TECHNICAL NOTE:
MEASURING ACCESS AND USE OF DIGITAL FARMER SERVICES IN 50X2030

50x2030

DATA-SMART AGRICULTURE

August 2025

Acknowledgments

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This document draws extensively on material generously provided by 60 Decibels, including reports on their activities in Nigeria and Kenya.[1,2]

The 50x2030 Initiative to Close the Agricultural Data Gap is a multi-agency effort aimed at supporting 50 low- and lower-middle-income countries to produce fundamental agricultural and rural data through the use of integrated agricultural and rural surveys. For more on the Initiative, please visit www.50x2030.org.

[1] 60 Decibels. (2023). Digital Farmer Services in Kenya: The farmer perspective. Available at: https://60decibels.com/wp-content/uploads/2024/09/60-Decibels-Digital-Agriculture-Services-in-Kenya.pdf.
[2] 60 Decibels. (2023). Digital Farmer Services in Nigeria: The farmer perspective. Available at: https://60decibels.com/insights/digital-farmer-services-nigeria/

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INTRODUCTION AND BACKGROUND

The rapid expansion of digital agriculture solutions presents a unique opportunity to improve smallholder productivity, resilience, and inclusion. Yet, while the number of digital service providers continues to grow, the actual usage, relevance, and value of these services to farmers remains under-explored. Digital Farmer Services (DFS) refer to digitally delivered or facilitated services that support farmers across core domains such as information and advisory, inputs and equipment, market access, credit, insurance, etc. These services can be accessed directly via digital tools or through agents using digital tools.

As agriculture becomes increasingly digitized, smallholder farmers' ability to access and act on digital information—whether via apps, SMS, or digital agents—is shaping their productivity, resilience, and market engagement. Timely, trusted, and relevant digital services can reduce information asymmetries, expand access to inputs and credit, and improve decision-making on planting, marketing, and risk management. Measuring how farmers interact with these services, who uses them and how, and with what impact—is essential for designing inclusive digital ecosystems that work for all.

Building on the pioneering measurement work led by 60 Decibels in partnership with the Busara Center for Behavioral Economics and the Gates Foundation, the 50x2030 team adapted the existing 50x2030 survey instruments and developed additional survey content that aligns closely with the 60 Decibels methodology. This effort was informed by pilot experiences in Kenya and Nigeria, where data collection was conducted in collaboration with the World Bank's Living Standards Measurement Study (LSMS) team.

By restructuring and streamlining modules, the 50x2030 team successfully adapted the 60 Decibels approach to facilitate the integration of DFS data collection into the broader survey instruments of the 50x2030 Initiative. This adaptation preserves the ability to measure and monitor key DFS indicators as defined by the 60 Decibels methodology.

This technical note outlines the conceptual framework, methodological approach, and data collection tools used to measure the adoption and impact of DFS from the farmer's perspective, within the context of the 50x2030 survey system.

1. METHODOLOGY

The 50x2030 Digital Farmer Services (DFS) package is designed to assess how farmers access and use digital agricultural services, and the extent to which these services deliver value at the farm level.

As noted, the package is structured around the methodology developed by 60 Decibels.[3,4] According to this approach, DFS are defined as digital solutions provided by institutions— including public, private, or non-profit actors— dedicated to delivering five core agricultural services digitally: information and advisory services, inputs and equipment services, market access services, credit services, and insurance services. These services must be delivered via digital channels and experienced directly by the farmer, either through a mobile device they own or via a digitally-enabled intermediary. These are agents working with government agencies, private companies, NGOs, banks, or other institutions using digital tools, such as phones, tablets, laptops, computers, projectors, and screens.[5] Services that are digital only at the provider's backend and not experienced by the farmer are not included.

The different types of digital services considered are defined as follows:

Information and advisory services: digital platforms that help farmers access agronomic advice, weather forecasts, farm management tools, and pest/crop disease guidance.

Inputs and equipment services: digital avenues that allow farmers to purchase/rent farm inputs (crop/livestock) and equipment, covering ordering, payment, and delivery arrangements.

Market access services: digital platforms that assist farmers in selling produce, providing market information, buyer connections, storage/transportation management, and payment receipt.

Credit services: digital mechanisms that enable farmers to access farming credit, apply for loans, receive funds, make repayments, and conduct credit-based purchases (excluding informal lending).

Insurance services: digitized processes that facilitate accessing and using insurance products, including policy registration, premium payments, and claims settlement.

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[3] 60 Decibels. (2023). Digital Farmer Services in Kenya: The farmer perspective. Available at: https://60decibels.com/wp-content/uploads/2024/09/60-Decibels-Digital-Agriculture-Services-in-Kenya.pdf.
[4] 60 Decibels. (2023). Digital Farmer Services in Nigeria: The farmer perspective. Available at: https://60decibels.com/insights/digital-farmer-services-nigeria/
[5] While the strict 60 Decibels definition does not explicitly reference extension officers, in principle these officers may also use digital tools to deliver information or services to farmers.

It is important to clarify from the outset that while the proposed package draws on the 60 Decibels framework, it does not fully operationalize the definition across all five services. In particular, the 50x2030 package provides more extensive and granular coverage of information and advisory services—such as capturing the provider or source of information—whereas equivalent detail is not collected for inputs, markets, credit, or insurance. Consequently, the data generated offers only a partial view of the digital ecosystem as defined by the 60 Decibels methodology and should be interpreted with this limitation in mind. Further details on the scope of the package and the indicators it captures are provided later in this document.

1.1 Components and Coverage of the 50x2030 DFS Package

The 50x2030 DFS package targets agricultural households and covers many—but not all—of the DFS dimensions proposed by the 60 Decibels methodology. Table 1 in Annex A provides an overview of the main deviations from the original methodology, detailing the extent to which each dimension is covered, along with the level of detail and types of revisions applied.

In summary, the 50x2030 DFS package enables the following:

- **Determine DFS adoption:** Identify whether agricultural households use digital tools in their farming activities and assess the relevance of these tools to those activities.

- **Measure DFS usage across core services:** Track household use of digital services across the five core types: information and advisory, inputs and equipment, market access, credit, and insurance.

- **Identify delivery modes and recipients:** For information and advisory services only, specify the mode of DFS delivery (direct use vs. facilitated use), who the primary recipients are (including gender), and the main provider of the digital service.

- **Characterize DFS-supported activities:** Detail the specific farming activities supported by digital service use.

- **Assess user experience:** For information and advisory services only, explore user perceptions of timeliness, ease of use, trustworthiness, and likelihood of recommending the services.

- **Identify non-users:** Distinguish households that do not use DFS.

As noted above, in terms of agricultural services covered, the DFS package places particular emphasis on information and advisory services. This reflects a natural extension of data traditionally collected under the 50x2030 Initiative, for example, through the "Access to Information" section of the Production Methods and the Environment (PME) questionnaire. While the package also captures other types of digital financial services—namely, inputs and equipment, market access, credit, and insurance—these areas are addressed at a more

aggregate level with a primary focus on usage and the characterization of DFS-supported activities.

The DFS package consists of three main modules, along with two core questions that assess the household's digital profile:

- Module A: Access to Information and Advisory.

- Module B: Meaningful Use & Key Performance Indicators of Digital Information and Advisory.

- Module C: Other Digital Farmer Services.

Module A, which focuses on agricultural information and advisory services, collects data on the types, modes, and sources of information and advice the household has received or accessed during the reference season. It allows for the identification of whether this information was delivered through digital or non-digital channels, and captures additional details needed to inform the development of digital-related indicators, as presented in subsection 1.2.

Module B explores the quality of digital engagement among agricultural households that accessed information and advisory services through digital channels in the reference period. It collects data on users' perceived impact and effectiveness of the services, as well as their likelihood to recommend them to others. Additionally, the module captures information related to user satisfaction, including perceptions of timeliness, convenience, trustworthiness, affordability, and any challenges encountered. It also explores users' emotional attachment to the service, such as discomfort associated with potentially losing access.

While Modules A and B focus on the use and experience of digital information and advisory services, Module C expands the scope to cover the household's use of digital tools across the remaining four core agricultural services: inputs and equipment, market access, credit, and insurance. For each service, the module collects data on whether digital channels are used, the mode of delivery (direct use vs. facilitated use), and the specific activities supported by the service and how (e.g., through phone calls, SMS, mobile app). The emphasis is on identifying usage patterns, allowing for the identification of gaps in access and adoption across service types.

In addition to these modules, two simple questions are used to determine the digital profile of the agricultural household. These questions capture digital access and are detailed in subsection 1.2.

> **Box 1.** MAPPING OF DFS PACKAGE MODULES TO EXISTING 50X2030 SURVEY INSTRUMENTS
>
> While the DFS package is designed as a flexible standalone tool, it also aligns with the modular structure of the 50x2030 survey program, which consists of a CORE questionnaire and rotating, specialized instruments selected by countries based on policy relevance. [6]
>
> To date, DFS-related content has been incorporated into the 50x2030 questionnaire package[7] as follows:
>
> - The digital access profile questions are embedded within the CORE questionnaire, specifically in the 'Holding Identification' section.
> - The PME post-harvest questionnaire includes a revised 'Access to Information' section, fully aligned with the content of Module A, enabling the measurement of both digital and non-digital information and advisory service use.
>
> Modules B and C are not currently included in standard instruments but are available as optional add-ons for countries seeking deeper insights into DFS adoption, use, and performance beyond information and advisory services. Importantly, these modules are designed to be implemented in conjunction with Module A, and should not be implemented without Module A, as they rely on the data it collects and together form a comprehensive view of DFS.
>
> Further guidance on integration and implementation is provided in Section 2.

1.2 Main DFS Indicators in 50x2030 DFS Package

The following indicators can be measured across the 50x2030 DFS package:

Digital Access

Captures the baseline level of technological readiness in the household. It reflects whether the household has access to digital tools either directly or indirectly.

Indicator:

- Proportion of agricultural households owning a digital device

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[6] For more details on the 50x2030 survey system and tools, see the 50x2030 Technical Paper Series, No. 2, November 2024, available at: https://www.50x2030.org/sites/default/files/resources/documents/2025-04/50x2030%20TECHNICAL%20PAPER%20SERIES%20%232_Nov2024_Eng_clean.pdf

[7] The latest versions of the 50x2030 survey instruments, along with the accompanying manuals, are available at: https://www.50x2030.org/resources/survey-instruments.

DFS Use

Is the use of at least one DFS by the household during the reference period. "Use" means the household accessed or received the service either via mobile phone or through an agent using a digital device. This can be calculated across all five core agricultural services or for each service individually. In addition, for information and advisory services, a two-level disaggregation is applied: by topic, including weather, crop production, livestock production, fishing production, and agricultural markets and pricing, and by type of information or advisory received or accessed within each topic.

Indicator:

- Proportion of agricultural households using at least one DFS during the reference period

Facilitated and Direct Use

This dimension distinguishes between two modes of access to DFS. Facilitated use is when a digitally-enabled agent or intermediary (e.g., using a mobile phone, tablet, laptop, or video) assists the household in accessing or receiving a DFS. Direct use is when the household independently uses a digital device to access or receive DFS. A household may engage in both facilitated and direct use, either for the same service or across different services.

Indicators:
- Percentage of agricultural households accessing or receiving DFS directly
- Percentage of agricultural households accessing or receiving DFS via a digitally-enabled agent or intermediary

Stacked Use

This metric assesses the extent to which agricultural households use multiple types of DFS, selected from the five core DFS categories, during the reference period.

Indicators:

- Percentage of agricultural households using more than one DFS type
- Average number of DFS types used by agricultural households
- Most common combinations of DFS types used

Non-Users

These are agricultural households who did not use any type of DFS during the reference period neither directly nor facilitated via a digitally-enabled agent or intermediary.

Indicator:

- Percentage of agricultural households who did not use any DFS during the reference period

Informal Use

Informal use refers to using a digital tool to access a service through informal channels such as other farmers, family or friends, shopkeepers, etc. For information and advisory services, the informal use can to some extent be derived by the combination of answers received on the mode and main provider or source of the information/advisory.

Indicator:

- Percentage of agricultural households accessing or receiving digital information and advisory through informal channels

Gender of DFS user

For information and advisory services, it is possible to determine which specific household member directly received or accessed the information/advisory digitally.

Indicator:

- Percentage of male/female household members directly receiving or accessing the information/advisory digitally.

Net Promoter Score® (NPS)

Agricultural households who received or accessed information and advisory services digitally, are asked to rate their likelihood to recommend the service to a friend on a scale of 0 to 10, where 0 is least likely and 10 is most likely. The NPS is the % of respondents rating 9 or 10 out of 10 ('Promoters') minus the % of respondents rating 0 to 6 out of 10 ('Detractors'). Respondents rating 7 or 8 are considered 'Passives'.

Indicator:

- Net Promoter Score (NPS) = % Promoters – % Detractors

Needs Met

For information and advisory services, it is possible to assess whether household needs have been met.

Indicator:

- Percentage of agricultural households reporting that digital information and advisory services satisfied 'all' or 'most' of their needs

Better Farming Season

For information and advisory services, it is possible to assess whether a household experienced a better farming season as a result of receiving or accessing these services.

Indicator:

- Percentage of agricultural households reporting that their farming season was 'much better' as a result of receiving or accessing digital information and advisory services

Meaningful Users

These are agricultural households who received or accessed information and advisory services digitally and who derive value from using these services. They are determined based on the following criteria:

- Give a NPS of 9 or 10 (indicating high satisfaction)
- Have 'all' or 'most' of their needs met by the digital information and advisory services
- Report a 'much better' farming season because of receiving or accessing the digital information and advisory services

Indicator:

- Percentage of agricultural households who are meaningful users of digital information and advisory services

2. IMPLEMENTATION OPTIONS

The DFS package can be implemented in various ways within the 50×2030 survey system. Each approach presents distinct trade-offs in terms of feasibility, analytical value, and cost:

1. **Integration into Existing Instruments**

    The most direct approach involves integrating the DFS package into existing 50×2030 survey instruments by adding relevant modules to the current questionnaires. The choice of questionnaire should consider both content relevance and the overall length of the survey. As outlined in *Box 1*, the latest version of the CORE questionnaire—which is embedded by design in all other instruments—already includes digital access profile questions in the *'Holding Identification'* section. In parallel, the *'Access to Information'* section of the PME post-harvest questionnaire fully aligns with *Module A* (*Access to Information and Advisory*) of the DFS package. Given these overlaps, the most straightforward strategy is to expand the PME questionnaire to include the remaining DFS modules: Module B (*Meaningful Use & Key Performance Indicators of Digital Information and Advisory*), and Module C (*Other Digital Farmer Services*). This integration approach offers enhanced analytical value, as it enables direct linkage between DFS data and critical agricultural information collected in the PME such as production method choices and farming practices. However, it is important to note that the PME is already one of the most content-intensive instruments, and incorporating additional DFS modules may further increase its length and complexity.

    Alternatively, the DFS package can be integrated into other 50×2030 instruments, such as the Machinery, Equipment, and Assets (MEA) questionnaire or the Farm Income, Labor, and Productivity (ILP) questionnaire. In this format, the DFS package would include the '*Access to Information*' module (typically found in the PME questionnaire) with expanded content from the other two modules (Module B and C). This approach may help reduce the burden of survey length, particularly in the PME instrument. However, it may also result in fewer analytical opportunities, as these instruments may not capture the full range of agricultural decisions and behaviors that DFS usage could influence.

2. **Stand-Alone Deployment**

    The full DFS package can also be implemented as a stand-alone questionnaire, separate from the main 50×2030 surveys. Even in a stand-alone format, it is essential to incorporate select core content from the main 50×2030 instruments—such as a Household Roster—to support basic DFS analysis. While this approach allows for targeted implementation and flexibility in timing and scope, it may involve higher operational costs due to separate data collection efforts and sampling. Additionally, the analytical potential is more limited, as the stand-alone format lacks broader contextual variables (e.g., household characteristics,

income sources, and farming outcomes) that are critical to understanding who is accessing DFS and how households are benefiting from it.

While the 50×2030 DFS package has not yet been piloted in the field, preliminary in-office testing estimates the average interview duration at approximately 23 minutes. However, this estimate is subject to variation depending on the implementation context. Actual interview time will be significantly influenced by the incidence of DFS use. Respondents who do not use DFS will skip many follow-up questions, thereby reducing the overall duration. Given these factors, pilot testing at the country level is essential to accurately assess survey length, respondent burden, and contextual feasibility.

ANNEX 1. Comparison of 60 Decibels and 50x2030 DFS Methodologies

60 Decibels Dimension	Coverage in 50x2030 DFS Package	Summary of Revisions and Notes
Digital Access Mode Refers to how farmers access digital tools or services — either directly (using their own phone or device) or through someone else.	Yes, with revisions	The two digital profile questions in the 50x2030 DFS instruments ask directly whether the respondent owns a digital device and whether these were important for farming activities; no option that includes those who referred to an agent with a digital device at this point of the survey. This option is available only in the Access to Information module and its expansion package.
User Typology Categorizes individuals based on their engagement with DFS: users and non-users.	Yes, with revisions	50x2030 DFS instruments do not have separate questions for non-users, but it is possible to recover the percentage of non-users.
Access and Awareness Access refers to whether the respondent has used or been exposed to DFS; awareness refers to whether they know DFS options exist — even if they haven't used them.	No	No information about how aware of DFS were both people who had digital access and those who did not in 50x2030 DFS instruments.
DFS Bundled Use Describes the use of multiple DFS services offered by the same provider or platform.	No	60 Decibels approach allows to track the multiple services from the same DFS provider, not possible with the 50x2030 DFS instruments.
Barriers to Use Captures reasons why some farmers do not use DFS. This includes issues like lack of trust, cost concerns, and lack of knowledge.	No	60 Decibels approach captures the reasons for not using DFS of non-users; 50x2030 DFS instruments capture only information on perceived DFS cost and challenges through the KPI indicator in the expansion module, that is not targeting non-users specifically.

Source Type Refers to who or what provided the DFS — such as a cooperative, a private digital platform, or a public extension service.	Yes	
Meaningful Use An aggregate measure of the quality and value of DFS usage.	Yes	However, it is applicable only to digital information and advisory services, and not to other types of DFS.
KPI for Information Use Set of experience-based performance indicators related to digital farming information (like comfort and affordability).	Yes	However, it is applicable only to digital information and advisory services, and not to other types of DFS.
Non-Users (and their metrics)	No	No separate questions for non-users.

ANNEX 2. 50x2030 DFS Package

DIGITAL ACCESS QUESTIONS

1	2
Do you or anyone in your household have a mobile phone or another digital device such as a tablet or a laptop? YES....1 NO.....2 **>> NEXT SECTION**	How important is the use of a mobile phone or another digital device for your farming activities (e.g., for seeking/receiving agricultural information/advice, buying inputs or selling outputs)? Not important at all...1 Slightly important.....2 Moderately important...3 Very important........4 Absolutely essential...5

MODULE A: ACCESS TO INFORMATION AND ADVISORY

NOTE: TOPIC 3 AND 4 TO BE ENABLED ONLY IF APPLICABLE

1 ENUMERATOR: Record who the respondent is for this module. SELECT FROM HOUSEHOLD ROSTER	ENUMERATOR READ ALOUD: Now I would like to ask you some questions on the information or advice your household received or obtained in the last 12 months/[REFERENCE AGRICULTURAL YEAR] regarding different topics. This can be either by looking it up on your own or through other persons or sources.	TOPIC CODE	TOPIC DESCRIPTION	2 In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did you or anyone in your household receive or obtain any information or advice on [TOPIC]? This includes information from all sources and providers such as extension officers, internet sources, NGOs, farmers coop, private companies, agents or other individuals. YES....1 NO.....2 >> NEXT TOPIC	3 Who in the household received the information on [TOPIC] directly? SELECT MEMBERS FROM HOUSEHOLD ROSTER	4 What type of information did your household receive on weather? SELECT ALL THAT APPLY ADVANCE WARNING OF DROUGHT, FLOOD OR OTHER EXTREME WEATHER EVENT RISK...........1 FORECAST FOR THE START OF THE RAINS.......................2 SEASONAL WEATHER FORECASTS..................3 SHORT-RANGE WEATHER FORECASTS (1 DAY-1 WEEK IN ADVANCE)...4 MEDIUM-RANGE WEATHER FORECAST (1 - 4 WEEKS IN ADVANCE)....5 LONG-RANGE WEATHER FORECASTS (1 MONTH - 1 YEAR)...........6 OTHER (SPECIFY)............96	5 What type of information did your household receive on crop harvest, management and processing? SELECT ALL THAT APPLY CROP TYPES TO BE CULTIVATED...................1 CROP VARIETY TO BE CULTIVATED...................2 CROP ROTATION AND OTHER SUSTAINABLE AGRICULTURAL PRACTICES....................3 SOIL HEALTH.................4 USE OF FERTILIZERS AND OTHER INPUTS......................5 INTEGRATED PEST MANAGEMENT (IPM) APPROACH..............7 CROP HEALTH ISSUES.........8 AGOFORESTRY PRACTICES......9 CROP PROCESSING...........10 CROP COMMERCIALIZATION....11 OTHER, SPECIFY............96	6 What type of information did your household receive on livestock rearing, production and processing? SELECT ALL THAT APPLY FEEDING ISSUES.....1 HEALTH ISSUES......2 BREEDING...........3 PROCESSING OF LIVESTOCK PRODUCTS.4 COMMERCIALIZATION OF LIVESTOCK PRODUCTS.5 OTHER, SPECIFY....96
		1	Weather e.g., when it will rain, when to plant or harvest, sea conditions				▓	▓
		2	Crop harvest, management and processing e.g., when to harvest, plant health management, good farming practices, seed selection, input/equipment use and application, how to store produce safely, how to dry			▓		▓
		3	Livestock rearing, production and processing e.g., livestock health and disease management, breeding, feeding, production and processing of livestock products such as meat, milk/dairy, eggs, wool, leather			▓	▓	
		4	Fishing/aquaculture production and processing e.g., equipment use, feeding, safe selection, handling and storing, how to dry			▓	▓	▓
		5	Agricultural markets and pricing e.g., availability of input/equipment, availability of buyers, market location, market prices			▓	▓	▓

T O P I C C O D E	TOPIC DESCRIPTION	7. What type of information did your household receive on fishing/aquaculture production and processing? SELECT ALL THAT APPLY — EQUIPMENT USE....1 FEEDING..........2 SAFE SELECTION...3 STORING AND PROCESSING.......4 COMMERCIALIZATION OF FISHING/AQUACULTURE PRODUCTS.........5 OTHER, SPECIFY..96	8. What type of information did your household receive on agricultural markets and pricing? SELECT ALL THAT APPLY — AVAILABILITY OF INPUTS OR EQUIPMENT...................1 PRICES OF INPUTS..........2 PRICES OF OUTPUTS.........3 BUYER AVAILABILITY........4 OTHER, SPECIFY...........9	11. What was the main mode your household received information on [TOPIC]? IN PERSON INTERACTION....1 MOBILE PHONE..............2 >> Q14 RADIO....................3 >> Q13 TELEVISION................4 >> Q13 PRESS OR NEWSPAPERS......5 >> Q13 OTHER (SPECIFY).........96 >> Q13	12. In this in person interaction where your household received information on [TOPIC], was the information provided by an individual using a mobile phone or another digital device (e.g., tablet, laptop, video, projector)? YES...1 >> Q15 NO.....2	13. In addition to this main mode, did your household receive any information about [TOPIC] via a mobile phone or through an individual who provided the information using a mobile phone or another digital device (e.g., tablet, laptop, video, projector)? YES, VIA MOBILE PHONE.................1 YES, THROUGH DIGITALLY EQUIPPED INDIVIDUAL..2 >> Q15 NO...................3 >> Q15	14. How did your household use the mobile phone to receive the information on [TOPIC]? SELECT ALL THAT APPLY — PHONE CALL..............1 SMS OR TEXT MESSAGE.....2 WHATSAPP................3 FACEBOOK................4 MOBILE APPLICATION (APP)...................5 INTERNET SEARCH- GOOGLE, YOUTUBE, ETC..........6 OTHER (SPECIFY).......96
1	Weather e.g., when it will rain, when to plant or harvest, sea conditions	(shaded)	(shaded)				
2	Crop harvest, management and processing e.g., when to harvest, plant health management, good farming practices, seed selection, input/equipment use and application, how to store produce safely, how to dry	(shaded)	(shaded)				
3	Livestock rearing, production and processing e.g., livestock health and disease management, breeding, feeding, production and processing of livestock products such as meat, milk/dairy, eggs, wool, leather	(shaded)	(shaded)				
4	Fishing/aquaculture production and processing e.g., equipment use, feeding, safe selection, handling and storing, how to dry		(shaded)				
5	Agricultural markets and pricing e.g., availability of input/equipment, availability of buyers, market location, market prices	(shaded)					

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MODULE A: ACCESS TO INFORMATION AND ADVISORY

NOTE: TOPIC 3 AND 4 TO BE ENABLED ONLY IF APPLICABLE

TOPIC CODE		15 Who was the main provider or source of the information on [TOPIC] to your household? OTHER INDIVIDUAL FARMER...1 FAMILY OR FRIENDS.........2 FARMERS GROUP, ASSOCIATION OR COOPERATIVE..............3 SHOPKEEPER................4 GOVERNMENT OR EXTENSION SERVICE..................5 >> NEXT TOPIC NGO OR NON-GOVERNMENTAL EXTENSION PROJECT/ASSISTANT.........6 PRIVATE COMPANY..........7 SELF-EMPLOYED SERVICE PROVIDER.................8 FINANCIAL INSTITUTION (E.G., BANK, MICROFINANCE INSTITUTION)..............9 OTHER (SPECIFY).........96	16 Did your household also receive information on [TOPIC] from the governmental extension services in the past 12 months? YES...1 NO....2	FILTER_1 IS Q15=3 OR Q16=1 FOR ANY TOPIC? YES...1 NO....2 >> NEXT SECTION	17 How many visits did this household receive from the **governmental** extension services in the past 12 months? RECORD NUMBER OF VISITS. IF NO IN PERSON VISIT, RECORD '0'	18 How many visits did this household make to the **governmental** extension services in the past 12 months? RECORD NUMBER OF VISITS. IF NO IN PERSON VISIT, RECORD '0'
	TOPIC DESCRIPTION					
1	Weather e.g., when it will rain, when to plant or harvest, sea conditions					
2	Crop harvest, management and processing e.g., when to harvest, plant health management, good farming practices, seed selection, input/equipment use and application, how to store produce safely, how to dry					
3	Livestock rearing, production and processing e.g., livestock health and disease management, breeding, feeding, production and processing of livestock products such as meat, milk/dairy, eggs, wool, leather					
4	Fishing/aquaculture production and processing e.g., equipment use, feeding, safe selection, handling and storing, how to dry					
5	Agricultural markets and pricing e.g., availability of input/equipment, availability of buyers, market location, market prices					

MODULE B: MEANINGFUL USE & KEY PERFORMANCE INDICATORS OF DIGITAL INFORMATION AND ADVISORY

NOTE: THIS SECTION IS ACTIVATED IF HH RECEIVED INFO/ADVICE (I) IN PERSON BUT THROUGH A DIGITAL DEVICE-ENABLED INDIVIDUAL (II) VIA MOBILE PHONE AND THE PROVIDER OF THE INFO/ADVICE IS A SUBSET OF SUBJECTS IN LINE WITH 60DB DEFINITION OF DIGITAL INFORMATION PROVIDERS (SEE Q15 IN PREVIOUS SECTION).

FILTER_1	Meaningful Use (MU)			Key Performance Indicators (KPIs)		
	Impact	Effectiveness	Likelihood of recommending	Timeliness	Convenience	Trustworthiness
	1	2	3	4	5	6
IS ((SEC-A_Q11=1 & SEC-A_Q12=1) OR SEC-A_Q11=2) & (SEC A_Q15=3,4,5,6,7,8) FOR ANY TOPIC? YES...1 NO....2 >>	Overall, in the last 12 months/[REFERENCE AGRICULTURAL YEAR], has your household's farming experience been better, the same, or worse because of the information received via mobile phone or through the digitally equipped agent? Much better.......1 Slightly better...2 Same.............3 Slightly worse....4 Much worse.......5	Thinking about the information and advice your household needed for their farm or livestock activities in the last 12 months/[REFERENCE AGRICULTURAL YEAR], did the information received via mobile phone or through the digitally equipped agent meet none, some, most, or all your household's needs? All the needs......1 Most of the needs..2 Some of the needs..3 None or nearly none of the needs.......4	On a scale of 0 to 10, where 0 is not at all likely and 10 is extremely likely, how likely are you to recommend to a friend, family member or other farmers the mobile phone-based information provider or the digitally equipped agent for information on farming activities? 0 – Not at all likely 1 2 3 4 5 6 7 8 9 10 – Extremely likely	In the last 12 months/[REFERENCE AGRICULTURAL YEAR], how often did your household receive the information via mobile phone or through the digitally equipped agent exactly when they needed it? All the time.......1 Most of the time...2 Some of the time...3 None or nearly none of the time........4	In the last 12 months/[REFERENCE AGRICULTURAL YEAR], how easy or difficult was it for your household to receive the information via mobile phone or through the digitally equipped agent? Very easy..........1 Somewhat easy......2 Neither easy nor difficult..........3 Somewhat difficult.4 Very difficult.....5	Would you say the information received via mobile phone or through the digitally equipped agent was very trustworthy, slightly trustworthy, neither trustworthy nor untrustworthy, slightly untrustworthy, very untrustworthy? Very trustworthy........1 Slightly trustworthy....2 Neither trustworthy nor untrustworthy...........3 Slightly untrustworthy..4 Very untrustworthy......5

MODULE B: MEANINGFUL USE & KEY PERFORMANCE INDICATORS OF DIGITAL INFORMATION AND ADVISORY

NOTE: THIS SECTION IS ACTIVATED IF HH RECEIVED INFO/ADVICE (I) IN PERSON BUT THROUGH A DIGITAL DEVICE-ENABLED INDIVIDUAL (II) VIA MOBILE PHONE AND THE PROVIDER OF THE INFO/ADVICE IS A SUBSET OF SUBJECTS IN LINE WITH 60DB DEFINITION OF DIGITAL INFORMATION PROVIDERS (SEE Q15 IN PREVIOUS SECTION).

Key Performance Indicators (KPIs)				
Challenges		Affordability		Scalability
7	8	9	10	12
In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household experience any challenges in receiveing the information via mobile phone or through the digitally equipped agent? YES...1 NO....2 >> Q9	What type of challenges? SELECT ALL THAT APPLY NO NETWORK ACCESS....................1 PLATFORM, APPLICATION, OR SERVICE IS DIFFICULT TO NAVIGATE...............2 PLATFORM, APPLICATION, OR SERVICE HANGS, OR DOES NOT WORK WELL.........3 LANGUAGE BARRIER...................4 INFORMATION IS NOT ACCURATE.........5 INFORMATION IS DIFFICULT TO UNDERSTAND.........................6 INFORMATION NOT RELEVANT TO MY CROP/LIVESTOCK/REGION...............7 SERVICE PROVIDER IS DIFFICULT TO REACH OR LACKS CUSTOMER SUPPORT............8 OTHER (SPECIFY)....................96	In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household pay for the information received via mobile phone or through the digitally equipped agent? YES...1 NO....2 >> Q11	Do you think the price charged was too expensive, moderately expensive, fair, affordable, very affordable? Too expensive........1 Moderately expensive.2 Fair................3 Affordable...........4 Very affordable......5	How would you feel if your household could no longer receive this information via mobile phone or through the digitally equipped agent? Very disappointed........1 Somewhat disappointed....2 Not at all disappointed..3 Cannot say...............4

MODULE C: OTHER DIGITAL FARMER SERVICES

INPUTS AND EQUIPMENT			MARKET ACCESS		
1	2	3	4	5	6

In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household use any of the following ways to support the **rental or purchase of farm inputs and machinery** (seeds, fertilizers, animal feed, labor, tractors, etc.) such as arrange pick-up and delivery, place orders, make payments, etc.?
 	
READ RESPONSES
 	
`A mobile phone — yours or a household member's/friend's/neighbour's.......1`
`An agent with a digital device......2`
`Both a mobile phone and an agent with a digital device....................3`
`No...................................4`
`>> Q4`
	For which activities related to farm inputs and machinery did your household use %Q1%?
	
	READ RESPONSES. SELECT ALL THAT APPLY
	
	`Place an order.......1`
	`Make payments........2`
	`Arrange pick-up and delivery.............3`
	`Receive credit to buy inputs/machinery.....4`
	`Other (specify).....96`
	
	`IF Q1=2 >> Q4`
		How did your household use the mobile phone to support these selling activities?
		
		SELECT ALL THAT APPLY
		
		`PHONE CALL.............1`
		`SMS OR TEXT MESSAGE....2`
		`WHATSAPP...............3`
		`FACEBOOK...............4`
		`MOBILE APPLICATION (APP)..................5`
		`INTERNET SEARCH- GOOGLE, YOUTUBE, ETC...........6`
		`OTHER (SPECIFY).......96`
			In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household use any of the following ways to support the **selling of crop and livestock products** such as arrange transportation or storage, negotiate prices with buyers, receive payments, etc.?
			
			READ RESPONSES
			
			`A mobile phone — yours or a household member's/friend's/neighbour's.......1`
			`An agent with a digital device......2`
			`Both a mobile phone and an agent with a digital device....................3`
			`No................................ .4 >> Q7`
				For which activities related to selling of crop and livestock products did your household use %Q4%?
				
				READ RESPONSES. SELECT ALL THAT APPLY
				
				`Finding buyers.......1`
				`Negotiating prices...2`
				`Contracting..........3`
				`Receive payments.....4`
				`Arranging Transportation.......5`
				`Arranging storage....6`
				`Aggregating produce for selling..............7`
				`Other (specify).....96`
				
				`IF Q4=2 >> Q7`
					How did your household use the mobile phone to support these selling activities?
					
					SELECT ALL THAT APPLY
					
					`PHONE CALL.............1`
					`SMS OR TEXT MESSAGE....2`
					`WHATSAPP...............3`
					`FACEBOOK...............4`
					`MOBILE APPLICATION (APP)..................5`
					`INTERNET SEARCH- GOOGLE, YOUTUBE, ETC...........6`
					`OTHER (SPECIFY).......96`

MODULE C: OTHER DIGITAL FARMER SERVICES

INSURANCE				CREDIT	
7	8	9	10	11	12
In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household have any insurance for your farm, farm assets, or livestock? YES...1 NO....2 >> Q11	In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household use any of the following ways to **register for, buy, or manage insurance** for your farm, farm assets, or livestock? READ RESPONSES A mobile phone — yours or a household member's/friend's/neighbour's.......1 An agent with a digital device......2 Both a mobile phone and an agent with a digital device...................3 No..4 >> Q11	For which activities related to farm insurance did your household use %Q8%? READ RESPONSES. SELECT ALL THAT APPLY Registering or signing up for insurance...........1 Making policy and/or premium payments.......2 Making an insurance claim.................3 Receiving a pay-out from an insurance provider...4 Other (specify)........96 IF Q8=2 >> Q11	How did your household use the mobile phone to support these selling activities? SELECT ALL THAT APPLY PHONE CALL.............1 SMS OR TEXT MESSAGE....2 WHATSAPP...............3 FACEBOOK..............4 MOBILE APPLICATION (APP)..................5 INTERNET SEARCH- GOOGLE, YOUTUBE, ETC..........6 OTHER (SPECIFY).......96	In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household have any outstanding credit for your farming activities? YES...1 NO....2 >> NEXT SECTION	In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household use any of the following ways to borrow or manage credit for your farm activities? READ RESPONSES A mobile phone — yours or a household member's/friend's/neighbour's.......1 An agent with a digital device......2 Both a mobile phone and an agent with a digital

ANNEX 3. Enumerator Manual Content for 50x2030 DFS Package

Digital Access Questions

s0Bq08. Do you or anyone in your household have a mobile phone or another digital device such as a tablet or a laptop? This question aims to capture penetration of digital tools among sample households. Note that s0B_q08 asks about possession of ANY type of digital device (e.g., mobile phone, tablet, laptop) <u>in working order</u> in the household regardless of who possesses it within the household and regardless of what it is used for.

s0Bq09. How important is the use of a mobile phone or another digital device for your farming activities (e.g., for seeking/receiving agricultural information/advice, buying inputs or selling outputs)? Households may **use** mobile phones or other digital devices for various activities, such as purchasing or getting advice on inputs, obtaining information about the weather, or selling outputs, among others. The phone or device may be used in a variety of ways, such as through apps, internet searches, or the use of messaging or phone calls. This is a subjective question, aimed at understanding how important the use of mobile phones or other digital devices are to the household's farming operations (including crop, livestock, and fisheries or aquaculture activities).

Module A. Access to Information and Advisory

This section collects information on the types, modes and sources of agricultural information and advice that the household had access to over the past 12 months, allowing also to differentiate between digital and non-digital methods.

This section collects data on the recipients, modes and providers of information and advice to the farm by TOPIC of information/advice. These topics include:

- **Weather:** when it will rain, when to plant or harvest based on coming rains, sea conditions, etc.

- **Crop harvest, management and processing:** when to harvest, plant health management, good farming practices, seed selection, input/equipment use and application, how to store produce safely, how to dry, etc.

- **Livestock rearing, production and processing:** livestock health and disease management, breeding, feeding, production and processing of livestock products such as meat, milk/dairy, eggs, wool, leather, etc. {to be asked if applicable}

- **Fishing/aquaculture production and processing:** equipment use, feeding, safe selection, handling and storing, how to dry, etc. {to be asked if applicable}

- **Agricultural markets and pricing:** availability of input/equipment, availability of buyers, market location, market prices, etc.

Administer this section to the household member most knowledgeable about these details.

s10_q02. In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did you or anyone in your household receive or obtain any information or advice on [TOPIC]? Ask this for all topics before moving on to follow-up questions for those topics reported as YES. Explain to the respondent that the information or advice received can come from ALL sources and providers such as extension officers, internet sources, NGOs, farmers groups, cooperatives, private companies, agents or other individuals (other farmers, friends, neighbors, etc.) and that it can also be information that was retrieved by household members directly, such as through an internet search. It does not matter if the information was used or not used, or if the household had to pay for the information or not.

s10_q03. Who in the household received the information on [TOPIC] directly? Refers to the members of the household roster. Indicate which household members received the information on the topic *directly*. "Directly" means that the information was shared to the specific person(s). For example, if an extension agent had a face-to-face visit with Paul only, here you would indicate Paul (even if Paul later told his wife Sarah what the agent said). However, if the extension agent had a face-to-face meeting with both Paul and Sarah together, here you would indicate both Paul and Sarah. For those that obtained information themselves, such as through an internet search or phone application, indicate the person(s) that retrieved the information directly.

s10_q04–s10_q08. What type of information did your household receive on [TOPIC]? These questions ask about what type of information was obtained for each TOPIC. Select all types of information that the household obtained.

s10_q11. What was the main mode your household received information on [TOPIC]? Ask the respondent how they received information on each TOPIC. If it is through different modes, indicate the MAIN mode as the one through which the household received the most information on TOPIC.

- **In person interaction:** the information was received through face-to-face discussion.

- **Mobile phone:** it can be a smartphone or a feature phone, and irrespective of how the phone was used to receive the information (ex: phone call, SMS, whatsapp, internet search, etc.).

- **Radio**

- **Television**

- **Press or newspapers**

s10_q12. In this in person interaction where your household received information on [TOPIC], was the information provided by an individual using a mobile phone or another digital device (e.g., tablet, laptop, video, projector)? This question is asked only if the main mode indicated in previous question is code 1 'in person interaction'. It refers to cases where the information on TOPIC was received during an in person visit and the person(s) sharing the information in that visit had a mobile phone, tablet, or other digital device (ex: laptop, video projector). Note that the individual did not necessarily need to use this device in your discussion, such as to show you information. If they were equipped with one of these devices, regardless of whether they used it in your discussions, indicate YES.

s10_q13. In addition to this main mode, did your household receive any information about [TOPIC] via a mobile phone or through an individual who provided the information using a mobile phone or another digital device (e.g., tablet, laptop, video, projector)? This question aims to capture if the household used any digital-based mode to receive the information on TOPIC in cases where the digital-based mode was not the main mode (i.e. s10_q11 is code 2 'mobile phone' or s10_q11 is code 2 'in person interaction' & s10_q12 is YES). If the answer if YES, probe to clarify whether this was VIA MOBILE PHONE or THROUGH A DIGITALLY EQUIPPED INDIVIDUAL.

s10_q14. How did your household use the mobile phone to receive the information on [TOPIC]? If the information was received via mobile phone, details must be provided with respect to how the phone was used to receive the information on TOPIC. If it was in more than a way, select all of them in the response list:

- **Phone call**

- **SMS or text message**

- **WhatsApp**

- **Facebook**

- **Mobile application (app):** for example, weather app or other instant messaging apps like Viber, Telegram, etc. {add also country-specific examples of common mobile apps}

- **Internet search (Google, YouTube, etc.):** own search using mobile phone through internet browsers

s10_q15. Who was the main provider of the information on [TOPIC] to your household? Ask the respondent who or what was the provider (source) of information about each TOPIC. If it is

more than one provider, indicate the MAIN provider as the one that provided the most information on TOPIC to the household.

s10_q16. Did your household also receive information on [TOPIC] from the governmental extension services in the past 12 months? Asked if main provider in s10_q14 IS NOT code 3 'government or extension service'.

s10_q17–s10_q18. These questions are asked at the farm level for all topics IF the household received any information on any topic from governmental extension services in the last 12 months. Record 0 if there was no visit received or made.

Module B. Meaningful Use & Key Performance Indicators of Digital Information and Advisory

This module includes a set of subjective questions designed to capture how agricultural households that accessed information and advisory services via digital channels during the reference period perceive the quality of this digital engagement. Specifically, it collects data on users' perceptions of the impact and effectiveness of these services, as well as their likelihood of recommending them to others. It also addresses user satisfaction, including views on timeliness, convenience, trustworthiness, affordability, and any challenges faced. Finally, the module explores the emotional value attached to the service, such as the level of discomfort users would experience if access were lost.

Q1. Overall, in the last 12 months/[REFERENCE AGRICULTURAL YEAR], has your household's farming experience been better, the same, or worse because of the information received via mobile phone or through the digitally equipped agent? This question asks respondents to reflect on whether their household's farming experience over the past 12 months (or the specified reference agricultural year) has improved, remained the same, or worsened as a result of information received digitally. The term *experience* should be understood broadly, as defined by the respondent. For example, a household might report a better experience because digital information helped them anticipate weather changes, make more informed input decisions, or address challenges more effectively than before. Enumerators should avoid narrowing the meaning and instead allow respondents to interpret *farming experience* in their own terms.

Q2. Thinking about the information and advice your household needed for their farm or livestock activities in the last 12 months/[REFERENCE AGRICULTURAL YEAR], did the information received via mobile phone or through the digitally equipped agent meet none, some, most, or all your household's needs? This question asks whether the digital information and advice received met the household's farming or livestock needs over the last 12 months (or reference agricultural year). The focus is on the extent to which their needs were

fully covered versus whether something important was missing. *All* means the information they received fully addressed their needs. *Most* means it covered the majority of their needs but left some gaps. *Some* means only part of their needs were met, and *none* means the information did not meet their needs at all. Enumerators should emphasize that the question is about the respondent's own perception of sufficiency, not about whether the information was objectively correct.

Q3. On a scale of 0 to 10, where 0 is not at all likely and 10 is extremely likely, how likely are you to recommend to a friend, family member or other farmers the mobile phone-based information provider or the digitally equipped agent for information on farming activities? This question measures how likely the respondent is to recommend the digital information provider (via mobile phone or digitally equipped agent) to others. It uses a 0–10 scale, where 0 means not at all likely and 10 means extremely likely. Make sure respondents clearly understand the full range of the scale. You can use examples if helpful, e.g. "*If you would strongly recommend the service to another farmer, choose 9 or 10*" or "*If you would definitely not recommend it, choose 0*". You can explain that this score is used to calculate a measure which helps understand overall user satisfaction and loyalty with the service received. Note that, occasionally, some respondents may choose 0 not because they dislike the service, but because they value it highly and do not want to share it with others. Be aware of this possibility and record their response as given. In some settings, a qualitative follow-up could help clarify, but this is not included in this survey.

Q4. In the last 12 months/[REFERENCE AGRICULTURAL YEAR], how often did your household receive the information via mobile phone or through the digitally equipped agent exactly when they needed it? Clarify 'when needed' as being relevant to the timing of decisions (e.g., planting, input use). Ask the respondent to think about whether the advice was received early enough to be useful.

Q5. In the last 12 months/[REFERENCE AGRICULTURAL YEAR], how easy or difficult was it for your household to receive the information via mobile phone or through the digitally equipped agent? Respondents should be encouraged to reflect on both technical and personal aspects that influenced their experience. Facilitating factors may include having a strong and stable mobile network, owning a mobile phone (either a basic feature phone or a smartphone), being familiar with using SMS or mobile applications, and having access to affordable data or airtime. On the other hand, challenges can include poor or inconsistent network coverage, slow or unavailable internet connections, difficulty understanding the content due to technical language or complex interfaces and receiving messages too late to be useful.

Q6. Would you say the information received via mobile phone or through the digitally equipped agent was very trustworthy, slightly trustworthy, neither trustworthy nor

untrustworthy, slightly untrustworthy, very untrustworthy? If unclear, explain 'trustworthy' as meaning the respondent had confidence in the accuracy and usefulness of the information.

Q7. In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household experience any challenges in receiving the information via mobile phone or through the digitally equipped agent? If YES, go to Q8. If NO, skip to Q9. Be sure the respondent understands that 'challenges' may include technical problems, language barriers, unclear messages, or high costs.

Q9. In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household pay for the information received via mobile phone or through the digitally equipped agent? Include both direct payments (e.g., subscription) and indirect costs (e.g., airtime, data charges).

Q10. Do you think the price charged was too expensive, moderately expensive, fair, affordable, very affordable? This question is asked only if Q9 is YES. Do not interpret the price for them, record their perception as is.

Q11. Has using the information received via mobile phone or through the digitally equipped agent in the last 12 months/[REFERENCE AGRICULTURAL YEAR] made you feel more or less comfortable with using digital information tools for farming? Explain 'comfort' refers to confidence or ease in using digital tools like phones, apps, or SMS for agriculture.

Module C: Other Digital Farmer Services

This module broadens the scope to examine how households engage with digital tools across four additional core agricultural services: inputs and equipment, market access, credit, and insurance. For each of these services, the module collects information on whether digital channels are used, the mode of access (whether directly by the household or with assistance), and the types of activities supported and how they are delivered (e.g., via phone calls, SMS, or mobile apps). The primary aim is to uncover patterns of digital usage across different service areas and identify gaps in access and adoption.

Q1, Q4, Q8, and Q12. These questions aim to determine whether the household accessed specific agricultural services using digital tools during the past 12 months. Each question corresponds to a different service area: Q1 covers inputs and equipment, Q4 relates to market access, Q8 addresses insurance, and Q12 focuses on credit.

Q2, Q5, and Q9. Read options slowly and allow multiple answers. For question 9, some respondents may need examples, like signing up for a policy, getting updates, or filing a claim

Q11. In the last 12 months/[REFERENCE AGRICULTURAL YEAR], did your household have any outstanding credit for your farming activities? This question seeks to determine whether the household had any unpaid or ongoing credit (debt) specifically related to farming activities

during the reference period. Explain 'outstanding credit' means the household still owed money, for example, they had taken a loan and had not yet fully repaid it.