Annex 1: Informed Consent Form-English

Participants:

All participants will be randomly selected from 19,071 (8,619 in Benue, 6,263in Ogun, and 4,189 in Ebonyi) farmers trained on various IITA/AfricaRice developed technologies under the Zero Hunger Project.

Title of the Study: Mid-term study
Principle Investigator: Dr. Adebowale Akande
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Contractor: International Institute of Tropical Agriculture (IITA) Funding Source
or Sponsor: International Fund for Agricultural Development

What are some of the things you should know about research studies?

Agricultural Transformation in Nigerian Federal states and Togolese regions towards achieving the Zero Hunger project's goal is to contribute to the zero hunger initiatives within rice and cassava value chains in Nigeria and Togo. In terms of objectives, there are two focuses, given the two-fold nature of the Project that leverages two pillars: 'technology and innovation', and 'policy analysis and policy engagement for technology uptake.' This change is expected through effective partnerships with development partners in the two countries, supported by National Agricultural Research System (NARS).

You are being asked to participate in this study on validating farmers' awareness, adoption,n and willingness to pay for various technologies deployed under the Zero Hunger project. It is voluntary to join the study. You may refuse to join or withdraw your consent to be in the study for any reason at any time.

This study is a continuation of the project jointly implemented by IITA and AfricaRice in collaboration with the IFAD-funded Value Chain Development Program(VCDP).

It is designed to gain insight into how far the Zero Hunger project has progressed compared to its goal. Details about this study are discussed below. The information will help you make an informed choice about being in this research study. You will be given a copy of this consent form. You should ask the researchers named above or staff members who may assist them with any questions you have about this study at any time.

What is the purpose of this study?

The purpose of the study is to collect data on the project's progress and to identify any areas where the project may need to be adjusted. The data will be used to improve the project's design, implementation, and outcomes.

How many people will take part in the study?

If you decide to participate in this study, you will be one of approximately 1,110 participants in 3 states in this research study who will participate in the study.

How long will your part in the study last?

Your participation in this study will last maximum 60 minutes. We will be discrete to ensure this does not affect your daily routine too much. We may also contact you to participate in a Focused Group Discussion regarding the willingness to pay experiment.

What will happen if you take part in the study?

If you choose to participate in this study, we will collect data on your awareness/adoption of various technologies (seed, digital tools, and innovations) we have introduced to you and your willingness to pay for them. We will also collect data on your social and economic information.

What are the possible benefits of being in this study?

You will be compensated for your time spent during this interview with a lunch stipend and a project T-shirt.

What are the possible risks or discomforts involved with being in this study?

You may experience discomfort from answering some questions. Tell the interviewer to skip to the next question if you feel uncomfortable answering a specific question. If you don't want to continue the discussion, you can ask the interviewer to stop anytime. We will protect your privacy and confidentiality while you are in the study.

How will your privacy be protected?

You will not be identified in any report or publication about this study. Traceable data like phone number, village, state, and gender will be collected. This information will be delinked from the data when analyzing the data; they will only be used to recall data, when necessary, by the project team. The data with traceable information will be saved in a passworded database. For the focused group discussion on willingness to pay study, pictures, and voice recordings will be taken and stored in a passworded database. After one year of transcribing the voice for research, the voice will be deleted.

What if you want to stop before your part in the study is complete?

You can withdraw from this study at any time without penalty; your participation is entirely voluntary. There is no obligation for you to continue.

Will you receive anything for being in this study?

We will compensate your time with a stipend for lunch and provide a T-shirt.

Who is sponsoring this study?

The International Fund for Agricultural Development funds this research.

Utilization of results
The survey results will be used to improve the project's success and better support you and other beneficiaries. The result will be communicated to you through the extension officer handling your community.

What if you have questions about this study?

You have the right to ask and answer any questions about this research. If you have questions, complaints, or concerns, you should contact the researchers listed on the first page of this form.

What if you have questions about your rights as a research participant?

If you have any questions about this study, contact Oyewale Abioye, the study co-investigator, at +2348039784245. The IITA Internal Review Board (IRB) reviews all research on human volunteers. This committee works to protect your rights and welfare. If you have any problem related to your rights as a participant in this study, you can contact the chairperson of the IITA IRB, at IITA-IRB@CGIAR.ORG

Participant's Agreement:

If you have read this consent form or had it read and explained to you, you understand the information, and you voluntarily agree to participate on behalf of yourself and your household, please sign your name or make your mark below to voluntarily authorize the researchers to take and use your personal information and photos.

PART A: LITERATE PARTICIPANT

Participant name	Participant Signature	Date
Study staff requesting consent	Study Staff signature	Date

PART B: PARTICIPANT WHO IS UNABLE TO SIGN

Participant name	Participant thumbprint	Date
Study staff requesting consent	Study Staff signature	Date
Impartial Witness Name	Impartial Witness Signature	Date

Annex 2: Questionnaire

Consent Form
Good day Sir/Madam. My name is _____. I would like to thank you for being willing to meet with us. I represent a research project in Nigeria and Togo named Zero Hunger. They work in collaboration with the Ministry of Agriculture in States in Nigeria and Regions in Togo. As one of the beneficiaries of the project, I would like to know what has changed since you engaged with the project. This project aims to eliminate Hunger and poverty by increasing trice and cassava production. In line with that goal, the projects have been deploying different technologies (Climate resilient rice and cassava varieties, several innovations in good agronomic practices, and digital agriculture) to farmers, including you. You are one of the households selected here in Nigeria for this interview.
The interview will take an average of 60 minutes. Your name will not be made public in connection with your responses to this survey. The essence of this survey is to help us understand if the project goal is being achieved. Your refusal to participate or withdraw from the study carries no penalty or loss of benefits. You are free not to answer any of the survey questions. However, your participation will be valuable for the research we are conducting, and we will give you feedback on our findings that can be useful for your work through the Extension Officers who have been working with you. All information you provide will be kept confidential, including your identity, household name, land size and income, etc. Your privacy will be protected to the maximum extent allowable by law. Only the researchers and the IITA will have access to the data. Your identity will never be included as part of the published results of this research. Please do not hesitate to ask me any questions. If you have further questions, clarifications, or complaints, you may contact Dr.' Debo Akande, at +234703 2213797 A.Akande@cgiar.org, Dr. Francis Nwilene at +2348034339601, F.Nwilene@cgiar.org or Oyewale Abioye, +2348039784245 O.Abioye@cgiar.org, and the IRB Chair at the following email: IITA-IRB@CGIAR.ORG

Do you have any questions about this study for me?
Enumerator: pause and respond to any questions raised, then continue with the following statement>.
May we start this study? By continuing your participation, you indicate your willingness to voluntarily participate in all the components of this study.

Part 1: IDENTIFICATION OF HOUSEHOLD

1.	Enumerator Name
2.	Date of the interview

Zero Hunger Initiative – Cassava/Rice midterm survey

Questionnaire for Cassava/Rice Producers

3. State
4. Local Government Area
5. Name of the community
6. Name of Respondent
7. Cell phone number of the respondent
8. Is the respondent part of the project beneficiaries? (1= Yes; 0=No)

	Degree	Minute	Second
11.4	11.5	11.6	11.7
1) GPS latitude			
2) GPS longitude			

1. SOCIOECONOMICS/DEMOGRAPHY

1.1 Gender of the respondent: 1= Male 2= Female

1.2 Age of the respondent (years)

1.3 Household position of the respondent: 1=Male-headed monogamous household, 2=Male-headed polygamous household, 3=Female-headed household

1.4 Marital status of the respondent 1=Married, 2=Single, 3=Divorced, 4=Widowed, 5=Other

1.5 Level of education of the respondent: 1=no formal education; 2=non formal; 3= started primary; 4=completed primary; 5=started secondary; 6=completed secondary; 7= tertiary

1.6 Respondent's Household size (Number of people residing in farmer's household eating from the same pot): _____

1.7 Age range of respondent's children: 1=<1-10, 2=11-17, 3=18-35, 4=36 and above

1.8 Is any of the respondent's children interested in farming? (1= Yes; 0=No)

1.9 Age range of the children of the respondent interested in farming: 1=<1-10, 2=11-17, 3=18-35, 4=36 and above

1.10 Is any of the respondent's children practicing farming (1= Yes; 0=No)

1.11 Age range of the children of the respondent practicing farming: 1=<1-10, 2=11-17, 3=18-35, 4=36 and above

1.12 How many years has the respondent been cultivating cassava?

CREDIT AND FINANCIAL INFORMATION

1.13 What is the major source of your income: 1= Agriculture 2= non-Agriculture

1.14 If you select Agriculture above, please pick the source of income from agriculture 1= Production 2= Processing 3= Marketing 4=Agro-input supply 5=others (specify)

1.15 Do you keep any kind of financial records/recordings of your income-generating activities? 1= Yes 0=No

1.16 What kind of financial records do you keep?1=Income and expenditure record, 2=Cash flow record, 3=Inventory record, 4=Production record

1.17 What is the estimated household monthly income: 1= Less than or equal to ₦30,000 2= ₦31,000 - ₦50,000 3= ₦51,0000 - ₦100,000 4=₦101,000 - ₦150,000 5= ₦151,000 and above

1.18 What percentage of your monthly income do you spend on your farm? What percentage of the family, what percentage do you save? What percentage do you spend on other things?

1.19 How do you save your money? 1=in bank accounts that I own, 2= Daily contributions, 3=Weekly contributions, 4=market days contributions, 5=monthly contributions, 6= I don't save
1.20 Have you borrowed money during this planting season, 2022/2023? 0=No 1=Yes
1.21 If yes, what is your most common source? 1= Relative and friends, 2= Informal savings and credit group, 3= Money lender, 4= Government credit schemes, 5=NGO/Church/Mosque, 6= Bank
1.22 If yes, what was the purpose? 1= purchase seed, 2=purchase fertilizers, (3) purchase other agri. input, 4=purchase food, 5= medical costs, 6=Other (specify)
1.23 Did you get the loan? 1= Yes 0=No
1.24 Have you borrowed money during the past planting season 2021/2022? 0=No 1=Yes
1.25 If yes, what is your most common source? 1=Relative and friends; 2= Informal savings and credit group; 3=Money lender; 4=Government credit schemes; 5=NGO/Church/Mosque; 6=Bank
1.26 If yes, what was the purpose? 1=purchase improved seed, 2=purchase fertilizers, 3=purchase other agri. input, 4=purchase food, 5= medical costs, 6=Other (specify)
1.27 Did you get the loan? 1= Yes 0=No

GROUP MEMBERSHIP

1.28 Are you a member of an association/cooperative?
0=No 1=Yes 2= No longer
If yes, which type of association/grouping? 1= Farmer cooperative; 2= Platform; 3= Cultural association; 4= Political association; 5= Religious association; 6= NGO; 7= Informal savings and loans 8= Other (specify)

1.29 What was your main motivation for joining the association? 1= Easy access to credit, 2= The association supplies cassava/rice, 3= Collective freight transportation of rice/cassava, 4= Group selling of rice/cassava, 5= Easy access to inputs, 6=Other (please specify)
1.30 How long have you been a member (years)? _____
1.31 Status of membership: 1=Member 2=Leader
1.32 Is the association still functioning? 1=Yes 0=No
1.33 Registration status (Is it registered with the government?): 1=Yes 0=No

TRAINING ON GOOD AGRONOMIC PRACTICES

1.34 Have you been trained on Good Agronomic practices (GAP) on rice/cassava 1=Yes 0=No
1.35 If yes, what have you been trained on? Rice 1=use of improved seed, 2=water management (bunding), 3=line spacing, 3=time of planting, 4=fertilizer and agrochemicals application). Cassava 1=six steps to weed management, 2=soil water conservation, 3=line spacing, 4=disease management, 5=ratooning, 6=fertilizer use, 7=calibration of knapsack sprayer, 8=proper herbicide use: 9=timely harvesting for each product.
1.36 What year were you trained? 1=2021; 2=2022; 3=2023
1.37 Who trained you on GAP listed above? 1 = Fellow farmers; 2 = extension officer; 3 = research institution; 4 = Non-governmental organization; 5 = farmers' organization

1.38 Have you experienced increased knowledge in weed management in the last 2 years? 1= Yes 0=No

GENERAL INFORMATION ON DIGITAL AGRICULTURE

1.39 Do you have access to the internet in your community? 1=Yes 0=No
1.40 Do you have a smartphone? 1=Yes 0=No
1.41 If you have a smartphone, what do you use it for? 1=Phone call, 2=WhatsApp, 3=Facebook, 4=Twitter, 5=Instagram, 6=Send email, 7=Use other applications.
1.42 Do you currently use any paid phone applications? 1=Yes 0=No
1.43 If you were to download or use an application, which of the following areas would you prefer?1=application that supports weather forecast, 2=application for weed management, 3=application for land measurement, 4=application that supports correct fertilizer application,5=application that helps to calculate profit in agriculture, =application that helps to know the exact quantity of seed to use on my farm
1.44 What do you look out for before using an application? 1= If it is being use by other farmers, 2= ease of use, 3=size of the App, 4=cost of the application
1.45 Does the language of instruction in a phone Application matter to you? 1=Yes 0=No
1.46 Which of the following languages would you prefer to use as an application? 1= English, 2=my local language, 3=combination of English and my local language

Part 2: INFORMATION ON FARMS

2.1 How did you acquire land for cassava production? 1= inherited, 2= purchase, 3= donation (definitive transfer), 4= Lease (Fee paid for at least 5 years), 5= rent (Annual fee), 6= Others (specify and describe this type of tenure)
2.2 Have you measured the cassava farm size before? Yes=1 No=0
2.3 If you have measured your farm size before, what is the major tool you use in measuring it? I gauged with my eyes=1, I used a measuring tape=2, I used a GPS=3 I used a phone App=4, A service provider did it for me=5
2.4 How do you determine the quantity of herbicide or pesticide on your farm? follow the instruction on the herbicide label=1, I gauge as i deem fit=2, I leave it to the service provider to determine it=3, Extension Agent's advise=4 I follow guidance from fellow farmers=5, I use a phone App=5
2.5 What is the size of your total cultivated farmland area (in ha)?
2.6 What was the size of the land planted with cassava/rice last season?
2.7 Which production system do you rely on the most to produce cassava? 1=Rain-fed, 2=Irrigation, 3= Both
2.8 What other crop do you plant? 1= Rice 2= Maize 3= Sweet potatoes 4= Vegetables 5= Plantain 6= Palm tree 7= Others (specify)

ACCESS TO EXTENSION SERVICES

2.9 Do you have access to extension services? 1= Yes 0= No
2.10 How frequently do you have access to extension services? 1= Monthly, 2= Quarterly, 3= Biannually, 4= Annually
2.11 What are your frequent sources of extension messages? 1= Agric extension staff, 2= Extension bulletins 3= Media (Radio/TV/Newspaper), 4= fellow farmers 5= Mobile phone (e-extension): 6= Other (specify): _____
2.12 How often do you interact with agricultural extension workers on cassava/rice production?1= Very often, 2= Often, 3= Scarcely, 4= Never

Zero Hunger Initiative – Cassava/Rice midterm survey

Questionnaire for Cassava/Rice Producers

Part 3. CASSAVA PRODUCTION

3.1 Type of cassava varieties cultivated last season?:1= local, 2= improved, 3= Don't know

3.2 If improved variety, what year did you start growing improved variety?1=before 2021, 2=2021, 3=2022, 4=2023

3.3 Sources of cassava varieties:1= Research Institute, 2= Extension officer, 3= Friends, 4= market 5= NGO/projects, 6=From previous harvest

3.4 What is your primary source of information about the improved variety you cultivate?1= Local cassava producers 2= Cutting dealers (retailers, private seed company) 3= Extension agent, 4= Fellow farmer 5= Media (Radio/TV/Newspaper) 6= Others (specify)

3.5 If you don't use improved cassava/rice varieties, give reasons 1=Cuttings/seeds not available 2=Not heard of any improved varieties 3=No money to buy the cuttings/seeds 4= Satisfied with the local varieties 5= Not interested in experimenting with new varieties 6= Have not seen any demonstration to show superiority of improved varieties 7= Others (specify):_____

3.6 In the last 1 year would you say you are growing 'more', 'less', or 'about the same' amount of cassava? 1=more, 2=less, 3 =about the same amount, 4=I don't know

3.7 If you grew more, was it as a result of additional land covered or increased yield on the same size of land? 1= additional land covered, 2= increased yield on the same size of land

3.8 If you had increased yield on the same size of land, what was responsible? 1=application of the six steps to cassava weed managegemnt 2=use of improved seeds, 3=correct measurement of my land with App, 4=use of fertilizer.

3.9 If you grew more cassava, what were the reasons apart from increased yield? 1=Increased demand in the markets, 2=Had access to labor I didn't have to pay for, 3=Had more capital (not borrowed) to invest in cassava 4=Had access to more land that I didn't have to pay for 5=Higher prices for cassava encouraged me to plant more, 6=Increased need due to increased household consumption, increased expenses/income, etc.

3.10 If you grew less cassava, what were the reasons? 1 low demand in the markets, 2=less access to labor, 3=Had less capital (not borrowed) to invest in cassava 4=Had no access to more land, 5=less prices for cassava discouraged me from planting more, 6= Increased in input costs

3.11 Since you started using improved varieties and attended the Zero Hunger project training, would you say your income has increased or reduced? 1= Reduced, 2=Increased, 3=Same thing as before

3.12 If increased, would you say the training and usage of improved varieities contributed to the increased income? 1=Yes 0=No

3.13 If increased, please select your monthly income from every source before the training and use of improved varieties. 1= Less than or equal to ₦30,00; 2=₦31,000 - ₦50,000; 3= ₦51,0000 - ₦100,000; 4=101,000 - ₦150,000; 5=₦151,000 and above

3.14 If increased, please select your monthly income now after the training and use of improved varieties from every source including the cassava production source? 1= Less than or equal to ₦30,00; 2=₦31,000 - ₦50,000; 3= ₦51,0000 - ₦100,000; 4=101,000 - ₦150,000; 5=₦151,000 and above

3.15 If you don't use improved cassava/rice varieties, give reasons 1=Cuttings/seeds not available 2=Not heard of any improved varieties 3=No money to buy the cuttings/seeds 4= Satisfied with the local varieties 5= Not interested in experimenting with new varieties 6= Not seen any demonstration to show superiority of improved varieties 7= Other (specify):_____

Cassava/rice variety	NPK (basal)(kg)	Urea (top dress) (kg)	SSP (Phosphate) (Kg)	manure	Insecticides (litre)
Local					

Improved					

Part 4. SEED SYSTEMS AND VARIETY DESCRIPTION

4.1 Source of planting material for cassava? Purchased, 2=Previous harvest, 3=Borrowed, 4=Gift, 5=Other (Specify)

4.2 If purchased, are the stems certified? 1= Yes 0= No, 2=I do not know

4.3 If purchased, where do you buy it from? 1=Research Institute, 2=Seed companies, 3= Retailers/marketers, 4= Farmers' associations, 5= Extension agents, 99=Others (specify)

4.4 If purchased, what was the price of the seed cost/stem cost per bundle (Naira)

4.5 Do you rely on the same supplier when purchasing cassava cuttings?1= Yes 0= No

4.6 Do you sell cassava stems?1=Yes 0=No

4.7 Are the cassava stems you are selling certified? 1= Yes 0= No

4.8 Who do you sell it to? 1=Fellow farmers 2=aggregators 3=others

4.9 What quantities of the following inputs did you apply on average to the cassava/rice?

4.10 Give the name of the major cassava varieties planted last planting season.

4.11 What do you like in this/these variety/varieties?

4.12 What do you not like in this/these variety/varieties?

4.13 Do you plant this/these variety/varieties every year, even under different rainy conditions? 1=Yes; 0=No

4.14 Who decided about the choice of this/these variety/varieties? 1= Spouse; 2=Fellow farmer; 3=Seed producers; 4= Private extension agent; 5= Processors 6= Govt extension agent(NGO) 7= free distribution from a project/government; 8 = Self

4.15 Have you always been able to get the stems of this variety when you wanted them? 1=Yes; 0=No

4.16 In the years you have planted this variety, have you renewed it or replaced it from sources other than your harvest? 1=Yes; 0=No

4.17 How many seasons (year) have you been using the stems you are using now?

4.18 If not, why are you not replacing the stems/seeds?

4.19 If yes, what is the main reason for replacing the cutting/seed for this variety? poor cutting quality; 2=reduced yield; 3=lost stored seed; 4=increased susceptibility to pest; 5=no rain/did not germinate; 6= decrease in market price or demand; 7=other (specify)

4.20 What was the Primary source you used to renew or replace the variety? Research/extension, 2= Friends, 3= open market 4= NGO/projects, 5=others_____

Part 5. COST OF PRODUCTION

Breakdown of costs and return of cassava during the last season

5.1 Land preparation
5.1.1 cost of clearing/stumping the size of land planted with cassava last season?
5.1.2 cost of herbicide used for land clearing if applicable?
5.1.3 quantity of herbicide used for land clearing (In litre)
5.1.4 Cost of labour used for applying the herbicide?
5.1.5 Cost of first ploughing the size of land planted with cassava last season?
5.1.6 Cost of second ploughing the size of land planted with cassava last season?
5.1.7 Cost of harrowing the size of land planted with cassava last season?
5.1.8 Cost of ridging the size of land planted with cassava last season?
5.1.9 Cost of heaping the size of land planted with cassava last season?

5.2 Planting
5.2.1 Cost of seed/stem?
5.2.2 Cost of rice nursery establishment
5.2.3 cost of labour for planting /transplanting?
5.2.4 name of pre-emergence chemical used
5.2.5 quantity of pre-emergence herbicide used (in litre)
5.2.6 Cost of pre-emergence herbicides
5.2.7 Cost of applying the pre-emergence herbicides

5.3 Post-planting activities
5.3.1 Cost of first manual weeding?
5.3.2 cost of second manual weeding
5.3.3 cost of third manual weeding
5.3.4 name of first post-emergence herbicide used
5.3.5 quantity of first herbicides used for weeding?
5.3.6 Total cost of herbicide?
5.3.7 Cost of first application of the herbicide?
Name of second post-emergence chemical used
5.3.8 quantity of herbicides used for second weeding?
The total cost of herbicide?
5.3.9 Cost of the second application of herbicide?
Name of third post-emergence herbicide used
5.3.10 Quantity of third herbicides used for weeding?
The total cost of herbicide?
5.3.11 Cost of third application of herbicide?
5.3.12 Quantity of NPK fertilizer used on the size of land planted with cassava last season (in KG)?
Cost of NPK fertilizer used on the size of land planted with cassava last season (in Naira)?
5.3.13 Quantity of Urea fertilizer used on the size of land planted with cassava last season (in KG)?
Cost of Urea fertilizer used on the size of land planted with cassava last season (in Naira)?
5.3.14 Cost of NPK Fertilizer Application
5.3.15 Cost of Urea Fertilizer Application

5.4 Harvesting
5.4.1 How many tonnes of cassava tubers did you harvest from the cultivated land last planting season?
5.4.2 Cost of harvest per ton?
5.4.3 How many bundles of cassava stems did you harvest from the cultivated land last planting season?
5.4.4 Cost of transportation of the cassava to the market for sale?
5.4.5 Cost of first ratooning the size of land planted last season
5.4.6 quantity of cassava bundles harvested in the first ratooning from the land planted last season
5.4.7 Cost of second ratooning the size of land planted last season
5.4.8 quantity of cassava bundles harvested in the second ratooning from the land planted last season
5.4.9 Price of cassava pick-ups/tonnes sold

5.4.10 Number of bundles of stems sold
5.4.11 Price per bundle of stems sold

Part 6. AGRICULTURAL MARKETING DECISIONS

6.1 Do you sell your cassava cuttings/rice seeds? 1=Yes 0=No.
6.2 When do you sell your cassava cuttings/rice seeds?

	Average selling price (kg/local currency)	Reasons for selling	Place of sale	Buyer
Soon after harvest				
First quarter after harvest				
Second quarter after harvest				
Just before planting				

6.3 Who determines the prices of cuttings/seeds you sold? 1= Farmers Association 2= Yourself 3= The buyer 4= Government 5= prevailing market price 6= other (specify):_____

6.4 If prices were fixed by you, say how did you determine them 1= N/A 2= I used prices in neighboring markets; 3= I used published prices in the newspapers 4= I used prices announced on the media 5= used cost of production 6=other (specify):…….

6.5 How did you market the cassava stems produced? 1= On-farm 2=. At local market 3= Transported to other parts of the Country 4= Exported to other countries 5= Used to re-establish my farm

6.6 How do you market the cassava root produced? 1= On-farm 2=. At local market 3= Transported to other parts of Country 4= Exported to other countries 5= Consumed

6.7 What are your constraints for cassava seed production 1= lack of improved varieties 2=lack of specific fertilizers 3= poor soil fertility 4=problem of markets 5=low price for cassava 6= labour is not available 7=other:……..

6.8 What are your constraints for cassava root production 1= lack of improved varieties 2= lack of specific fertilizers 3= poor soil 4=problem of markets 5=low price for cassava 6= labour is not available 8=security, 7=other:……..

6.9 Are you aware of any government policy on cassava? 1=Yes, 0=No

6.10 If yes, what do you know about it? 1=Inclusion of cassava flour in making of bread 2=Diversification into other usages 3=import substitution 4=Export of cassava products

Part 7. Production/Consumption of Biofortified Cassava (Vitamin A Cassava)

7.1 Do you have a home garden? 1= Yes 0=No

7.2 Have you heard about biofortified cassava? 1= Yes 0=No

7.3 If yes, do you consume it? 1= Yes 0=No

7.4 If yes above, in what form? 1) Garri 2) fufu, 3) Custard 4) Moi Moi 5) Combo bits 6) others

7.5 If yes, do you grow it(yellow cassava)? 1= Yes 0=No
7.6 If yes, will you continue planting it(Yellow cassava)? 1= Yes 0=No
7.7 If no to 7.5, why are you not planting it(Yellow cassava)?1= the stems are not available, 2=Yield is poor 3=It spoils faster 4=We don't eat it 5= No market for it; 6= 6 = the dry matter content is low (high water content)

PART 8. WILLINGNESS TO PAY

A note for enumerators: Please give the following information to the respondent before you proceed to the next questions.

Information: Please give the amounts of money you are willing and able to allocate in relation to the RiceAdvice/IITA Herbicide Calculator Area Calculator for Land. We understand that exact estimation is difficult, but please make good estimations as much as you can. Your answers should be based on the budget you have at your disposal from your household's earnings. Assume that no credit will be available to you for this purpose.

This willingness-to-pay study will be conducted using the random-price auction design of Becker, DeGroot, and Marschak (1964). The Becker DeGroot-Marschak (BDM) approach is a random-price auction design. The BDM has been used to measure demand for many kinds of products worldwide. The BDM mimics real-life markets by making the respondent's stated willingness to pay to determine whether they obtain the product during the interview. The interviewer draws a random price, and if the respondent's bid is lower than the random price, the respondent purchases the product at that price.

This reveals the maximum price at which the respondent would buy the product if it were for sale. To achieve this in an interview setting, respondents are invited to record a bid at which they are willing to buy the product. The BDM mechanism is a reliable way to measure willingness to pay because it incentivizes respondents to be truthful about their willingness to pay. If a respondent bids too low, they may not be able to purchase the product, even if they would be willing to pay more than the random price. Conversely, if a respondent bids too high, they will overpay for the product.

The BDM mechanism has been used in various settings, including environmental, health, and transportation economics. It is a valuable tool for researchers who want to measure the demand for goods and services.

Part 9: Adoption of IITA Herbicide Calculator/Area Calculator for Land

Section 9.1 Awareness and Experience in Using IITA Herbicide Calculator/Area Calculator for Land

9.1.1 Have you ever heard about IITA Herbicide Calculator/Area Calculator for Land? (……) [If no, terminate the interview] 1=Yes 0=No

9.1.2 If no, why have not heard about it? 1) Lack of trust in digital tools, 2) Lack of training, 3) Limited Digital Literacy, 4)Language barrier, 5)I prefer my traditional practices, 6)Lack of smartphone, 7)Lack of internet access in my community, 8)No extension officer to introduce the App in my area, 9)We do not use App in our culture.

9.1.3 If yes, what year did you hear of IITA Herbicide Calculator/Area Calculator for Land for the first time? _____Year/planting season. 1=before 2021, 2=2021, 3=2022, 4=2023

9.1.4 If yes, what is your first source of information? 1) IITA/Zero Hunger Project 2) Government/extension officer 3) Mass media (Radio/television/newspapers etc.) 4) Other farmers 5)VCDP staff 6) Farmer-led Demonstration plot Service Providers 7) Roadside signpost 8) Input dealers 9) Fellow farmers 10) through Cooperative 11) Others (specify) _____

9.1.5 If yes, were you trained on how to use it? 1=Yes, 0=No.

9.1.6 If yes, who trained you on the use of the App? 1 = Fellow farmers; 2 = extension officer; 3 = research institution; 4 = Non-governmental organization; 5 = farmers' organization, 6= input dealer,

9.2 What year were you trained? 1=before 2021, 2=2021; 3=2022; 4=2023

9.2.1 Have you ever used IITAHerbicide Calculator/Area Calculator for Land? 1=Yes 0=No

9.2.2 What year did you use IITAHerbicide Calculator/Area Calculator for Land for the first time? _____Year /planting season 1=before 2021, 2=2021; 3=2022; 4=2023

9.2.3 How many seasons have you used IITAHerbicide Calculator/Area Calculator for Land since you first used it? _____times 1= One season, 2= 2 seasons, 3= 3 Seasons, 4=4seasons, 5=more than 4 seasons

9.2.4 Are you currently using the IITA Herbicide Calculator/Area Calculator for Land? 1=Yes)=No

9.2.5 Will you use the RiceAdvice/IITAHerbicide Calculator/Area Calculator for Land in the next planting season? 1=Yes, 0=No

9.2.6 Who provided you RiceAdvice/IITAHerbicide Calculator/Area Calculator for Land service for the last time? 1) IITA/Zero Hunger Project/AfricaRice 2) Government/extension officer 3) Commercial service providers; 4) Fellow farmers 5) Extension Officers 6)VCDP staff 7) other development projects 8) I used it myself 9) Others (specify) _____

9.2.7 Did you carry out the full recommendation on the output page? Yes =2 Partially=1 No=0

9.2.8 Was the application of IITA Herbicide Calculator/Area Calculator for Land technology beneficial to your cassava production? Yes =1 No=0

9.2.9 In which aspect was IITA Herbicide Calculator/Area Calculator for Land technology beneficial to your rice production? 1=Yield increase 2= increased Income, 3=Reduction in cost of production

9.2.10 Did you participate in IITA/AfricaRice/Zero Hunger/VCDP demonstration training on using IITA Herbicide Calculator/Area Calculator for Land? 1=Yes, 0=No

9.2.11 If yes, what was the content of the training?

9.2.12 How did using the digital service contribute to increasing your income in the last one year?

9.2.13 How did using the digital service contribute to reduced production/input cost in the last one year?

9.2.14 How did using the digital service contribute to increased yield in the last one year?

9.2.15 Do you think IITA Herbicide Calculator/ and Area Calculator for Land is easy to operate? 1=Very easy 2=Relatively easy, 3=Neutral, 4=Relatively difficult, 5=Very difficult

9.2.16 Have you encountered any technical problems in operating the App? 1=Yes ; 0=No

9.2.17 Please state the problem if yes

9.2.18 Out of the IITA Herbicide Calculator and Area Calculator for Land, which is most beneficial for you? 1=IITA Herbicide Calculator, 2=Area Calculator for Land, 3=both

9.2.19 If you chose IITA Herbicide Calculator, why?

9.2.20 If you chose Area Calculator for Land, why?

9.2.21 If there is an App that combines the IITA Herbicide Calculator Area Calculator for the Land app function, would you prefer it to a single App? 1=Yes, 0=No

9.2.22 If the combined App of IITA Herbicide Calculator/ Area Calculator for Land is bigger in size (MB) than downloading the Apps separately, would you still download it? 1=Yes, 0=No

Section 9.2:

Zero Hunger Initiative – Cassava/Rice midterm survey

Questionnaire for Cassava/Rice Producers

This will be preceded with a pre-test

IITA Herbicide Calculator

1. If there is an App developed to lower the cost of inputs used on the farm such as herbicides, will you be willing to pay?
2. Will you be willing to pay N lower bid value…… for this service?
3. If the service provider decides that you pay N…mean bid value……to use the service, will you be willing to pay?
4. If the service provider decides that you pay N…higher bid value……to use the service, will you be willing to pay?
5. What is the maximum amount you are willing to pay for the service?
6. How much are you willing to improve the current state of herbicide use/reduce cost on your farm?
7. To what extent do you value the digital application tool?

Land Area calculator

8. If there is an App developed to help you to calculate the exact area of your land for planning and for production decisions, will you be willing to pay?
9. Will you be willing to pay N lower bid value…… for this service?
10. If the service provider decides that you pay N…mean bid value……to use the service, will you be willing to pay?
11. If the service provider decides that you pay N…higher bid value……to use the service, will you be willing to pay?
12. Will you be willing to pay higher for this service?
13. What is the maximum amount you are willing to pay to for the service?
14. How much are you willing to improve the current state of production activities on your farm?
15. To what extent do you value the digital application tool?

What is your opinion on the following statements?

		1) Strongly disagree, 2) Disagree, 3) Not sure, 4) Agree, 5) Strongly agree
9.2.1	It will be good if I get digital services from commercial agents on a rental basis.	
9.2.2	It will be good if I join a group of farmers to buy **digital services** for collective ownership and use.	
9.2.3	It will be good if I buy the **digital service** privately.	

FARMER KNOWLEDGE, OPINION, PERCEPTIONS

9.2.4	If you are using the App, how satisfied are you with the quality, output, and effective performance to estimate land and calibrate required herbicide?	[1]=very dissatisfied; [2]=neutral [3]=very satisfied
9.2.5	What are the reasons you use the App?	

9.2.6	If you are not using the App, what are the reasons you don't or never use it	1-I have indigenous or expertise knowledge 2-Don't see any advantage/benefit in the application 3-too expensive, 4-don't trust the app, 5-App not available, 6= I don't have a smartphone 6-Other (specify)
9.2.7	If the App is made readily available, how often do you intend to use it in subsequent farming seasons?	1=Very often, 2=Often, 3=once in a season

What advantages do you get in using IITA Herbicide Calculator Area Calculator for Land that you don't get from not using it?

		Not at all	Little extent	Moderate extent	large extent	Very large extent
9.2.8	Efficient use of herbicides					
9.2.9	Effective use of Fertilizer					
9.2.10	Effective use of seed					
9.2.11	Reduced cost of production					
9.2.12	Increased yield					
9.2.13	Increased profit margin					

Constraints about use of IITA Herbicide Calculator Area Calculator for Land

		Not a constraint	Little constraint	Mild constraint	Severe constraint	Very severe
9.2.14	Cost					
9.2.15	Ownership of smartphone					
9.2.16	Access to the internet					
9.2.17	Skills to operate the app					
9.2.18	Not accepted in my culture					
9.2.19	Inconsistency in					

	electricity power supply to sustain phone power					
9.2.20	Low literacy level to understand the English written there					
9.2.21	Others (specify) _____					

Thank you for your time!

Assessment of the adoption and impact of cassava value-addition techniques among processors and food vendors

A. Socioeconomic profile

1. Gender
   M
   F
2. Age
   - 18-35 (Youth)
   - 36 and above (adult)
3. Household size
4. How many are under 15 years.
5. level of education
   - none
   - primary
   - secondary
   - tertiary
6. Primary occupation (the main source of income)
7. Estimated annual income from major occupation.
8. Number of years of experience
9. Secondary occupation (additional source of income)
10. Estimated annual income from the second occupation.
11. Number no of years of experience

12 . Are you a processors/food vendors group/cooperative member?

B. Training

13 Did you attend any training organized by IITA on cassava value addition?

- Yes
- No

14 In what year?

- Before 2021
- 2021
- 2022
- 2023

15 What products were you trained on?

- High-Quality Cassava Flour
- Cassava custard
- Confectionaries
- Cassava -Moin Moin
- Others

16 Before the training, did you know about any of these products?

- Yes
- No

17 If yes, which ones?

- High-Quality Cassava Flour
- Cassava custard
- Confectionaries
- Cassava -Moin Moin
- Others

18. Have you trained other processors/food vendors/women/youth based on the knowledge you acquired?

19. If Yes, how many did you train?

20. How many were female and how many males?

C. Utilization and income generation

1. Since you were trained, have you produced High-Quality Cassava Flour by yourself? 1=Yes, 0=No
2. Which cassava did you use in producing the High-Quality Cassava Flour by yourself? 1= Vitamin A cassava (Yellow cassava), 2= Normal white cassava, 3= Both
3. Source of cassava used in producing HQCF?

- From own farm
- Purchased

4. What do you process cassava into?
    - Fufu
    - Akpu
    - Garri
    - Lafun
    - HQCF
    - Confectionaries
    - Tapioca
    - others
5. Before the training, were you aware of vitamin A cassava?
    - Yes
    - No
6. How many times have you produced HQCF by yourself since you were trained?
7. What product do you process vitamin A cassava into?
8. At what level
    - home
    - commercial
    - both
9. At home consumption level, what do you process Cassava into
10. At commercial consumption level, what do you process Cassava into?

10.If both, what is the percentage of home /commercial processing (10/90, 20,80,30,70 others)

11. What percentage of additional income do you generate from value addition on a commercial scale?
12. Is it a reliable source of additional household income?
13. What did you do with the additional income?
14. Do you own a business outlet?
15. Is it government-registered?

D. Acceptability

1. At home and on a commercial scale, do the consumers like the products?
2. Are the consumers willing to pay for the products to make them very profitable for you as an additional means of livelihood?

3. Do you package your end products for sale?

E. Factors that influenced the adoption of vitamin A cassava value addition

1. Availability of yellow roots
2. Can be processed into many products.
3. It is nutrient-dense,
4. High demand for end products,
5. Generates additional income.
6. Others

F. Nutritional status

1. Are foods rich in beta-carotene readily available in your diet?
2. Has the inclusion of vitamin A cassava in your diet improved your nutrition status at the household level?
3. If Yes, In what ways

G. Constraints to adoption

What are the major constraints in adopting value-addition techniques for vitamin A cassava?

1. Low awareness about vitamin A cassava variety
2. Vitamin A cassava is not yet widely cultivated to make it readily available.
3. Cultural beliefs about yellow cassava.
4. Lack of food-grade processing equipment.
5. Inadequate financial resources to expand processing of vitamin A cassava operations on a medium to large scale.

Part 3. RICE PRODUCTION (SEPARATED FROM CASSAVA. OTHE INFORMATION ARE THE SAME)

3.16 Type of rice varieties cultivated last season?:1= local, 2= improved, 3= Don't know

3.17 Sources of rice varieties:1= Research/extension, 2= Friends, 3= market 4= NGO/projects, 5=From previous harvest, 6=others

3.18 What is your primary source of information about the improved variety you grow?

1= Local rice producers 2= Cutting dealers (retailers, private seed company) 3= Extension agent, 4= Fellow farmer 5= Media (Radio/TV/Newspaper) 6= Others (specify)

3.19 In the last 1 year would you say you are growing 'more', 'less', or 'about the same' amount of rice? 1=more, 2=less, 3 =about the same amount, 4=I don't know

3.20 If you grew more rice, what were the reasons apart from increased yield? 1=Increased demand in the markets, 2=Had access to labor I didn't have to pay for, 3=Had more capital (not borrowed) to invest in rice 4=Had access to more land that I didn't have to pay for 5=Higher prices for rice encouraged me to plant more, 6=Increased need due to increased household consumption, increased expenses/income, etc.

3.21 If you grew less rice, what were the reasons? 1 low demand in the markets, 2=less access to labour, 3=Had less capital (not borrowed) to invest in rice 4=Had no access to more land, 5=less prices for rice discouraged me to plant more, 6=Increased in input costs

3.22 If you don't use improved rice/rice varieties give reasons 1=/seeds not available 2=Not heard of any improved varieties 3=No money to buy the /seeds 4= Satisfied with the local varieties 5= Not interested in experimenting with new varieties 6= Not seen any demonstration to show superiority of improved varieties 7= Other (specify):_____

Rice/rice variety	NPK (basal)(kg)	Urea (top-dress) (kg)	SSP (Phosphate) (Kg)	manure	Insecticides (litre)
Local					
Improved					

Part SEED SYSTEMS AND VARIETY DESCRIPTION

4.1 Source of planting material for rice? Purchased, 2=Previous harvest, 3=Borrowed, 4=Gift, 5=Other (Specify)

4.2 If purchased, are the seeds certified? 1= Yes 0= No, 2=I do not know

4.3 If purchased, where do you buy it from? 1=Research Institute, 2=Seed companies, 3= Retailers/marketers, 4= Farmers' associations, 5= Extension agents, 99=Others (specify)

4.4 If purchased, what was the price of the seed cost/stem cost per bundle (Naira)

4.5 Do you rely on the same supplier when purchasing rice seed?1= Yes 0= No

4.6 Do you sell rice seed?1=Yes 0=No

4.7 Are the rice seed you are selling certified? 1= Yes 0= No

4.8 Who do you sell it to? 1=Fellow farmers 2=aggregators 3=others

4.9 What quantities of the following inputs did you apply on average to the rice?

4.10 Give the name of the major rice varieties planted last planting season.

4.11 What do you like in this/these variety/varieties?

4.12 What do you not like in this/these variety/varieties?

4.13 Do you plant this/these variety/varieties every year, even under different rainy conditions? 1=Yes; 0=No

4.14 Who decided about the choice of this/these variety/varieties? 1= Spouse; 2=Fellow farmer; 3=Seed producers; 4= Private extension agent; 5= Processors 6= Govt extension agent(NGO) 7= free distribution from a project/government; 8 = Self

4.15 Have you always been able to get the stems of this variety when you wanted them? 1=Yes; 0=No

4.16 In the years you have planted this variety, have you renewed it or replaced it from sources other than your harvest? 1=Yes; 0=No

4.17 How many seasons (year) have you been using the seed you are using now?

4.18 If not, why are you not replacing the seeds?

4.19 If yes, what is the main reason for replacing the cutting/seed for this variety? poor cutting quality; 2=reduced yield; 3=lost stored seed; 4=increased susceptibility to pest; 5=no rain/did not germinate; 6= decrease in market price or demand; 7=other (specify)

4.20 What was the Primary source you used to renew or replace the variety? Research/extension, 2= Friends, 3= open market 4= NGO/projects, 5=others_____

Part 5. COST OF PRODUCTION

Breakdown of costs and return of rice during the last season

5.1 Land preparation
5.1.1 cost of clearing/stumping the size of land planted with rice last season?
5.1.2 cost of herbicide used for land clearing if applicable?
5.1.3 quantity of herbicide used for land clearing (In litre)
5.1.4 Cost of labour used for applying the herbicide?
5.1.5 Cost of first plowing the size of land planted with rice last season?
5.1.6 Cost of second plowing the size of land planted with rice last season?
5.1.7 Cost of harrowing the size of land planted with rice last season?
5.1.8 Cost of ridging the size of land planted with rice last season?
5.1.9 Cost of heaping the size of land planted with rice last season?

5.2 Planting
5.2.1 Cost of seed/seed?
5.2.2 Cost of rice nursery establishment
5.2.3 Cost of labour for planting /transplanting?
5.2.4 name of pre-emergence chemical used
5.2.5 quantity of pre-emergence herbicide used (in litre)
5.2.6 Cost of pre-emergence herbicides
5.2.7 Cost of applying the pre-emergence herbicides

5.3 Post-planting activities
5.3.1 Cost of first manual weeding?
5.3.2 Cost of Second manual weeding
5.3.3 Cost of third manual weeding
5.3.4 name of first post-emergence chemical used
5.3.5 quantity of herbicides used for first chemical weeding?
5.3.6 Total cost of herbicide?
5.3.7 Cost of application of the first chemical?
Name of second post-emergence chemical used
5.3.8 quantity of herbicides used for second chemical weeding?
The total cost of herbicide?
5.3.9 Cost of application of the second chemical?
Name of third post-emergence chemical used
5.3.10 Quantity of herbicides used for third chemical weeding?
The total cost of herbicide?
5.3.11 Cost of application of the third chemical?
Name of pesticide used
5.3.12 Quantity of pesticide used for rice?
The total cost of herbicide?
5.3.13 Quantity of NPK fertilizer used on the size of land planted with rice/rice last season (in KG)?
Cost of NPK fertilizer used on the size of land planted with rice/rice last season (in Naira)?
5.3.14 Quantity of Urea fertilizer used on the size of land planted with rice/rice last season (in KG)?
Cost of Urea fertilizer used on the size of land planted with rice/rice last season (in Naira)?
5.3.15 Cost of NPK Fertilizer Application
5.3.16 Cost of Urea Fertilizer Application

5.4 Harvesting
5.4.1 How many tonnes of rice paddy did you harvest from the cultivated land last planting season?
5.4.2 Cost of harvest per ton?
5.4.3 Cost of transportation of the rice to the market for sale?
5.4.5 How many bags of rice seed did you harvest last planting season?
5.4.6 What is the Kg size of your bags harvested last planting season?
5.4.7 Price per kg of rice seeds sold.
5.4.8 Cost of seed sold.

Part 6. AGRICULTURAL MARKETING DECISIONS

7.8 Do you sell your rice /rice seeds? 1=Yes 0=No.
7.9 When do you sell your rice /rice seeds?

	Average selling price (kg/local currency)	Reasons for selling	Place of sale	Buyer
Soon after harvest				
First quarter after harvest				
Second quarter after harvest				
Just before planting				

7.10 Who determines the prices of /seeds you sold? 1= Farmers Association 2= Yourself 3= The buyer 4= Government 5= prevailing market price 6= other (specify):_____

7.11 If prices were fixed by you, say how did you determine them 1= N/A 2= I used prices in neighboring markets; 3= I used published prices in the newspapers 4= I used prices announced on the media 5= used cost of production 6=other (specify):…….

7.12 How do you market the rice seeds produced? 1= On-farm 2=. At local market 3= Transported to other parts of the Country 4= Exported to other countries 5= Consumed

7.13 How do you market the rice root produced? 1= On-farm 2=. At local market 3= Transported to other parts of Country 4= Exported to other countries 5= Consumed

7.14 What are your constraints for rice seed production 1= lack of improved varieties 2=lack of specific fertilizers 3= poor soil 4=problem of markets 5=low price for rice 6= labour is not available 7=other:……..

7.15 What are your constraints for rice root production 1= lack of improved varieties 2= lack of specific fertilizers 3= poor soil 4=problem of markets 5=low price for rice 6= labour is not available 8=security, 7=other:……..

7.16 Are you aware of any government policy on rice? 1=Yes, 0=No

7.17 If yes, what do you know about it? 1=Inclusion of rice flour in making of bread 2=Diversification into other usages 3=import substitution

Part 7. Nutrition

7.1 Do you have a home garden? Yes (1) No (2)

7.2 Have you heard about biofortified rice? Yes (1) No (2)

7.3 If yes, do you consume it? Yes (1) No (2)

7.4 If yes above, in what form? 1) rice flour2) rice egg roll, 3) ricemilk4) rice flour meat pie 5) Combo bits 6) others

PART 8. WILLINGNESS TO PAY

A note for enumerators: Please give the following information to the respondent before you proceed to the next questions.
Information: Please give the amounts of money you are willing and able to allocate in relation to the RiceAdvice/ Area Calculator for Land. We understand that exact estimation is difficult but please make good estimations as much as you can. Your answers should be based on the budget you have at your disposal from your household's earnings. Assume that no credit will be available to you for this purpose.

This willingness-to-pay study will be conducted using the random-price auction design of Becker, DeGroot, and Marschak (1964). The Becker DeGroot-Marschak (BDM) approach is a random-price auction design. The BDM has been used to measure demand for many kinds of products around the world. The BDM mimics real-life markets by making the respondent's stated willingness to pay to determine whether they obtain the product during the interview. The interviewer draws a random price, and if the respondent's bid is lower than the random price, the respondent purchases the product at that price.
This reveals the maximum price at which the respondent would buy the product if it were for sale. To achieve this in an interview setting, respondents are invited to record a bid at which they are willing to buy the product. The BDM mechanism is a reliable way to measure willingness to pay because it creates an incentive for respondents to be truthful about their willingness to pay. If a respondent bids too low, they may not be able to purchase the product, even if they would be willing to pay more than the random price. Conversely, if a respondent bids too high, they will be overpaying for the product.
The BDM mechanism has been used in a variety of settings, including environmental economics, health economics, and transportation economics. It is a valuable tool for researchers who want to measure the demand for goods and services

Part 9: Adoption of RiceAdvice/Area Calculator for Land

Section 9.1 Awareness and Experience in Using RiceAdvice/Area Calculator for Land

9.2.23 Have you ever heard about RiceAdvice/Area Calculator for Land? (……) [If no, terminate the interview] 1=Yes 0=No

9.2.24 If yes, when did you hear of RiceAdvice/Area Calculator for Land for the first time? _____Year/planting season

9.2.25 If yes, what is your first source of information? 1) AFRICARICE/Zero Hunger Project 2) Government/extension officer 3) Mass media (Radio/television/newspapers etc.) 4) Other farmers 5)VCDP staff 6) Farmer-led Demonstration plot Service Providers 7) Roadside signpost 8) Input dealers 9) Fellow farmers 10) through Cooperative 11) Others (specify) _____

9.2.26 If yes, were you trained on how to use it? 1=Yes, 0=No.

9.2.27 If yes, who trained you?1= My fellow farmer, 2=Extension Officer, 3=input dealer, 4= others

9.2.28 Have you ever used RiceAdvice/Area Calculator for Land? 1=Yes 0=No

9.2.29 When did you use RiceAdvice/Area Calculator for Land for the first time? _____Year /planting season

9.2.30 How many seasons have you used RiceAdvice/Area Calculator for Land? _____times

9.2.31 Are you currently using the RiceAdvice/Area Calculator for Land? 1=Yes)=No

9.2.32 Will you use the RiceAdvice/Area Calculator for Land in the next planting season? 1=Yes, 0=No

9.2.33 Who provided you RiceAdvice/Area Calculator for Land service for the last time? 1) AFRICARICE/Zero Hunger Project/AfricaRice 2) Government/extension officer 3) Commercial service providers; 4) Other farmers 5) Extension Officers 6)VCDP staff 7) other development projects 8) I used it myself 9) Others (specify) _____

9.2.34 Did you carry out the full recommendation on the output page? Yes =2 Partially=1 No=0

9.2.35 Was the application of RiceAdvice/Area Calculator for Land technology beneficial to your rice production? Yes =1 No=0

9.2.36 In which aspect was RiceAdvice/Area Calculator for Land technology beneficial to your rice production? 1=Yield increase 2=Income increase, 3=Reduction in cost of production

9.2.37 Did you participate in AfricaRice/Zero Hunger/VCDP demonstration training on using RiceAdvice/Area Calculator for Land? 1=Yes, 0=No

9.2.38 Do you think RiceAdvice and Area Calculator for Land is easy to operate? 1=Very easy 2=Relatively easy, 3=Neutral, 4=Relatively difficult, 5=Very difficult
9.2.39 Have you encountered any technical problems in operating the App? 1=Yes ; 0=No
9.2.40 Please state the problem if yes
9.2.41 Out of the RiceAdvice and Area Calculator for Land, which is most beneficial for you? 1=RiceAdvice, 2=Area Calculator for Land, 3=both
9.2.42 If you chose RiceAdvice, why?
9.2.43 If you chose Area Calculator for Land, why?
9.2.44 If there is an App that combines the RiceAdvice Area Calculator for Land app function, would you prefer to download it? 1=Yes, 0=No
9.2.45 If the combined App of RiceAdvice/ Area Calculator for Land is bigger in size (MB) than downloading the Apps separately would you still download it? 1=Yes, 0=No

3.1:21) If the combined App of RiceAdvice/ Area Calculator for Land is the same size (MB) as downloading the Apps separately would you still download it? 1=Yes, 0=No

Section 9.2:
What is your opinion on the following statements?

		6) Strongly disagree, 7) Disagree, 8) Not sure, 9) Agree, 10) Strongly agree
9.2.1	It will be good if I get digital services from commercial agents on a rental basis.	
9.2.2	It will be good if I join a group of farmers to buy **digital services** for collective ownership and use.	
9.2.3	It will be good if I buy the **digital service** privately.	

FARMER KNOWLEDGE, OPINION, PERCEPTIONS

9.2.4	If you are using the App, how satisfied are you with the quality and output, and effective performance to estimate land and calibrate required herbicide?	[1]=very dissatisfied; [2]=neutral [3]=very satisfied
9.2.5	On average, how often do you intend to purchase or acquire service on RiceAdvice Area Calculator	? write # of seasons mentioned, 0=never
9.2.6	What are the reasons you use the App?	
9.2.7	If you are not using the App, what are the reasons you don't or never use it	1-I have indigenous or expertise knowledge 2-Don't see any advantage/benefit in the application 3-too expensive, 4-don't trust the app, 5-App not available, 6= I don't have a smartphone 6-Other (specify)
9.2.8	If the App is made readily available, when do you intend to purchase or ask for the service this season?	
9.2.9	If the App is made readily available, how often do you intend to use it in subsequent farming seasons?	1=Very often, 2=Often, 3=once in a season

What advantages do you get in using RiceAdvice/Area Calculator for Land that you don't get from not using it?

		Not at all	Little extent	Moderate extent	large extent	Very large extent
9.2.8	Efficient use of herbicides					
9.2.9	Effective use of Fertilizer					
9.2.10	Effective use of seed					
9.2.11	Reduced cost of production					
9.2.12	Increased yield					
9.2.13	Increased profit margin					

Constraints about use of IITA Herbicide Calculator Area Calculator for Land

		Not a constraint	Little constraint	Mild constraint	Severe constraint	Very severe
9.2.14	Cost					
9.2.15	Ownership of smartphone					
9.2.16	Access to the internet					
9.2.17	Skills to operate the app					
9.2.18	Not accepted in my culture					
9.2.19	Inconsistency in electricity power supply to sustain phone power					
9.2.20	Low literacy level to understand the English written there					
9.2.21	Others (specify) _____					

Thank you for your time!