Project Number: 1567

Project Acronym: ISFERALDA

Project title: Improving Soil FERtility in Arid and semi-arid regions using Local organic DAte palm residues

D1-2 RISK MANAGEMENT PLAN

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Executive Summary

Risk is defined as an uncertain but potential element that always appears in the technical, human, social and political events, reflecting changes in the distribution of possible outcomes and subjective probability values and objectives, with possible damaging and irreversible effects. Therefore, the risk identification process is about ensuring that all project risks are identified and reduced. It thus improves the chances of project success, enabling the team to meet the project's time, schedule and quality objectives.

The overall design of the ISFERALDA project aims to optimize the capacity of the project to complete its work plan and achieve its objectives and its expected impacts. Despite this, specific risks to the implementation of the project should be identified, and as far as possible, avoided to ensure that the objectives of the project are achieved. The project coordinator (PC) and the Project Management Team will draft a risk management plan (RMP) in which a risk management and control mechanism for the evaluation of the quality of the WP will be established. The purpose of this plan is to enable the consortium to avoid critical risks and, if necessary, to take measures to mitigate or apply corrective measures to control the negative effects on the project. The RMP will be updated during the project to reduce the probability of occurrence of adverse events and their consequences. These updates will ensure that adverse situations are handled properly throughout the project and will identify sources of risk not identified to date.

Two parts will be developed in the RMP:

- ***The risk management methodology*** with the explanation of the identification of the risks, how risk is assessed to determine the likelihood of it occurring and the impact it will have if it occurs, what are the actions to delete or to reduce the likelihood of a risk, and how the risk responses is controlled and monitored

- ***The current identified risks*** with their description, their potential impact and the proposed mitigation measures.

1 Risk management methodology

The methodology used for risk management in ISFERALDA project is a four step method repeated continuously through the project life. Once a risk is identified, it is assessed, actions to manage the risk are taken and progress is monitored. The 4 steps are described below.

1- Identification

The risks will be identified throughout the project, during the partners' meetings and this identification will be the subject of a specific point at each steering committee.

2- Assessment

Once identified, the risk is assessed to determine the likelihood of it occurring and the impact it will have if it does occur.

3- Response

There are several possible actions to reduce the likelihood of a risk occurring, reduce the impact of the risk, or manage the risk once it has occurred. These actions may include transferring, avoiding and mitigating the problem. During this step, appropriate responses and decisions are made. If the budget, project, deliverables or expected impacts are impacted, the PRIMA Foundation and funding agencies will be notified and actions will be taken with their agreement. If we do not receive responses from the PRIMA Foundation or the funding agencies within a reasonable period of time, the planned actions will be implemented.

4- Monitoring

The status of risk responses should be controlled and monitored, and corrective action taken if necessary. Progress will be evaluated during the project members' meetings, and will be the subject of a specific item at the steering committee meetings.

1.1 Risk identification

The entire project team is responsible for identifying risks and reporting them to the project coordinator. Risks can be identified throughout the life of the project through risk workshops, meetings between project members or with people outside the project.

Identified risks can be documented on the risk report template (Table 1) and sent to the coordinator and the leaders of the impacted WPs for assessment.

Table 1: Risk report template

RISK REPORT TEMPLATE		
Date **Name of the risk**		
Risk description		
WP impacted **Responsible of the impacted WP(s)** **Deliverables impacted**		
Initial assessment	**Impact (High, medium or low)**	**Likelihood (High, medium or low)**
Suggested responses/actions to mitigate or eliminate identified risk		

1.2 Risk assessment method

The risks listed in the template are submitted to the project coordinator and the leaders of the involved work packages. The risk is assessed, accepted or rejected, and a request for additional information may be issued if necessary. If the risk is accepted, the measures to adapt, mitigate or eliminate the risk are proposed.

Risks will be evaluated in terms of their impact and likelihood on a numerical scale of 1 to 3 (high, medium or low). The combined result is the risk priority and will determine the priority and response to each.

Probability of risk Occurrence (likelihood):

- High probability – ($60\% \leq x \leq 100\%$)
- Medium probability – ($30\% \leq x < 60\%$)
- Low probability – ($0\% < x < 30\%$)

Risk impact:

- High – Risk that has the potential to greatly impact project schedule or performance;
- Medium – Risk that has the potential to slightly impact project schedule or performance;
- Low – Risk that has relatively little impact on schedule or performance

The Table 2 presents the probability and impact of occurrence for the identified risks using the described approach.

Table 2: Probability and impact for the identified risks. The colors represent the urgency of risk response planning and determine reporting levels.

		Likelihood		
		High	**Medium**	**Low**
Risk impact	**High**			
	Medium			
	Low			

1.3 Risk responses

Once identified and assessed, risk management is critical to the success of the project. The response to a given risk should reflect the type of risk, the assessment of the risk (likelihood, impact), and the consortium's attitude toward the risk.

There are a number of possible appropriate responses to risk. Different types of responses exists. The risk can be avoided by modifying the project in some way to bypass the risk. Some or all of the risk can be transferred to a third party. Actions can be taken to reduce the likelihood of the risk occurring or the impact it will have. This is the most common response to risk. It is a

response applicable to a wide range of risks. The risk may be accepted notably because there is a low impact or likelihood. Only responses can be identified if the risk occurs.

1.4 Risks monitoring

Progress in risk management will be checked every 2 months with the relevant WP leaders and at each steering committee. These meetings will allow for an update on the various risks identified.

2 Current identified risks

The different identified risks and the WP involved are presented in the Table 3.

Table 3: Identified risks and work packages involved

Work package(s) involved	Potential risks
All WPs	**R1 –** Conflicts in the consortium **R2 –** Lack of funds **R3** – Delay in funding **R4 –** Health crisis **R13 -** Delay in the project progress
WP1 – Project coordination and management	**R6 –** Lack of general coordination **R14 -** Over or under spending resources
WP2 – Initial assessment	
WP3 – Site identification and characterization	**R7 –** Loss of samples and delay in sending samples
WP4 – Development of OA from date palm residues	**R7 –** Loss of samples and delay in sending samples **R8 –** Development and preparation of the OA too long to be able to test it **R9 –** Lack of raw materials
WP5 – Evaluation of the influence of OA	**R5 –** Prohibition to go to study sites by the supervisory authorities for some partners **R7 –** Loss of samples and delay in sending samples **R8 –** Development and preparation of the OA too long to be able to test it **R9** – Lack of raw materials **R10 –** Extreme weather events **R11 –** Insufficient quantitative data for OA evaluation
WP6 – Communication and results dissemination	**R12 –** Cyber attack **R15-** low number of visitors to the website/low number of downloads of project dissemination and communication materials **R16 -** lack of interest and poor participation in training and demonstration events

Each risk has been assessed in terms of their impact and likelihood on a numerical scale of 1 to 3 (high, medium or low). They are presented risk matrix which represents the probability and impact of occurrence for the identified risks (Table 4).

Table 4: Risk matrix with the identified risks

		Likelihood		
		High	**Medium**	**Low**
Risk impact	**High**		**R3, R4, R13**	**R2, R8, R9, R11, R16**
	Medium		**R7**	**R14**
	Low	**R5**	**R1, R15**	**R6, R10, R12**

The summary and the responses to the different identified risks are listed and described in the risk template forms in the next pages.

Date: 01/06/2021

R1 – Conflicts in the consortium

Risk description

Conflicts between people can occur during the project and disrupt its smooth running. It is therefore necessary to prevent this type of problem.

WP impacted: All WPs

Responsible of the impacted WP(s): Coordinator (X. Morvan), all WP leaders (F. Bendjeddou, V. Kavvadias, M. Moussa, B. Boumaraf, M. Gommeaux, M. Sbih)

Deliverables impacted: Most of the deliverables

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	low	Medium

Suggested responses/actions to mitigate or eliminate identified risk

All partners have recognized experience in collaborative research projects. All are motivated to achieve the objectives that have been defined by all the project partners. Partners not respecting the CA will be warned and, as a last resort, if no agreement can be found, will be excluded from the project.

Date: 01/06/2021

R2 – Lack of funds

Risk description

Some or all of the partners are not funded for the duration of the project.

WP impacted: All WPs

Responsible of the impacted WP(s): Coordinator (X. Morvan), all WP leaders (F. Bendjeddou, V. Kavvadias, M. Moussa, B. Boumaraf, M. Gommeaux, M. Sbih)

Deliverables impacted: All the deliverables

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	High	Low

Suggested responses/actions to mitigate or eliminate identified risk

A step-by-step approach will ensure that unforeseen expenses are kept to a minimum. Reallocation of the budget will be done in case of absolute necessity if one or more consortium partners have no funding, in agreement with the PRIMA foundation. A training session on financial and administrative issues will be organized at the beginning of the project.

Date: 06/04/2023

R3 – Funding delays

Risk description

Some or all of the partners are financed but with a more or less important delay.

WP impacted: All WPs

Responsible of the impacted WP(s): Coordinator (X. Morvan), all WP leaders (F. Bendjeddou, V. Kavvadias, M. Moussa, B. Boumaraf, M. Gommeaux, M. Sbih)

Deliverables impacted: Most of the deliverables

Initial assessment	Impact (High, medium or low)	Likelihood (High, medium or low)
	High	Medium

Suggested responses/actions to mitigate or eliminate identified risk

The delay of financing of the Algerian partners which could go from 15 to 18 months caused the delay of the works carried out by the Algerian partners in the first part of the project. This has also led to an imbalance between the Tunisian and Algerian sites.

In the second part of the project, if there is a new significant delay in funding, the steering committee will meet and we will have to prioritize and rank the actions according to the available finances. Of course, the funding agencies and the PRIMA foundation will be informed of these prioritizations and we will wait for their agreement to prioritize some actions of the project over others.

If such a delay were to occur again, it would have consequences on the results and therefore the expected impacts of the project.

Date: 01/06/2021

R4 – Health crisis

Risk description

The COVID 19 crisis or another one can occur. A health crisis that may result in confinements and border closures would impact the project.

WP impacted: All WPs

Responsible of the impacted WP(s): Coordinator (X. Morvan), all WP leaders (F. Bendjeddou, V. Kavvadias, M. Moussa, B. Boumaraf, M. Gommeaux, M. Sbih)

Deliverables impacted: Deliverables of the second part of the project

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	High	Medium

Suggested responses/actions to mitigate or eliminate identified risk

In the case of a health crisis, such as that of COVID19, the field missions of partners will be limited. However, the presence of partners close to the study sites will ensure the monitoring of experiments and the collection of data. The continuity of the project will be possible except in the event of confinement of the population. In that case, project meetings will take place online through tools such as zoom or teams.

Date: 01/06/2021

R5 – Prohibition to go to study sites by the supervisory authorities for some partners

Risk description

Due to health crisis, problems that can occur at borders or institutes that prohibit their staff from traveling to certain geographic areas, the work carried out in the field can be slowed down, complicated or even lost.

WP impacted: WP5

Responsible of the impacted WP(s): Coordinator (X. Morvan) and WP5 leader (M. Gommeaux)

Deliverables impacted: Deliverables of WP5

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	Low	High

Suggested responses/actions to mitigate or eliminate identified risk

The presence of partners close to all study sites will ensure the monitoring of experiments and the collection of data. Samples could be sent for analysis to partners prevented from going to the sites. The possibility of achieving the objectives is preserved even if the field visits provide important information in relation to the understanding of the field and the expectations of the local population.

Date: 01/06/2021

R6 – Lack of general coordination

Risk description

A lack of overall project coordination can lead to misunderstandings on the part of the consortium partners (lack of guidelines, short and long term objectives), isolated work between WPs and poor communication among consortium members.

WP impacted: WP1

Responsible of the impacted WP(s): Coordinator (X. Morvan)

Deliverables impacted: Most of the Deliverables

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	Low	Low

Suggested responses/actions to mitigate or eliminate identified risk

The project coordinator (PC) will act as the intermediary between the PRIMA foundation and the project partners. Effective coordination will be ensured by the PC and the Steering Committee. This coordination will be facilitated by the establishment of a precise and clear work plan, in particular with clear deadlines for each deliverable. The coordinator will ensure that deadlines are met. In the event of major unforeseen events (illness, death), other experienced people from the university coordinating the project or other partners can take over the coordination tasks.

Date: 01/06/2021

R7 – Loss of samples and delay in sending samples

Risk description

Samples can be lost or delayed during travels. This can lead to delays or incomplete results, therefore of lower quality.

WP impacted: WP3, WP4, WP5

Responsible of the impacted WP(s): Coordinator (X. Morvan), WP leaders concerned (M. Moussa, B. Boumaraf, M. Gommeaux)

Deliverables impacted: Deliverables of WP3, WP4 and WP5

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	Medium	Medium

Suggested responses/actions to mitigate or eliminate identified risk

Staff from institutes located near study sites are trained in sample collection and repetition. Additional time has been included in the project schedule for test results to remedy any problems or delay in sample delivery.

If Algerian or Tunisian soil cannot be send to the European partners, European soils close to the soil studied in the study sites will be sampled to carry out the experimentations.

Date: 01/06/2021

R8 – Development and preparation of the OA too long to be able to test it

Risk description

The design of an innovative organic amendment is a priority of the project which also aims to determine the influence of this AO on soil properties and yield. The absence of an AO would therefore be a major problem.

WP impacted: WP4, WP5

Responsible of the impacted WP(s): Coordinator (X. Morvan), WP leaders concerned (B. Boumaraf, M. Gommeaux)

Deliverables impacted: Deliverables of WP4 and WP5

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	High	Low

Suggested responses/actions to mitigate or eliminate identified risk

The development and the preparation of the optimized OA have to be finished before the end of the second year of the project so that its evaluation in laboratory and in field can be carried out. The sooner the optimized OA is ready, the longer it will take for its evaluation. Therefore, the monitoring and progress of the task 4-2 will be a priority for the steering committee.

Date: 01/06/2021

R9 – Lack of raw materials

Risk description

Without raw materials, it will not be possible to produce the organic amendments we plan. We therefore need date palm residues end manure.

WP impacted: WP4, WP5

Responsible of the impacted WP(s): Coordinator (X. Morvan), WP leaders concerned (B. Boumaraf, M. Gommeaux)

Deliverables impacted: Deliverables of WP4 and WP5

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	High	Low

Suggested responses/actions to mitigate or eliminate identified risk

Many date palm plantations are present close to the supposed study areas. Date palm residues will be easily accessible. For manure, Palm Compost company and the Association for the safeguard of the oasis of Chenini, the compost suppliers, are accustomed to and readily purchase from breeders in their regions.

Date: 01/06/2021

R10 – Extreme weather events

Risk description

Extreme weather events (drought, storms, floods, etc.) are natural events which can lead to crop destruction or death of cultivated plants.

WP impacted: WP5

Responsible of the impacted WP(s): Coordinator (X. Morvan), WP leader concerned (M. Gommeaux)

Deliverables impacted: Deliverables of task 5-4 of the WP5

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	Low	Low

Suggested responses/actions to mitigate or eliminate identified risk

Extreme weather events (drought, storms, floods, etc.) are natural events that we cannot control. If the years studied are not years with average meteorological data, or if extreme events occur, the results will still be of great interest because these are extreme cases that can happen.

Date: 01/06/2021

R11 – Insufficient quantitative data for OA evaluation

Risk description

If some pot or field experiments can not be conducted, it is possible not to have enough data to assess the OA benefits.

WP impacted: WP5

Responsible of the impacted WP(s): Coordinator (X. Morvan), WP leader concerned (M. Gommeaux)

Deliverables impacted: Deliverables of task 5-7 of the WP5

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	High	Low

Suggested responses/actions to mitigate or eliminate identified risk

All planned experimentations in laboratory and in field allow to collect a large amount of data which will allow to assess the influence of the different OA tested. Even if the data of some experiments are unusable or lost, a rigorous evaluation of the OA can be made from all the other experiments.

Date: 01/06/2021

R12 – Cyber attack

Risk description

A cyber attack can lead to website malfunctions and theft of data stored on the servers.

WP impacted: WP6

Responsible of the impacted WP(s): Coordinator (X. Morvan), WP leader concerned (M. Sbih)

Deliverables impacted: D6-2 (Website)

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	Low	Low

Suggested responses/actions to mitigate or eliminate identified risk

The website will be hosted on the URCA server, where the highest security standards are guaranteed. Backups will be made regularly to protect the project data.

Date: 06/04/2023

R13 – Delay in the project progress

Risk description

It is possible that some tasks of some WPs are delayed and that this leads to a chain of consequences. This can lead to a shift in the schedule and to the fact that the initial objectives are not reached.

WP impacted: All WPs

Responsible of the impacted WP(s): Coordinator (X. Morvan), all WP leaders (F. Bendjeddou, V. Kavvadias, M. Moussa, B. Boumaraf, M. Gommeaux, M. Sbih)

Deliverables impacted: Most of the deliverables

Initial assessment	Impact (High, medium or low)	Likelihood (High, medium or low)
	High	Medium

Suggested responses/actions to mitigate or eliminate identified risk

The calendar is monitored by the PC and the steering committee (SC) members. An update on the schedule is provided at each SC meeting. The delay of the Algerian partners' funding has led to a delay in the delivery of some deliverables. It is a delay that is difficult to make up and this is why an extension of the project until the end of 2024 without additional funding has been requested.

Date: 06/04/2023

R14 – Over or under spending resources

Risk description

At mid-term, over-spending resources can lead to a lack of funding to finance the second half of the project. On the contrary, under-spending resources could mean poor management of project funds.

WP impacted: WP1

Responsible of the impacted WP(s): Coordinator (X. Morvan)

Deliverables impacted: not relevant

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	Medium	Low

Suggested responses/actions to mitigate or eliminate identified risk

At mid-term, as noted in the evaluation report, “the 40 % of resources used in the first half of the project, with a variability of between 30 to 50 %, is adequate and well aligned with the resources use as described in the proposal.” This is something that the PC and SC monitor regularly, every year.

Date: 06/04/2023

R15 – low number of visitors to the website/low number of downloads of project dissemination and communication materials

Risk description

Despite the communication efforts, the target audience may not be reached or interested in the publications made on the website or in the project dissemination and communication materials.

WP impacted: WP6

Responsible of the impacted WP(s): Coordinator (X. Morvan), WP leader concerned (M. Sbih)

Deliverables impacted: not relevant

Initial assessment	**Impact (High, medium or low)**	**Likelihood (High, medium or low)**
	Low	Medium

Suggested responses/actions to mitigate or eliminate identified risk

The number of visits to the website, the number of followers on social networks, and the number of downloads of the proposed materials are monitored regularly. If their number is too low, a communication and publicity effort will be made to have results close to those envisaged.

Date: 06/04/2023

R16 – lack of interest and poor participation in training and demonstration events

Risk description

Despite the communication efforts, the target audience may not be reached or interested in the training and demonstration events.

WP impacted: WP6

Responsible of the impacted WP(s): Coordinator (X. Morvan), WP leader concerned (M. Sbih)

Deliverables impacted: not relevant

	Impact (High, medium or low)	Likelihood (High, medium or low)
Initial assessment	Low	Low

Suggested responses/actions to mitigate or eliminate identified risk

A great effort of communication is made to highlight these training and demonstration events. These are the events that will raise awareness among farmers, policy makers and stakeholders in general. If too few people attend these events, we will try to understand why few people attended them by interviewing stakeholders, and then we will do them again by correcting what needs to be corrected.

HISTORY OF CHANGES		
Version	**Publication date**	**Change**
1.0	22/11/2021	▪ Initial version
2.0	06/04/2023	▪ Version 2, Addition of the methodology used, addition of new identified risks