

Methodology for the assessment procedure

Sub-action B3.2 - Assessment procedure
31.12.2021



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Introduction

The sub-action B.3.2 - *Assessment procedure* - is aimed at "Living labs" involvement. The "Living Lab" group is composed of farmers and technicians, they will be engaged, during the second and third years of the DRIVE LIFE project, in a procedure aimed at assessing the monitoring tool and the water resilient strategies to be applied in vineyard. Their feedback, together with the outcomes of co-development activities and "Demo farmers" group, will support the efficacy of the proposed innovations. The assessment and the involvement of wine sector actors is a relevant aspect of the DRIVE LIFE project because it is necessary to collect feedback for the transition from the theoretical aspects to the implementation (Figure 1). Moreover, an assessment carried out by stakeholders gives the partners indications about the spreading potential of innovative tools and techniques developed in the project. Feedback will be collected during a field visit at DEMO sites preceded by a training session foreseen for Spring 2022 (if this could be feasible according to pandemic Sars-COV-2 restrictions. If not, alternative involvement method will be applied as webinars and training videos).

This document describes the methodology to be applied for the assessment procedure. This procedure will be detailed and, if necessary, revised according to the composition of the "Living lab" group (e.g., background, geographical provenience).

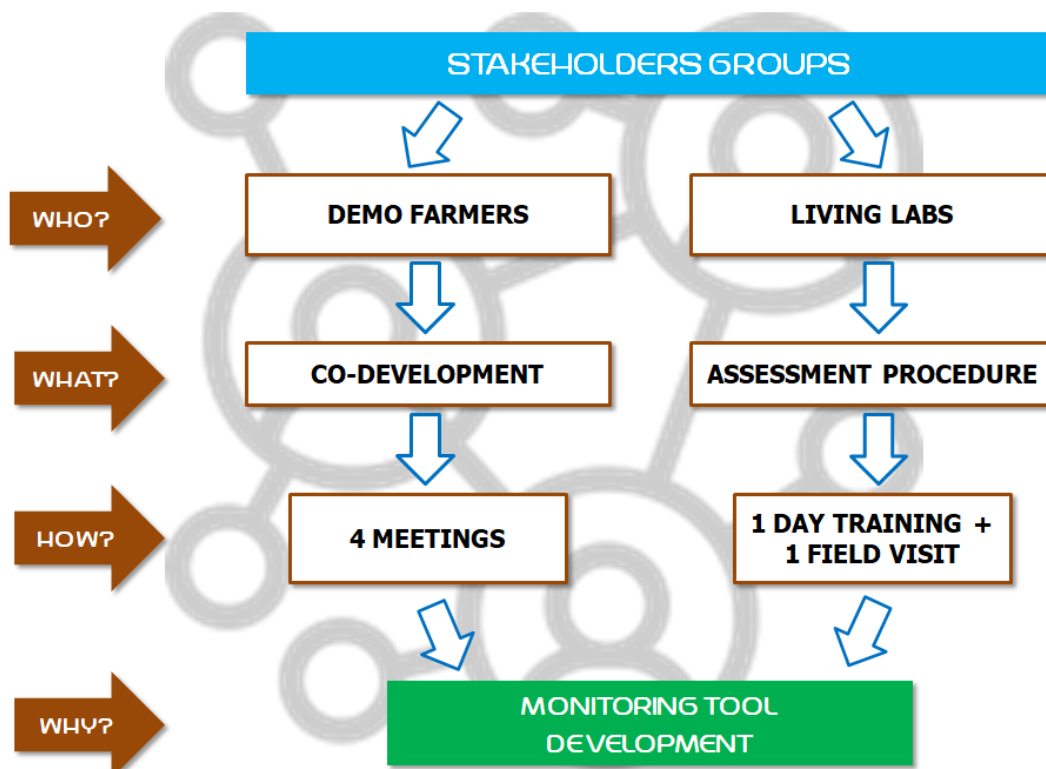


Figure 1: stakeholders involvement process in DRIVE LIFEproject

The Monitoring Tool

DRIVE LIFE Monitoring Tool, developed by UNIMI with the collaboration of other partners, is based on three integrated components:

- (i) a geo-referenced database with weather and soil data (on cloud),
- (ii) a modelling solution with algorithms for estimation of soil water reserves at the beginning of the season and for calculation of daily water balance (on cloud),
- (iii) a dedicated smartphone app (“PocketDRIVE”) that allows the user to provide information to the MT (e.g., georeferencing the fields, specifying the management practices adopted, validate water stress conditions, etc), and to receive early warning of water stress as well as suggestions on the best management practices to mitigate the negative impact of water stress.

The app represents the interface between the user and the MT, and as such, the evaluation of its usability and perceived effectiveness by the farmers is a crucial point in the assessment procedure developed by the action B3.

The water resilient strategies

DRIVE LIFE water resilient strategy is based on management practices

- for the space between the rows
- for the space on the row
- for the vine canopy

Techniques to be applied in the space between the rows

- temporary grassing terminated with the following techniques:
 - *slashing*: mid-row grass slashing with concurrent sward accumulation under the vine strip
 - *rolling with roller crimper*
 - *trimming and soil incorporation (green manure)*

Techniques to be applied in the space on the rows

- permanent grassing with low water-request species

Techniques to be applied on the vines canopy

- spraying of kaolin and anti-transpirant products on the canopy

The assessment procedure

The procedure for the assessment is related both to the Monitoring Tool and the resilient strategy.

For the **Monitoring Tool**, topics to be assessed are:

- requested know how for its use;
- completeness and trustworthiness of information;
- comprehensibility of results;
- needed time to get the results.

For the **water resilient strategy**, topics to be assessed are:

- feasibility of proposed techniques;
- costs of proposed techniques
- environmental benefits due to techniques implementation

To reach this goal, a check list is defined and will be distributed to each Living labs member.

The "check list" will be both in italian (for italian stakeholders) and english (for foreing members)

Questionnaire will be paper sheets or an online form.

The procedure foresees the following steps:

1. Lead partner explains to "Living labs" the features of the MT and the resilient agricultural techniques tested in field
2. Lead partner distributes the check list to each member
3. Living labs members fill the check list to assess DRIVE LIFE tool and techniques
4. Lead partner collects the filled forms and analyzed feedbacks
5. Lead partner shares with partners received feedbacks

Annex 1: The check list

General information

In this section partners will collect general information about "living lab" members.

- Personal data
- Study level and sector
- Geographical context
- Farm information (if applicable)

The Monitoring Tool

In this section the "Living labs" members have to provide feedbacks about the MT, highlighting its main drawbacks as well as its potential. "Living labs" are also encouraged to provide advice for the MT development.

"Living Labs" will be able to use on their mobile devices a demo version of the MT. Main features of the MT will be presented and explained to "living labs" during a dedicated one-day training.

The ICT competences level requested for the monitoring tool is:	Low	Medium	High
The need of an agronomical background for the tool use is:	Low	Medium	High
Which is the level of support that the MT give to the user for each step?	Not-sufficient	Sufficient	Adequate
Which is the level of difficulty for the creation of farm vineyards	Low	Medium	High
The collection of data in vineyard with the app is	Difficult	Feasible	Easy
Data for the characterization of the farm vineyards are	Not-sufficient	Sufficient	Adequate
The time needed to obtain a result is:	Low	Medium	High
Which is the level of reliability of the information giving by the MT?	Not-sufficient	Sufficient	Adequate
Information giving by the alert for plant water stress are:	Not-sufficient	Sufficient	Adequate
The clearness of outputs giving by the MT is:	Low	Medium	High
The MT user-friendliness is:	Low	Medium	High
The agreeability of MT user graphic layout is:	Low	Medium	High

Different aspects of the use of the MT are addressed here below through dedicated sets of questions.

- Georeferencing the vinyards (which has to be done only once, at the configuration of the app)

Effectiveness of the utilities provided to define the vineyard borders	Low	Medium	High
Usability of the app to set up the vineyards	Low	Medium	High
Information required to set up the vineyards	Too little	Fine	Too much

- Providing information on the management practices adopted in the vineyards and measuring canopy development through app

Measuring the canopy development (leaf area index) through the app	Easy	Feasible	Hard
Registering the management events (e.g. green pruning) in the app	Quick	Feasible	Too time consuming

- Validating the early warning of water stress

The alerts received are clear enough	Yes	Can be improved	No
Collecting data of canopy architecture with the app is	Easy	Feasible	Hard
The feedbacks provided by the app to confirm the occurrence of water stress are	Clear	Can be improved	Unclear

- Strategies suggested to mitigate the negative impact of water stress

The adoption of the management practices proposed is	Easy	Feasible	Too difficult
Undertaking the actions proposed in your farm would be	Quick	Feasible	Slow

More general questions on the MT close the assessment survey, together with the opportunity to add further comments, feedbacks, or suggestions to improve the MT development.

Would you use the MT for the assessment of water balance of your vineyards?	Yes	No
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How much time you would be willing to spend for the use of the MT?	
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Which could be the main advantages of the MT? (choose max 3 items)	time saving	reduction of pests	money saving
	water saving	higher grapes quality	higher sustainability
		demonstrate water stress occurrence	Other:

In your opinion which are the main shortcomings of the MT? (choose max 3 items)	time consumption	cost	less clearness
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	methods use for alerts sending	alert synchronization	Other _____
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In your opinion, which elements are missing in the MT. What do you suggest?

Water resilient strategy

In this section the "Living labs" members have to give feedbacks about the water resilience strategy.

"Living Labs" will visit the demonstrative vineyards before the assessment of the techniques. They will meet the Demo farmers that will tell them about their experience with the innovative water resilience techniques.

Moreover techniques will be presented to "living labs" during a one-day training (made before field visit) giving information about main goals of each ones, costs, timing of the operations and materials and equipment/machinery needed and main environmental benefits supplied by the techniques.

For each techniques a fact sheet with all the technical information giving during the training session will be provided to the "Living Labs".

Techniques to be applied in the space between the rows

- temporary grassing terminated with the following techniques:
 - *slashing*: mid-row grass slashing with concurrent sward accumulation under the vine strip

Your comprehension of the propose technique is:	Low	Medium	High
Have you ever heard of the "slashing" machinery needed for the mid-row slashing and concurrent sward accumulaton under the vine strip?	Yes	No	
Do you think that similar seed mixtures would be available in your region?	Yes	No	
The cost of the proposed technique is:	Low	Medium	High
The economic feasibility of the suggested practice is:	Not-acceptable	Feasible	Highly feasible
Which is your opinion about the proposed technique	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>		

In your opinion, which environmental benefits related to the technique's implementation are the most important? (choose max 3 items)	Water storage	Pollination	Carbon sequestration
	Erosion protection	Biodiversity preservation	Pest management
	Soil fertility		

- *rolling with roller crimper*

Your comprehension of the propose technique is:	Low	Medium	High
Have you ever heard of the "roller crimper" machinery?	Yes	No	
Do you think that similar seed mixtures would be available in your region?	Yes	No	
The cost of the proposed technique is:	Low	Medium	High
The economic feasibility of the suggested practice is:	Not-acceptable	Feasible	Highly feasible
Which is you opinion about the proposed technique	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>		

In your opinion, which environmental benefits related to the technique's implementation are the most important? (choose max 3 items)	Water storage	Pollination	Carbon sequestration
	Erosion protection	Biodiversity preservation	Pest management
	Soil fertility		

○ *trimming and soil incorporation (green manure)*

Your comprehension of the propose technique is:	Low	Medium	High
Is the "green manure" tecnique used in the vineyards of your region?	Yes	No	
If yes: have you notice some differences in the application of this method among the study area and your region?	Yes	No	Please describe briefly: <hr/> <hr/> <hr/>
Have you ever use this tecnique in your vineyards?	Yes	No	
Do you think that similar seed mixtures would be available in your region?	Yes	No	
The cost of the proposed technique is:	Low	Medium	High
The economic feasibility of the suggested practice is:	Not-acceptable	Feasible	Highly feasible
Which is you opinion about the proposed technique	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>		

In your opinion, which environmental benefits related to the technique's implementation are the most important?	Water storage	Pollination	Carbon sequestration
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(choose max 3 items)			
	Erosion protection	Biodiversity preservation	Pest management
	Soil fertility		

Techniques to be applied in the space on the rows

- permanent grassing with low water-request species

Your comprehension of the propose technique is:	Low	Medium	High
Is this technique used in the vineyards of your region?	Yes	No	
If yes: have you notice some differences in the application of this method among the study area and your region?	Yes	No	Please describe briefly: _____ _____ _____
Have you ever use this technique in your vineyards?	Yes	No	
Do you think that similar seed mixtures would be available in your region?	Yes	No	
The cost of the proposed technique is:	Low	Medium	High
The economic feasibility of the suggested practice is:	Not-acceptable	Feasible	Highly feasible
Which is you opinion about the proposed technique	_____ _____ _____ _____ _____		

In your opinion, which environmental benefits related to the technique's implementation are the most important? (choose max 3 items)	Water storage	Pollination	Carbon sequestration
	Erosion protection	Biodiversity preservation	Pest management
	Soil fertility		

Techniques to be applied on the vines canopy

- spraying of kaolin and anti-transpirant products on the canopy

Your comprehension of the propose technique is:	Low	Medium	High
Is this technique used in the vineyards of your region?	Yes	No	
If yes: have you notice some differences in the application of this method among the study area and your region?	Yes	No	Please describe briefly: _____ _____ _____

Have you ever use this technique in your vineyards?	Yes	No	_____
The cost of the proposed technique is:	Low	Medium	High
The economic feasibility of the suggested practice is:	Not-acceptable	Feasible	Highly feasible
Which is you opinion about the proposed technique	_____ _____ _____ _____ _____		

In your opinion, which environmental benefits related to the technique's implementation are the most important? (choose max 3 items)	Water storage	Pollination	Carbon sequestration
	Erosion protection	Biodiversity preservation	Pest management
	Soil fertility		