



# D2.2 - Manual for the Application of AMPs on Farm

“From Audit to AMP implementation”

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## List of Abbreviations

<b>AMP</b>	Adaptation and mitigation plan
<b>CFD</b>	Climate Farm Demo
<b>NC</b>	National Coordinator
<b>PDF</b>	Pilot Farm Demo
<b>WP</b>	Work Package
<b>CFA</b>	Climate Farm Advisor
<b>CSF</b>	Climate Smart Farming
<b>AMM</b>	Adaptation and Mitigation Measure
<b>GHG</b>	Greenhouse gas
<b>GWP</b>	Global warming potential

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# Abstract

The Manual for the Application of AMPs on farm - from audit to AMP implementation is a complete description of the AMP preparation and implementation process in the Climate Demo Farms.

The Manual has dedicated chapters to the Audits, the Adaptation and Mitigation Plans and monitoring and evaluation of the actions. Through the different sections, information will be found regarding the objectives, the steps, and the planning of the activities. The document also contains 2 annexes, the first one with the Carbon Tools approved by the project to perform the Carbon audits. Annex n. 2 contains a detailed description of the AMP template and clear indications on how to complete it and on how to share them with the WP2 team.

This document will be revised and updated during the lifetime of the project according to the needs and evolution of the CFD needs.

## Chapter 1

# Introduction to the Farm Audits

*Preparing for Adaptation and mitigation actions – Farm audit*





# Introduction to the Farm Audits

## What is the audit

Audit is a “a careful check or review of something”, for CFD project it is *carbon accounting and adaptation need evaluation* at farm level. A carbon accounting audit aims to measure farm’s efficiency in terms of carbon emissions (Greenhouse Gases - GHG) and removals (carbon that is being locked up through sequestration). The adaptation evaluation will address the risks associated with the climate change already known or foreseen on the farm.

Two carbon accounting audits are foreseen for each Pilot and Lighthouse farm involved in CFD project. The first one aims to establish the farm baseline, where the farm is in terms of carbon emissions in the beginning of the project. The second audit, at the end of the project, will be made to evaluate whether there has been a progress achieved after the adoption of adaptation and mitigation measures (AMMs) in the Adaptation and mitigation plan (AMP). To perform the carbon audit the Climate Farm Advisors (CFA) working with CFD farm will use an available farm carbon calculator tool, which has been approved by the project to fulfil the needs for reliable and comprehensive audit performance and progress follow-up (see list of approved carbon audit tools in Annex 1). Additionally, the audit includes evaluation of the sensitivity of the farm for climate change by using an adaptation tool developed for the purpose as part of the CFD project. The adaptation tool is part of the Adaptation and mitigation plan template (AMP, find out more in chapter 2).

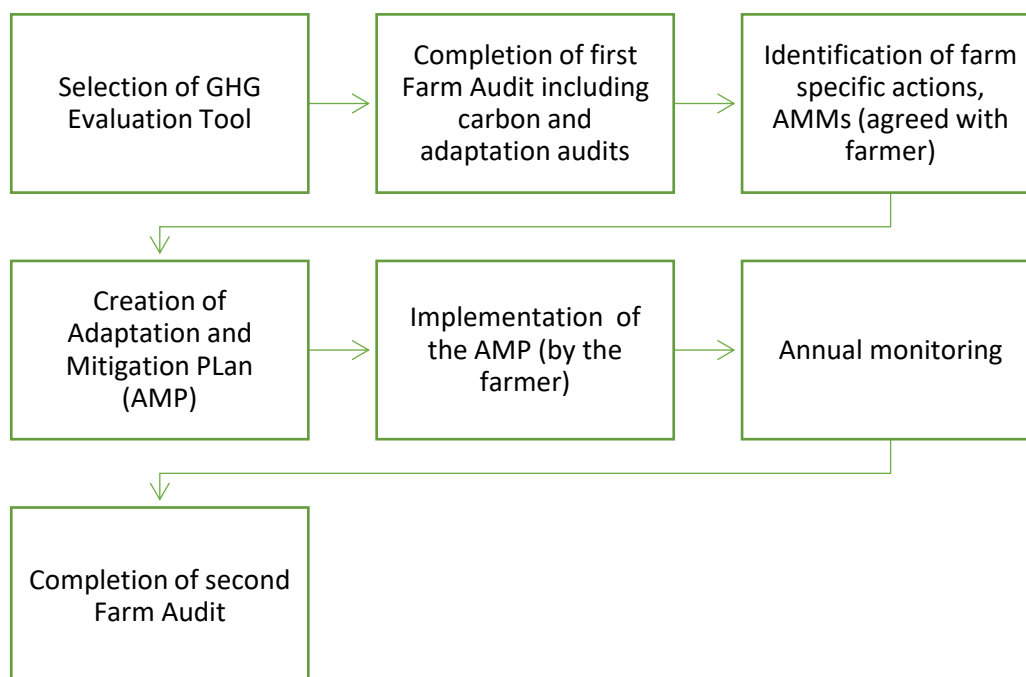


Figure 1 - The steps from first to second farm carbon audit

## Audit objectives

The audit carried out to calculate the GHG emissions of the farm must provide the advisor and the farmer with the elements to assess the structure and organization of the farm: land, livestock if present, facilities, management, etc. In other words, the 'framework' for designing and implementing an adaptation and mitigation plan, also called climate action plan, and its objectives.

The first audit (baseline audit) will be carried out between M12 (September 2023) and M18 (March 2024). This audit will describe the farm in terms of characteristics and management and assess the GHG emission, carbon stocks, and adaptation needs at farm level (per farm and/or per product units) at the beginning of its journey in the project. The audit will be done based on the Carbon tools selected for the project and Adaptation tool developed for the need.

According to the tool used, the audit will describe the farm in each aspect useful to identify:

- the farm facilities already in place and the farm activities already carrier out or ongoing that can be considered adaptation and mitigation measures;
- possible areas of action/change toward low emission farming.
- possible areas of action/change toward better farm adaptation to climate change

The GHG audit collects and measures inputs and output entering the farm's production process relevant to the emission of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). "These "gas production factors" are then associated to each input (i.e. fertilizer, fuel, purchased animals), and output (i.e. co-products as meat from milk production process). All the GHG coming from the production process are converted to CO<sub>2</sub> equivalents, and the balance between CO<sub>2</sub> sequestration and emission gives the overall GHG emission (expressed in global warming potential - GWP) associated with the production process. GWP, measured in CO<sub>2</sub> equivalents related to a specific production process, such as fruit, crop or milk/meat production, is usually expressed as emission per product unit (kg CO<sub>2</sub> equivalents per kg of product).

The audit gives valuable information also on the farm's efficiency. By analysing the entire production process, we can measure, evaluate, and thus better manage costly production factors as energy, water, fertilisers, feed, etc., as well as management of the farm and the use of manpower.

✓ **Tips:** "*what you measure you manage*"

The second audit, scheduled close to the end of the project (M76, January 2029), aims to evaluate the effect of adaptation and mitigation measures (AMMs), actions, undertaken by the farmer to reduce emissions and make the farm more resilient to climate change.

CFA and farmer can decide to assess progress in the implementation of AM measures before M76 with further audits: this is welcome, but not required by the project.

✓ **Tips:** "*measure your progress toward technical and environmental efficiency*"

## Steps in the audit process

The audit process requires a thorough examination of the farm, its facilities, management, and the inputs used. The key point for a successful audit is the knowledge of the farm's organisation and management and understanding the objectives and targets of the farm.

The cooperation and involvement of the farmer is essential to obtain real and correct data, and it is equally important that the CFA shares the results of the assessment with the farmer.

The following type of data are required to complete the farm audit:

- general information on the farm (name, location, type – livestock, arable crops, horticulture/perennial crops etc.;
- details of cropping areas and cultivated crops: production data, energy and material inputs and outputs, fertiliser (chemical and organic) purchases and usage, farming practices etc.;
- details of livestock production: herd size, production indices, feeding, housing type and housing periods, degree of feed self-sufficiency, manure and slurry management methods, energy consumption, water consumption, external inputs, waste production etc.  
Details on climatic risks such as drought, floods, frost, biotic stress, etc.

✓ **Note:** *The level of details might vary depending on the GHG evaluation tool used.*

#### Information needed for audit related to AMP implementation

Advisors are equipped with a list of carbon (C) accounting tools approved by WP5 (see annex 1). These tools can be used in the CFD project to calculate GHG emissions and C soil sequestration baseline on farms. Each national coordinator in cooperation with local CFAs have selected the most suitable tool for their national needs from the given list. The selection of tools has been followed by a training available for NCs and CFAs and organised by the tool owners to gain better understanding on how to use the tool and how to read the results provided by the tool. Depending on the tool, used to perform the audit, the data required from the farm, the type of the results and possibilities for benchmarking might vary.

A second audit will be performed in the end of the CFD project by using the same C accounting tool and a specific “measurement, reporting and verification” (MRV) system developed in the project to monitor the expected change.

✓ **Tips:** *“the farmer might already have most of the data needed for the audit collected for different purposes which can be utilised directly for the audit”*

Below is an outline describing the steps to be followed during a collaborative audit between advisor and farmer.

Table 1 Steps for a collaborative audit process

Before the farm audit	<ol style="list-style-type: none"> <li>1. Familiarise yourself with:               <ol style="list-style-type: none"> <li>a. The C accounting tool and its requirements</li> <li>b. Farm adaptation tool</li> <li>c. AMP templates</li> </ol> </li> <li>2. Identify data sources available to you</li> <li>3. Gather data from available sources (online databases, previous records relating the farm, data already held by the farmer)</li> <li>4. Contact the farmer to arrange the meeting and share the objectives of the meeting</li> <li>5. Begin completion of the input screens</li> </ol>
During the farm audit	<ol style="list-style-type: none"> <li>1. Complete data collection</li> <li>2. Cross-check the data sources with farm context</li> </ol>
After the farm audit	<ol style="list-style-type: none"> <li>1. Record details (data, results) on project backoffice</li> <li>2. Develop adaptation and mitigation plan for the farm</li> <li>3. Provide copy of evaluation to the farmer with associated list of possible actions to be undertaken by the farmer</li> <li>4. Present and discuss results and plan with the farmer reflecting farm’s GHG emissions with known measures or targets: reference production sector (e.g., arable crop, livestock), by product (e.g. cow milk) by country and/or geographic cluster.</li> <li>5. Agree on the following steps and appointments</li> </ol>

## Output from the audit

The audit process provides the information needed for designing and implementation of an adaptation and mitigation (AMP) plan, which outlines the strategy for application of climate adaptation and mitigation measures to be applied in each farm. The AMP application and follow-up will be in a central role of the demonstration activities in PDFs.

The first audit (baseline) gives the initial picture of the farm in terms of:

1. **GHG emission**: It is a number, expressed as produced kg of CO<sub>2</sub> equivalents associated to the farm or to product units (kg or ton) or ha of Utilized Agricultural Area (UAA). This number is analysed by the CFA together with the farmer both as an absolute value and in relation to the results obtained by similar farms. This comparison is useful to define 'possible' emission reduction targets for the specific agricultural production and farm type. For Climate Farm Demo project, there is no absolute benchmark for GHG emissions that defines the high or low level associated with a production. The figure obtained for each farm can be compared with a benchmark of "reference farms" or national benchmark, when available, to give the advisor the opportunity to understand together with the farmer the mitigation expectations that can be achieved. The "reference farms" can be decided by the advisors in relation to their experience and available local or country data.
2. **Farm adaptation needs**: *The tool* provides the advisor an overview of the farmer's sensitivity to climate change and need for adaptation actions. It also addresses farmer's willingness to adopt adaptation measures.
3. **Farm description** (buildings, equipment and facilities; technical and management features). The assessment of the farm's equipment and skills provides its potential in the application of AMMs and is fundamental to the implementation of the AMP. Similarly, it is important to know whether the farmer already foresees investments or changes in management that can be assessed as AMMs as well as improve existing ones.

The main results of the first audit will be part of farm AMP (see AMP target table).

- ✓ **Tips**: "For CFD project, any GHG emission value obtained as a baseline is accepted"

The second audit will provide:

Results of the application of AMP in terms of GHG emission and carbon sequestration.

## Chapter 2

# Introduction to the AMPs

### *FARM ADAPTATION AND MITIGATION PLAN (AMP)*

*The chapter introduces the approach and content of the CFD AMP developed in cooperation between CFA and PDF. In the following sections, you will find the explanation on what is considered as an AMP in the CFD project, the objectives to it, and step-by-step guide how to create the plan.*



# Introduction to the AMPs

## What is considered as AMP

A climate change mitigation and adaptation plan (AMP) includes strategies and actions aimed at **minimizing the impacts of climate change on farm while reducing greenhouse gas emissions**. Each plan should always be prepared in cooperation between CFA and the farmer. The plan is individual for each farm and outlines the pathways to improve climate-related environmental performance in the farm.

The baseline audit combined with the result from in-dept discussions on the farmer's preferences, possibilities and interest set the base for successful AMP. The content of the AMP in CFD project is standard with seven sections. However, each CFA has the freedom to tailor the plan together with the farmer to better answer the specific needs and challenges of the PDF, as long as it also includes the required sections. It is worth noticing, that the specific content of each AMP is highly connected on the local context, agricultural practices and products, and regional climate change impacts, even if the general structure is the same for all AMP.

## AMP Objectives

The CFD Guidelines and Training Module for AMM Advise ([MS11](#)) provide overview of the aspects for CFA to consider while working with the PDFs in the CFD project. As stated in the document, CFD project does not need an outstanding AMP, but a “feasible”, realistic plan.

- ✓ **Tips:** *Each plan includes objectives that challenge the farmer to change, to adapt their farming system, and to achieve results beyond their current performance.*

The level of challenge will depend on both the farmer and their farm. The AMP must consider the characteristics of both the farmer and their farm. A “successful” advisor will incorporate these considerations into their discussions with the farmer.

The general content of each AMP is the following:

- Farm characteristics,
- GHG emissions and C sequestration baseline (result from the Audit)
- Climate change mitigation and adaptation action plan
  - Based on baseline audit and the farmers targets and expected investments during the project lifetime to minimise the impacts of climate change while reducing greenhouse gas emissions
- A set of solutions, targets and indicators
  - Selected AMMs agreed based on the needs and possibilities of the farmer with respective indicators for following-up the progress
- Plan seeking for most cost efficient solution

- Considering the context, agricultural practices, the farmer's willingness to invest and regional climate impacts
- The farmers progress towards CSF
  - Describing the level of awareness, desire, knowledge, ability and reinforcement of the farmer to the actions proposed

## The benefits for farmer

The AMP is created to help the farmer to plan and apply actions for reducing the impact of climate change on the farm and to reduce the GHG emission as a result of the production methods used.

Potential benefits of the AMP for the farmer are the following:

- Reduction of GHG emissions and increment on C stocks due to the application of specific AMM
    - Number of AM measures which are known to have impact not only to GHG emissions but also to improve the farming productivity by for example optimising resources use or enhancing soil health.
  - Increase in farm resilience
    - If adaptation measures are applied, the farm is likely to better sustain sudden and/or long-term changes in the local climate conditions
  - Reduced costs and increased profit with better production methods
    - Mitigation measures, such as efficient energy use or use of climate resilient variants, not only lower GHG emissions but also reduce the overall resource use on farm which can lead to decreased need for farm inputs and cost savings. In addition, strategies like carbon sequestration through afforestation or reforestation can generate additional income for farmers through carbon credit programs.
  - More sustainable farming system with combination of action
    - Applying several AMMs on farm can enhance its overall sustainability by creating a safety net. If one action fails or is less effective, others can compensate or provide support, ensuring the farm's continued resilience. AMMs can also support diversified income streams, or long-term sustainability solutions (e.g. improved soil or livestock health) for the farm.
  - Long-term advisory support to adjust and improve the actions taken
    - In the CFD project, the farmers are provided support from their local CFAs for the whole duration of the project. The AMP will be followed-up annually in cooperation between CFA and PDF to support the performance and reaching the targets set.
- ✓ **Note:** Each plan is tightly influenced and dependent on the farm conditions and the actions applied on the farm. Thus, the extent of the benefits realised on each farm is likely to vary.

## How to implement the adaptation and mitigation plan

CFA and farmer are expected to create the AMP together based on the proposal by CFA. Drafting of AMP is supported by number of actions and resources compiled and collected as a part of the CFD activities. The table 2 below presents the resources relevant for the AMP development and how those can be utilised as a part of the process.



Table 2 List of available resources

What	For which purpose	Where and the name of the document	Links
Audit results (Level of GHG emission and carbon stocks in soil)	To set the baseline of the GHG status in the farm	Results from the Carbon calculation tool used Backoffice>files>Audits	<a href="https://climatefarmdemo.eu/cfd/en/#/sharepoint">https://climatefarmdemo.eu/cfd/en/#/sharepoint</a>
Adaptation tool result	To recognise the farm climate risks and potential for adaptation actions	« AMP_AUDIT_v.17.3.xlsm » -> AMP 2-AUDIT sheet -> AMP 3-BDD sheet	<a href="#">CFA TOOLBOX</a>
AMM library	To get familiar with the AMMs and their possible impact	SharePoint: CFA Toolbox -> AMP-> "ClimateFarmDemo_MitigationAdaptationList_20240228.xlsx"	<a href="#">CFA TOOLBOX</a>
Manual for AMM library	Instructions how to use the AMM library	SharePoint: CFA Toolbox -> AMP-> "Guidelines_for_AMM_library.pdf"	<a href="#">CFA TOOLBOX</a>
AMP template	The template for preparing a AMP	« AMP_AUDIT_v.17.3.xlsm » AMP audit sheet 3	<a href="#">CFA TOOLBOX</a>
Guideline for AMP implementation	To understand the content of the AMP and to know how to prepare one.	SharePoint: CFA Toolbox -> AMP -> "Manual for AMP implementation"	<a href="#">CFA TOOLBOX</a>

## Timing

CFA's are expected to complete the AMP for each PDF between M13 (October 2023) and M24 (September 2024) when all AMPs are expected to be running in the field. The baseline farm audit is scheduled between M12 (September 2023) and M18 (March 2024). Therefore, the advice is to produce the AMP some months after the completion of the audit. However, the detailed scheduling is left to the CFA who has to agree it with the farmer.

- ✓ **Tips:** "The longer the AMP is operational, and the actions are running, the better results can be expected from the actions applied and there will be more time to adjust the actions to better support the targets set"

If the advisor wishes to complete the baseline audit and the AMP at the same time, this is acceptable. However, it may be preferable to leave some time in between to allow the farmer and advisor to reflect on the results from the farm audit, in order to recognize and consider the potential AMMs to be beneficial to apply. In this approach, it is recommended to share the audit results with the farmer before setting up a follow-up meeting to discuss, identify and agree on the farm specific AMM's and write those down as an AMP. CFAs should also monitor implementation and progress of the AMP on each farm on annual basis which is addressed as a part of the AMP template.



## Roles and responsibilities

CFA's role and responsibility in planning and implementing the AMP is to advise and support the farmer in implementing the AMP throughout the project, as stated in the CFD project plan. This can mean for example providing information about the potential AMMs, access to resources, tools or methods to support the application of new solution on farm. This said, the CFA should aim to allocate time for each PDF equally following the given project budget. In practice, this means allocating time for getting familiar with each farm audit result, providing recommendations and advise in the selection of AMMs and then providing advice in the practical implementation of those. It is the responsibility of the CFA to document the AMP and share it with the PDF for commitment. CFA should make sure that the AMPs, as well as audit results are safely stored in the project's Backoffice available only for verified project partners.

By signing the CFD consent form, the farmer agrees to provide farm information relevant to gather knowledge and insights during the project on effective climate smart farming practices in the farm. Furthermore, the farmer agrees to do the best to make his/her farming practices progress towards advanced climate smart farming practices during the seven years of the project. However, it should be kept in mind that the farmer is free to decide to withdraw from the CFD project and decline the use of their farm data at any time, and that no penalty or prejudice shall result from that.

Farmers are the sole responsible for the actual implementation of the adaptation and mitigation strategy (AMP) agreed with the CFA, as sole and only farm managers are capable to make farm decisions. CFAs act as consultants and have only the responsibility to advice and inform the farmers with their best knowledge, so that they can make informed decisions. The actual implementation of the plans depends on such decisions. CFA and other CFD partners are not responsible for the actual implementation of the plan.

In any case, it should be considered that even a correct application of the action plan may lead to poor results when external conditions (climate, market, etc.) nullify or limit its effectiveness.

*AMP is part of the progress which sets up the targets towards advanced CSF.*

Table 3 Summary of the AMP responsibilities between CFA and PDF. (CFA=climate farm advisor, PDF=pilot demo farmer, BOTH= shared responsibility between CFA and PDF)

Content	Responsible actor
Providing farm data needed for creating AMP	PDF
Providing suggestion for AMP	CFA
Creating and agreeing on the AMP	BOTH
Filling up the AMP	CFA
Implementing the AMP on farm	PDF
Identifying possible issues in implementation of AMP	BOTH
Monitoring and recording the results from the AMP implementation	CFA
Provide advice in the implementation of the AMP	CFA
Conducting annual review on the AMP progress	CFA
Evaluating the AMP progress	CFA

The Guidelines and Training Module for AMM Advise Ready ([MS11](#)) describes how the role of the CFA can change during the AMP implementation period. The CFA should be able to recognise the support needed by each farmer using the baseline audit results but also by getting to know the farmer in the early stage of the cooperation. To help the CFAs to succeed they will be provided training on their expected role and methods for supporting the farmer before compiling the AMP.

Starting the collaboration might need different approaches depending on if there is already a previously established collaboration between the advisor and the farmer. With an existing relationship, the collaboration might just continue naturally based on the previous experience. However, with a new acquaintance time should be also reserved for getting to know each other. Being interested and curious can set a crucial base for the long-term collaboration.

It can be expected that the farmers will have different starting points in implementing their AMMs. Drafting the AMP can start with developing the farmer's interest in the solutions and meeting their information needs. Alternatively, with the farmer already experienced with AMMs, CFA might need to provide already next steps to improve the farming systems. In next stage, CFAs role is to support the farmer to put the AMP in practice and apply the AMMs agreed on. As monitoring and evaluating of the AMP is part of the implementation process, the CFA might need to help the farmer to monitor and to interpret the results. As part of the annual AMP evaluations, it is possible that advise is needed on steps to scale up the initial test or to provide recommendations on improving the implementation methods.

Demos – peer learning – facilitation and tacit information

During the Climate Farm Demo project, CFA can provide support to the farmer allowing them to compare their performance or progress with other farmers or national benchmarks. Some farmers will be comfortable moving at a faster speed (in terms of incorporation of the AMM into their farming system), and others will want to take a more cautious approach. Good opportunities to compare PDF's performances, if all parties agree, are as a part of the peer-to-peer knowledge exchange or demo-events organised as CFD activities (see more in [MS11](#) and [Demo design guide](#)).

## Budget

There is no allocated budget in the CFD project for farmers to implement AMMs. However, the audits carried out by CFAs, their support in creating AMP and implementing those are free of charge for the farmers. Given this, the project budget is based on the calculation of 15 days per farm per CFA and the project budget should not be exceeded. Over six years, which is the approximate timespan for the cooperation between CFA and PDF, this means 2.5 days per farm per year. As these calculations are estimates, it is important to follow-up regularly the budget realisation and plan accordingly the national activities in cooperation with the project NC.

The goal of each AMP is to seek most efficient AMMs to be applied in the specific farming context. Acknowledging needs, desires, and available resources of the farmer to implement the AMP is providing the context where successful AMP should benefit the farmer also financially. In case the farmer is willing to invest in the AMMs with additional measures, those can be included in the AMP if there is either a longer-term benefit, or some other non-financial benefit (e.g. reduced workload, better working environment). All costs related to the AMP implementation should be clearly agreed to be covered by the farmer or by other possible source of funding different from the CFD project budget.

## AMP Content

### Step by step guide for AMP implementation

The AMP content is built upon seven sections from preparation to evaluation. In the following chapter the content and description for each section are provided.

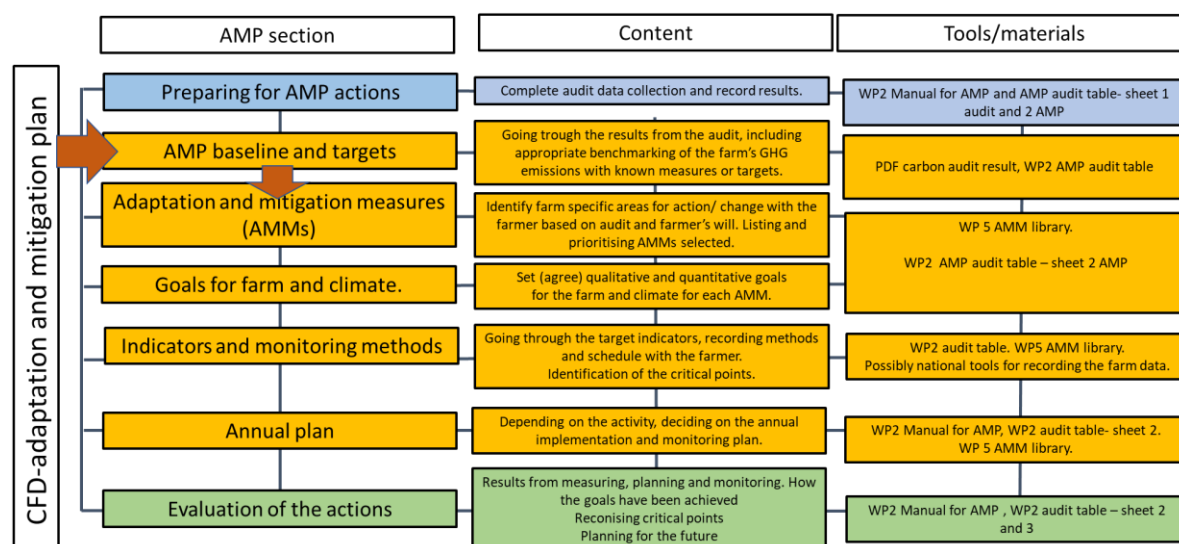


Figure 2 - AMP process and content in a nutshell

## Preparing for AMP

Adviser familiarizes him- or herself with the audit material, AMP manual and the AMP audit table before starting the auditing process. Being familiar with the expected outcome and content helps to understand and explain the linkages between auditing and AM planning. It is advisable to also encourage the farmer to start thinking of the farm targets in advance.

You can find a complete model of the AMP template in annex 2. To use the AMP template, it is available either under the CFD SharePoint the [CFA TOOLBOX](#) or under the CFD Backoffice. The CFA toolbox also includes all additional materials provided as a part of the CFD Module 4 - AMP training, to support the AMP process (i.e. AMMs library, guidelines etc.). Only digital versions of the completed AMPs are accepted for project documentation purposes, so make sure to **use a copy of a digital Excel sheet when working with the template** (please find a direct link to the Excel-file here: [AMP audit](#)).

Since the AMP is expected to address both adaptation and mitigation actions, below are listed some of the possible approaches to consider from both perspectives common for most of the farms. The AMM library ([link](#)) will provide broad and targeted insight of the potential AM actions based on their thematic area, scale and requirement for the implementation.

AMMs are organised in the library to guide a choice and to present qualitative attributes for example implementation cost, level of complexity, degree of effectiveness, etc. of different AMMs and can be filtered based on their characteristics (see [Guidelines for AMM library](#)). The advisable approach to start looking at the most suitable measures for each farm is to follow the “stepwise selection” where selections or choices are made in steps, gradually refining or limiting options by considering various factors or criteria along the way. In the figure 3 below, is presented an example approach that can be useful. The idea is to limit the available measures based on the data collected during the audit and as a result to find measures that would ideally comply with all the criteria. However, the CFA is free to use any approach found best suited for each farm or based on previous experience.

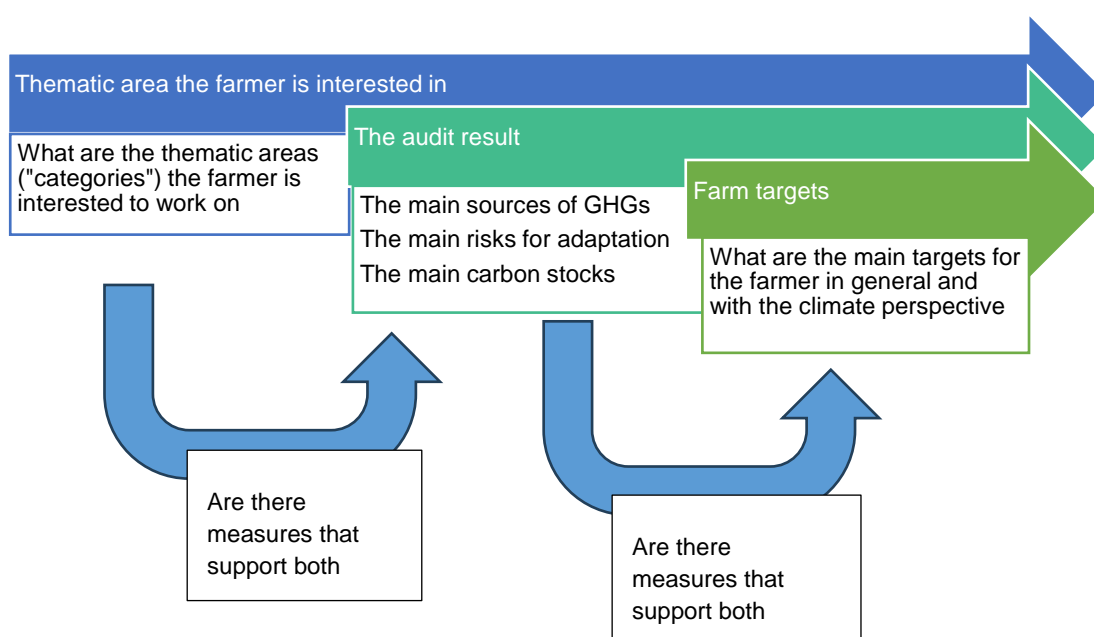


Figure 3 - Example of the process to identify the potential AMMs

- ✓ *Note! It is good to keep in mind from the beginning, that **the CFD AMP process is ongoing** and thus the AMP will be periodically reviewed and updated to incorporate new knowledge and technologies as they emerge.*

## AMP baseline and targets

*“Farm starting point – what is possible and desirable – results from the audit baseline”*

A set of results from the audit provide the base for answering the question how to use the audit results. Below are listed the different baseline results to be considered:

- **Baseline farm GHG emissions (from GHG / Carbon calculation)**
- **Adaptation risks and potential (from adaptation tool)**
- Farm characteristics (land, equipment, management, available resources)
- Farmer's priorities/interest
- Farmers motivation and mindset
- External constrains

### Targets

The farm audit will provide a baseline of the current GHG emissions from the farm. The general target for CFD is to reduce GHG emissions in the project farms by 35% throughout the project lifetime (until 2029). As this is a general target of the project and does not refer to individual farms, it is expected that some farms will have greater impact than others and the overall average will fall to 35 % reduction. However, if the farmer agrees, the same target could be set as an overall GHG target of the AMP plan if it is seen feasible for the farm. While one aspect for setting up the targets is the reduction of GHG emissions, others to consider include improved resilience, enhanced sustainability, or achieve a combination of these objectives.

### Current risks and vulnerabilities

To assist the farmer in setting up the targets the current risks or vulnerabilities on the farm will be considered reflecting the questions from the adaptation tool. Aspects of specific climate-related risks the farm faces, such as increased temperatures, changing precipitation patterns, extreme weather events, etc. are discussed with the farmer as part of the audit for helping the farmer to understand how these risks might impact to crops, livestock, infrastructure, or overall farm operations, can help the farmer to identify the most critical or impactful actions.

### Farm characteristics

It has been mentioned before that the farm characteristics play a critical role in designing the AMP. The possible targets must be connected to the farm's available resources, including financial, technical (land, equipment), and human resources. The AMP should be set by recognising what changes are feasible given the current capacity of the farm.

### List of existing AMM's

Many of the PDFs have already adopted some of the AMMs. These already existing practices are a strength for the PDF and should be considered as a base for other AMMs. While the objective of the AMP is to add AMMs in each farm, the existing measures can be improved or supported by other actions and thus are important to recognise as part of the overall GHG adaptation and mitigation actions.

- ✓ **Tips:** “identify mitigation and adaption actions already used (strengths) and AMM’s currently not used”
- ✓ “Add 1-3 AMMs at most per farm per year. Depending on the scale of the AMMs, 3 - 6 AMMs per farm along all the project duration are suggested”

### Farm priorities and interests - motivation factors

What are the overall goals for the farm (also other than climate goals) – where the farm wants to be in 2029? These are the general goals for the farm which are part of the AMP. For establishing a sustainable, impactful, and long-term AMP which the farmer is engaged in it is important to consider the overall goals for the farm and build an AMP which supports reaching those goals.

Table 4 Items to consider when completing an AMP relating to both the farmer and their farm (see more in [MS11](#))

Farmer	Farm
<ul style="list-style-type: none"> <li>➤ Commitment to action</li> <li>➤ Needs</li> <li>➤ Mindset and attitude</li> <li>➤ Motivations</li> <li>➤ Management capacity and ability</li> <li>➤ Family circumstances</li> <li>➤ Age</li> <li>➤ Social connections</li> </ul>	<ul style="list-style-type: none"> <li>➤ Buildings, facilities and equipment</li> <li>➤ Availability of workers and their capacities</li> <li>➤ Possible add current profitability of the farming system</li> <li>➤ Economic and market context</li> <li>➤ External constraints e.g. policy/ regulation</li> </ul>

## Adaptation and mitigation measures (AMMs)

### Recognising and prioritising the potential actions

Adviser goes through and identifies potential areas for action/change based on the audit. The shortlisting of the potential AMMs is recommended to start with the help of the AMM library, provided by the WP5 and by following the results from the baseline audit and most important to the farmer. The suggestions for potential adaptation and mitigation measures are considered on a farm-by-farm basis and will be presented to the PDF. Below is listed some further aspects to discuss and consider with the farmer for deciding on the AMMs.

Tailored strategies to each farm:

Each farm is individual and all AMMs should be adapted to the specific farm conditions. The CFA has the key role to help the farmer to adapt and identify AMMs to match in farm's specific conditions, such as climate zone, soil type, crop choices, and available resources.

Potential synergies and trade-offs:

Based on the results of the farm audit, the AMMs should be prioritised based on the level of risk they address and their potential benefits. It is good to consider that some AMMs may have multiple benefits, such as improving soil health while also reducing emissions. However, the success of other AMMs might be more sensitive for changing conditions, available resources or more work intense to carry out. These kinds of characteristics are addressed in the AMMs library when available data exist. The general recommendation from the CFD-project is to start with a selection of 1 to 3 AMMs to be applied in each farm.

Evaluate how different AMMs might interact with each other. Some actions might complement each other, while others could hamper each other or have trade-offs that need to be weighed. With the choose of AMMs it is recommended to favour at the beginning actions that complement each other

and can be monitored simultaneously to ease the first implementation and monitoring period (one year). In the following years AMMs can be added and extended to address other parts of productions if the farmer wishes to do so.

Analyse costs and benefits:

Estimate the costs associated with implementing each AMMs, including initial investments and ongoing maintenance. Also, consider the potential benefits, such as potential for GHG reduction, increased productivity, reduced risks, and cost savings when selecting the AMMs. The AMMs library can support CFAs and PDF to consider also these aspects.

Consider long-term viability:

Some impacts of the AMMs might change if the conditions changes. It is advisable to assess the long-term sustainability of the AMMs from this perspective. What is the current projection of climate change impacts in the respective area, will the AMMs selected be effective in these conditions? Another long-term consideration is the economical constrains of the AMM implementation if they remain viable economically over time. AMMs library provide information on the expected time horizon for the implementation of different measures to support the decision making.

## Goals for the farm

### *Qualitative goals of production/farm*

Setting the AMP goals with the farmer is recommended to be connected to improve the general aspects such as the quality or quantity of the yield or product of the farm, better economics, or efficiency. The qualitative goals are to describe the descriptive targets of the farm i.e. better yield quality or improved water intake. Quantitative goals on the other hand address the numeric based goals of the farm like 10 % more yield or introducing two new drought resistant variants in the crop rotation. Ideally, these goals should be connected to a climate perspective and AMMs chosen outlining methods to reduce the farm's climate impact or adaptation to it. These specific goals should be recorded to the AMP target table, and the actions and methods agreed on with a set a timeline for implementing and following up these measures.

## Indicators and monitoring methods

After the AMMs are implemented, it is important to continuously monitor their effectiveness. The CFD-project will support all farmers in emission monitoring and reporting (farm audit at the beginning and end of the project). Regular monitoring of the greenhouse gas emissions from chosen farm activities will provide information of the progress towards emission reduction goals throughout the project. However, as the audit-based monitoring is done only in the beginning and the end of the project, each implemented AMM should be monitored also between the audits. Therefore, all goals identified in the AMPs should also have a set of indicators agreed on to follow up the progress. These indicators should be connected to each action with specific timeline for following up. Depending on the actions the indicators can be either quantitative or qualitative and should be measurable to reflex the change from the audit baseline situation or the latest monitoring period.



### *Monitoring indicators*

In CFD project the monitoring cycle is set to be on annual basis. Monitoring aims to regularly evaluate progress toward the AMP goals and adjust when needed. The monitoring is based on the indicators set in the climate action plan. The indicators do not need to be always numeric, but something that is possible to follow up while implementing an action. For example, a method used for the monitoring can act as an indicator when the purpose and expected outcome is known for both the farmer and the CFA and the outcome can be compared.

- ✓ **Tip:** *A good indicator is clear for its purpose, method of usage and benchmark on which to compare.*

In CFD project, we need indicators to help the CFA and the farmer to notice and follow up possible changes caused by the implementation of AMMs. As each selected AMM is having a set overall target, the indicators should help to identify the needs for adjustments in implementation along the implementation period. In some cases, the indicators do not explicitly prove the impact of the AMM implemented but provides information on the progress done for example on the field level. These kinds of indicators are usually very generic, like yield or kg of production per year, which are results of the many variants and thus cannot be clearly linked to the AMM actions. However, also the generic indicators can be useful to identify the general progress on the farm with the knowledge on the history and conditions for the previous season. This said, the indicators should be used to guide the planning for coming years, but always by reviewing the results based on the known conditions of the implementation period. Only then, the need for corrective actions should be considered.

Climate change is dynamic, and new information and technologies emerge over time. CFAs and PDFs will be supported by the CFD actions to stay updated on the latest research, best practices, and innovative solutions, so the advisor can help the farmer to adapt the AMP accordingly.

In this section AMM indicators, timeline and monitoring methods will be agreed with the farmer and the practical approached instructed when needed.

- ✓ *Note: Carbon offsetting, meaning exploring opportunities to participate in carbon offset programs, such as planting trees or investing in renewable energy projects, are not considered as a part of the CFD AMPs.*
- ✓ *Tip: potential indicators for different AMMs can be found from the AMM library*

### Annual plan

Finally, the last section is for going through the coming year with the farmer. What are the actions required for the coming implementation period (coming year/growing season), when, by whom and how the AMMs will be implemented. Below is presented AMP annual cycle which provides an overview of the general actions done in the annual basis and by who regarding the AMP implementation. CFA is responsible for updating the AMP on annual basis with the support of the farmer. The annual planning will be based on the previous year AMP evaluation where following aspects will be considered:

First AMP:

- Setting up the targets for the coming year and possibly for longer term



- Identification of the actions needed for AMM implementation
- Setting up a schedule for the preparation, implementation and post-handling
- Setting up indicators for each action with a relevant timescale and what can be expected in one year time
- Agreeing on the monitoring process (methods, timetable and benchmarks)

AMP annual update:

- Evaluation of the implementation of AMM actions
  - o How implementation of actions has been realised - possible challenges/benefits recognised
- Setting up the targets for the coming year
  - o Agreeing on of the actions, possible changes or additions needed, for coming year
    - Revising and adjusting when needed the schedule for the preparation, implementation and post-handling for coming year
    - Revising and adjusting when needed indicators for each action with a relevant timescale and what can be expected in the coming year
    - Reviewing and adjusting when needed the monitoring methods

The annual evaluation of the actions might also include following aspects depending on the AMMs implemented:

#### AMP annual cycle and checkpoints with monitoring

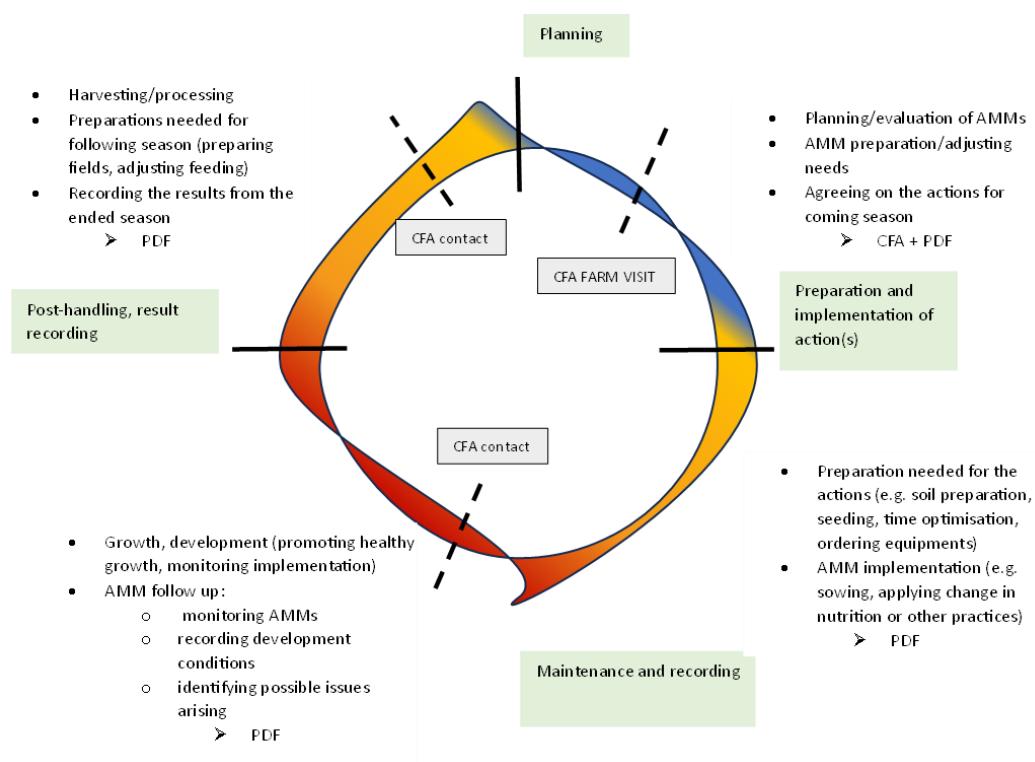


Figure 4 - Annual AMP implementation cycle

## Farmer commitment to action

It cannot be stressed enough that the AMP should align with farm's unique circumstances and goals which might also change during the project implementation. Thus, it is important for the CFA to maintain flexibility and to support the farmer to adjust the AMP based on changing conditions, priorities, and new information.

## Creating, managing and improving the contact to farmer

Listed below are the ClimateFarmDemo top tips for supporting your CFD demo farmer (see more [MS11](#)).

- **Get to know the farmers you are trying to influence.** A range of factors, such as age, access to finance and attitude towards risk, impact the willingness of farmers to change their farming practices.
- **Highlight the positives** including good practices and the progress made without being afraid of calling out the areas for improvement.
- **Keep it simple.** Farmers need to know that the recommended solutions are backed up by science i.e. that they work to reduce GHG emissions...but don't necessarily need to know all of the details.
- Always **prepare before meeting with the farmer.** Review the farm audit and the Adaptation and Mitigation Plan (AMP), make a list of all of the items you want to cover.
- **Provide ongoing support** through (short) visits, phone consultations, membership of a WhatsApp group, emails, invitations to events etc.
- **Consider organising all of your CFD demo farmers into a group** (or working with colleagues to jointly form such a group), and organise some group-based activities. For example, an annual workshop to discuss and review actions taken.
- **Prepare for a long-time horizon:** it may be a number of years before there are measureable environmental and economic outcomes. Also, tackle the adoption of one or two mitigation practices at a time...avoid identifying a list of actions to be taken. There is a better chance of success by focusing on a short list of tasks...there is always the next time.
- **Familiarise yourself with currently available rewards and incentives**, available from Government/ EU or from the marketplace. Be able to highlight what is required of the farmer to avail of these.
- Consider what else you can do to **create an enabling environment** that facilitates the farmer taking climate action.
- **Take an interest.** Don't forget the personal touch – make the connection with the farmer, and their family. And most importantly, listen to the farmer's arguments, fears and wishes.

## Chapter 3

# Monitoring and Evaluation



# Monitoring and Evaluation

The overall target of the Climate Farm Demo project is to achieve 35% reduction of GHG emissions and find out best practices and solutions for climate change mitigation and adaptation. Regular monitoring and evaluation of the audits and AMPs are an essential part of the Climate Farm Demo project to follow the progress towards this goal. Monitoring and evaluation are carried out at different levels to follow the progress towards more climate smart farming practices. By carrying out the farm audits and AMPs consistently and promptly at 1500 pilot demo farms throughout the project, we will be able to analyse the change not only at individual farm level, but also at country and European level.

## Monitoring and evaluation of the actions

CFAs should monitor progress made on each farm on a regular or at least annual basis. This will most likely involve checking whether the agreed actions have been taken (or not), as well as investigating the reasons for non-action (where agreed actions have not been taken). This will also provide an opportunity to record any other adaptation and mitigation action(s) taken by the farmer in addition to agreed actions. It is anticipated that an annual report to the National Coordinator will also be submitted.

There are two main intermediate monitoring points identified in the project (M36 October 2025 and M54 March 2027). It is not a requirement to complete audits at these intermediate monitoring points, but at a minimum the AMP should be reviewed annually, with particular attention paid to progress made in the incorporation of the chosen AMM's into the farming system. These monitoring points would also be an opportunity to select additional measures on the farm (if significant progress has been made with the measures already chosen). AMP template has a sheet ("AMPAR" AMP Annual Review) for annual monitoring that CFAs are expected to complete each year. CFAs are also expected to discuss and support the farmer in the process of reviewing the annual progress of chosen measures. The "AMPAR" sheet contains 1) questions on the progress of the implementation of each AMM, to be expressed as an indicative percentage with the respect to the achievement of the final objective (e.g. 20%, 50%, 75%...), and 2) questions on the technical and economic difficulty encountered in applying the AMMs. See Annex 2 Figure 5 where to document the annual progress.

A second farm GHG evaluation or audit will be completed towards the end of the project (M76 March 2028). The responsibility for implementation of the agreed actions rests with the CFD farmer, but they should be supported in this by the CFA (see Section 8). There are no penalties if the farmer does not adopt the agreed AMM's, but the project will be interested in the reasons for non-adoption (this is sometimes referred to as the intention-action gap).

Table 5. Timeline for farm audits, AMPs and their monitoring and evaluation during CFD project 2022-2029.

Monitoring or evaluation activity	Timing	Responsible actor
First farm audit	M18 March 2024	CFA and PDF
Completion of the AMPs at PDFs	M24 September 2024	CFA and PDF

Annual evaluation and report of AMPs	M35 September 2025 M47 September 2026 M59 September 2027 M71 September 2028	NC and CFA
First intermediate monitoring point of the AMP implementation	M36 October 2025	CFA
Second intermediate monitoring point of the AMP implementation	M54 March 2027	CFA
Second farm audit	M76 March 2028	CFA and PDF
Final results analysis of audits and AMPs	M84 September 2029	WP2

## Recognizing critical points of the AMP evaluation

When monitoring and evaluating the progress of a PDF, CFAs should pay particular attention to certain issues to ensure the commitment and motivation of the farmer to continue the chosen climate smart practices. These issues include among other things:

- Are measures suitable for the farm?
- What are the most important achievements and challenges? Is it needed to continue or change the chosen measures?
- What are the lessons learnt at the time of the evaluation? What are they from the PDF point of view? What are they from the project point of view?
- Does the farmer need motivation to stay involved especially if setbacks are encountered?
- Are there missing or dysfunctional measures in the AMP? CFA should inform WP2 about those.
- How do the measures work on PDF from technical, economical or resources point of view?
- Are there any “hidden” (qualitative) issues that the AMP does not reveal but should be made visible? For the project, it is important to recognize the deviations to better understand the process at the farm.

## Planning for the future

Regular monitoring and evaluation serve also as the basis of future plans for the PDF. The AMP helps the CFA to see the baseline and progress of the measures at the farm. It may be a good idea to limit

the future plans to main achievements and challenges revealed by the AMP. Shorter and longer time plans for the future can and should be drawn from the AMP.

When we gain more experience throughout the project years of how different measures work at each farm in different countries, we will be able to draw more general conclusions at country and European level of most effective climate change mitigation and adaptation measures. The effects of the actions carried out during the Climate Farm Demo project are meant to go beyond the duration of the project's life span to ensure the sustainability of the agricultural sector to reach the EU goal of Europe being the first climate-neutral continent by 2050.

## Annex 1

# List of Carbon calculation tools approved by the Climate Farm Demo project



## List of Carbon calculation tools approved by the Climate Farm Demo project

Name of the tool	Country of origin	Tool owner	Available language	Production system covered by the tool	Scope of tool (Farm level / Production unit level)	Website
<b>CAP'2ER</b>	France	IDELE	French, Italian, Romanian, English, German, Spanish	Beef cattle; Dairy cattle; Goat milk; Sheep and goat meat ; Sheep milk	Farm level	<a href="https://cap2er.eu/">https://cap2er.eu/</a>
<b>COOL FARM TOOL</b>	United Kingdom	COOL ALLIANCE FARM	German, English <i>Beta languages: Czech, greek, spanish, finnish, french, hungarian, Lituanian, latvian, dutch, romanian, bulgarian, swedish, italian, portugese, polish</i>	Arable crops; Dairy, Beef, Meat sheep, Milk sheep, Goat, Pigs, Poultry, Crops, Arboriculture (Fruit), Arboriculture (other), Market gardening, Field Horticulture	Production unit level	<a href="https://app.coolfarmtool.org/">https://app.coolfarmtool.org/</a>
<b>FARM CARBON CALCULATOR</b>	United Kingdom	Farm Carbon Toolkit	English, Italian (september)	Arable crops; Beef cattle; Dairy cattle; Greenhouse horticulture; Market gardening; Open field horticulture; Pigs ; Poultry ; Sheep and goat meat	Farm level	<a href="https://calculator.farmcarbontoolkit.org.uk/">https://calculator.farmcarbontoolkit.org.uk/</a>



<b>AGRECALC</b>	<b>United Kingdom</b>	<b>SRUC</b>	English	Arable crops; Arboriculture; Beef cattle; Dairy cattle; Market gardening; Open field horticulture; Pigs ; Poultry ; Sheep and goat meat ; Viticulture	Farm level	<a href="https://www.agrecalc.com/">https://www.agrecalc.com/</a>
<b>CONVIS</b>	<b>Luxembourg</b>	<b>CONVIS Société coopérative</b>	English, German	Arable crops; Beef cattle; Dairy cattle; Pigs	Farm level	No website
<b>DECIDE</b>	<b>Belgium</b>	<b>Walloon Agricultural Research Centre</b>	<b>French</b>	Arable crops; Beef cattle ; Dairy cattle	Farm level	<a href="https://www.decide.cra.wallonie.be/fr">https://www.decide.cra.wallonie.be/fr</a>
<b>Kringloopw ijer (ANCA)</b>	<b>Netherlands</b>	<b>ZuivelNL</b>	<b>Dutch, English</b>	Dairy cattle	Farm / Production unit level	<a href="https://mijnkringloopwijzer.nl/">https://mijnkringloopwijzer.nl/</a>
<b>AGNAV</b>	<b>Ireland</b>	<b>Teagasc/Bord Bia/ICBF</b>	<b>English</b>	Beef cattle; Dairy cattle; Sheep and goat meat	Farm level	<a href="https://www.agnav.ie/landing">https://www.agnav.ie/landing</a>
<b>CAP'2ER Grandes cultures</b>	<b>France</b>	<b>IDELE</b>	<b>French</b>	Arable crops	Farm level	<a href="https://cap2er.eu/">https://cap2er.eu/</a>
<b>GEEP</b>	<b>France</b>	<b>IFIP</b>	<b>French</b>	Pigs	Farm / Production unit level	<a href="https://geep.ifipasso.fr/">https://geep.ifipasso.fr/</a>

<b>CARBON F&amp;L</b>	<b>France</b>	<b>CTIFL</b>	<b>French</b>	Arboriculture for fruit; Arboriculture for other purpose; Greenhouse horticulture; Market gardening; Open field horticulture; Viticulture	Farm level	<a href="https://www.ctifl.fr/réaliser-le-bilan-carbone-de-son-exploitation-grace-a-l-outil-carbone-f-l-infos-ctifl-392">https://www.ctifl.fr/réaliser-le-bilan-carbone-de-son-exploitation-grace-a-l-outil-carbone-f-l-infos-ctifl-392</a>
<b>GES&amp;VIT</b>	<b>France</b>	<b>IFV</b>	<b>French</b>	Viticulture	Farm / Production unit level	<a href="https://www.vignevin.com/article/outil-devaluation-de-lempreinte-carbone-des-exploitations/">https://www.vignevin.com/article/outil-devaluation-de-lempreinte-carbone-des-exploitations/</a>
<b>Agrosfär</b>	<b>Sweden</b>	<b>Agronod AB owned by Lantmännen, LRF, Hushållningssällskapet, Växa, Arla, HK Scan</b>	<b>Swedish</b>	Arable crops; Arboriculture for fruit; Arboriculture for other purpose; Beef cattle ; Dairy cattle; Market gardening; Open field horticulture ;	Production unit level	/
<b>BOVID CO2 / ARDICARBON</b>	<b>Spain</b>	<b>NEIKER - ASOPROVAC</b>	<b>Spanish</b>	Beef cattle; Sheep and goat meat; Sheep milk	Farm level	/
<b>ESGreen Tool</b>	<b>Denmark</b>	<b>SEGES Innovation P/S</b>	<b>Danish</b>	Arable crops; Beef cattle; Dairy cattle; Pigs; Poultry		<a href="https://segesinnovation.dk/produkter-og-ydelser/digitale-loesninger/">https://segesinnovation.dk/produkter-og-ydelser/digitale-loesninger/</a>

<b>Klimrek</b>	<b>Belgium</b>	<b>ILVO and Boerenbond</b>	<b>Dutch</b>	Dairy cattle; Pigs	Farm level	<a href="https://scan.klimrekproject.be/Login">https://scan.klimrekproject.be/Login</a>
<b>KLIR</b>	<b>Switzerland</b>	<b>Haute école des sciences agronomiques, forestières et alimentaires HAFL, Zollikofen (Suisse)</b>	<b>German</b>	Dairy cattle	Production unit	/
<b>TEKLa</b>	<b>Germany</b>	<b>LWK Niedersachsen</b>	<b>German</b>	Arable crops; Beef cattle; Dairy cattle; Open field horticulture; Pigs; Poultry; Sheep and goat meat	Production unit	/
<b>BIOCODE</b>	<b>Finland</b>	<b>Biocode</b>	<b>English, Swedish, Finnish</b>	Arable Crops; Beef cattle; Dairy cattle; Pigs; Poultry	Production unit	<a href="https://biocode.io/">https://biocode.io/</a>
<b>FaST-Navigator</b>	<b>EU</b>	<b>Agrisat, ITAP, UCLM, INTIA, CREA, IFEU, INRAE, IUNG and Ariespace.</b>	<b>English, Italian, Estonian, Spanish</b>	Arable crops; Arboriculture for fruit and other purpose; Beef cattle; Dairy cattle; Goat; Greenhouse horticulture; Market gardening; Open field horticulture; Pigs; Poultry; Sheep; Viticulture	Farm level	<a href="https://tool.fastnavigator.eu/index.html">https://tool.fastnavigator.eu/index.html</a>

<b>Vera Klimatkollektion</b>	<b>Sweden</b>	Jordbruksverket (Swedish Board of Agriculture) - Greppa Näringen	<b>Swedish</b>	Arable crops; Beef cattle; Dairy cattle; Pigs; Poultry; Perennial crop		
<b>Boden Klima / Bioland tool</b>	<b>Germany</b>	<b>Bioland Stiftung</b>	<b>German</b>	Arable crops; Beef cattle; Dairy cattle; Pigs	Production unit	<a href="https://bioland-stiftung.org/was-wir-tun/#bodenklima">https://bioland-stiftung.org/was-wir-tun/#bodenklima</a>
<b>Sandy</b>	<b>United Kingdom</b>	Trinity AgTech Ltd	<b>English</b>	Arable crops; Horticulture; Beef cattle; Dairy cattle; Sheep; Pigs	Farm level	<a href="http://www.trinityagtech.com">www.trinityagtech.com</a>

## Annex 2

# Adaptation and mitigation plan (AMP) template

*This annex provides detailed information on data and content needed for filling-up AMP template sheet and explains how to complete it. It also contains further information about how to store and share the results and the work to be done after completing the AMP.*

## Introduction to the AMP Excel Tool

The AMP template as well as the Adaptation and Mitigation Measures (AMMs) library are located in project's SharePoint – ([Documents>General>CFA toolbox > AMP \(Adaptation and mitigation plan folder\)> AMP\\_TEMPLATE and AMMs LIBRARY](#)).

The AMP template contains five sheets:

1. the guide: a quick how-to guide on how to complete the template,
2. the Adaptation audit tool (sheet "1-Audit"),
3. the Adaptation and mitigation plan template ("2-AMP"),
4. a sheet which automatically records the information from the adaptation tool audit and AMP ("3-BDD") to be used for further analysis
5. a sheet for calculating livestock units, if necessary ("4-LU").

**One template** should be saved per each pilot demo farm (PDF) and used for updating and monitoring purposes in the following years. Sheet 2 and 3 should be filled out for each farm. Sheets 1 and 5 provide instructions and further information needed to fill out sheet 3. Sheet 4 automatically records the information in sheet 2 and 3.

The worksheet "2-AMP" is the template for the "Adaptation and mitigation plan" which this annex 2 mainly concentrates. To complete the AMP you should have first run the audit, using the C-Tool, to define GHG emissions and C sequestration baseline for the farm. Baseline results / outputs must be uploaded to in the back office of the website ([back office >>files>>audits](#)). The folder is organised by country. Each advisor should upload the C tool output in its own country folder.

The plan template is divided into 5 main parts:

- **Farm description**; this part contains general data from the farm (name, farmer, location, etc.), the production system, main product, etc.

- **Farm indexes**; this section is dedicated to information about main crops, livestock (for calculation of livestock units you can use sheet 4-LU, which contains the coefficients for each category), products and energy consumption and production. Information required is not detailed but it helps to make a photograph of the farm. Some information requested comes from the C audit.

- **Carbon audit results**; this section summarises the results obtained from the C audit for both GHG emissions and C sequestration, expressed by area and by product and the main GHG emission sources.

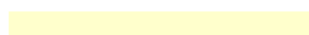
- **Plan's objectives table**, this section is dedicated to the identification of the objectives of the farm and the measures the farmer would like to apply to reach the objective. It also contain the indicators useful for monitoring the progress of the plan.

- **Farmer's approach**, this part is focused on monitoring the farmer's approach and willingness to apply the measures proposed by CFA.

The template cells are coloured and each colour has a different meaning as explained bellow.



You have to complete this cell, it is mandatory information



You can fill-in this cell if you consider it necessary



You cannot fill-in this cell. This cell is completed automatically.

Once completed, the AMP should be uploaded to the ([back office >>files>>Adaptation & Mitigation Plans](#))

## AMP sections

### Farm description

This section is dedicated to the generalities of the farm, such as the name, country and region, production system and main production. It gives a photograph of the farm.


The plan is identified by the **ID-farm**, which is a unique number generated automatically when the farm is added to the CDF platform. **This number will be used to identify the farm during the whole project.** The ID-Farm can be found inside the same folder as the template. It will be updated regularly. The name of the file is *ID\_FARMS\_V.XXX.XLS*, where *XXX* is the date of the last file update.

**Production system** is a drop-down menu which contains the following 15 production systems:


Arable crops	Market gardening
Arboriculture for fruit	Open field horticulture
Arboriculture for other purposes (wood, nuts, fruit and ornamental plant nurseries...)	Pigs
Beef cattle	Poultry
Dairy cattle	Sheep and goat meat
Goat milk	Sheep milk
Greenhouse horticulture	Viticulture
	Mixed systems

**Main product** is a free-text cell where advisor should write the main production on which the plan will be based on. **Product certification** contains a drop-down menu indicating if the product follows a quality scheme like PDO, IGP, environmental certifications, other or if it does not adhere to any certification. The **Type of production** (drop-down menu) refers to conventional, integrated or organic production.

To complete the photograph of the farm, the following data are required: farm's size **UAA total** (Utilised agricultural area) and owned land (**UAA owned**) expressed in hectares (ha), **soil type** (drop-down menu) as well as **average annual rain** in the area expressed in mm. In the end advisors will find a free space to write their impressions or other useful information to take into account.



## CFD - Adaptation and mitigation plan



LEGEND :  Mandatory answers    Optional answers    Calculated data that cannot be modified

AMP Version Number **v0\_202401**

**Generality**

ID-FARM	<input type="text"/>	<input type="text"/>	<input type="text"/>
Date	<input type="text"/>	<input type="text"/>	<input type="text"/>
Farm's name	<input type="text"/>	<input type="text"/>	<input type="text"/>
Advisor name	<input type="text"/>	Advisor organisation	<input type="text"/>
Production system	<input type="text"/>	Main product	<input type="text"/>
Product certification	<input type="text"/>	<input type="text"/>	<input type="text"/>
Farm manpower	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Farm**

UAA Total	<input type="text"/>	ha		UAA owned	<input type="text"/>	ha
Soil type	<input type="text"/>			Average annual rain	<input type="text"/>	mm

Figure 5 - AMP template – Farm description section

## Farm indexes

The information added in this section is used for creating and overview of the farm's main production indexes. The overview can help the process to understand farms' GHG emissions and carbon sequestration based on the farm's main production. Additionally, this section provide a structure to monitor the changes in GHG emission in the project in common way despite the carbon calculation tool used.

Part of this section is dedicated to crops where data about **grassland** and **pastoral areas** (ha) as well as those dedicated to **maize and other forages** (ha) are requested. More detailed information is requested from the 3 **main crops** of the farm. For these crops (which can be selected from a drop-down menu), **yields** (t/ha), **type of fertilisation** (organic, mineral, organic + mineral), total amount of nitrogen (total Kg N/ha) are asked.

A second part of the section is dedicated to the farms with livestock wherethe **livestock system** and the **livestock unit** from each **livestock category** should be added. The livestock units can be calculated using the *4\_LU\_CALC* sheet included in the template file. Data about the **main product** and **production** (and also measurement units) are needed. For milk the average content of fat, protein and/or solids are requested.



Farm indexes						
Main crops						
Grassland (ha)	<input type="text"/>	ha	Maize and other forage	<input type="text"/>	ha	
Of which pastoral land	<input type="text"/>	ha				
	Main crop	Yield (t/ha)	Type of fertilisation	Fertilisation kgN/ha	Area (ha)	Notes
Crop 1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Crop 2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Crop 3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Livestock						
Livestock system	<input type="text"/>					
Animals	Livestock category	Unit (LU)				
Category 1	<input type="text"/>	<input type="text"/>				
Category 2	<input type="text"/>	<input type="text"/>				
Category 3	<input type="text"/>	<input type="text"/>				
Category 4	<input type="text"/>	<input type="text"/>				
Total		0				
			Products			
			Type of product	<input type="text"/>		
			Average production/year	<input type="text"/>		
			Choice of unit	<input type="text"/>		
			% concentrates in diet	<input type="text"/>	%	
			Milk only	Quantity	Unity	
			Fat	<input type="text"/>	g/l	
			Solids	<input type="text"/>	g/l	
			Protein	<input type="text"/>	g/l	

Figure 6 - AMP template – Farm’s indexes – crops and livestock sections

A third part of the farm indexes section regards energy consumption (electricity, fuel, gases) and production. To fill this part, energy consumption and energy produced data are needed.

In the end, there is a space dedicated for comments for the whole „Farm’s indexes“ section where further information or comments can be added relevant to AMP.

Energy						
Energy consumption			Renewable energy production			
Electricity	<input type="text"/>	kWh/year		Type of energy	Quantity	
Fuel	<input type="text"/>	kg/year or	Energy 1	<input type="text"/>	<input type="text"/>	kWh/year
Methane/other gas	<input type="text"/>	m <sup>3</sup> /year	Energy 2	<input type="text"/>	<input type="text"/>	kWh/year
If other, indicate which	<input type="text"/>					
Comments						
<input type="text"/>						

Figure 7 - AMP template – Farm’s indexes – energy section

### Carbon audit results

This section summarizes results from the carbon audit. The “**Audit tool**” is a mandatory field. A drop-down menu containing the project’s carbon tools will allow advisors to select the one used. Advisors should indicate if there are any Adaptation and Mitigation measures (AMM) already applied in the farm. The correct AMM code measure, advisors should check from the [AMMs Library](#). When the measures have been identified, the advisor should write it (a number) in the code measure column, the description

of the measure will appear in the orange cells automatically. If needed, CFA can add any note in the yellow area regarding the specific AMM. If there is no AMM applied in the farm, this part can be left empty.

### GHG emissions

There are two tables complete in the section, one for the **farm overall results** expressed by area (**kg CO<sub>2</sub>eq/ha**) or by product unit (**kg CO<sub>2</sub>eq/kg product**). In the second table emissions are quantified by main GHG sources: methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and carbon dioxide (CO<sub>2</sub>). Emissions are expressed by area or by product unit.

### Carbon sequestration

Farm results should be reported by area (ha) or by product (kg product). If there is any consideration to take into account, please fill the yellow part.

Summary of audit results					
Audit tool		<input type="text"/>			
<b>AMMs already present in the farm</b>					
	Code measure	Description	Notes		
AMMs No1					
AMMs No2					
GHG emissions					
Denominator type	Measurement unit	Farm result			
Area	kg CO <sub>2</sub> eq/ha				
Product unity	kg CO <sub>2</sub> eq/kg product unity				
Denominator type	Main sources for GHGs	Result	Reference available ?	Value	Notes
Area	CH <sub>4</sub> kg CO <sub>2</sub> eq/ha				
	N <sub>2</sub> O kg CO <sub>2</sub> eq/ha				
	CO <sub>2</sub> kg CO <sub>2</sub> eq/ha				
Product unity	CH <sub>4</sub> kg CO <sub>2</sub> eq/kg				
	N <sub>2</sub> O kg CO <sub>2</sub> eq/kg				
	CO <sub>2</sub> kg CO <sub>2</sub> eq/kg				
Carbon Stock					
Denominator type	Measurement unit	Farm result	Notes		
Area	kg CO <sub>2</sub> eq/ha				
Product unity	kg CO <sub>2</sub> eq/kg product unity				

Figure 8 - AMP template – Carbon audit results

## Plan's objectives

The plan's objective table is the main part of the AMP. It describes the objectives of the plan, how to reach and monitor them.

The first part of the table is dedicated to the **farmer’s objectives**. In the target column, the advisor should write the farmer’s objective (qualitative – first row, and quantitative, second row), while in the second column (planned action), the advisor should write how the farmer intends to reach the objectives desired. The advisor should complete the progress indicator column with the measures that will be used to verify the progress made regarding the specific goal.

The implementation period column indicates the period in which the planned action will be applied and what is the monitoring period. The annual review column will be left empty at the first year, but used in the following years to monitor and update the AMP.

Plan objectives				
Target	Planned action	Progress indicators	Implemented period	Annual review
Production / farm qualitative targets				
Production / farm quantitative targets				

Figure 9 - AMP template – Plan’s objectives table – farmers’ objectives

Once the farmers objectives have been identified, the advisor should make a shortlisting of the AMMs potential to be applied on the farm following the procedure indicated in the [guidelines for AMMs library](#). The shortlisted measures should be added in the table „Proposed measures“ under the „Climate adaptation and mitigation measures“ section of the Plan’s objectives table.

By selecting the number of the measure chosen from the [AMMs Library](#), automatically the orange cells will be completed with the description of the measure. In the second column, **planned actions**, the advisor should write how the measure identified will be applied on the farm. Progress indicators column should report which measures will allow to verify the progress, and in the implemented period, it should be reported when the actions will start and end. As for farmer’s objectives the Annual review column will be completed the following years.

The last two rows of the table indicate the overall environmental objectives for the farm in terms of GHG emissions and C sequestration both for the whole farm monitoring period (2024–2029) and for a single year.

Climate adaptation and mitigation measures	Planned action	Progress indicators	Implemented period	Annual review
Overall GHG emission and carbon sequestration targets 2023-2029				
Annual target 202X				

Figure 10 - AMP template – Plan objectives table – AMM and overall objectives

## Farmer's approach

The last part of the AMP regards the monitoring of the farmer's approach to the measures proposed. For this section, advisors are asked to complete the table with the AMMs proposed to the farmer (using the number) **both the one that were chosen and those that had not been chosen**. Automatically the orange part will be completed.

For each measure, advisors will have to choose from a drop-down menu the farmer's approach for that measure. The options are:

- The farmer is not aware about the need for this measure
- The farmer recognises the need of this measure but isn't inclined to apply it.
- The farmer would like to apply this measure but lacks the knowledge.
- The farmer understands how and why to implement this measure and is ready to test it, even if they haven't tested it before.
- The farmer understands how to implement this measure but faces constraints that hinder its application, such as insufficient funds, support, labour, regulations, materials, etc.
- The farmer has previously implemented or tested this measure but does not want to continue.
- The farmer has previously implemented or tested this measure and intends to continue.

In the last column, the advisor should indicate if the measure was selected to be applied or not.

*Please complete the following table with the measures suggested to the farmer before preparing the plan (those chosen and those not chosen) and select - from the proposed list - the option that better reflects the farmer approach to that measure*

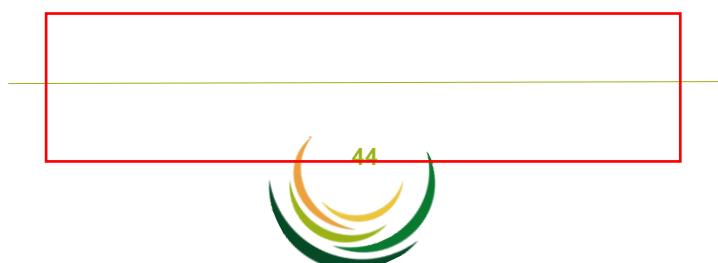
Proposed measures - Decisional process			
Measure number	Description	Farmer's approach	Chosen/ not chosen
111	Renewable energy production (solar) kWh	4-The farmer understands how and why to implement this	Yes
225	Choose disease-resistant varieties	2-The farmer recognises the need of this measure but isn't inclined	No

Figure 11 - AMP template – Farmer's approach with example texts in the cells

Finally, the AMP must be approved. Advisor and farmer must sign the plan. Which has its designated space part of the AMP sheet.

## What to do when you have completed the AMP

When the AMP template is complete, you should click on the PDF button on top of the AMP template. Automatically a pdf will be created and a pop-up message will indicate the name of the and where it was saved.



Remember to change the name in common format:  
**ID-Farm\_nameFarm\_AMP.pdf**

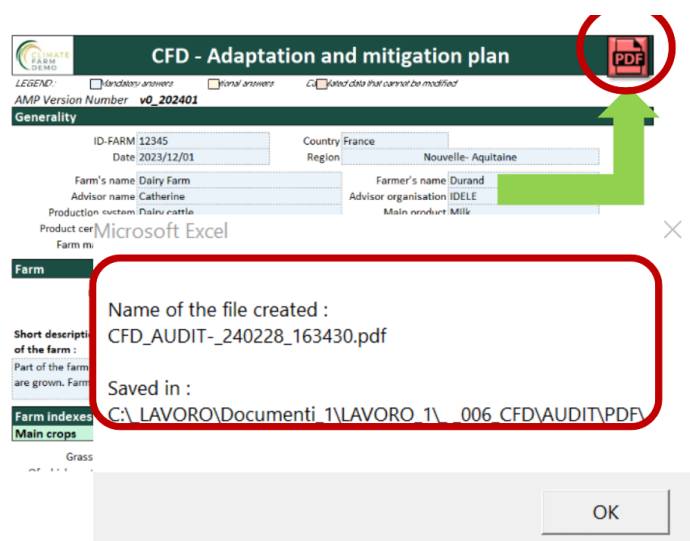


Figure 12 - AMP template – exporting AMP as pdf

Finally, CFA should upload the file into the CFD website backoffice under “Files” and the “Adaptation & mitigation plans” folder. Inside you will find one folder for each country. Please upload the file in the “AMP-completed”-folder to the [folder of your country](#).

When you have finished all the AMPs for all your farms. Go to 3-BDD sheet, copy the lines into a new excel sheet, then save it and send it to your NC who will send it to WP2 members for further analysis.



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