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Turning climate-related information into added value for traditional **MED**iterranean **Grape**, **OL**ive and **Durum** wheat food systems

Deliverable 6.17

Science-based knowledge relevant for Climate related Policies n.2



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EXECUTIVE SUMMARY

This document presents an update step, based on the elements identified among MED-GOLD activities during the third year of activities (M24 to M36).

COVID-19 pandemia, grown up across Europe through Spring 2020, produces a series of changes on MED-GOLD planned activities. These changes were mainly on the front-end activities of MED-GOLD such as: training, events for 'external' stakeholders, i.e. not directly involved so far in the development and validation of the tools, agricultural sector at large, general audience.

To cope with this limitation it was decided:

1. to seize the opportunity of designing a specific on-line side event dedicated to policy makers that is planned for 2, December 2020, joining the efforts of the European Commission and VISCA H2020 Project Consortium;
2. to take part in the public discussion on Farm to Fork European Commission strategy;
3. to focus the efforts on producing written documents, such as policy briefs on specific topics.

A perspective plan of future action for exploiting results in the following months is also provided.



1. OBJECTIVES

With this deliverable, the project has contributed to the achievement of the following objectives (DOA, PartB Table1.1):

No.	Objective	Yes
1	To co-design, co-develop, test, and assess the added value of proof-of-concept climate services for olive, grape, and durum wheat	X
2	To refine, validate, and upscale the three pilot services with the wider European and global user communities for olive, grape, and durum wheat	
3	To ensure replicability of MED-GOLD climate services in other crops/climates (e.g., coffee) and to establish links to policy making globally	X
4	To implement a comprehensive communication and commercialization plan for MED-GOLD climate services to enhance market uptake	X
5	To build better informed and connected end-user communities for the global olive oil, wine, and pasta food systems and related policy making	X

Since the MED-GOLD project aims to turn climate-related information into value added through a robust and progressive 2-way interaction between science knowledge and food system stakeholders, it has a potential capacity to identify and highlight relevant science perspectives for policy makers. Thus, in principle MED-GOLD is suitable to help them to design effective interventions, to support economic growth and agronomic practice shifts, their vulnerabilities in the framework of climate change impacts.

2. IMPACT

No.	Expected impact	Yes
1	Providing added-value for the decision-making process addressed by the project, in terms of effectiveness, value creation, optimised opportunities and minimise risk	It describes and updates the process of identifying policy-makers relevant science topics and mechanisms for sustaining a salient dialogue.
2	Enhancing the potential for market uptake of climate services demonstrated by addressing the added value	It reports the successful stories relevant for a wider exploitation and adoption of climate services in a growing number of decision making processes.
3	Ensuring the replicability of the methodological frameworks for value added climate services in potential end-user markets	It reports the pathways followed during the MED-GOLD project of adopting and providing tailored information to different decision maker environments and sectoral policy makers.
4	To implement a comprehensive communication and commercialization plan for MED-GOLD climate services to enhance market uptake	It reports the roadmap followed to complete the target users spectra in producing salient climate information.
5	To build better informed and connected end-user communities for the global olive oil, wine, and pasta food systems and related policy making	It describes the initiative of completing the process of informing all the acting agents who play roles in the decision making sector and disputes management.





3. DETAILED REPORT

3.1. STATE OF THE ART

The science-based knowledge relevant for climate related Policies brings together global scientific knowledge and local evidence to improve salience, relevance and legitimacy of policy dialogues and deliberations everywhere an action should be taken in the agriculture sector coping with climate change. This is the case of the MED-GOLD project where there is a complex process of turning climate – related information into value for the three traditional Mediterranean food systems. This document presents an update step, based on the elements identified among MED-GOLD activities during the third year of activities (M24 to M36).

3.2 METHODS

COVID-19 pandemia, grown up across Europe through Spring 2020, produces a series of changes on MED-GOLD planned activities. These changes were mainly on the front-end activities of MED-GOLD such as: training, events for 'external' stakeholders, i.e. not directly involved so far in the development and validation of the tools, agricultural sector at large, general audience. The Consortium worked hard for re-planning the activities during this period. But if some of them were re-designed completely achieving excellent results, such as for example with the Summer School transformed into MED-GOLD Living Lab, others suffered more due the social distancing and limitations on travels. Among the most impacted activities are the linkage and dialogue with policy makers. In all the former face-to-face MED-GOLD events, the Consortium organised a portion of time devoted to the meeting with policy makers, from sectoral ones to the General Assemblies as reported, for example, in the D6.4. In this extreme situation such a specific component, of scheduled meetings, suffered more than others.

To follow the planned strategy in D6.4 and, at the same time, cope with unexpected limitations, due to COVID19 pandemia, it was decided: 1) to seize the opportunity of designing a specific on-line side event dedicated to policy makers that is planned for 2 December 2020, joining the efforts of the European Commission and VISCA H2020 Project Consortium; 2) to take part in the public discussion on Farm to Fork European Commission strategy; 3) to focus the efforts on producing written documents, such as policy briefs on specific topics.

3.3 MAIN RESULTS

JOINT POLICY MAKERS EVENT.

The MED-GOLD team supported the European Commission, EASME Executive Agency, and the Climateurope Team to organize the workshop '**Climate services for a climate-resilient Europe - Climate services for a climate-resilient Europe Success stories, lessons learnt and remaining challenges**' scheduled for 2 December 2020. The basic assumption is that in the recent past science is providing more and more reliable information of climate change and its impacts across different domains. Yet a significant gap exists to make our economy and society more resilient to climate shocks and climate variability. The workshop is an opportunity to showcase the added value and potential of climate services to contribute bridging this gap and mainstreaming adaptation into decision making. It is also a space to discuss needs and constraints towards creating impact at the scale needed to make Europe more resilient to climate change. It moves from the experience and lessons learnt of a portfolio of demonstration projects funded through Horizon 2020 ([Climate-fit.City](#), [MED-GOLD](#), [S2S4E](#) and [VISCA](#)), which worked hand in hand with end users in different sectors, and were able to integrate the developed services in their decision-making procedures at pre-operational and operational level.



The workshop engages scientists, policy makers, and practitioners from the public and private sectors to take stock of the work done and discuss the way forward.

An up-to-date draft description follows and here the [event webpage](#).



SAVE THE DATE!

Climate services for a climate-resilient Europe

Success stories, lessons learnt and remaining challenges

Date: 2 December 2020
Time: 9:00-15:00 (CET)
Location: Virtual event using Zoom

Registration:
<https://bit.ly/CSForAResilientEurope>

In the context of the European Green Deal, the new EU Adaptation strategy and the Horizon Europe Adaptation Mission, this workshop intends to:

- showcase the added-value and potential of climate services to mainstream adaptation covering several sectors and different levels of decision-making
- discuss barriers to full deployment of climate services, including institutional and legal issues, market barriers and capacity gaps
- bring forward best practices, business models, ways to overcome existing constraints
- discuss means of mobilizing resources for creating impacts at the scale needed to make Europe resilient to climate change

Event Flyer and [registration website](#).



WORKSHOP BACKGROUND

The EU needs to adapt its food-production system in a sustainable and environmental friendly way to cope with climate change. **Climate services** have the potential to become an important driving force in the **transition to a climate-resilient and low-carbon agriculture**.

To maximize their impact, the added value and potential of climate services for mainstreaming adaptation efforts at different levels of decision-making need to be widely showcased and understood.

H2020 projects, **MED-GOLD** and **VISCA**, have successfully demonstrated that suppliers, purveyors, and users of climate service can jointly work towards the same goal – developing climate services that combine state-of-the-art scientific knowledge and user demands:

MED-GOLD project prototyped [MED-GOLD climate services](#) by developing tools for three hallmarks of the Mediterranean food system: grape, olive, and durum wheat.

VISCA project developed a climate service and an associated Decision Support System ([VISCA DSS](#)) for the wine sector, that integrate climate and agricultural models with farmers' management specifications in order to design short-term practices, medium- and long-term adaptation strategies to climate change.

More specifically:

- a. For the first time, VISCA and MED-GOLD have pursued objective integration of climate information into decision processes for the **grape and wine business**, ultimately resulting in enhanced resilience. A climate-aware wine industry will boost its reputation as a heritage guardian that not only conserves its tradition but also projects it into the future with value gains and setting innovations that will become future traditions.
- b. Climate services with high economic and environmental added value strengthen the long-term capacity of **olive producing sector** – “the life and identity of the Mediterranean” – to give back to the environment more than it takes. MED-GOLD is providing a groundbreaking opportunity to use seasonal climate forecasts in managing olive fruit fly, the major pest of olive worldwide.
- c. The **durum wheat** MED-GOLD pilot service is providing critical information for the entire sector at all scales, from local to regional and even global, while addressing the needs of the key actors (e.g. farmers, breeders, processing industry, stakeholders).

This breakout session aims to show case lessons learned and good practices from projects' case studies with an emphasis on policy making. Possible links to current major policy initiatives such as the [new EU strategy on adaptation to climate change](#), the [Horizon Europe Mission area on adaptation to climate change including societal transformation](#), the [European Green Deal](#), and the upcoming [Horizon Europe funding programme](#) will be made. MED-GOLD project already provided feedback to the draft of the sustainable food [Farm to Fork strategy](#) that is one of the pillars of the European Green Deal.



WORKSHOP OBJECTIVES

1. Showcasing the **added value of climate services** in adaptive measures in agriculture (both at farm and at sectoral level) with a focus on the wine, olive oil and pasta industry.
2. Discussing the **barriers and constraints in full deployment of climate services** in support of adaptation to climate change in agriculture (including market barriers and flexibility of subsidies) and ways to overcome them.
3. **Sharing lessons learnt and good practices** including a view of **exploitation opportunities** and building partnerships to tackle different challenges.

WORKSHOP AGENDA

PART 1 (45 minutes; 10:45 – 11:30)

Reliability & usability of weather forecasts and climate predictions: Perspectives from science, business and policy

From VISCA and MED-GOLD experiences, decisions based on weather and climate are rather clear on short-term (a few days in advance), but they become more uncertain in the medium and long-term (a few months to years in advance). This is because decisions are complex, interrelated, and their agronomic consequences are uncertain. Hence, changing the way in which decisions with an impact on the medium-to-long-term are taken is a promising task but needs to be evaluated through multi-annual evaluation periods in order to establish trust in the services themselves.

Key questions to be discussed:

- What are the major challenges in the agri-food-climate nexus?
- How to efficiently combine different perspectives on the use of weather forecasts and climate predictions into practice?
- How can climate information become relevant for decision makers?
- What is the role of EU policies in the sustainability of climate services?

Session chair: **Massimiliano Pasqui, CNR**

10:45 – 11:25

Input talks - sharing projects' experience:

Conflicting notions of reliability and usability of climate predictions - **S. Calmanti, ENEA**

Quality of climate predictions at the seasonal-to-decadal time scale - **N. González-Reviriego, BSC**

Challenges in using climate services from end-user perspective - **N. Fontes, SOGRAPE VINHOS; X. Bordes, CODORNIU; V. Manstretta, HORTA**

Burning questions for the Common Agricultural Policy - **A. Toreti, JRC**

PART 2 (45 minutes; 11:30 – 12:15)

The challenges of market uptake of the climate services

Climate services are expected to improve the quality and quantity of crop yields, by enabling more sustainable management of the available resources. However, as for any innovation, scaling up the pilots requires their integration into the decision-making process, which is not a trivial step and requires efforts from both users and from developers.





Moreover, exploiting climate services requires detailed cost-benefit analysis, taking in consideration the benefits when the tool is providing a correct prediction and the losses when the tool is providing a wrong prediction. This is especially important when looking at the long term because the uncertainty of predictions increases in longer time horizons.

There is a great demand and interest in climate services in all sectors relevant for the agri-food industry. Therefore, increasing investments in the scaling-up of climate services (such as the prototypes developed in VISCA and MED-GOLD projects) to other crops, is of most importance to reach the ambitious goals of the [European Green Deal](#), [Common agricultural policy \(CAP\)](#) and the [EU Adaptation Strategy](#).

Key questions to be discussed:

- What are the barriers and constraints in full deployment of climate services?
- What are best practices and lessons learned in co-design and co-development of climate services tools?
- What is the market potential of climate services? How big is the capacity to pay for the climate services in order to develop a sustainable business model for commercial services and continue to support the key enabling technologies (e.g. climate modelling, ecosystem modelling, Earth observation, ICT and especially cloud computing, policies on publicly available data)?
- How to attract the farmers who use the traditional practices to trust climate services and help them to shift into smart and digitalized agriculture?
- How to support actionable information, for example by providing incentives (e.g., subsidies, reduced environmental taxes / charges) for farmers? Especially for the first adopters of climate services who are willing to provide continuous feedback to climate service providers - as their role in moving the climate service market forward and enhancing the related skills is crucial
- How to develop and adopt knowledge to avoid maladaptation (i.e. adaptation actions that induce net environmental harm): what is good from a farmer perspective might not be good for the environment, and hence impact of proposed adaptation measures needs to be further analysed (e.g., optimal use of water, fertilizers, and pesticides).

11:25-12:15

Roundtable discussion with Climate Services providers, users and policy-makers on remaining challenges, gaps and opportunities for exploitation and replication. Panellists:

- **Sandro Calmanti**, Senior Researcher at Italian National Agency for New Technologies Energy and Sustainable Economic (ENEA); coordinator of MED-GOLD project
- **Nube González-Reviriego**, Researcher at Barcelona Computing Center (BSC); partner in MED-GOLD project
- **Andrea Toreti**, Senior Scientist at JRC-Ispra; JRC is a partner in MED-GOLD project
- **Ms Natacha Fontes** (SOGRAPE winery from Portugal, partner in MED-GOLD project)
- **Mr Xavier Bordes** (CODORNIU winery from Spain, partner in VISCA project)
- **Ms Valentina Manstretta** (HORTA, a supporting platform providing advice to companies like Barilla, partner in MED-GOLD project)
- **Ms Adriana Ignaciuk**, Senior Economist and Team Leader in the Economic and Policy Analysis of Climate Change department at FAO.
- **Ms Cindy Schoumacher**, Policy officer in the Bioeconomy & Food Systems unit at DG RTD, European Commission (responsible for technical orientation and the development of programmes and policies in the fields of FOOD 2030, climate, circularity and the bioeconomy).
- **Mr Michal Nekvasil**, Policy officer in the Adaptation unit at DG CLIMA, European Commission (responsible for following and providing support to Climate adaptation in Agriculture policies, CAP and Rural development)



MED-GOLD 'S CONTRIBUTION TO THE DRAFT OF THE SUSTAINABLE FOOD FARM TO FORK STRATEGY

One of the pillars of the EC's Green Deal is the Farm to Fork strategy (F2F). As reported in the EC website: "*A sustainable food strategy is key to achieving the goals of the EU's Green Deal. This strategy sets out the regulatory and non-regulatory measures needed to create more efficient, climate-smart systems that provide healthy food, while securing a decent living for EU farmers and fishermen*".

MED-GOLD submitted a contribution to the draft F2F titled "[IMPORTANCE TO CONSIDER THE ROLE OF CLIMATE SERVICES IN FRAMING THE FARM TO FORK STRATEGY](#)" on 20 March, 2020 (ref. F508222). Here follows the submitted text:

"Agriculture is primarily climate-driven and hence highly vulnerable to climate variability and change. Weather and climate services are therefore vital for sustainable development and climate change adaptation. The recently published WMO report 'State of Climate Services: Agriculture and Food Security' highlights progress, opportunities and challenges for climate services such as seasonal forecasts, drought advisories and fire danger indices, among others. Although there is demonstrated evidence that climate information and associated services have led to benefits for stakeholders in the agriculture sector, yet the capacities to deliver and access these services are highly uneven across regions and countries. Therefore, there is a need to strengthen the global-regional-national hydro-meteorological system required to operationalize and deliver these products in a timely manner, so that everyone can benefit. This will be key in terms of behavioural adaptation, based on the perspective that the short-term, small-scale nature of incremental adaptation may be insufficient for addressing the large-scale global challenge of climate change. It rather calls for a transition towards transformative change with the potential to increase societal resilience and to produce long-term, innovative, high-intensity societal benefits (as discussed in Wilson et al. 2020).

With business as usual no longer being a viable option, crop producers, food producers, processing and retail as well as other actors in the agri-food value chain, face diverse challenges affecting several decision processes in their businesses. Such decisions can be optimized using appropriate climate services tools that support both their long term strategy as well as shorter term agricultural, quality and commercial management decisions.

The ability to make better decisions through climate services leads to more efficient climate adaptation and generation of more value for farmers (in terms of avoided losses) and consumers (in terms of better value for money), among other actors in the agri-food value chain. Better climate services may translate as better estimates of plant phenology and harvest dates, better estimation of total production, optimized use of plant protection products, reduction of their human and environmental impacts, better informed farmers on investment cases for drought resilient crops and livestock or more efficient irrigation systems.

Expected impacts of climate services' contribution in the move towards more sustainable food systems:

- Favour adaptation of the agriculture sector to climate change, namely through correct and timely choices of better adapted crops for each agricultural area
- Increase the resilience of agriculture stakeholders by providing them with timely, more accurate information on climate risk allowing for preemptive measures to be taken, both in the medium and long-term
- Contribute to reduction in the use and risk of plant protection products (through the optimized use of these products)
- Reduce food loss (through better forecasts of phenology, estimation of production, timely application of protection, etc.)





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- Drive value into the agriculture sector by allowing for timely management of production resources (labour, equipment rentals, product stock management)
 - Protect the investment in farming ventures by reducing the uninsurability of farms and crops
 - Allow for strategic planning by establishing the moment in the future when disruptive pressures will be more likely, therefore making possible a planned, organized transition in business models (crop change, land use change, moving production to more favorable areas, identification of newer suitable areas, etc.)”





MED-GOLD SECTORAL INDICATORS TO SUPPORT THE CLIMATE POLICY BRIEF

The COVID-19 pandemic canceled significantly the planned sectoral meetings, limiting the chance of showcasing MED-GOLD activities and results to policy makers as happened during the previous project's years. Such a limitation has been coping with a renewed energy in producing scientific knowledge to be disseminated both with online events (such as in [webinars](#)) and written materials, as [info sheets](#) and policy briefs.

As stated in the Scoping meeting (Rome, Italy, Nov 20 2019) a Policy Brief series has been planned, as reported in the D6.4. To support this series an ongoing activity was focused on a paper titled "Changing climate suitability for olive production in Europe – indicator-based assessment" with the aim of assessing the change of climatic suitability for olive growth under future climate conditions in current olive regions in Europe using the indicator based approach. The idea is to provide a framework of reference to develop practical indicators, along with their variability analysis, to provide salient and reliable information to stakeholders useful for both farmers and policy makers.

Among that editorial production, an assessing study on the change of climatic suitability for olive growth under future climate conditions has been started. This study will be the scientific basis for one sectoral policy brief and will face two main critical aspects: 1) using essential climate variables and base climate indicators to identify suitability changes driven by climate change and 2) assess the risk of climate change impact in current olive regions in Europe using the indicator based approach in the next decades.





4. EXPLOITATION OF RESULTS

Many planned MED-GOLD activities, which are primarily intended for developing pilot climate services, are also producing interesting materials useful for catching policy makers' attention. As an example, the workshop '**Climate services for a climate-resilient Europe - Climate services for a climate-resilient Europe Success stories, lessons learnt and remaining challenges**' obtained a large interest attracting tens of registered people among both sectoral specialists and policy makers. These on-line events would also allow a more effective dissemination of written materials and lessons learnt during the project. As a consequence info-sheets, webinars and on-line events will serve not only to gain visibility, but to also start a virtuous dialogue with further policy makers and enlarge the MED-GOLD interested community.

Furthermore we plan to contact several producers' associations which are known to be authoritative reference points for national and international governmental bodies to convey MED-GOLD salient information in a more effective way. Indeed, sectoral bodies, such as [COPA-COGECA](#) and Comité Européen des Entreprises Vins ([CEEV](#)), already have established contact channels with institutional bodies at national and international levels. In this framework, we will also plan to contact technical-scientific boards, such as the Copernicus User Forum national boards, to speed up the MED-GOLD information diffusion and provide valuable experience in supporting the process of climate service mainstreaming.

It started an action for consolidating the policy-makers and institutional contacts database which have been collected during MED-GOLD activities, even including those bilateral meetings attended by MED-GOLD single partners. That database will represent, in the following months, a valuable platform to effectively disseminate MED-GOLD results among a tailored audience.

END OF DOCUMENT

