



EUROPEAN COMMISSION

JOINT RESEARCH CENTRE

Directorate D - Sustainable Resources (Seville/ISPRA)

Economics of the Food System (JRC.D.4)

European Commission

Call for tenders JRC/SVQ/2023/OP/1829 - Survey-based study on the state of play of Digitalisation in EU agriculture

Open procedure

TENDER SPECIFICATIONS Part 2: Technical specifications

Index

1	BACKGROUND AND RATIONALE	3
	The Directorate and the Unit.....	3
	Policy background.....	3
	Research context	3
2	AIM AND OBJECTIVES OF THIS CONTRACT	4
3	APPROACH.....	4
4	TASKS	5
	Task 1: Sample design description.....	5
	Task 2: Translation of the questionnaire	6
	Task 3: Conducting and pre-testing of the questionnaire.....	6
	Task 4: Conducting pilot survey	7
	Task 5: Conducting the final survey	7
	Task 6: Encoding and delivering survey data	8
	Task 7: Description of the survey design and summary results	8
5	DELIVERABLES	8
6	COORDINATION AND MEETINGS.....	9
	Kick-off meeting	9
	Interim meeting	9
	Final meeting.....	9
	Ad-hoc/follow-up meetings	9
7	CALENDAR OF DELIVERABLES AND MEETINGS.....	10
8	QUALITY ASSURANCE	10
9	DURATION.....	11
10	LANGUAGE	11
11	CONTENT, STRUCTURE AND GRAPHIC REQUIREMENTS OF THE FINAL DELIVERABLE.....	11
12	REFERENCES.....	11
	ANNEX 1.....	12

1 BACKGROUND AND RATIONALE

The Directorate and the Unit

The **Directorate Sustainable Resources (JRC.D)**, based in Seville (Spain) and Ispra (Italy), is part of the Directorate General **Joint Research Centre (JRC)**, the European Commission's science and knowledge service, whose mission is to provide independent scientific evidence to support the development, implementation, evaluation and coherence of EU policies, mainly in the areas of agriculture and rural development, international development cooperation, environment and climate change, blue growth and fisheries, the bioeconomy, industry and trade.

The **Economics of the Food System Unit (JRC.D4)** mission is to provide socioeconomic-environmental scientific support to EU policymakers in assessing the development of the agri-food sector and the transition to sustainable food systems, including rural development, the circular economy, food security, trade and technological innovation in the EU and globally, with a special focus on Africa. The Unit focuses on the environmental, social and economic aspects related to the uptake of technologies in agriculture for climate change mitigation and adaptation, and for productivity in relation to the European Green Deal. This support is provided with advanced economic modelling tools, statistical methods, easy data access, international scientific partnerships and capacity building.

Policy background

Digitalisation is an inherent part of the cross-cutting objective of modernisation, integrated across all CAP 2023-2027 objectives. Further deploying digitalisation technologies has the potential to contribute to strengthen the competitiveness and improve the environmental and socio-economic performance of agriculture and rural communities in the EU. In this context, Member States (MS) had to elaborate digital strategies for agriculture and rural areas in their CAP Plans in order to create an environment enabling farmers and rural communities to take up and effectively deploy digital technologies in a strategic way. However, there is currently no established baseline on the degree of digitalisation of the agricultural sector, and therefore no way to measure the progress of digitalisation at EU level. The fact that there is hardly any reference data for drawing a baseline for the CAP is also because there is no dedicated context or impact indicator for digitalisation in agriculture. The absence of baseline makes it difficult to determine whether digitalisation efforts are achieving their intended goals or making a meaningful impact. This is even more important as digitalisation is an important enabler to achieve sustainability goals at all levels.

Hence, gathering primary data on key indicators on digitalisation is the necessary condition for understanding the current state of digitalisation in agriculture in the EU and to use this information to set targets and measure progress towards achieving EU objectives in line with the European Green Deal and a Europe fit for the digital age.

Research context

Over the recent years, JRC has initiated a number of research activities related to the economic analysis of the agricultural sector in the EU and selected non-EU countries and their associated agricultural policies. More specifically, the economic analysis includes the analysis of agricultural policies, farming systems (e.g. income evolution, structural change), agricultural commodity markets, food chains, rural development and international trade.

The JRC is launching this contract with the aim to collect primary data through a survey to contribute to the assessment of the state of play of the digitalization in EU agriculture. Measuring the progress of digitalization of the agricultural sector requires an established baseline on the degree of digitalisation of the sector in the EU. This present contract will gather data on key indicators on digitalisation as to assess the current state of digitalisation in agriculture in the EU. The use of this information will be key to set targets and measure progress towards achieving EU objectives in line with the European Green Deal and a Europe fit for the digital age.

2 AIM AND OBJECTIVES OF THIS CONTRACT

This contract aims to collect primary data through surveys to contribute to the assessment of the state of play of digitalization in the EU agriculture. For this, the Commission will draw a first version of the questionnaire on digitalisation in the agricultural sector. The survey will cover technologies such as precision farming, real time applications, terrestrial and aerial drones, tools on prices, sensors, artificial intelligence, blockchain, satellite imagery, big data and analytics, agricultural decision support systems, etc. Further, the survey must investigate (i) the use of digital technologies and services on the farm, the scope of their use and its implications for sustainability and resilience, (ii) bottlenecks and drivers for the adoption of digitalization, by investigating financial support (i.e. investments, credits) and support services (such as advisors), infrastructure, skills and digital and data governance aspects, as well as (iii) the propensity of EU farmers to pursue investments in digitalization in the future. The target population of the survey will be EU farmers. The survey must be done through face-to-face interviews and other methods (telephone, virtual meeting, videoconference) in at least six Member States.

For this, the contractor must:

- First, define the sample and a strategy to identify and contact the potential respondents to be included in the interviews.
- Second, conduct pre-testing of the questionnaire. The contractor shall pre-test the questionnaire on at least 3 respondents in at least 5 of the selected countries. The contractor may decide to use focus groups as an alternative to pre-testing.
- Third, the contractor must conduct a pilot survey on at least 5% of the total sample of respondents in at least 6 of the selected countries.
- Fourth, conduct the final survey on 95% of the total sample of respondents with the questionnaire amended after the pre-test and pilot survey.

3 APPROACH

In order to fulfil the objectives of this contract, the contractor is required to collect data on the adoption of digitalization technologies through face-to-face interviews and other methods (telephone, virtual meeting, videoconference). The total duration of each interview will be around 45 minutes.

The target population of the questionnaires are farmers in the EU. The survey must be conducted **in at least 6 Member States of the European Union** covering all EU regions (i.e. Eastern Europe, Northern Europe, Southern Europe, Western Europe)¹ and different farm specializations (e.g. livestock, permanent, crop and mixed productions). The contractor must propose a sampling strategy that ensures, as much as possible, a representative sample of the different farm specializations and regional diversity². The contractor must also ensure, as much as possible, a representative sample at country level for different farm sizes considering a classification with at least the following three farm sizes: small, medium and large farms. Farm size could be measured according to either area and livestock units, income, output value or sale volume.

The questionnaire will be developed by the European Commission in English (see draft questionnaire in Annex 1). The contractor will translate the questionnaire to the national languages of the selected countries and amend it based on the pre-testing, pilot surveys and an expert opinion. The final set of questions must be agreed with the European Commission (JRC).

The questionnaire will be conducted combining **face-to-face surveys and other survey methods** (telephone, virtual meeting, videoconference). The interviews will consist of face-to-face interviews and telephone/video/virtual meeting interviews, ensuring that no more than 40% of the surveys per country are conducted by telephone/video/virtual interviews. The contractor shall provide regular updates to the European Commission during the data collection.

The target number of respondents is **at least 1300**, including the pilot survey. **For the purpose of this contract, a respondent is defined as a surveyed respondent who has provided a fully answered questionnaire.**

For the purpose of this project, the contractor must respect the applicable data protection rules. The contracting authority will provide the contractor with the standard European Commission privacy statement that shall be made visible to interviewees/respondents.

4 TASKS

The contractor must perform the following tasks during the implementation of the contract.

Task 1: Sample design description

This task requires the contractor to carry out a sampling design as described in Section 3-Approach. This task involves:

- Providing a description of the sampling strategy used to compose the sample of EU farmers aimed at ensuring a final (surveyed) sample of at least 1300 farmers.
- Composing a list of potential farmers in the different regions that ensures a representativeness of all the EU farming system, also including a reserve list taking into account a refusal rate (generally 10%).
- Defining a strategy to identify and contact farms for the survey, including as well, additional outreach activities in case of low acceptance rate.

¹ For classification and definition of regions see: <https://esa.un.org/MigFlows/Definition%20of%20regions.pdf>

² See for example: <https://publications.jrc.ec.europa.eu/repository/handle/JRC90441>

Concerning the sample of farmers, the contractor must design a stratified random sample that ensures that the data provides a good overview of the EU farming systems. The stratified sampling must be done at three levels:

- i) at least 6 countries covering several regions in the country to reflect diverse agro-climatic conditions and farm structures (i.e. size, income or standardized output),
- ii) ensuring that all EU regions (i.e. Eastern Europe, Northern Europe, Southern Europe, Western Europe)³ are represented, and
- iii) covering the main farm specializations in the EU.

Within the defined stratum of the sample, the contractor will apply a random sampling of the farmers based on another method. The sampling strategy must target an approximately equal number of surveyed farmers by country, with also an equal number of farm sizes and farm specializations within the countries, thus aiming for a similar number of questionnaires per stratum.⁴

The contractor will detail the methodology proposed to carry out the identification of the farmers on each of the defined strata of the sample and the outreach strategy to contact and conduct the interviews of the farmers. The contractor will also provide an assessment of the representativeness of the final sample in the context of the European Union farming sector.

Task 2: Translation of the questionnaire

The contractor will provide a translation of the questionnaires in each of the national languages of the proposed countries included in the study. The contractor will ensure that the questionnaires are translated in a way that the questions gather the same information regardless of the language. The contractor will amend the questionnaire in accordance with the comments received by the European Commission.

Task 3: Conducting and pre-testing of the questionnaire

The contractor must perform a pre-testing of the question as follows:

- a) A pre-testing of the questionnaire on at least 3 respondents in at least 5 of the selected countries.
- b) Based on the pre-testing results, the contractor should improve the questionnaire elaborated by the European Commission in order to maximise the accuracy and unbiasedness of the collected data. In particular, revisions should concern the order and structure of the questions, but also that respondents identify and comprehend the identified digitalization technologies, their connection to sustainability and to the drivers and barriers of their adoption. The pre-test should also identify potential gaps in the questionnaire related to digitalization technologies in agriculture.

The contractor may decide to use focus groups as an alternative to pre-testing. The focus group should aim to obtain in-depth understanding of respondents' comprehension about digitalization technologies, their connection to sustainability, to the drivers and barriers of their adoption. The focus groups shall also aim to identify potential gaps in the questionnaire related to

³ For classification and definition of regions see: <https://esa.un.org/MigFlows/Definition%20of%20regions.pdf>

⁴ See for example: <https://publications.jrc.ec.europa.eu/repository/handle/JRC90441>

digitalization technologies in the agricultural sector. The results from the focus group should be used to improve the questionnaire. The focus groups should be done in at least 3 of the selected countries covering different EU regions.

A representative of the European Commission may join the pre-testing or focus groups.

The changes of the questionnaire shall be agreed with the European Commission.

Task 4: Conducting pilot survey

The contractor must perform a pilot survey as follows:

- a) A pilot survey on at least 5% of the total sample of respondents from at least 6 countries to test the questionnaire
- b) Based on the pilot survey results the contractor should improve the pre-tested questionnaire in order to maximise the accuracy and unbiasedness of the collected data. In particular, revisions should serve to fine-tune the design for the final survey, also improving the wording in each language and format of the questions. The final version of the questionnaire shall be agreed with the European Commission.
- c) Encode the gathered pilot data in Excel files or other relevant statistical software.
- d) Provide data to the European Commission in order to evaluate the quality of the responses.

A representative of the European Commission may join the interviewer during the pilot survey.

The Contractor must translate the final English version of the questionnaire into national languages of the surveyed countries and align it with the local vocabulary.

Implementation of the questionnaire to CAPI (Computer Assisted Personal Interview) software (or similar) is highly recommended, in order to use it on portable devices during the pilot and final surveys.

Task 5: Conducting the final survey

Under this task, the contractor shall implement the final survey with the questionnaire agreed with the European Commission. As detailed in the Section 3-Approach, the interviews must be conducted in at least 6 Member States. The contractor must implement the survey according to the sample strategy designed in Task 1.

To conduct the survey, the contractor must use the questionnaire provided by the European Commission, amended with the inputs of tasks 4 and 5. The interviews shall be conducted in the national languages. The interviews will be conducted mainly face-to-face, allowing up to 40% of the questionnaires per country to be conducted by telephone/video/virtual call. The use of telephone/video/virtual call may be used by the contractor to facilitate the outreach of less accessible farmers. The total duration of the questionnaire by an average respondent will be around 45 minutes.

The contractor will also set up a system of regular checks and milestones for the questionnaires to ensure that low participation rates and delays can be identified and, when needed, additional

efforts can be allocated to additional outreach activities. The contractor will share the status of the conducted interviews in the regular meetings with the European Commission.

Task 6: Encoding and delivering survey data

The contractor will encode all the primary data in structured dataset. The contractor is responsible to encode the data from the pilot surveys and final surveys according to the following formats: excel (.xls or .xlsx) or equivalent and STATA (.dta) or equivalent.

Regarding the encoding criteria, the data provided to the European Commission must be raw data, i.e. data must include all the information from every single farmer, in an anonymous form. The data should be structured by questions included in the questionnaire and by respondent. The final structure of the dataset shall be agreed with European Commission. All information must be encoded in English.

Task 7: Description of the survey design and summary results

Under this task, the contractor must provide a description of the summary results from the survey. The contractor must also provide a document with detailed methodology (survey design, final sample, implementation of interviews), including an assessment of the quality of the final sample surveyed and collected data.

5 DELIVERABLES

The contractor must provide the following deliverables:

- **D1: Sample design description**, as described in Task 1. A written report provided both in pdf and word format containing the methodology used for the sample design, description of the sample and its representativeness, as described in Task 1.
- **D2: Data files from the pilot surveys** (including the code developed for data processing) as described in Task 4.
- **D3: Translated versions of the final questionnaires**, as described in Task 2, including the amendments from task 3 and 4.
- **D4: Final study report**, consisting of the following:
 - *Description of the methodology used for the sample design and interviews*, particularly based on the work done in Tasks 1, 3, 4, 5 and 7. The report must include at least the definition and justification of the selected countries and regions, the amendments to the questionnaire etc. It must also include at least the definition of the target populations, the sampling applied, the strategy to identify and contact the potential respondents, the actions taken to improve the questionnaire based on the pilot survey results, respondents' response rate.
 - *Final version of the questionnaire* used in the final survey in English and the translations to the national languages selected in the sample.
 - *Data/information from the survey as specified in Task 6.*
 - *Description of summary results as detailed in Task 7.*

European Commission will have 20 calendar days to review the deliverables and send its comments to the contractor.

The contractor will then have 20 calendar days for providing the final version of all the deliverables.

6 COORDINATION AND MEETINGS

The contractor must carry out the service in close co-ordination with the relevant Commission staff. In total three meetings will be organized: a kick-off meeting, an interim meeting and a final meeting. Additionally, regular ad-hoc/follow-up meetings should be organised.

The meetings will be organised in the frame of this contract as follows.

Kick-off meeting

The contractor must organise a half-day meeting by videoconference or online platform to present the detailed work plan, including the research questions to be answered. The meeting will aim at refining the scope of the work, agreeing on the research questions and discussing the overall approach and work plan.

The meeting shall take place within one month from the official start date of the contract.

The contractor will prepare minutes of the meeting reflecting the main agreements reached during the meeting. The minutes will be shared with the Commission for comments and approval no later than two weeks after the meeting. The Commission will have two weeks to provide comments to the minutes.

Interim meeting

The half-day interim meeting will be held during the 4th month after the signature of the contract. During this meeting, deliverables 1, 2, 3 and 4 will be discussed, as well as the technical details for performing Tasks 4 - 7 and improving Tasks 1, 2 and 3. The meeting will take place by videoconference, online or in person in Seville. In the case the meeting is in person, the costs for attending the meeting must be included in the final price indicated in the contract. The costs related to the organization of the meeting in Seville will be borne by the Commission.

Final meeting

A half-day final meeting will be held by videoconference or online before the end of the 7th month after the signature of the contract. During this meeting results of all Tasks will be discussed.

Ad-hoc/follow-up meetings

In addition to the above-mentioned meetings, ad-hoc/follow-up meetings will take place between the contractor and the European Commission through telephone calls / virtual calls / videoconferences. The meetings will be scheduled every three-weeks following the kick-off meeting. Unless particular issues have to be discussed thoroughly, the duration of the calls will

normally be under 1 hour. If during these calls issues requiring more in-depth discussion are identified, follow-up meetings will be scheduled. The duration of these ad-hoc follow-up meetings will depend on the nature of the topic(s) to be discussed. The contractor is responsible for sending out the meeting invitations and keep record of the main agreements reached during the follow-up meetings (drafting of minutes).

The working language at all of these meetings will be English.

7 CALENDAR OF DELIVERABLES AND MEETINGS

The activities will be carried out over a duration of maximum 7 months from the signature of the contract. The following summary table reports the tentative time schedule for the different activities and deliverables.

Deliverables (D) /Meetings (M)	Title	Months
M1	Kick-off meeting: Presentation of the detailed work plan	T0* + 1
M1	Kick-off meeting minutes approved by the Commission	T0 + 1.5
D1	Sample design description (Task 1)	T0 + 2
D2	Data files from the pilot surveys (<i>Task 5</i>)	T0 + 4
D3	Translated versions of the final questionnaires (<i>Task 2, amended after Task 5</i>)	T0 + 4
M2	Interim meeting	T0 + 4
M2	Interim meeting minutes approved by the Commission	T0 + 4.5
M3	Final meeting	T0 + 7
D4	Final study report	T0 + 7

*T0 corresponds to the date on which the last party signs the contract.

8 QUALITY ASSURANCE

The contractor must establish robust means to ensure the reliability, validity and comparability of the information collected as well as the quality of its analysis and of its reporting, including a full and standard referencing of the sources used.

In particular, the senior researcher nominated by the contractor in its offer will be in charge of the scientific quality assurance tasks.

Before final acceptance, all reports will be completed, adapted and corrected by the contractor who will fully take into account the comments, suggestions and additional written comments provided by the Commission.

9 DURATION

The performance of the tasks cannot start before the date on which the last party signs the contract, and should be finalised in a **maximum of 7 months**, including the time for the European Commission to comment the interim deliverables and the contractor to implement the suggested amendments.

The time needed for possible comments and amendments to the final deliverable (D5) would be added to the total duration of the contract.

10 LANGUAGE

The language of all deliverables, meetings, presentations, and exchanges will be English. The final questionnaires required in deliverable D3 must be also translated in national languages of the surveyed countries.

It is expected that the written text in the deliverables is of high standard scientific language, ideas are expressed in a clear and logically structured way. The text of all deliverables will be strictly assessed according to these criteria in the review process.

11 CONTENT, STRUCTURE AND GRAPHIC REQUIREMENTS OF THE FINAL DELIVERABLE

The final study report (D4) must follow the content, structure and graphic requirements agreed at the Interim meeting.

12 REFERENCES

ANNEX 1

Screening question (Pre-survey screening questions to check the farmers eligibility*)

* To be noted that whenever the contractor has already a list of eligible farms from which to select, the pre-survey will not be unfolded

To be added screening questions according to the criteria of the sampling: Farming specialization, region, ...

QUESTIONNAIRE

Introduction

Questionnaire to European farmers about digital technologies adoption in agriculture.

The European Commission's Joint Research Centre has launched this study, on collaboration with _____, to contribute to a better understanding of the current state of digitalisation in the EU agriculture. This information will contribute to set targets and measure progress towards achieving EU objectives in line with the European Green Deal and a Europe fit for the digital age.

This survey is addressed to farmers, who are invited to reply to a set of questions and share their opinion in respect to the adoption of digital technologies in their farms. The results of the survey will contribute to the assessment of the state of play of digital in the EU agriculture. The survey covers digital technologies such as precision farming, real time applications, terrestrial and aerial drones, tools on prices, sensors, artificial intelligence, blockchain, satellite imagery, big data and analytics, agricultural decision support systems, etc.

The questionnaire takes about 30 minutes to complete.

We thank you in advance for your valuable contributions.

Please note that, all individual responses will be treated confidentially and will only be used to produce an analytical summary of the aggregated responses that may be made public by the European Commission services.

General aspects about the main farmer

1. Please select the legal status that better describes the farm
 - Individual/ Family farm (the sole holder of an independent holding)
 - Limited company (a legal entity)
 - Cooperative farm/ group holding
 - Other (please specify)

2. How is the ownership of the land where the farm is located
 - Fully owned
 - Mainly owned (more than 50%)
 - Mainly leased (more than 50%)
 - Fully leased

3. Is farming the full-time activity of the responsible of the farm?
 - Full-time farmer
 - Part-time farmer

4. Gender of the head of the farm
 - Male
 - Female
 - Other

5. What is the age of the head of the farm?

6. What is the highest level of education of the head of the farm have achieved?
 - Elementary or lower secondary school
 - High school or vocational school
 - Post-secondary non-tertiary education (professionalizing master)
 - University degree
 - PhD
 - None

7. Did the head of the farm receive any professional or university education in agriculture?
(Training not included)

8. When did the head of the farm start working on the farm?
(Record the year)

9. When do you intend to stop farming?
 - In 1 to 5 years
 - In 6 to 10 years
 - In more than 10 years
 - Don't know yet

10. Do you expect to have a successor to the ownership/control of your farm?
 - Yes, to a family member
 - Yes, it will be sold or rented-out
 - Yes, other
 - No
 - Don't know
 - Not applicable

About Farm activities

11. What percentage, if any, of your total production system is conducted with organic certification? (Record % if none please insert 0%)
12. What is the percentage of your sales directly to consumers? (Record % sold directly to consumers)
13. What is the total size of the farm (ha)?
14. How many people, including the head of the farm, usually work on farm? (Please provide a number)

	Full time	Part-time
Employees (hired labour) (other than family members)		
Family members with remuneration		
Family members without remuneration		

15. What category describes better your average turnover of the farm?

- <2 000 EUR/year
- 2 000-8 000 EUR/year
- 8 000-25 000 EUR/year
- 25 000-50 000 EUR/year
- 50 000-100 000 EUR/year
- 100 000-500 000 EUR/year
- >500 000 EUR/year

16. Thinking about the arable crops that you usually grow on your farm, what was the average total number of hectare per year over the last 4 campaigns (2019-2023)?

What was the average turnover that you obtained per crop over the last 4 campaigns (2019-2023)?

Arable crops	Area grown (ha)	% of turnover income
Barley winter		
Barley spring		
Hard Wheat		
Soft wheat		
Triticale		
Rye		
Oats		
Oil seed rape		
Maize		
Sorghum		
Sunflower		

Arable crops	Area (ha)	grown	% turnover of income
Soybean			
Tomatoes			
Cauliflower			
Cucumber			
Lamb lettuce			
Lettuce			
Leek			
Cabbage			
Carrot			
Peas			
Onion			
Potatoes			
Sugar beet			
Tobacco			
Other specify			

17. Thinking about the orchards (permanent crops) that you usually grow on your farm, what was the average area of orchards per year over the last 4 campaigns (2019-2023)?

What was the average turnover that you obtained per orchard group over the last 4 campaigns (2019-2023)?

Fruit crops	Area (ha)	grown	% turnover of
Apples			
Pears			
Peaches			
Plums			
Citrus fruit			
Berries			
Cherries			
Grapes			
Olives			
Other specify			

18. Thinking about the animals that you usually have on your farm, what was the average total number of animals per year over the last 4 campaigns (2019-2023)?

What was the average turnover that you obtained per group over the last 4 campaigns (2019-2023)?

Livestock	Number of animals	% of turnover
Dairy animals		
Dairy cows		
Goats		
Sheep		
Other dairy animals		
No dairy animals		
Equines		
Calves for fattening		
Other cattle < 1 year		
Male cattle 1-2< years		
Female cattle 1-2< years		
Male cattle >= 2 years		
Breeding heifers		
Heifers for fattening		
Cull dairy cows		
Other cows		
Goats, breeding females		
Other goats		
Ewes		
Other sheep		
Piglets		
Breeding sows		
Pigs for fattening		
Other pigs		
Table chickens		
Laying hens		
Other poultry		
Beehives (number of hive bodies)		
Other, please specify _____		
No animals		

About online activity of the farmer

19. Which kind of devices do the farmer own? [More than one response allowed]

- Computer/Laptop
- Tablet
- Smartphone

20. [Interviewer will measure broadband speed of the site of the interview] (if farmer is online, provide a link to tests speed, if on telephone to be asked about broadband speed installed)

21. How will you classify the internet coverage at the farm

- Good
- Sufficient
- Deficient
- Very poor

22. How often do you connect online?

- Several times a day
- Once a day
- 2 or 3 times a week
- Once a week
- Less often

23. Regarding the use of online and social media activity related to farming...

e-commerce, e-advisory and other	Never	Rarely	Often/ frequently	Very often
a) Do you regularly communicate with suppliers/buyers/customers using email and instant messaging (e.g. WhatsApp, Viber, ...)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Do you sell products online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Do you buy inputs (seeds, fertilisers...) for your farm online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Do you regularly post videos/photos/messages on your social media related to your agricultural activity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Do you engage on online agricultural trainings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Do you use online platforms (e.g. LinkedIn, Facebook groups, ...) to engage with agricultural professional networks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Do you browse online for information about how to improve your farming practices?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Do you get/interact with farming advice services online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Do you use mobile apps that help you on farming?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Other, specify _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. Have followed training on digital issues in last 5 years?

- Yes
- No
- Do not know

25. Have you reached out to the advisory services for digital issues in the last 5 years?

- Yes
- No
- Do not know

About digital technology adoption at farm level

26. Which type of digital technologies have been adopted in the farm you represent? Please, indicate the year of adoption and whether you received any kind of financial support for it.

*Definitions of the technologies to be added

Digital technology	Adopted?	Year of adoption	How did you finance it?					How expensive it is? - Not expensive at all - Affordable - Expensive - Very expensive - Do not know
			Own financial resources	External financing (e.g. bank credit, tech. provider credit)	Leasing or renting	Subsidies/public support (e.g. CAP support) - specify if known	Other (e.g. collaborative scheme)	
Forecast models & apps (weather, pests)	<input type="checkbox"/>							
Communication and trading platforms	<input type="checkbox"/>							
Accounting platforms	<input type="checkbox"/>							
Decision support platforms	<input type="checkbox"/>							
Crop farming								
Digital field records	<input type="checkbox"/>							
Automatic steering systems	<input type="checkbox"/>							
Farm management information system (Software to process satellite, remote sensing)	<input type="checkbox"/>							
Maps from satellite data	<input type="checkbox"/>							
Yield mapping	<input type="checkbox"/>							
Georeferenced soil sampling	<input type="checkbox"/>							
Soil sensors (temperature, humidity, nutrients ...)	<input type="checkbox"/>							
Fully automatic field robotics (hoeing units, weeder, ...)	<input type="checkbox"/>							
Drones	<input type="checkbox"/>							
Telemetry	<input type="checkbox"/>							
Connected weather station	<input type="checkbox"/>							
Tractors with GPS	<input type="checkbox"/>							
Section control (sprayer, spreader planter)	<input type="checkbox"/>							
Light bar guidance systems	<input type="checkbox"/>							
Variable rate plant production	<input type="checkbox"/>							
Variable rate fertilizer	<input type="checkbox"/>							
Variable rate seeding	<input type="checkbox"/>							
Connected insect traps	<input type="checkbox"/>							
Field cameras	<input type="checkbox"/>							
Augmented reality technologies (headsets,	<input type="checkbox"/>							

Digital technology	Adopted?	Year of adoption	How did you finance it?					How expensive it is?
			Own financial resources	External financing (e.g. bank credit, tech. provider credit)	Leasing or renting	Subsidies/public support (e.g. CAP support) - specify if known	Other (e.g. collaborative scheme)	
eyeglasses, goggles)								
Livestock farming								
Barn cameras	<input type="checkbox"/>							
Farm management information system – animal husbandry (Software)	<input type="checkbox"/>							
Digital livestock records	<input type="checkbox"/>							
Behaviour monitoring sensors	<input type="checkbox"/>							
Collars	<input type="checkbox"/>							
Automatic milking system	<input type="checkbox"/>							
Robotic slat clearer	<input type="checkbox"/>							
Robotic feed pusher	<input type="checkbox"/>							

27. Which type of digital technologies are you considering to adopt in the farm in the next 5 years?

Digital technology	Indicate if you plan to adopt	How do you plan to finance it?					How expensive do you think it will be?	
		Own financial resources	External financing (e.g. bank credit, tech. provider credit...)	Leasing or renting	Subsidies/support	Other (e.g. collaborative scheme)		
Forecast models & apps (weather, pests)	<input type="checkbox"/>							
Communication and trading platforms	<input type="checkbox"/>							
Accounting platforms	<input type="checkbox"/>							
Decision support platforms	<input type="checkbox"/>							
Crop farming								
Digital field records	<input type="checkbox"/>							
Automatic steering systems	<input type="checkbox"/>							
Farm management information system (Software to process satellite, remote sensing)	<input type="checkbox"/>							
Maps from satellite data	<input type="checkbox"/>							
Yield mapping	<input type="checkbox"/>							
Georeferenced soil sampling	<input type="checkbox"/>							
Soil sensors (temperature, humidity, nutrients ...)	<input type="checkbox"/>							
Fully automatic field robotics (hoeing units, weeder, ...)	<input type="checkbox"/>							
Drones	<input type="checkbox"/>							

Digital technology	Indicate if you plan to adopt	How do you plan to finance it?					How expensive do you think it will be? - Not expensive at all - Affordable - Expensive - Very expensive - Do not know
		Own financial resources	External financing (e.g. bank credit, tech. provider credit...)	Leasing or renting	Subsidies/ support	Other (e.g. collaborative scheme)	
Telemetry	<input type="checkbox"/>						
Connected weather station	<input type="checkbox"/>						
Tractors with GPS	<input type="checkbox"/>						
Section control (sprayer, spreader planter)	<input type="checkbox"/>						
Light bar guidance systems	<input type="checkbox"/>						
Variable rate plant production	<input type="checkbox"/>						
Variable rate fertilizer	<input type="checkbox"/>						
Variable rate seeding	<input type="checkbox"/>						
Connected insect traps	<input type="checkbox"/>						
Field cameras	<input type="checkbox"/>						
Augmented reality technologies (headsets, eyeglasses, goggles)	<input type="checkbox"/>						
Livestock farming							
Barn cameras	<input type="checkbox"/>						
Digital livestock records	<input type="checkbox"/>						
Farm management information system – animal husbandry (Software)	<input type="checkbox"/>						
Behaviour monitoring sensors	<input type="checkbox"/>						
Collars	<input type="checkbox"/>						
Automatic milking system	<input type="checkbox"/>						
Robotic slat clearer	<input type="checkbox"/>						
Robotic feed pusher	<input type="checkbox"/>						

About drivers and barriers for digital technologies adoption

28. Which are the main barriers that the farm you represent has faced in adopting digital technologies?

(Order of appearance to be randomised by respondent)

	Select maximum 5
Lack of knowledge on available digital technologies for farm application	<input type="checkbox"/>
Lack of IT know-how	<input type="checkbox"/>
Lack of interest in digital technologies	<input type="checkbox"/>
Lack of access to technology / service providers	<input type="checkbox"/>
High cost of the technologies	<input type="checkbox"/>
Low benefits of the technologies for my farm	<input type="checkbox"/>
Lack of internal financial resources	<input type="checkbox"/>
Lack of access to external finances (e.g. bank credit)	<input type="checkbox"/>

Lack of government support	<input type="checkbox"/>
Questionable profitability of digital technologies	<input type="checkbox"/>
Lack of internet connectivity in rural areas	<input type="checkbox"/>
Lack of use in my area	<input type="checkbox"/>
Concerns on Data privacy	<input type="checkbox"/>
Concerns on Data ownership (sovereignty)	<input type="checkbox"/>
Lack of trust in technology / service providers	<input type="checkbox"/>
Technical susceptibility to errors of the technologies	<input type="checkbox"/>
Others (please specify)	<input type="checkbox"/>
Don` t know	<input type="checkbox"/>

29. Please rank the previous selected barriers in order of importance
 [Respondent gets the list of the previous selected barriers and ranks in order of importance]

30. In your opinion, what are the main drivers/reasons for the adoption of digital technologies on the farm?

	Select maximum 5
Meet regulatory or legislative changes (EU or national)	<input type="checkbox"/>
Meet new market demand (i.e. changes in consumer preferences)	<input type="checkbox"/>
Respond to pressure from competitors	<input type="checkbox"/>
Respond to pressure from buyers	<input type="checkbox"/>
Develop new growth opportunities	<input type="checkbox"/>
Improved management of sustainability	<input type="checkbox"/>
Personal managers/owners motivation to move towards digital	<input type="checkbox"/>
Increasing traceability demands and requirements	<input type="checkbox"/>
Reduce costs	<input type="checkbox"/>
Increase added value of my products/activities	<input type="checkbox"/>
Improve lifestyle of the farmer (be healthier, less tired, less stressed)	<input type="checkbox"/>
Save time of the farmer	<input type="checkbox"/>
Better manage risks (climate, building safety, accident)	<input type="checkbox"/>
Enable better product traceability	<input type="checkbox"/>
Improved management of farm based on data	<input type="checkbox"/>
Widely spread in the area (neighbors)	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>
Don` t know	<input type="checkbox"/>

31. Please rank the previous selected drivers in order of importance
 [Respondent gets the list of the previous selected drivers and ranks in order of importance]

32. In your opinion, which groups have the greatest influence on the adoption of digital technologies in the farm you represent?

	Select maximum 3
Owner	<input type="checkbox"/>
Consumers/customers	<input type="checkbox"/>
Suppliers and trading partners	<input type="checkbox"/>
Competitors	<input type="checkbox"/>
Investors	<input type="checkbox"/>
Neighbour farmers	<input type="checkbox"/>
Employees	<input type="checkbox"/>
Government/EU	<input type="checkbox"/>
Media (incl. social media)	<input type="checkbox"/>
Extension services	<input type="checkbox"/>
Cooperatives	<input type="checkbox"/>
Associations	<input type="checkbox"/>
Academia	<input type="checkbox"/>
Other (Please specify)	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

33. What are the main enabling factors to introduce digital technologies on the farm?
(Select maximum 3 choices)

- Collaboration with digital technology provider
- Collaboration with other companies up and down the agri-food supply chain
- Collaboration with other farmers (excluding producer organisations / cooperatives)
- Collaboration with producer organisations / cooperatives
- Collaboration with public institutions (incl. universities/public research centres)
- Collaborating with private research centres
- Receiving support from public consultants/advisory services
- Receiving support from private consultants/advisory services
- Own initiative - Acquiring digital technologies offered in the market
- Vertical integration (e.g. supply contract with buyers)
- Other
- Don't know

Please if other, specify _____

34. Please rank according to your opinion the role of the digital technologies in agriculture in the following aspects: (1st being the most important and 8th the least)

	Rank
Improving effectiveness and attractiveness of farming	
Guarantee the quality and safety of food products/raw materials	
Maintain the importance of agriculture and agri-food in the economy	
Reducing the impact of agriculture on the environment	
Produce and sell agricultural products locally	
Preserving and maintaining landscapes	
Risk reduction	
Produce enough to meet the growing world population	

About sustainability aspects of the digital technologies

[If digital technologies selected in Q 26].

35. Considering all digital technologies you have declared, what are/were the additional effects (benefits and costs/risks) in the short to medium term perspective (5 years) in terms of the three dimensions of sustainability?

[add a column for each of the category of technologies selected in Q 26]

Expected net benefits:	Very negative	Negative	Neutral (none)	Positive	Very positive	Don't know
Economic						
Social						
Environmental						

[If digital technologies selected in Q 27].

36. What are expected the additional effects (benefits and costs/risks) in the short to medium term perspective (5 years) of all digital technologies you considering to adopt in the farm in the next 5 years in terms of the three dimensions of sustainability?

(add a column for each of the category of technologies selected in Q 27)

Expected net benefits:	Very negative	Negative	Neutral (none)	Positive	Very positive	Don't know
Economic						
Social						
Environmental						

37. Considering all digital technologies you have declared, what are the additional effects (benefits and costs/risks) in the short to medium-term perspective the farm you represent at the environmental level?

(add a column for each of the category of technologies selected in Q 26 / Q 27.)

[Technologies to be grouped into more general categories: Sensors and cameras, robots and drones, online services, ...]

	Technology 1			Technology 2...
	Negative effect	No impact	Positive effect	
CO ₂ emissions	<input type="checkbox"/> Increase	<input type="checkbox"/> 0	<input type="checkbox"/> Reduce	
Water use	<input type="checkbox"/> Increase	<input type="checkbox"/> 0	<input type="checkbox"/> Reduce	
Energy use	<input type="checkbox"/> Increase	<input type="checkbox"/> 0	<input type="checkbox"/> Reduce	
Energy use	<input type="checkbox"/> Reduce	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Chemical input use	<input type="checkbox"/> Increase	<input type="checkbox"/> 0	<input type="checkbox"/> Reduce	
Soil/land use and contamination	<input type="checkbox"/> Increase	<input type="checkbox"/> 0	<input type="checkbox"/> Reduce	
Animal welfare	<input type="checkbox"/> Reduce	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Biodiversity	<input type="checkbox"/> Reduce	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Afforestation or rewilding	<input type="checkbox"/> Reduce	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Food loss/waste	<input type="checkbox"/> Increase	<input type="checkbox"/> 0	<input type="checkbox"/> Reduce	
Meeting regulated standards on environmental sustainability	<input type="checkbox"/> Reduce	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Meeting private standards on environmental sustainability (e.g. private certifications, requirement of trading partners, consumers requirements)	<input type="checkbox"/> Reduce	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Employees' awareness/motivation and adoption of environmentally sustainability practices in internal business operations	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improve	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If other, please specify

38. Considering all digital technologies you have declared, what are the additional effects (benefits and costs/risks) in the short to medium-term perspective the farm you represent at the economic level?

(add a column for each of the category of technologies selected in Q 26 / Q 27.)

[Technologies to be grouped into more general categories: Sensors and cameras, robots and drones, online services, ...]

	Technology 1			Technology 2
	Negative effect	No impact	Positive effect	
Income/profit by improving sales (quantity)				
Costs (e.g. improve operational or organizational efficiencies)				
Resilience (capacity to cope with changes)				
Product's differentiation				
Entry into new markets (e.g. new customers, enter new regions)				
Conform to regulatory requirements				
Meeting market expectations and industry norms or standards (e.g. private certifications, requirements of trading partners, consumers or stakeholders)				
Attracting funding opportunities				
Functioning /interactions in the supply chain				
Others				

If other, please specify

39. Considering all digital technologies you have declared, what are the additional effects (benefits and costs/risks) in the short to medium term perspective the farm you represent at the social level?

(add a column for each of the category of technologies selected in Q 26 / Q 27.)

[Technologies to be grouped into more general categories: Sensors and cameras, robots and drones, online services, ...]

	Technology 1			Technology 2
	Negative effect	No impact	Positive effect	
Workers' training and education	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Employment stability of workers	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Womens' employment	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Workers' safety and health	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Employees' rights	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Young employees	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Integration of disadvantaged	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	

	Technology 1			Technology 2
	Negative effect	No impact	Positive effect	
on the labour market (e.g. people with disabilities, immigrant, ethnic minorities)				
Employees' salaries and benefits	<input type="checkbox"/> Decrease	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Production of healthier products	<input type="checkbox"/> Decrease	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Promotion of healthy consumption	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Quality control/safety	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Food security (e.g. collaborating with food banks)	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Local employment	<input type="checkbox"/> Decrease	<input type="checkbox"/> 0	<input type="checkbox"/> Increase	
Social and economic environment in the region	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Distribution of income in the chain (e.g. fair trade)	<input type="checkbox"/> Less fair	<input type="checkbox"/> 0	<input type="checkbox"/> More fair	
Working conditions on the farm	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improved	
Meeting regulatory requirements on social sustainability	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improve	
Meeting private standards on social sustainability (e.g. private certifications, requirements of trading partners, consumers and stakeholders)	<input type="checkbox"/> Worsen	<input type="checkbox"/> 0	<input type="checkbox"/> Improve	
Others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If other, please specify

40. Does the digital technology you have adopted or plan to adopt affect your ability to respond/adapt to different unforeseen changes occurring on the market or environment?

Expected net benefits:	Very negative	Negative	Neutral (none)	Positive	Very positive	Don't know
Economic (e.g. price shocks,)						
Social (e.g. labour safety and health crisis)						
Environmental (e.g. droughts, plant/animal disses)						

About data originated from digital technologies

This section refers to the study and analysis of data generated with digital technologies to extract patterns, trends and insights to better decision-making with the aim of improving performance (e.g. increase production, reduce costs). Data may be extracted from your own enterprise' data source or from external sources (e.g. suppliers, customers, government).

41. What type of data does your farm collect or use from the following sources? Please specify whether it's done on your own, through an association or cooperative, or by an external enterprise or organisation.

	Type of data collected/use	Frequency (daily, weekly, monthly, annually)	How are data collected		
			On my own	Through an association /cooperative	External provider
a) Financial/transaction data (Sale details, payment records, expenses)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Administration data (registers, IACS, ...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Output data (Production, crop yields, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Input data (fertilisers, pesticides, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Soil data (nutrient levels, pH, organic matter content)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Crop-related data (crop health, growth)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Livestock data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Market data (Price trends, Forecast models on prices)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Irrigation data (water usage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Equipment data (fuel, energy, operating hours)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Location data from the use of portable devices or vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) Satellite data (e.g. satellite imagery, navigation signals, position signals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) Weather Data ((forecast)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n) Other, please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

42. Do you share data electronically with external parties (e.g. via websites or apps, Telemetry, real-time sensors or tracking)?

- Other farmers
- Consultants/advisors
- Supply chain actors
- Agri-tech companies
- Associations and cooperatives
- Researchers
- Public administrations
- Financial institutions
- Other, please specify
- No

[If Q 42 selected].

43. If you share data, how do you share them:

- On my own
- Through association/cooperatives
- External providers

[If Q 42 selected].

44. If you share data, what do you receive in exchange for sharing your data?

- Financial compensation
- Services
- Access to new technologies
- Other, please specify
- None

[If Q 42 selected].

45. Which are the main reasons for you to share your data with external parties? Please indicate the importance of each parameter for you using scale between 1 (not important) and 5 (very important).

Reasons	1	2	3	4	5
Financial compensation					
Receive services					
Access to new technologies					
Receive personalised recommendations					
Knowledge sharing					
Risk management					
Informed decision-making					
Supply management (traceability, transparency, product quality)					
Comply with legal requirements					
Benchmarking/performance evaluation					
Contribute to research					
Contribute to policy-making					
Other, please specify					

46. Which are the main reasons for you not to share your data with external parties? Please indicate the importance of each parameter for you using scale between 1 (not important) and 5 (very important).

Reasons	1	2	3	4	5
Data privacy and security concerns					
Data ownership concerns					
Data usage concerns					
Legal concerns					
Competition					
Compliance concerns					
Lack of awareness					
Lack of (strong, clear) incentives					
Lack of knowledge					
Lack of skills					
Lack of support					
Lack of infrastructure (limited connectivity)					
Lack of (financial or non-financial) compensation					
Other, please specify					

47. During 2022, did your farm use Farm Management Information Systems and if yes, do you use it for nutrient plans or carbon plans? Please indicate whether the use of FMIS has been beneficial for your farm.

48. Have your farm adopted new innovative methods, such as:

- Feed additives (Y/N)
- Biocontrol methods (Y/N)
- Other (please specify)