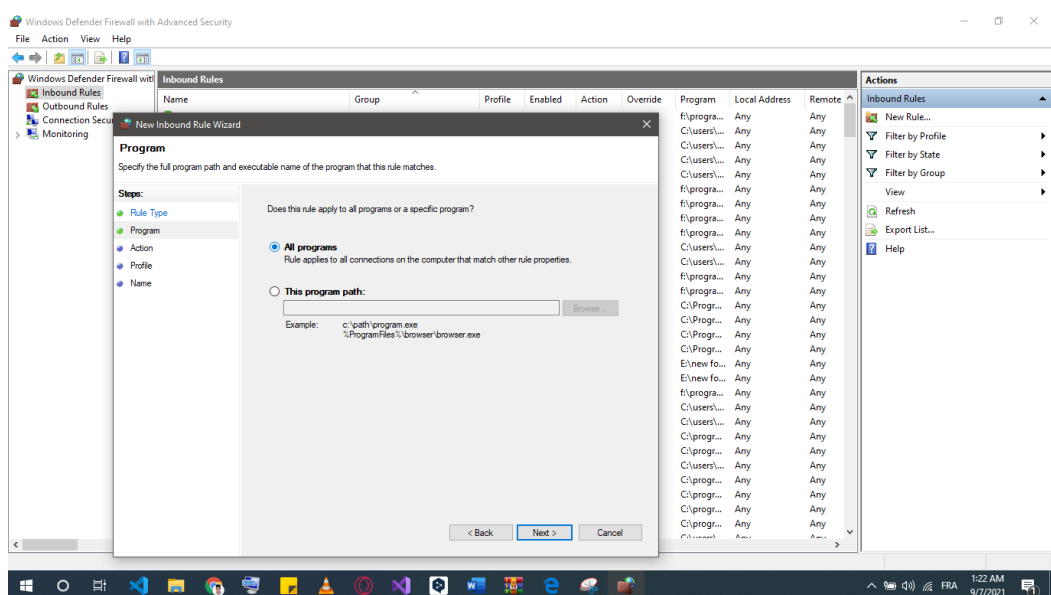
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For Program click **All programs**. Click **Next**;



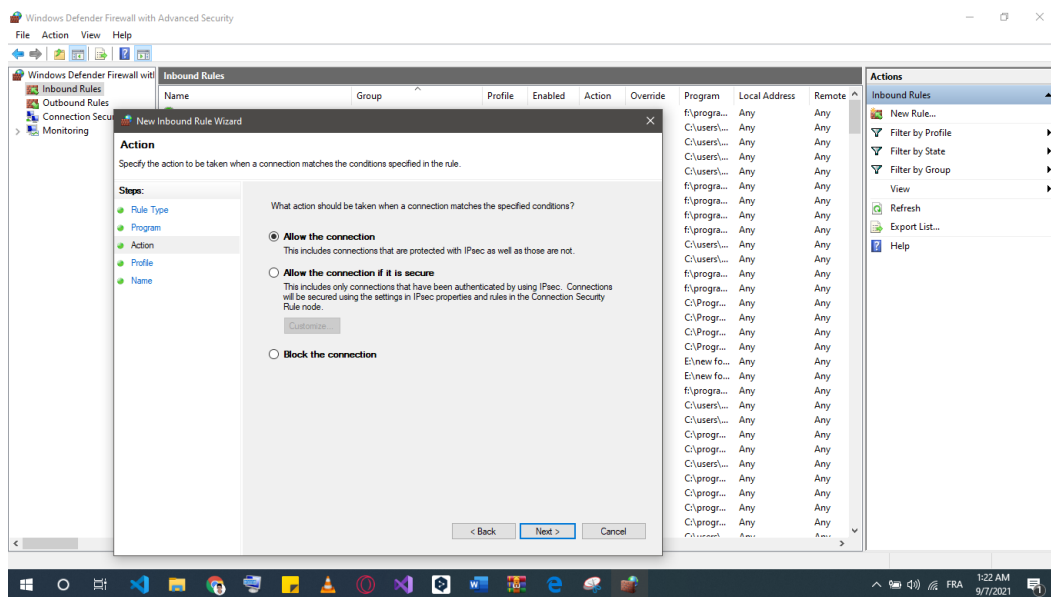
For Action (in this case leave by default **Allow the connection**). Click **Next**;



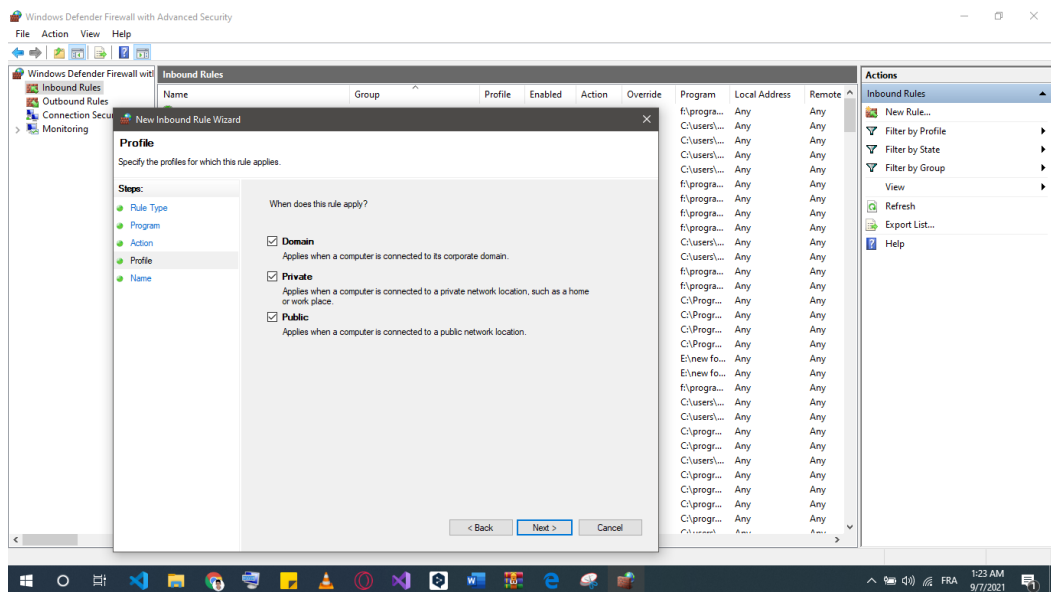
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For Profile select all network profiles, click **Next**;



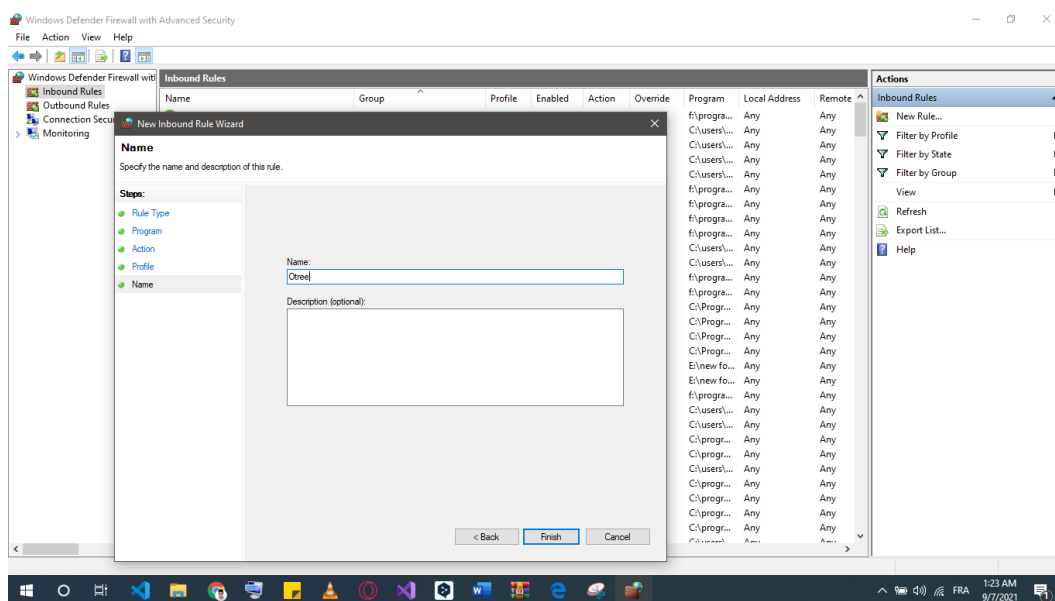
Enter name for your rule, so you can easily find it in the future. Click **Finish**;



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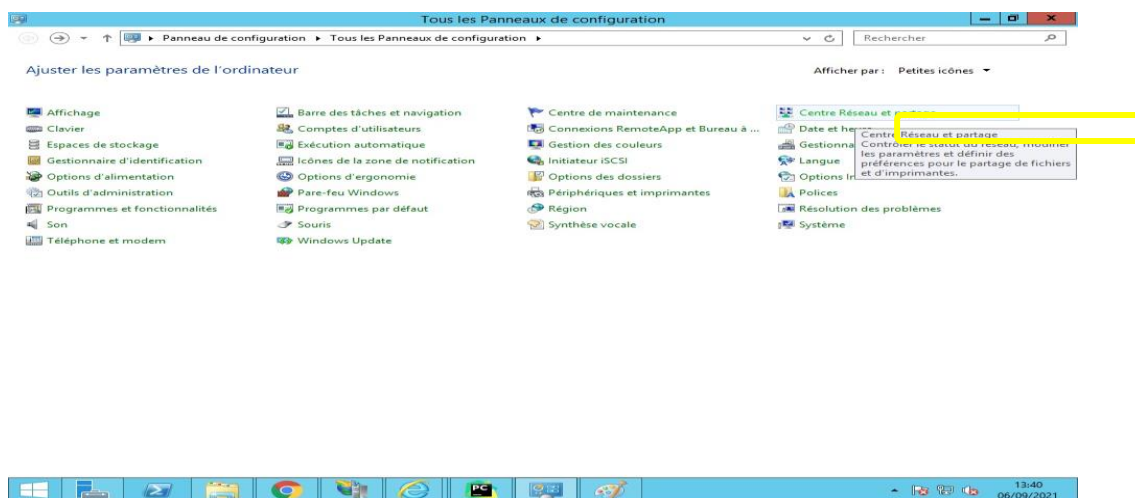
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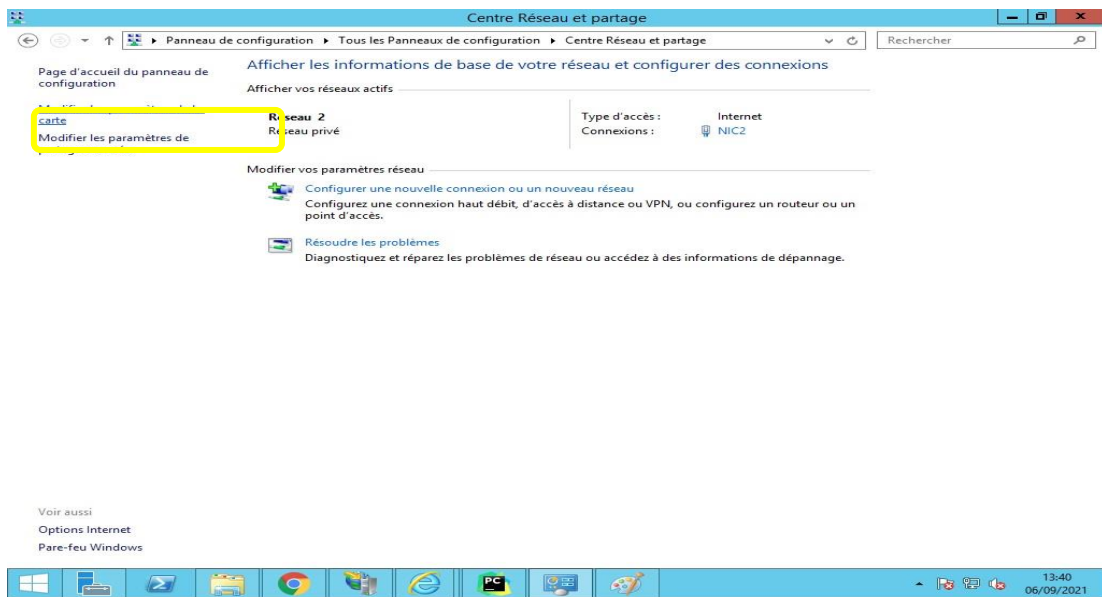
After creating an inbound firewall rule in Windows Server 2012 R2, we will learn how to configure a static IP address on Windows Server 2019. It is possible that your Windows Server Ethernet adapter is configured to obtain an IP address from a DHCP server. In some networks, there may not be a DHCP server running on the network, hence the need to assign a static IP arises.

To open your Ethernet Adapter Setting, click on Control Panel in the Windows start menu. Under Control Panel, click **Network and Internet** and then click on **Network and Sharing Center**

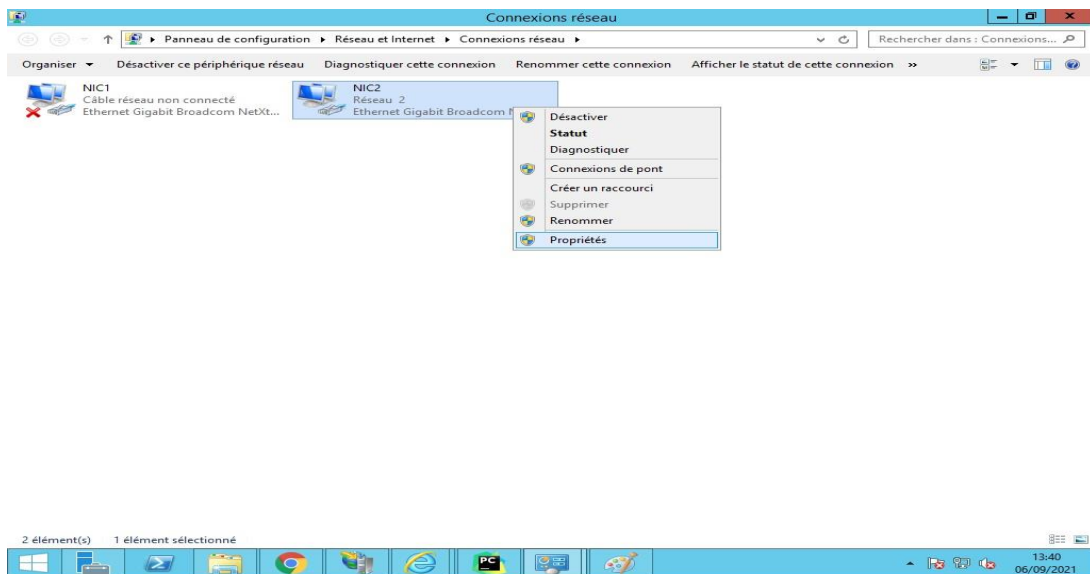


Under **Network and Sharing Center** click on **Change Adapter Settings** on left side pane. It will open the list of attached network adapters on your system.





On **Ethernet**, make a right click and click on **Properties** to open settings for that particular adapter



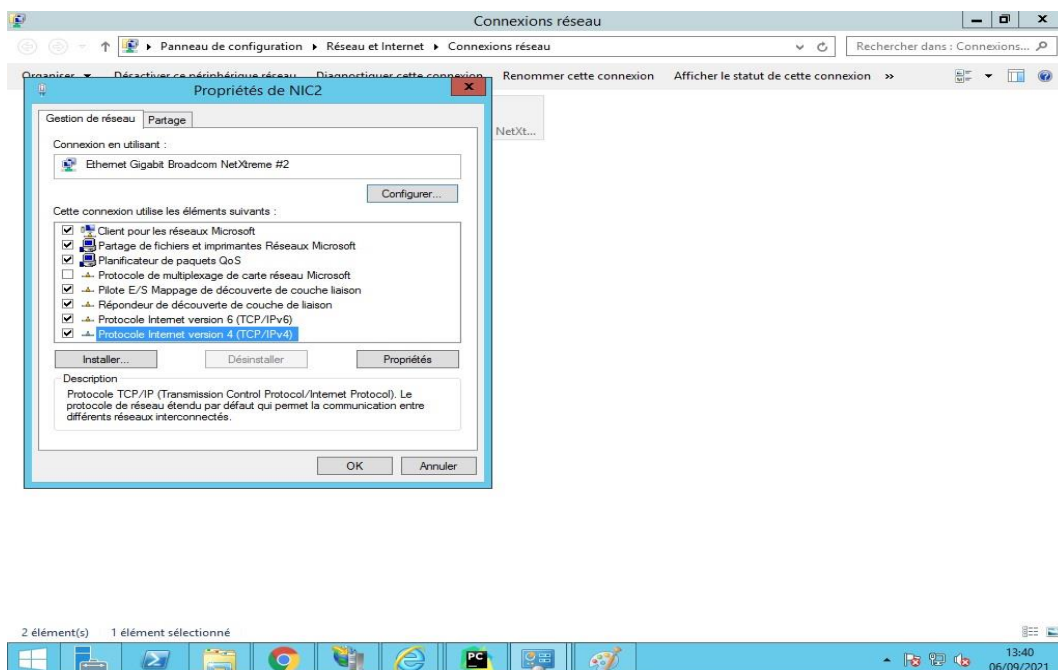
Double-click **Internet Protocol Version 4 (TCP / IPv4)**



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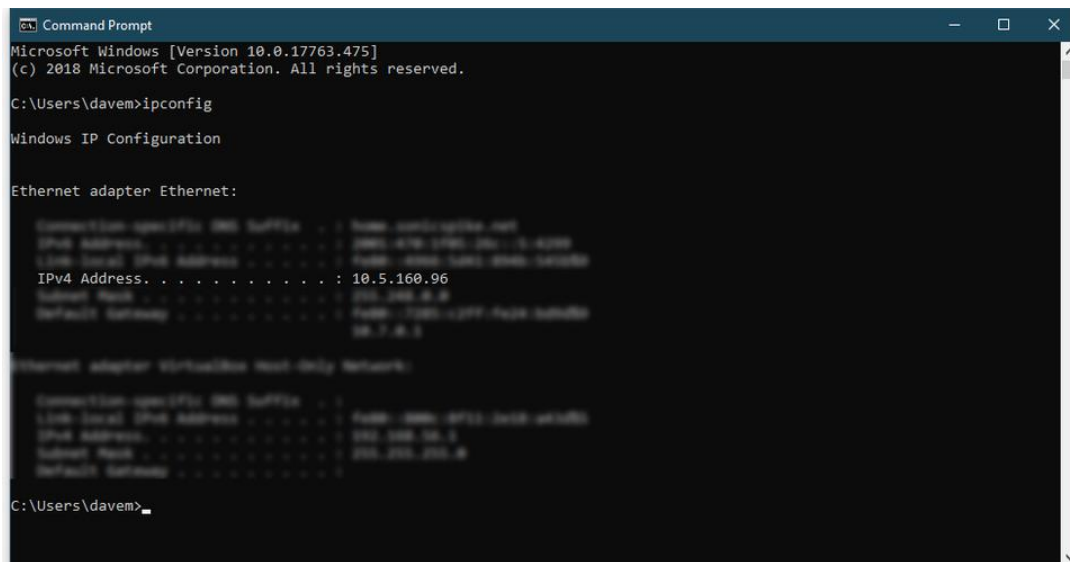
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In the IP address field, enter the current main IP address.

To find it, open the command prompt via the Windows Start menu. Type "ipconfig" and press Enter. Look for the line that says "IPv4 address". The number in front of this text is your local IP address.



In the Subnet mask: field, enter 255.255.255.255.

In the Default gateway: field, go to the Default Gateway entry in your command prompt to find the IP address.

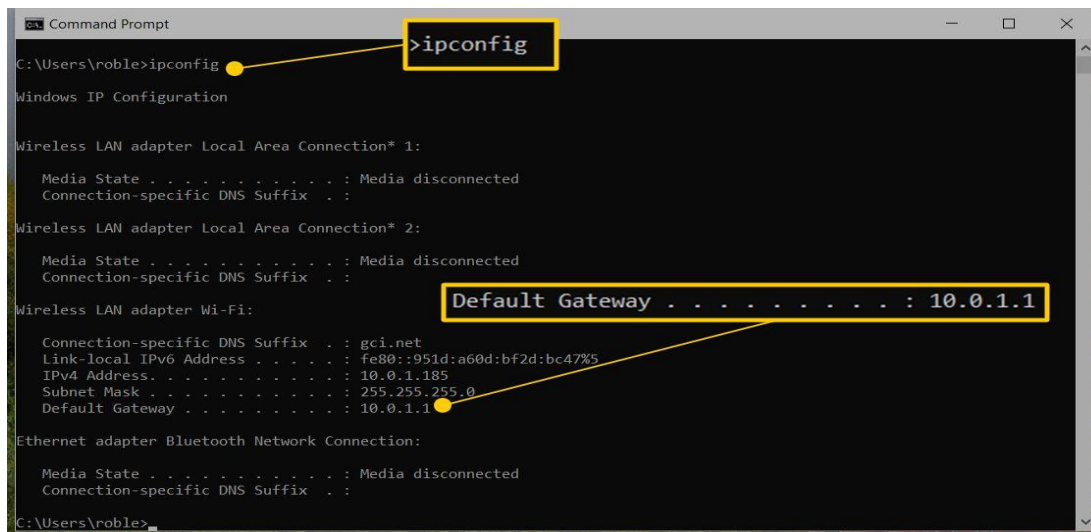


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The same for the Preferred DNS server.



```

C:\Users\roble>ipconfig

Windows IP Configuration

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 
Wireless LAN adapter Local Area Connection* 2:

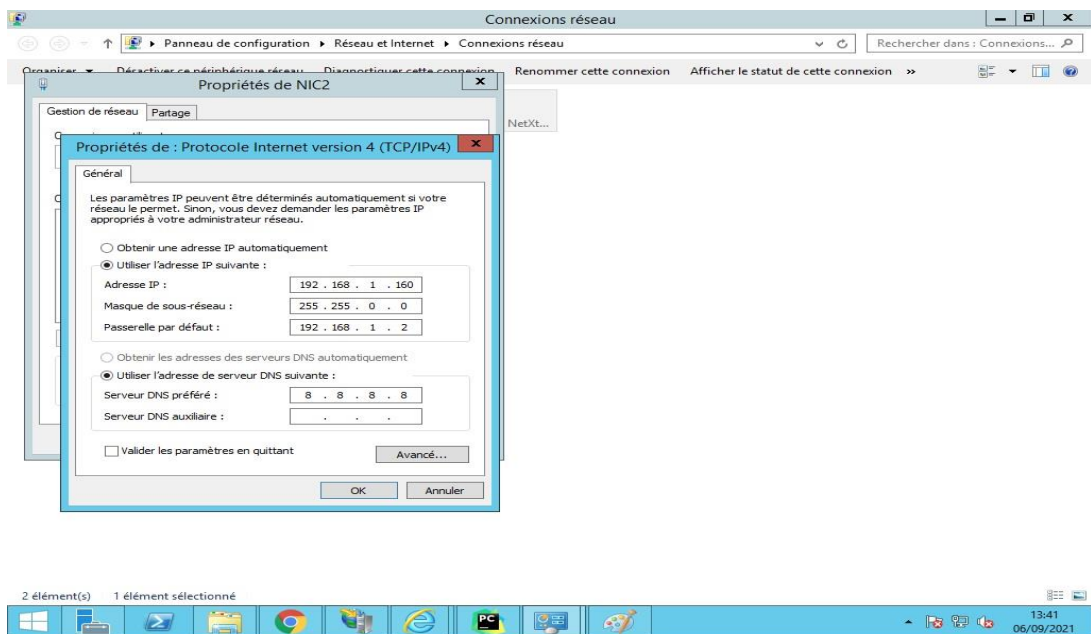
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 
Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : gci.net
    Link-local IPv6 Address . . . . . : fe80::951d:a60d:bf2d:bc47%5
    IPv4 Address. . . . . : 10.0.1.185
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.0.1.1

Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 
C:\Users\roble>
  
```

Confirm the outstanding dialogs with OK.



II. Installing oTree

Step 1: Install Python

Download and install [Python](#).

Check the box to add Python to PATH:



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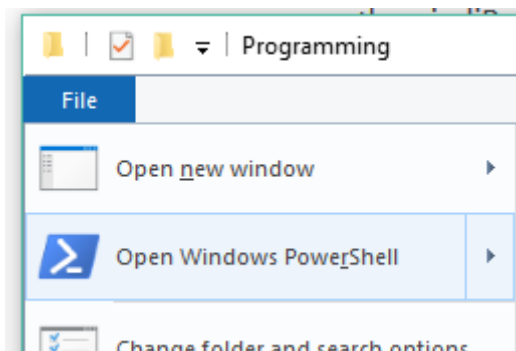
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Step 2: Install oTree

Go to the folder where you want to store your oTree project. Then click the “File” menu and open PowerShell



Enter this command at the prompt:

```
pip3 install -U otree
```

Step 3: Install PyCharm

Download and install [Pycharm](#)

III. Room configuration

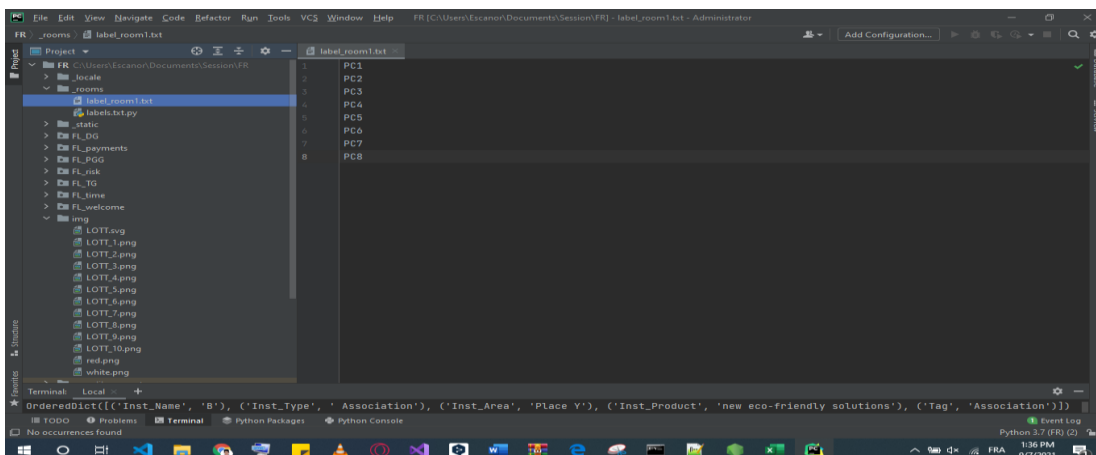
Participant labels

Open project folder in PyCharm

This is the “guest list” for the room. It should contain one participant label per line.

In the folder **_rooms** (see below), configure an 8-seat room for room 1 by creating the text label_room1.txt .



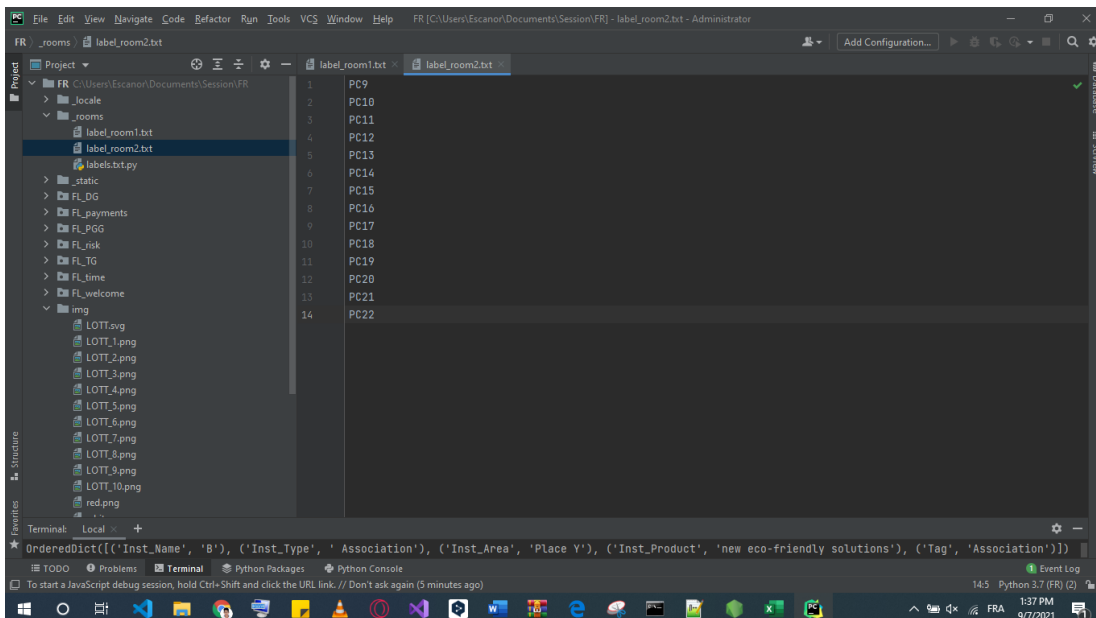


```

1 PC1
2 PC2
3 PC3
4 PC4
5 PC5
6 PC6
7 PC7
8 PC8

```

the same applies to 12 seats in room 2



```

1 PC9
2 PC10
3 PC11
4 PC12
5 PC13
6 PC14
7 PC15
8 PC16
9 PC17
10 PC18
11 PC19
12 PC20
13 PC21
14 PC22

```

use_secure_urls

This setting provides extra security on top of the `participant_label_file`. For example, without secure URLs, your start URLs would look something like this:

`http://localhost:8000/room/econ101/?participant_label=PC1`
http://localhost:8000/room/econ101/?participant_label=PC2

...

In the file `settings.py` (see below), make the following change

```

dict(name='live_demo_1', display_name='Room for live 1 (no participant labels)',
    participant_label_file='_rooms/label_room1.txt',
    use_secure_urls = False
),

```



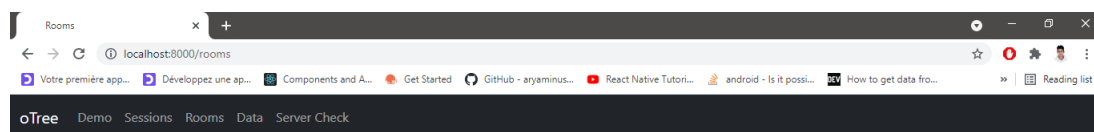
```
dict(name='live_demo_2', display_name='Room for live 2 (no participant labels)',
    participant_label_file='_rooms/label_room2.txt',
    use_secure_urls=False
),
```

IV. Creation of rooms:

Run the following command in your terminal

```
otree prodserver
```

The following images show the steps used to create the two rooms:



Rooms

Current rooms:

Room for live 1 (no participant labels)
Room for live 2 (no participant labels)
Experimental Economics Lab 40s



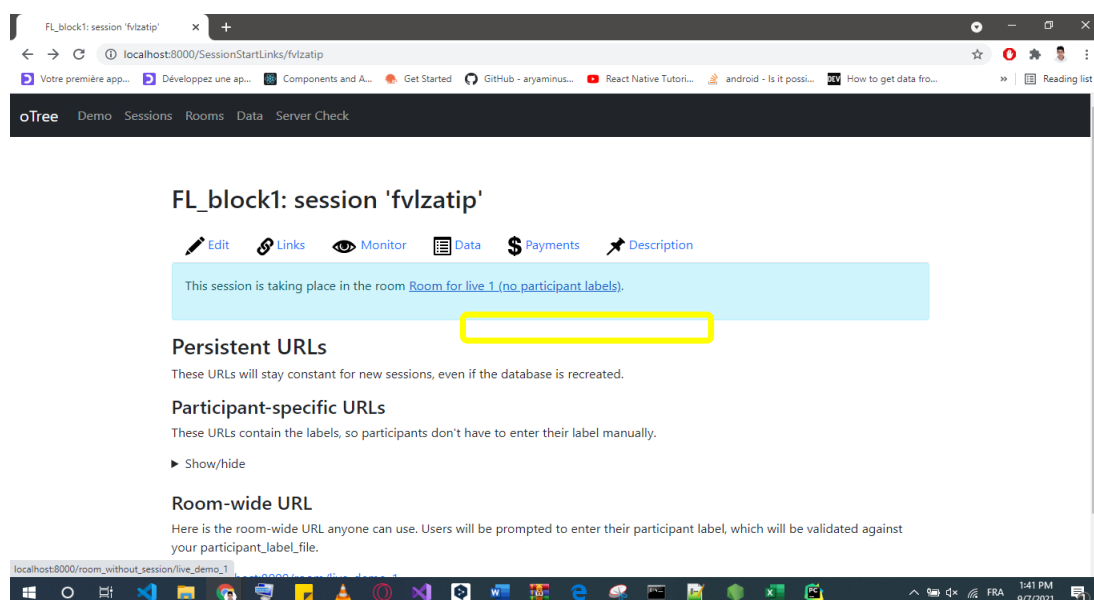
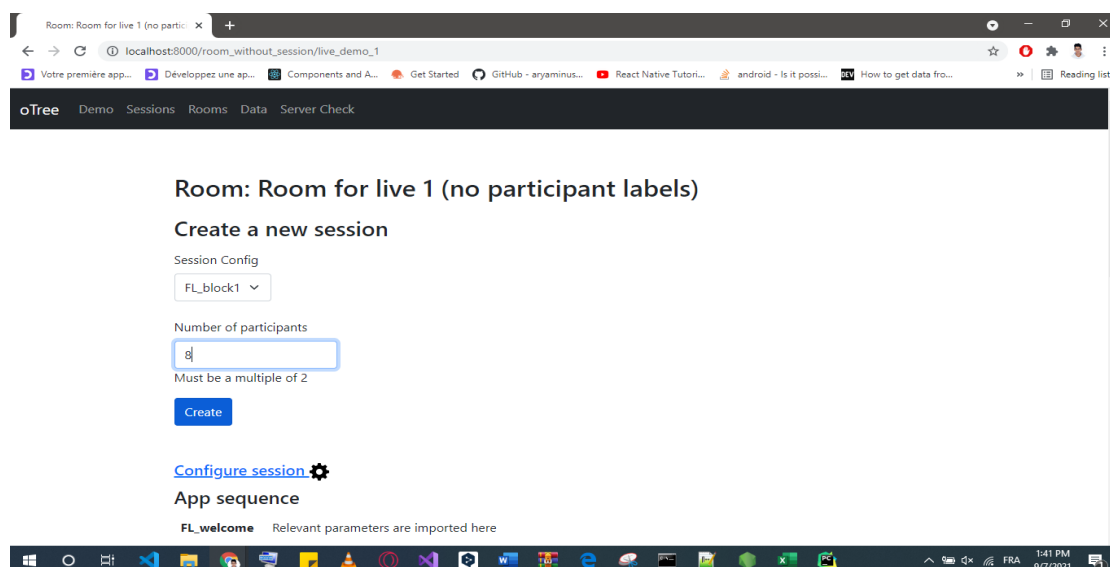
Room 1:



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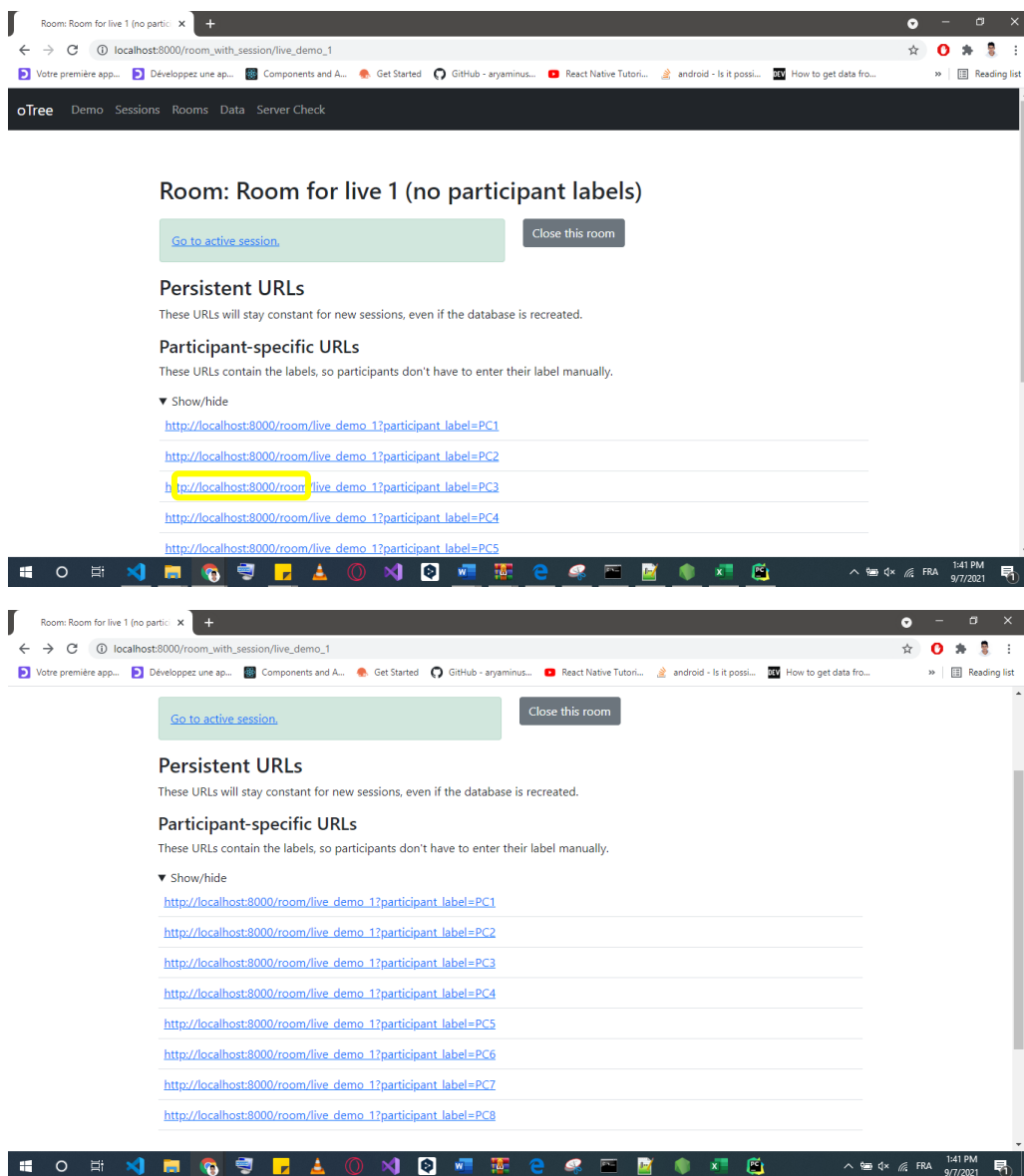




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Room: Room for live 1 (no participant labels)

[Go to active session](#) [Close this room](#)

Persistent URLs
These URLs will stay constant for new sessions, even if the database is recreated.

Participant-specific URLs
These URLs contain the labels, so participants don't have to enter their label manually.

▼ Show/hide

- http://localhost:8000/room/live_demo_1?participant_label=PC1
- http://localhost:8000/room/live_demo_1?participant_label=PC2
- http://localhost:8000/room/live_demo_1?participant_label=PC3
- http://localhost:8000/room/live_demo_1?participant_label=PC4
- http://localhost:8000/room/live_demo_1?participant_label=PC5

Room: Room for live 1 (no participant labels)

[Go to active session](#) [Close this room](#)

Persistent URLs
These URLs will stay constant for new sessions, even if the database is recreated.

Participant-specific URLs
These URLs contain the labels, so participants don't have to enter their label manually.

▼ Show/hide

- http://localhost:8000/room/live_demo_1?participant_label=PC1
- http://localhost:8000/room/live_demo_1?participant_label=PC2
- http://localhost:8000/room/live_demo_1?participant_label=PC3
- http://localhost:8000/room/live_demo_1?participant_label=PC4
- http://localhost:8000/room/live_demo_1?participant_label=PC5
- http://localhost:8000/room/live_demo_1?participant_label=PC6
- http://localhost:8000/room/live_demo_1?participant_label=PC7
- http://localhost:8000/room/live_demo_1?participant_label=PC8

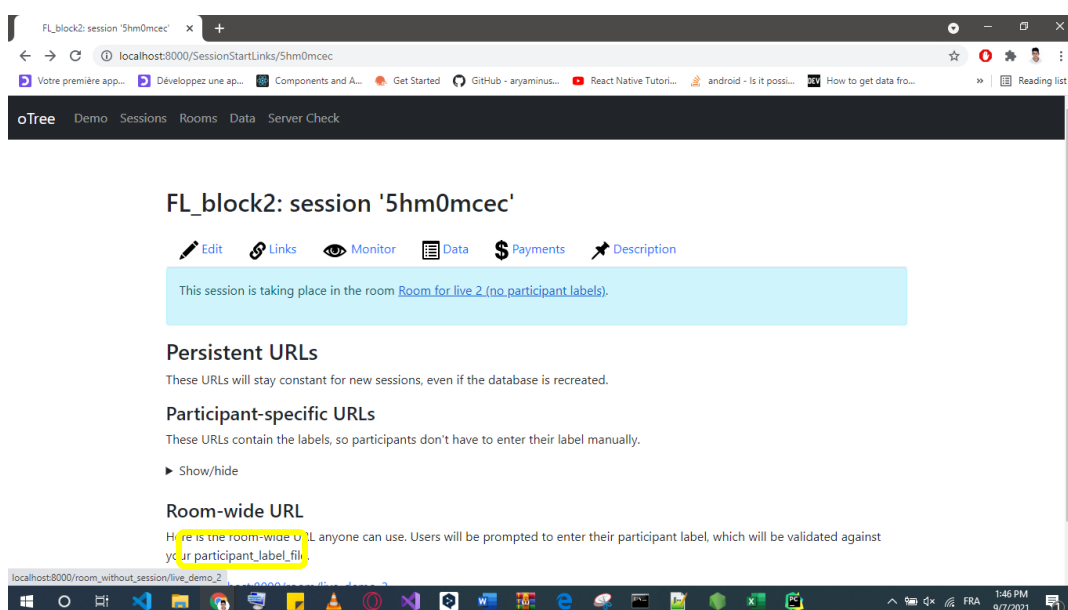
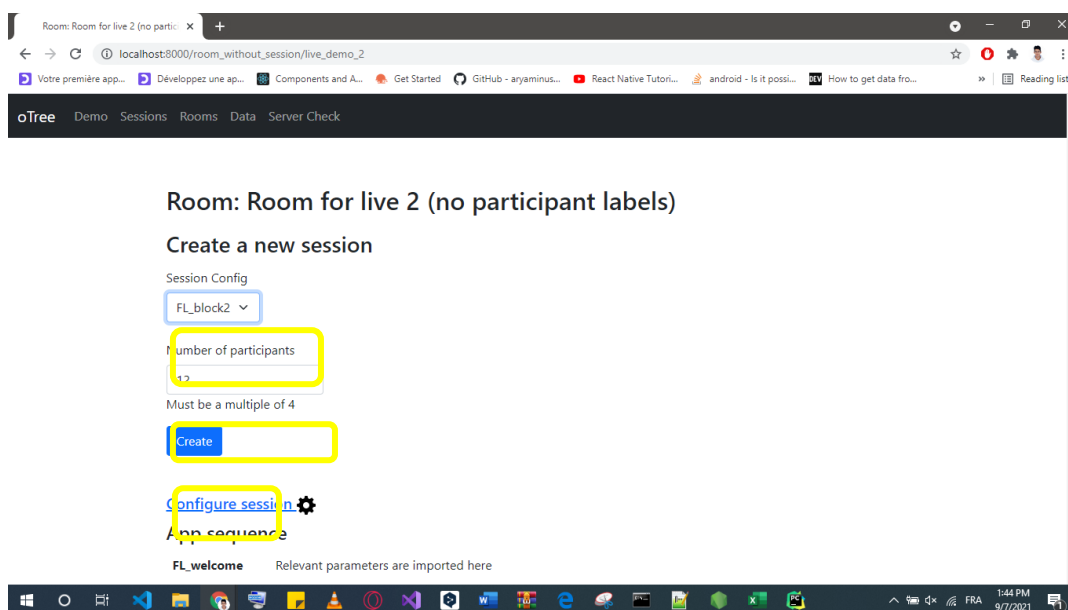
Room2:



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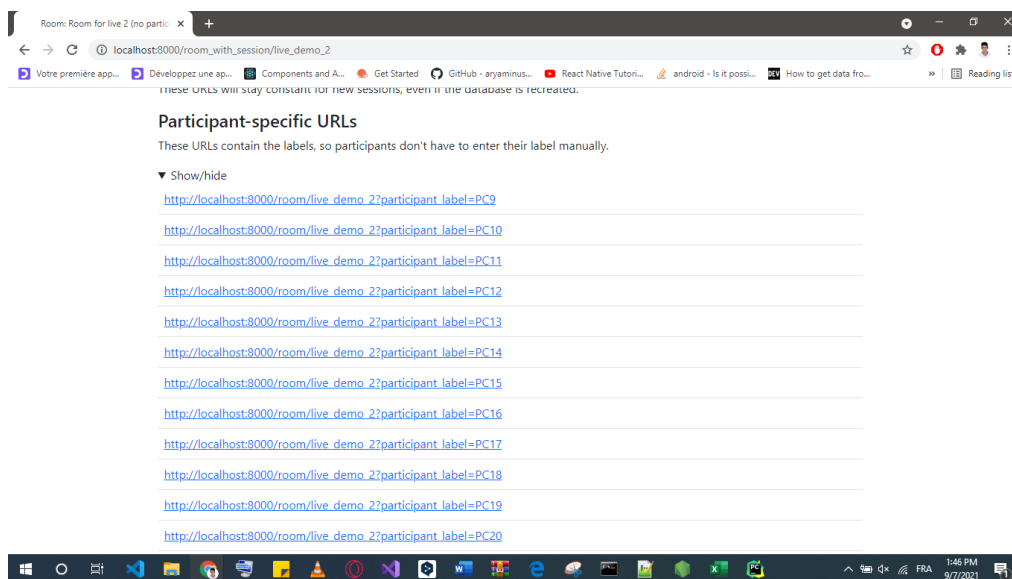




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Participants are displayed in the order of their login (in the rooms, it is the order of the label).



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Enumerators training for food consumption data collection in FoodLAND project

October 2021
Prepared by Estefanía Custodio
Instituto de Salud Carlos III

Food consumption-dietqualityQuestions

- The collection of food consumption can be a burdensome and time consuming process
- In order to minimize time and effort in the data collection process, different methodologies have been developed - like indicators based in food groups counting (DQQ and HDDS)
- In order to collect high quality data, the correct administration of the food groups counting questions is essential
- In the urban questionnaire of FoodLAND project there are 2 questions based on Food groups counting
 - The DQQ individual -question #10
 - The HDDS household -question #17



Question # 10 Individual Diet Quality

- The respondent can be any adult (>18 years old), and reports about the foods that he/she has consumed in the previous day and night
- It gathers information on consumption of food groups (29 in total)
 - A food group is defined as a set of foods that share similar nutritional properties or biological or culinary characteristics.
- All questions are “Yes or No” questions
- Food groups are not asked about directly. Rather, they are represented by sentinel foods.
 - Sentinel foods are the most frequently consumed items within a food group in a given population.
 - These foods capture a large proportion of people who consume any item in that food group.
 - The sentinel food examples for each question are not meant to be an exhaustive list of all possible foods in that food group.
- The DQ-Q does not gather information on all aspects of diet.

Adapted from Training for Diet Quality Questionnaire by Anna Herforth, sept 2021

Question# 10-Administering the Questionnaire I

- Cognitive testing showed that the introduction is essential for respondents being able to answer the questionnaire easily.
- The purpose of the introduction is to enable the respondent to **think** about what they ate and drank yesterday.
 - If I ask you “what did you eat yesterday?” you would probably not be able to answer easily. But if I walk you through the day mentally, giving you time to remember where you were throughout the day and whom you were with, it then becomes easier for you to remember what you ate and drank.
- The introduction is not a dialogue. The respondent is asked to think silently to themselves about their day and what they ate and drank.

Adapted from Training for Diet Quality Questionnaire by Anna Herforth, sept 2021



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Question #10: Administering the Questionnaire II

Reading the introduction

- Interviewer reads the introduction as written.
- Pauses are indicated with ellipses “...”
- Where there is... the interviewer pauses momentarily, giving space and time to allow the respondent to think.
 - Our brains have difficulty doing more than one thing at once. We can either think, or we can listen.
 - If pauses are not made, then the respondent's brain is fully engaged in *listening*, and there is not enough time given for the essential work of *thinking*.
 - If pauses are too long however, the respondent may start to think that the interviewer is expecting them to say some sort of response aloud (which we do not want).
 - The appropriate pause time should feel natural, about 2 -3 seconds long.

Adapted from Training for Diet Quality Questionnaire by Anna Herforth, sept 2021

Question #10: Administering the Questionnaire I

Introduction, Interviewer reads:

Now I'd like to ask you some yes-or-no questions about foods and drinks that you consumed yesterday during the day or night, whether you had it at home or somewhere else.

First, I would like you to think about yesterday, from the time you woke up through the night. Think to yourself about the first thing you ate or drank after you woke up in the morning ... Think about where you were when you had any food or drink in the middle of the day ... Think about where you were when you had any evening meal ... and any food or drink you may have had in the evening or late night... and any other snacks or drinks you may have had between meals throughout the day or night.

I am interested in whether you had the food items I will mention even if they were combined with other foods.

Please listen to the list of foods and drinks, and if you ate or drank ANY ONE OF THEM, say yes.



Question #10: Administering the Questionnaire

Reading Questions

- Read the “stem” question aloud (e.g. “Yesterday, did you eat any of the following vegetables?”)
 - Cognitive testing showed these headings, read exactly as written, was useful to remind respondents at appropriate intervals that they are thinking about “yesterday”.
- The questionnaire is to be read verbatim, exactly as written. There is no probing, no dialogue. Simply read the questions aloud.
- Read the entire question. Do not cut the question short if the respondent interrupts. (The reason is to avoid giving respondents the impression that they can get through the questionnaire faster if they say yes to the first item, in case respondents are impatient.)
- Do not pause in the middle of reading the question. We are not asking about each food one by one. Read the whole question and remind the respondent to say yes if they had *any* of the items listed.
- The questions are not shown to the respondent in writing; they are read aloud.
- Then circle the response in the far right column (YES or NO).

Adapted from Training for Diet Quality Questionnaire by Anna Herforth, sept 2021

READ THIS COLUMN ALOUD, exactly as written, the same way each time.

Circle response here (if pen and paper), or select response (if tablet).

Yesterday, did you eat any of the following fruits?	
Mangoes, papaya, or peach?	YES or NO
Orange, mandarin or grapefruit?	YES or NO
Banana, avocado, pineapple, apple, dates, or beles?	YES or NO
Guava, watermelon, strawberries, or cherries?	YES or NO
Yesterday, did you eat any of the following sweets?	
Cakes, cookies, sweet breads, sweet biscuits, baklava, bombolino, or donut?	YES or NO
Ice cream, candies, chocolate?	YES or NO



Question # 17 Household Dietary Diversity Score

- The respondent can be any adult (>18 years old), and reports about the foods that ANY member of the household has consumed in the previous day and night
- It gathers information on consumption of 18 food groups
- All questions are “Yes or No” questions
- Food groups are not asked about directly. Rather, they are represented by an extensive list of food items (including all the food items commonly consumed within each food group in the area of study)
- The HDDS is interested in foods consumed IN the household. EXCLUDES foods purchased AND consumed outside the household.

Adapted from Training for Diet Quality Questionnaire by Anna Herforth, sept 2021

Question# 17 Administering the Questionnaire I

- The purpose of the introduction is to enable the respondent to think about the food consumed by all members at his/her household during the previous day and night
- Read the introduction as it is written and give time to the respondent to recall all foods eaten at the household the day and night before



Question# 17Administering the Questionnaire II

INTRODUCTION TO BE READ

Now I'd like to ask you some yes-or-no questions about foods and drinks that ANY member of your household consumed yesterday during the day or night in the household. Please **exclude** any food items purchased and consumed outside the household.

First, I would like you to think about yesterday, from the time you woke up through the night. Think to yourself about the foods and drinks consumed at your household in the morning ... Think about foods and drinks in the family meal in the middle of the day ... Think about dinner at your household... and any food or drink any member of your family may had in the evening or late-night... and any other snacks or drinks any member of your family have had between meals throughout the day or night.

I am interested in whether ANY member of your household had the food items I will mention even if they were combined with other foods.

Please listen to the list of foods and drinks, and if any one you ate or drank ANY ONE OF THEM, say yes.

Question #17Administering the Questionnaire III

Reading Questions

- **Read** the food items in each of the food groups **slowly**, and give time to respondent to remember all things that were eaten in the household in the previous day
- You can **help** the respondent to **remember** by
 - Probing for foods eaten in each meal (breakfast, lunch, dinner...)
 - Probing for snacks eaten between main meals
 - Probing for special foods given to children or lactating/pregnant women
 - Probing for added foods such as sugar in tea, oil in mixed dishes or fried foods
 - Probing for usual ingredients of commomixed-dishes
 - Helping to identify ingredients of mixed dishes
- Then **circle** the response in the far right column (YES or NO)



Training—specific tips (I)

✓ Enumerator to **read** introductory text **literally, slowly and pausing**.

Enumerator to read the introduction slowly. At each ellipsis (...) pause for 2-4 full seconds (count).

This is an important aspect of the methodology to ensure all enumerators ask the questions the same way.

Important to allow sufficient time for respondent to think about what they consumed.

If there are no pauses no time to think- the recall data will be lower.

✓ Enumerator to **read** the questions **exactly as they are written**.

The wording has been specifically designed and tested to capture foods and beverages in a way that is understood the same way each time.

If respondents ask what an item is, it is best to re-read the question and suggest that they respond based on how they understand the items.

Training –specific tips (II)

✓ Reference period

Insist on the **24 hour** reference period- make emphasis on the day/night when text Reading. There are other indicators that include a longer time period.

✓ Eating outside the home

Explicitly highlight the difference between DQ-Q (foods eaten inside or outside the home) and HDDS (only foods eaten in the home)

✓ Atypical consumption

Avoid collecting the information during community festivity or fasting periods (such as Ramadan). If it's a festivity only affecting the household of interest doesn't matter.



Key steps in enumerators training

1. Review of Food lists

Review the food groups with enumerators so they can get familiar with the Food items lists in each group and ask questions

2. Identification and revision of mixed dishes

Identify the mixed dishes commonly consumed in the population of study (ex. Cuscus, casserole, etc.) and discuss with enumerators the ingredients in terms of Food groups, so they are ready to help the respondent in identifying Food groups when a mixed dish is consumed

3. Review of translation terms

Discuss with the enumerators the translation terms used to make sure they are in agreement and will use the ones included in the questionnaire

Key steps in enumerators training

4. Role-playing

In groups of 2, practice administering the DQQ and HDDS. First one person takes the role of enumerator, and the other takes the role of respondent. Then switch roles.

*Each person should practice the experience of administering, and then of answering the questionnaire module.

Come back together in a whole group and discuss observations and any difficulties that arose, and discuss solutions.

Repeat the exercise, switching to a new partner

5. Piloting the questionnaire

Make the enumerator to pilot the questions in a real situation (if no pilot survey is feasible ask the enumerator to practice the DQ questionnaires with family at home and come back with feedback from the experience)



Appendix 7: Invitation form

Invitation to participate to a research study

The FoodLAND project is glad to invite you to **participate to a research study on urban consumers' food choices**.

The aim of this study is to gain insights on urban consumers' decision processes with a view to incentivising the consumption of healthy, nutritious foods, thus reducing malnutrition. The study is run in 6 different African cities.

Your participation will consist in: (i) attending a series of virtual games, (ii) take part in a survey collecting your food needs, values, and motivations. The **time estimated** to participate to these activities is approximately **3 and a half hours**.

All information collected will be anonymized prior to conduct any analysis.

Your participation to the study will be rewarded with **XX LC** to cover travelling expenses. In addition to that, you will have the possibility to earn additional money through the outcomes of the different virtual games.

The activity will take place at the **University/Institute of XX (address)**, on **[day]**, from **[starting hour]** to **[ending hour]**.

To participate you will need to bring with you a **valid ID**, and a protective face mask **[add any other prescription on COVID19 applicable at your country level]**

Please confirm your attendance to **[name of the enumerator]** via email **[email address]** or telephone call **[number]** by the **[day]**.

We thank you very much for your participation and hope you find the study enjoyable.

With best wishes,

NAME

AFFILIATION

More about FoodLAND

FoodLAND (Food and Local, Agricultural, and Nutritional Diversity) is a four-year project funded by the European Commission focusing on the development and implementation of organisational and technological innovations for local food operators in 6 African countries. In FoodLAND we investigate food producers' and consumers' motivations, needs and choices with the aim of bridging local farmers with consumers and promoting a sustainable, nutrition-sensitive agriculture.

Project website: <https://foodland-africa.eu/project/>



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Appendix 8: Instruction and list of tools for the enumerators running the joint auction/eye-tracking experiment

Instructions for the enumerators

Instructions for the facilitators are provided below – the text to be read to participant consumers is written in **red**. The text displayed on the screen is written in **blue**.

- Please register the participant's name and document in a separate list and provide her/him with their unique ID.
- Please make sure that the ID corresponds to the one the participant had been assigned during the survey and behavioural experiments already implemented.
- Please read the consent form and information sheet to each participant and answer questions they may have. Then ask if they agree to have the interview. If they agree, please have them sign the consent form. Collect the form for project records.

1. Before the session

In the following, the evaluation station designates the table at which the consumer will seat and conduct the evaluation. The station comprises: a table, a chair, and a laptop on which the evaluation will be conducted.

The olive oil is put on a piece of bread (or similar neutral support, tasteless and without salt) in front of consumers without a label. The four bottles chosen for the experiment are presented one by one (without a label) on the screen.

The different samples of olive oil are displayed in little containers that are identified by a label and a product ID. The sample are prepared for both rounds of tasting and displayed onto 2 different trays or 2 specific and separated locations on a table. The products will be brought one by one to the respondents at Stage 1 and Stage 4.

Please also display a bottle of water next to the evaluation station, napkins, and Covid-19 safety tools.

2. During the session/oral instructions

The precautions to be taken during this explanation are as follows:

- Do not pronounce the words "labelling", "origin" or "health benefits"; participants should not be focused on the theme of the experience
- Make sure that the participant understands the price and product disclosure mechanism as well as the auction mechanism, and why they will never be disappointed with the outcome of the session (i.e., they will never be asked to purchase a product at a price they are not ready to pay). To make sure that participants have understood, they can ask questions which the experimenters will answer, but they should not suggest in the questions what their decisions will be.
- Do not mention the names of the different profiles that will be presented to them; only tell them that these are different. If participants ask about profiles, they should be told that the differences could be their sensory characteristics (taste).



Instructions to Enumerators

Enumerators, you will explain the auction mechanism as well as you will calibrate the eye-tracker before the experiment.

Enumerators: Please explaining the auction mechanism by reading the script below to the participants. Check if they understand the auction and eye tracking process by conducting a mock evaluation after the explanations have been provided, and repeat it if necessary.

Good morning/afternoon and welcome to this study,

Today we invite you to participate in the evaluation of extra virgin oil. At the end of the experiment, we will provide you with a stipend for your participation today. In the following we explain you how the evaluation will take place.

The evaluation is simple. You will see different products several times. You will see the products on the computer's screen. In some cases, you will be able to smell, taste, and evaluate the products. You will first see a picture of the oil that you are going to taste, then you will get to taste this oil on a piece of bread. Next, we will show you the picture of the oil bottle again, and finally, you will be asked to evaluate the oil by telling us the price that you would be willing to pay for this olive oil.

In some cases, you will not have to taste the oil and you will only see it on the screen.

The products will be the same at each stage, simply presented in a different order. We will also, in some cases, provide you with additional information about the products.

Each time you will see the products, we will ask you to indicate how much you would be willing to pay to purchase 1 litre of that oil. In other words, imagine that you are shopping groceries and see this product on the shelf. What would be the maximum price that you would pay for this oil?

While deciding upon this price, please remember your own budget, and how much you would be willing to spend in a real-life situation. Indeed, experience from previous similar survey shows that people often respond in one way but act differently. It is particular common that one states a higher willingness to pay than they are actually willing to pay for the good in the store. We believe that this is due to the fact that one does not really consider how big an impact an extra cost actually has on the family budget. It is easy to be generous when one does not really need to make the choices in a store.

Today, we will ask you to purchase one of the products evaluated using the stipend that you have been given. It is important that you give the price you would be really willing to pay, because at the end of the evaluation process we will proceed to an auction. The product that will be sold today has already been defined. However, you will know it only at the end of the experiment; therefore, you should declare your willingness to pay for all products as if you had to purchase them. Depending on the price you give at each stage, you will be able to purchase the product or won't be allowed to. So, giving the price you are willing to pay is important for you not to be disappointed at the end of the evaluation.

Let me explain now. Let's imagine that we proceed to the evaluation and that you are asked to evaluate mobile phones. You will give a bid price (the price that you would be ready to pay) at each stage.



At the end of the whole evaluation process, the computer will inform you of the phone being sold today, and extract a stage of evaluation, and a selling price. Let's say that the evaluation stage drawn is stage #3. At this stage, you declared that you were ready to purchase the phone for a price of $p = £ 51.30$ (use the local currency unit).

Enumerators: **Please also make sure NOT to use olive oil as an example here and to use prices that are completely UNRELATED** to the real price of olive oil on the market. This is in order to avoid any **anchoring effect** amongst participants. **Choose prices that are much higher than those of olive oil and choose a product that has nothing to do with olive oil.**

2. We draw a selling price of $r = £50.00$. We will compare your bid price with the selling price.

3. If your bidding price (i.e. the price you were ready to pay at stage #3) is higher than or equal to £50.00 (the selling price), you will be asked to purchase the mobile phone at the selling price: £50.00. This amount of money will be deducted from the stipend you will receive today.

On the contrary, if your bidding price (i.e. the price you were ready to pay at stage #3) is lower than £50.00 (the selling price), you will not be allowed to purchase the mobile phone at the selling price: £50.00. The purchase will not be conducted.

Do you have any questions?

So, let's practice the evaluation for a couple of rounds.

All the pictures of the products are shown in the screen of this laptop in front of you, and you will need to use the keyboard to type in the price that you would be willing to pay for it.

We have also attached an eye-tracker to this laptop, meaning that we will record and analyse your eye movements. For that reason, please try to keep your eyes on the screen as much as possible. Also, try not to move your head or body position more than necessary.

The practice run is to be practiced on one or two different products (depending on how well participants understand the evaluation and auction procedure) and two profiles of each product (e.g. toothpaste A and B and a mobile phone C and D).

The evaluation is conducted for products (e.g. toothpaste), participants see the product on the screen and indicate their willingness to pay for product 1 (e.g. toothpaste).

Once the consumer has understood the auction procedure, the eye-tracker is calibrated. The enumerator checks that the participant is sitting comfortably: *Do you feel comfortable with the seat and the computer?*

Did you understand the procedure, or do you have any questions before we proceed?

After confirmation of the participant, the experimenter starts the 9-point calibration phase, saying: *Please sit still and follow the dot with your eyes.*

Now, let's practice!

3. Practice run: written instructions are displayed on the screen

- Two different mobile phones are displayed on the screen, each phone displaying different features.

The following text is displayed on the screen:



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1. *Please have a look at the pictures on the screen*
2. *Please type in the price that you would be willing to pay for those mobile phones.*

Please keep your eyes on the screen throughout the experiment.

If you understand these instructions, please click 'Next'.

The auction is then conducted: a price is randomly extracted by the computer. The enumerator proceeds to a mock sale of the phone to the respondent explaining to the participant whether she/he is entitled to buy the phone given the price they were willing to pay for it.

If necessary, the process is repeated for two different types of toothpaste.

- Two different toothpastes are displayed on the screen, each toothpaste displaying different features.

The following text is displayed on the screen:

1. *Please have a look at the pictures on the screen*
2. *Please type in the price that you would be willing to pay for those mobile phones.*

Please keep your eyes on the screen throughout the experiment.

If you understand these instructions, please click 'Next'.

4. Evaluation: written instructions are displayed on the screen

Stage 1

Participants are remembered about the instructions.

All the pictures of olive oils are shown in the screen of this laptop in front of you, and you will need to use the keyboard to type in the price that you would be willing to pay for it.

The olive oil is put on a piece of bread (or similar neutral support, tasteless and without salt) in front of consumers without a label. The four bottles chosen for the experiment are presented one by one (without a label) on the screen. Consumers taste and evaluate the oil from each bottle in sequence while looking at the computer screen. The evaluation consists in declaring how much one would be willing to pay (WTP = Willingness to pay) to purchase 1 unit (e.g. 1 litre) of olive oil.

The following text is displayed on the screen

There are four steps in this round

1. *Have a look at the picture on the screen*
2. *Taste the oil that has been displayed in front of you*
3. *Have a look at this picture once again*
4. *Type in the price that you would be willing to pay for this oil.*

Please keep your eyes on the screen throughout the experiment, also when tasting the oil.

If you understand these instructions, please click 'Next'.



The enumerator brings the first sample to the table, the same that is displayed on the screen. The informant evaluates the product and inputs their willingness to pay. Once they have done so, they click 'Next' on the screen. The next product is displayed and the informant proceeds to the next evaluation until the 4 products have been evaluated.

Stage 2

Two pairs of bottles are displayed on the screen in sequence, each bottle displaying a combination of origin and health benefit labels.

The following text is displayed on the screen:

1. *Please have a look at the pictures on the screen*
2. *Please type in the price that you would be willing to pay for those oils.*

Stage 3

Two pairs of bottles are displayed on the screen in sequence. In each pair, one bottle presents the following message, and one does not: "*Olive oil polyphenols contribute to the protection of blood lipids from oxidative stress. This prevents the formation of cholesterol in the blood and protects against cancer. To obtain this beneficial effect, consume at last 20 g of olive oil a day.*"

The following text is displayed on the screen:

1. *Please have a look at the pictures on the screen*
2. *Please type in the price that you would be willing to pay for those oils.*

Stage 4

Four bottles of olive oil are presented in sequence and are provided on a piece of bread in front of consumers. The oil that is tasted corresponds to the bottle displayed. Each bottle comprises a combination of origin/health benefit label and information about health benefits provided at stage 3. Consumers taste and evaluate the oil in each bottle in sequence while looking at the computer screen.

There are four steps in this round

1. *Have a look at the picture on the screen*
2. *Taste the oil that has been displayed in front of you*
3. *Have a look at this picture once again*
Type in the price that you would be willing to pay for this oil.

Please keep your eyes on the screen throughout the experiment, also when tasting the oil.

The enumerator brings the first sample to the table, the same that is displayed on the screen. The consumer evaluates the product and inputs their willingness to pay. Once they have done so, they click 'Next' on the screen. The next product is displayed and the consumer proceeds to the next evaluation until the 4 products have been evaluated.

Stage 5

The evaluation of the olive oils has finished. Now we will show you on the screen a series of images products not related to olive oil. Please look at them as we change the images. At the end of this stage, and before the price of the oil is extracted, you will be asked to fill a short questionnaire at the computer. The questionnaire will appear on the screen after the last image.



3/ Phase 3: socio-demographic questionnaire

Phase 3: Complementary questionnaire

A questionnaire is administered to the participants using the same computer software, and the following text is displayed:

Please answer the following questions:

1. Does your household produce olive oil? Yes () ; No ()
2. Do you have relatives or friends who produce and provide olive oil to you? Yes () ; No ()
3. How often do you purchase olive oil? A few times a week / once a week / a few times a month / once a month / more rarely / never
4. Do you usually purchase olive oil in bottle or in bulk?
5. Do you usually purchase other types of oil? Which ones? More or less often than olive oil?
6. How much olive oil do you consume in a week/month?
7. Where do you purchase your olive oil from? Farmer / market / small shop / retail company
...
8. Were you aware that a more pungent / bitter olive oil is better for your health before being provided such information during the auction? Yes (), No ()
9. Are you aware of the label X / procedure Y to certify that the olive oil is produced respecting safety measures? Yes (), No ()
10. Do you usually check if the olive oil you purchase has the label X? Yes, always / ... / No, never
11. If you knew that either of the olive oils you tasted today had the label X certifying its safety, would you have been willing to pay a higher price for it compared to the price you declared? / If you knew that either of the olive oils you tasted today did not have the label X certifying its safety, would you have been willing to pay a lower price for it compared to the price you declared? [*to be asked randomly in different days to control for acquiescence and social desirability bias*]
12. If you knew that either of the olive oils [*or actual name/list, if already disclosed*] you tasted today was certified as organic, would you have been willing to pay a higher price for it compared to the price you declared? / If you knew that either of the olive oils you tasted today were not organic, would you have been willing to pay a lower price for it compared to the price you declared? [*to be asked randomly in different days to control for acquiescence and social desirability bias*]
13. Could you name up to five brand of olive oil that come to your mind?
14. How familiar are you with each of these brands? Very familiar / ... / not familiar at all.

If the sample is complemented with new consumers due to drop offs from the sample who took part in the behavioural experiments and survey, socio-demographic questions will need to be asked again (e.g. by administering to them the full survey).

Phase 4: Proceeding to the auction and selling the product

Thank you for answering to the questions. Once you are done, please click to advance on the following page on the screen. The computer will show you the oil being sold today, and will extract a round of evaluation and a random price.

Once the consumer has clicked on 'Next' and the oil, the round and the price have been displayed, please keep reading.



If the price is lower than the price declared by the consumer in that round: *The price extracted is £X [use local currency], which is lower than the price of £Z that you declared in round Y; therefore you will need to purchase the olive oil at that price. Please leave your desk and my colleague will accompany you in the other room, where you will receive your bottle of olive oil in a sealed non-transparent bag, and the difference between your stipend and the price paid, in cash. When you leave the building, we kindly ask you not to communicate with consumers who might be waiting to take part in the experiment, and in particular neither to reveal which oil is being sold today nor to inform them of the price you have paid. Thanks again for taking part in the experiment today.*

If the price is higher than the price declared by the consumer in that round: *The price extracted is £X [use local currency], which is higher than the price of £Z that you declared in round Y; therefore you cannot purchase the olive oil today. Please leave your desk and my colleague will accompany you in the other room, where you will receive your full stipend in cash. When leaving the building, we kindly ask you not to communicate with other consumers who might be waiting to take part in the experiment, and in particular neither to reveal which oil is being sold today nor to communicate the price extracted. Thanks again for taking part in the experiment today.*

Please accompany the consumer at a nearby room (ensuring that the other consumer who took part in the experiment at the same time is not there). If they are purchasing the oil, show them the bottle, put it in the bag and seal it; then pay them the difference between the stipend and the price of the oil. If there are not purchasing the oil, then pay them the full stipend.

Thanks again for helping our research with your participation. Have a good day!

List of tools

The experiment will run for two weeks (5+5 days) in both Morocco and Tunisia. Each day, 20 consumers will take part in the experiment. The list of tools below refers to each of the 20 daily sessions.

List of experiment materials per each session (day) of 20 participants:

- **Participant list** (with participant ID) for the lead enumerator
- **Procedural script** for the enumerators to read the instructions to the consumers
- **160 slices of bread** without (or with limited content of) salt, not crumbly, without holes
- **20 trays** to bring the bread with the oil to the consumer
- **80 clean spoons** (metal or plastic) to put the oil on the slices of bread
- Minimum **22 bottles of 1 litre** of the **oil** being sold on the day (20 for sale and 2 for tasting)
- Around **200 paper napkins** for consumers to clean their hands after tasting
- **1 pack of single use plastic gloves** for the enumerators serving the oils
- **Stipend money** (half-day of the average wage in the city for each consumer) with banknotes and coins to subtract the price of the oil and pay the right amount
- **1 block of receipts** to issue receipts when paying the stipend
- Minimum **20 disposable face masks**
- **1 pack of disposable sanitizing** wipes to clean the keyboards and computers after each consumer
- Minimum **20 bottles of water of 0.5 litres**
- Minimum **40 plastic glasses**
- **1 bottle of hand soap**
- **1 large bottle of hand sanitizer** (or 20 small bottles of hand sanitizers)
- Minimum **20 non-transparent sealable bags** for consumers to take the olive oil home

