Deliverable 5.4: Report on replicability and associated funding mechanisms

WP	5	Exploitation, Dissemination and Communication	
Task	5.3	Exploring replicability, synergies, and EU funding mechanisms for further deployment	
Dissemination level[1]	PU	**Due delivery date**	31-12-2020
Nature[2]	R	**Actual delivery date**	21-12-2020

Lead beneficiary	SEMIDE
Contributing beneficiaries	All

Version	2.0
Total number of pages	45

[1] Dissemination level: **PU** = Public, **PP** = Restricted to other programme participants (including the JU), **RE** = Restricted to a group specified by the consortium, **CO** = Confidential, only for members of the consortium

[2] Nature of the deliverable: **R** = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other

Version history

Document Version	Date	Author	Comments
0.1	19-11-	Maha AL-SALEHI (SEMIDE)	Creation
0.2	07-01-2020	Omar Garcia-Tejera (IRTA), Raül Marcos (BSC), Ignasi Porras (MET)	Contribution
0.3	08-01-	Maha AL-SALEHI (SEMIDE)	Modification
0.4	13-01-	Eric MINO (SEMIDE)	1st Review
0.5	29-01-2020	Omar Garcia-Tejera (IRTA), Raül Marcos (BSC), Ignasi Porras (MET), Vito Macchia (LINKS), Elizabeth A. Nerantzis (ALPHA), Maha AL-SALEHI (SEMIDE)	2nd Review
1.0	03-01-	Josep Maria Solé (MET)	3rd Review
1.1	06-05-2020	Maha AL-SALEHI (SEM), Elizabeth A. Nerantzis (ALPHA), Omar Garcia-Tejera (IRTA), Raül Marcos (BSC), Ignasi Porras (MET), Vito Macchia (LINKS),	Update
2	21-12-2020	Josep Maria Solé (MET)	Final Review & submission

Deliverable abstract

Climate change is threatening different varieties of agriculture species; the wine-grapes are especially sensitive to subtle differences in micro-climate impacts causing changes in the crops (i.e. decrease of the grape quality and quantity, changes in alcohol, acid, sugar, etc.), which directly affects the European wine industry.

VISCA 'Vineyards´ Integrated Smart Climate Application' is an R&I project co-funded under the Horizon 2020 programme for a period of 44 months starting from May 2017. VISCA consortium is led by Meteosim and is composed of 11 members from different fields including end-users.

This deliverable presents the **replicability potential of VISCA Decision Support System and climate services** by presenting the axes of assessment based on:

- the **possible replicability options**: replicability of the tool on specific grapevines (tempranillo, chardonnay, Aglianico, Touriga Nacional), and on other types of grapevines as well as on other crops (e.g. olives, cereals and rice). These options consider the location of the parcels of potential end-users (farmers) whether they are located in the current demo site countries of VISCA project (Italy, Portugal and Spain) or in other European and non-European countries.
- the **needed adjustments on VISCA DSS** and specifically its main components (phenology, irrigation and weather information widgets) to fit the needs of users who grow other types of crops. Moreover, the necessary datasets from clients to run the models in order to make the calibration or adjustment for the replicability are presented.

Furthermore, the document reports on the **networking activities** with some projects and initiatives related to agriculture and climate services. These activities have been achieved since the beginning of the project to establish synergies as well as to exchange experiences and best practices. Finally, the deliverable presents some **associated funding mechanisms** for the purpose of the replicability and exploitation of VISCA.

List of acronyms and abbreviations

AEMO	Spanish Oliva Association
AgMIP	The Agricultural Model Intercomparison and Improvement Project
Aprol Campania	Olive Oil Organization
CAP	Common Agricultural Policy
CLARA	Integrated Climate Adaptation Service Tools for Improving Resilience Measure Efficiency
CS	Climate Service
EAFRD	European agricultural fund for rural development
EAGF	European agricultural guarantee fund
EU-MACS	EUropean MArket for Climate Services
FACCE-JPI	Agriculture, Food Security & Climate Change
ICVV	Institute of Grapevine and Wine Sciences
IFAD	International Fund for Agricultural Development (IFAD)
INGC	National Institute of Field Crops
INNOVI	Catalan Wine Cluster
LIFE VITISOM	Vineyard organic fertilization management through a variable-rate distribution system
MedECC	Mediterranean Experts on Climate and environmental Change
Med-Gold	Turning climate-related information into added value for traditional MEDiterranean Grape, Olive and Durum wheat food systems
MEDSCOPE	MEDiterranean Services Chain based On climate PrEdictions
OIV	International Wine Association
PAB	Project Advisory Board
PM	Person-Month
PRIMA	Partnership for Research and Innovation in the Mediterranean Area on agriculture and water
PTV	Plataforma Tecnológica del Vino
UI	user interface
VISCA	Vineyards´ Integrated Smart Climate Application
WETWINE	Transnational cooperation project to promote the conservation and protection of the natural heritage of the wine sector in the SUDOE area
WMO	World Meteorological Organisation

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1. VISCA project overview

Climate change is threatening different varieties of agriculture species; the wine-grapes are especially sensitive to subtle differences in micro-climate impacts causing changes in the crops (i.e. decrease of the grape quality and quantity, changes in alcohol, acid, sugar, etc.), which directly affects the European wine industry.

VISCA 'Vineyards´ Integrated Smart Climate Application' is an R&I project co-funded under the Horizon 2020 programme for a period of 44 months starting from May 2017. VISCA consortium is led by Meteosim and is composed of 11 members from different fields including end-users (Codorniu, Mastroberardino and Symington).

VISCA provides Climate Services (CS) and Decision Support System (DSS) that integrate climate, agricultural models with farmers' management specifications in order to design short practices, medium- and long-term adaptation strategies to climate change. The project is currently validated by real demonstrations with end-users on three demo sites in Spain, Italy and Portugal.

The main objective of VISCA is to make European wine industries resilient to climate changes, minimizing costs and risks through an improvement of the production management (quality and quantity of final product), while evaluating its replicability to other high-added value agriculture sectors. The integration of climatic and phenological data supplied by 3 demo core groups into a DSS tool - co-designed with relevant South-European wine companies - capable of supplying well-founded decisions for an appropriate crop planning (i.e. pruning, ripening, harvesting, fertilization, pest-control, etc.), with the ultimate goal of making the wine production industry resilient to effects due to climate change. The objectives to be achieved:

- Development of a tool that supplies climate-informed decisions to the wine industry
- Demonstration of the strategic adaptation decisions supplied by this tool in 3 areas where wine business is most sensitive to climate change (Spain, Italy and Portugal)
- Definition of an action plan to tackle barriers and opportunities derived from the full deployment of VISCA on the 3 demo areas.
- Evaluation of the replicability potential in other relevant sectors (forestry, food security, etc.) at international level.

2. Document objectives

The goal of this document is to present the **replicability potential** of VISCA DSS by presenting axes of the replicability assessment in vineyards as well as in other crops (e.g. olives, rice and cereals) in Europe and beyond. This short analysis goes hand in hand with the exploitation plan of the project.

Furthermore, the document reports on the **networking activities** with some projects and initiatives related to agriculture and climate services. These activities have been achieved since the beginning of

the project to establish synergies as well as to exchange experiences and best practices. They have provided inputs for the evaluation of VISCA replicability.

Finally, the deliverable aims to present some **associated funding mechanisms** for the purpose of the replicability and exploitation of VISCA.

3. Replicability of VISCA

Agriculture is a highly dependent sector on heat, sunlight and water, and therefore very sensitive to climate change. According to the current climate projections, weather events worldwide are very likely to become more extreme and frequent.

As a consequence, there are many challenges facing wine-grapes - just like other crops- which include the following:

- To **keep the quality and production of crops**
- To **deal with extreme events and variations in climate conditions**
- To **manage the irrigation efficiently** according to existent resources and weather conditions
- To **prevent or minimize crop diseases and pests** especially with their increasing rate due to climate change

The above-mentioned challenges have made farmers in different countries use specific models to **design adaptation strategies** to improve agricultural practices and adapt to climatic changes. According to the feedback gathered form the replicability activities performed in the framework of VISCA project (e.g. dedicated surveys, sessions at VISCA workshops and other events (see the Annex) and networking with other projects/initiatives), climate adaptation strategies in agriculture include:

- Using predictive climate services and technologies
- Soil management (e.g. permanent green cover)) and managing floors (e.g. plowing).
- Water optimisation (irrigation)
- Changing of the location of farms/vineyards
- Changing of the crop type (climate resistant crops)
- Using different harvest and planting/sowing dates
- Pruning/ Canopy Management

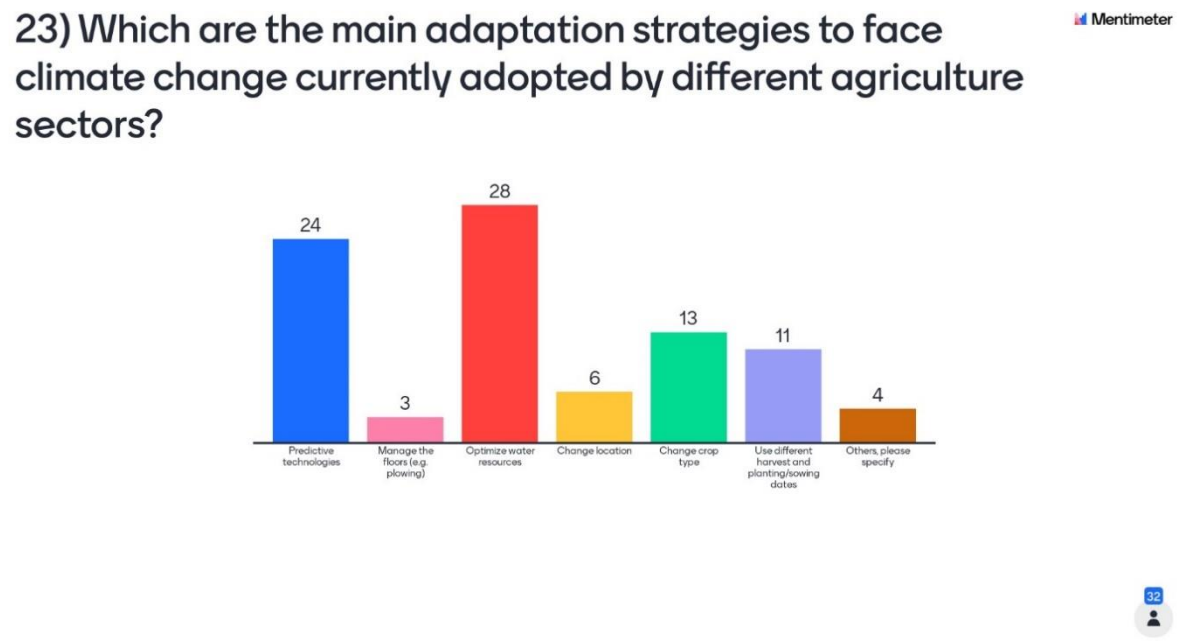


Figure 1 Answers collected during the VISCA e-workshop, 29 October 2020

Furthermore, potential end-users confirm that:

- climate models are relevant to design medium & long-term adaptation strategies to face climate change in agriculture, and
- combining climate models with agronomic models and technics brings added value.

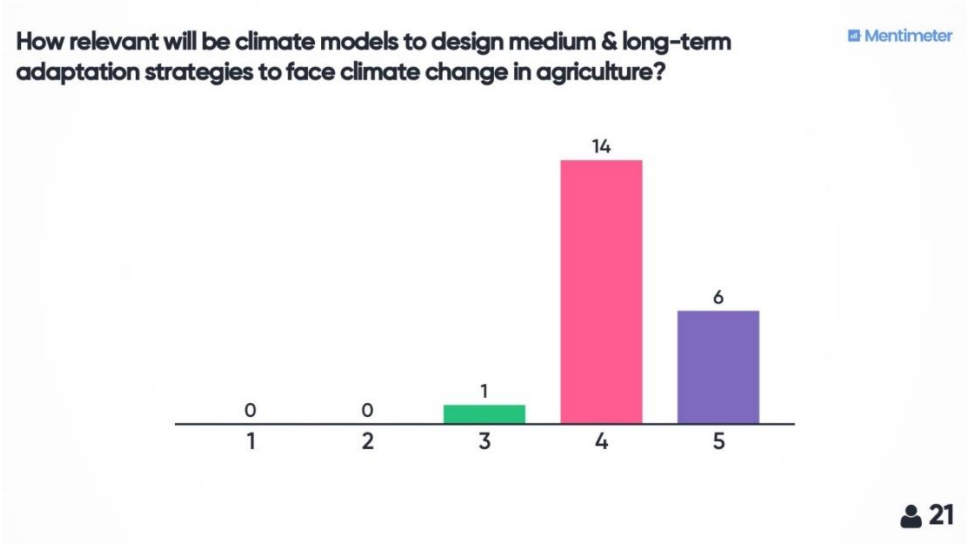


Figure 2 Answers collected during the 3rd VISCA Stakeholders' Workshop, 11 December 2019 (1: Is least relevant, 5: Is the most relevant)

VISCA consortium has designed a Decision Support System (DSS) integrating several climate services in order to respond to the needs of wine producers located in Italy, Spain and Portugal (demonstration

sites of the project); and it is expected to add value in their businesses, saving resources and improving quality. Moreover, one of the objectives of VISCA project is to evaluate the replicability potential in the wine sector in different countries globally as well as to evaluate the replicability of the tool in other crops such as (olives, cereals, rice). The replicability of VISCA DSS is possible with it needs some efforts to adapt the tool.

3.1. Possible replicability options

The possible options for farmers (end-users) to replicate the services provided by VISCA DSS can be summarised in the points below:

- Replicability of the tool on specific grapevine cultivars (Tempranillo, Chardonnay, Aglianico, Touriga Nacional)
- Replicability of the tool on other grapevine cultivars
- Replicability of the tool on other crops (e.g. olives, cereals and rice)

These options can be available in VISCA demo site countries (Italy, Portugal and Spain) as well as other European and non-European countries.

3.2. Axes of the assessment to replicate VISCA DSS

VISCA DSS is a user-friendly platform which integrates climate and agricultural models with farmers' management specifications to design short-term practices, medium- and long-term adaptation strategies to climate change. The DSS frontend landing page (dashboard), which is the main user interface in VISCA, includes 3 main categories of informative boxes, which in VISCA are named "widgets":

- Phenology widgets,
- Irrigation widgets,
- Weather station information and forecasts widgets

These widgets are all integrated in one webpage with a flexible 'backend' through a standard API (Application Programming Interface: **VISCA Data platform**) which can be used independently or be integrated in other existing platforms.

To understand the potential of the replicability potential of VISCA DSS, whether for direct commercialisation or for making customisation to be integrated in existing platforms, we need to assess the required adaptation of the DSS[3] as well as the calibration of the models, which produce the predictive datasets. Based on the abovementioned main components, the requirements for replicability, in relation to crops and locations as well as the necessary datasets to run the models for the replicability are explained below:

[3] The DSS dashboard widgets are only graphical representation of the data in the backend.

3.2.1. Phenology widgets

This axe of replicability depends on the type of **crops**. Since VISCA DSS was designed mainly for grapevine, it would be evident to target other vineyards first; however, it is important to point out that there are certain varieties which have been inserted in the current version of the tool, which are the grapevine varieties found in VISCA demonstration sites: *Tempranillo, Chardonnay, Aglianico, and Touriga Nacional*. For replicating the use of VISCA DSS in other regions of Europe (and elsewhere) for these types of grapes, the efforts would be minimum.

The main effort would be the **calibration of the predictive models** running behind the DSS backend, with minor or no changes to the UI. To do so, it will be necessary to optimize model parameters using at least one year of phenological records for the desired variety at the requested site. Besides, long-term weather records (more than 10 years) will be needed. The entire process variety-site calibration should take from 10 to 15 days of work. The site calibration process is updated every year based on past data. As the VISCA DSS is used, the phenological records, introduced periodically by the users, are saved in the VISCA DSS database. This allows us to fine-tune the models every year and to capture changes in phenological events impacted by climate change.

The use of temperature as a major driver for phenology evolution is well-recognized. However, it is true that this situation can change for other crops. The calibration period proposed, presumes that the main phenological drivers for the crop are well known. If deep changes on model structure are needed to adjust the predictions, the time required to provide phenological forecasts for a new crop will be larger.

Regarding the other crops, the tool could be adjusted to high-value crops, such as olives, but also to other crops, e.g. cereals and rice. VISCA DSS would need to include new models to be inserted into the tool which will be tailored according to the phenology cycle of the desired crop. Such process will be divided in two parts: first, identifying the model that best suits VISCA necessities in terms of number of parameters and predictability for the desired crop which would require further research; second, conducting a specific site calibration. The entire process should take no less than 3 months.

3.2.2. Irrigation widgets

Irrigation widgets are similar to the phenology widgets, but here they represent the water requirements of the **crops**.

Replicating the use of irrigation widgets of VISCA DSS for grapes in other regions in Europe (and elsewhere) would require **limited efforts** since the irrigation needs are based on the weather information widgets (see subchapter 3.2.3) and on plant and terrain aspects which will be introduced by the end-user in the platform.

One of the advantages of the current irrigation predictive models is that only one state variable is crop dependent: the crop coefficient. Hence, the adaptation to other crops could be performed through the tailoring of other crops' coefficient to the site conditions. This should take no more than 1 month.

Summary table:

Table 1 Summary table: axes of the assessment to replicate VISCA DSS (phenology and irrigation widgets)

		Phenological models		Irrigation Model
		Phenology cycle	Leaf and sugar content	
Crops	**grapevines** (tempranillo, chardonnay, Aglianico, Touriga Nacional)	Minimum efforts: **½ PM**	Minimum efforts: **½ PM**	The irrigation models are flexible enough to work with almost every tree crop performing slight changes. However, on annual crops a deeper modification is required. Other tree crops: **1 PM.**
	grapevines (other varieties)	Need for calibration. Site specific variety behaviour. **1 PM** if historical datasets are provided: • at least one year of phenological records for the desired variety at the requested site • at least 10 years weather records. If they are not provided the required time will depend on the availability of the data needed.	Need for calibration. Site specific variety behaviour. **1PM** if historical datasets are provided: • at least 3 seasons of sugar accumulation records for the desired variety at the requested site • at least 3 years of weather records If they are not provided the required time will depend on the availability of the data needed.	
	Olives, cereals and rice and other crops	For the phenology models: Need for new models adapted to other types, tested and validated: **3PM**	For the phenology models: Need for new models adapted to other crops, tested and validated: **3PM** *Some species (e.g. olives), the usefulness of the sugar accumulation model in the fruit would be very limited. Thus, depending on the variety, the need for the model is evaluated.	Need of site-specific crop coefficient to adapt current model to the crop's cycle whether they are olives, cereals, rice or any other crop: **1 PM**

3.2.3. Weather information widgets

The weather forecasts represent both local weather information from weather stations and global weather information. Several details are presented such as: global irradiation, relative humidity, rain, sea level pressure, temperature, wind direction, wind gust speed and wind speed.

VISCA DSS Weather Forecast widget has three options:

- Short-term forecasts (2 days ahead): They are divided from 1-24 hours then 25-48, this information is updated daily.
- Mid-term forecasts (10 days ahead): They are updated daily.
- Seasonal-term forecasts (6 months ahead): They are updated in a monthly basis and only available for temperature and precipitation. They are available in two formats: (i) without

downscaling (only bias-corrected by using) and downscaled. While downscaled forecasts need to use weather stations time series, non-downscaled forecasts do not use any local weather station.

The DSS is currently tested and validated in real-life environment at the 3 demonstration sites involved in the project: Spain (Costers del Segre region), Italy (Campania region) and Portugal (Douro Valley). For this widget, the **location** would be the axe of studying the replicability requirements as explained below:

- If the location is close to or same as VISCA demo sites regions (i.e. Costers del Segre, Campania or Douro Valley) or in Italy, Portugal and Spain, then there will be limited (if any) efforts.
- If the location is different, then calibration is required with different levels of effort for each time-scale of the weather forecast:
    - For short-term weather forecast: It needs to be adapted or linked to a local weather station, tested and validated. The model must be configured and tested for each area due to the data assimilation system. The estimated effort is 1 Person-Month per area.
    - For mid-term weather forecast: It needs to be adapted or linked to a local weather station, tested and validated. The data must be post-processed for the new areas. The effort is estimated to 0.5 PM per area (in average).
    - For seasonal weather forecast: It needs to be adapted or linked to a local weather station, tested and validated. The data must be reviewed and tested for inhomogeneity and outliers. Each time series must be cleaned, rearranged, homogenised and formatted. The average effort is estimated to 2.0 PM per station.

It must be noted that the climate services can also be operated without calibration but then it will provide less accurate forecasts.

Summary table:

Table 2 Summary table: axes of the assessment to replicate VISCA DSS (weather information widgets)

	Weather Forecast Models					
	Short term		**Medium term**		**Seasonal**	
All crops	The model must be configured and tested for each area due to the data assimilation system. **0.5 PM per area**	Need to be adapted or linked to a local weather station, tested and validated **1 PM per area**	The data has to be adapted and post-processed for the new areas. **0.2 PM per area**	Need to be adapted or linked to a local weather station, tested and validated **0.5 PM per area**	The data has to be reviewed and tested for inhomogeneity and outliers. Each time series has to be cleaned, rearranged, homogenised and formatted: **0.5 PM**	Need to be adapted or linked to a local weather station, tested and validated**: 2 PM**
Location	Italy, Spain, Portugal (same regions)	Other regions and countries (EU & non-EU)	Italy, Spain, Portugal (same regions)	Other regions countries (EU & non-EU)	Italy, Spain, Portugal (same regions)	Other countries (EU & non-EU)

3.2.4. *VISCA Data platform*

Regarding the requirement calibrations for 'VISCA Data Platform', they can be explained based on the following three aspects:

- Responsive web app (includes backend)
- VISCA Data Interface & Geo Importer
- Sensor service

Table 3 summarises the needed calibrations and PM requirements per each aspect.

Table 3 Summary for the replicability requirements for the VISCA data platform

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="3">VISCA Data Platform</th></tr>
<tr><th>Responsive web app (includes backend)</th><th>VISCA Data Interface & Geo Importer</th><th>Sensor service</th></tr>
<tr><td rowspan="3">Crops</td><td>grapevines (tempranillo, chardonnay, Aglianico, Touriga Nacional)</td><td rowspan="2">Already supported. Initial data shall be uploaded into the platform by the end-users. A support could be envisaged to create the initial data. If the manual update approach is kept for achieved data, no additional costs. If an automation with an existing system (e.g. irrigation) shall be realized to automatically fetch data the effort is 3PM for a web-based system. To be evaluated otherwise</td><td rowspan="3">None unless additional data or layers are required. The database structure already supports more data, while for the map layer it depends on the number of additional layers and the file format. The cost is 0.5 PM (up to 3 new layers with formats already supported), or 3 PM (up to 5 layers with a new data format). Other combinations to be evaluated</td><td rowspan="3">None, but for each additional station an adapter shall be created. If the data sharing is through FTP (current solution), the effort is 0.5 PM, it shall be evaluated otherwise</td></tr>
<tr><td>grapevines (other varieties)</td></tr>
<tr><td>Olives, cereals and rice and other crops</td><td>Adaptation of the initial data, depending on the crop: 3PM Adaptation of the data visualization: 3 PM</td></tr>
</table>

3.2.5. Data to be provided from the client

The necessary datasets to run the models to make the calibration or adjustment for the replicability of VISCA DSS are summarized below:

Table 4 necessary datasets required from VISCA clients

VISCA Module	Essential datasets	Desirable dataset (improving quality of forecasts)
Phenological forecast (updated monthly)	Used in the set-up of the system: • Parcel details (Variety, terrain slope, orientation, plant space, soil texture, ...) • Phenological data (at least 1 year in the past) • Date and intensity of management practices (crop forcing/shoot trimming) • Historical weather data (at least 10 year in the past)	Used during system production: • Phenological observation of the current year
Irrigation forecast (updated monthly)	Used in the set-up of the system: • Parcel details (Variety, terrain slope, orientation, plant space, soil texture, ...) • Irrigation system details • Desired water stress in each of the three phenological stages defined Used during system production: • Real irrigation volumes applied	Used during system production: • Leaf area and canopy dimensions evolution
Sugar accumulation forecast (updated weekly once fruitset is achieved)	Useful for set-up of the system: • Parcel details • Desired sugar by the time of harvest Used during system production: • Phenological observation of the current year • Date and intensity of management practices (crop forcing/shoot trimming)	Used in the set-up of the system: • Historical weather data (at least 1 year in the past)* • Phenological data (at least 1 year in the past)*
Short-term forecast (updated daily)		Used in the set-up of the system: • Historical weather data (at least 1 year in the past)* Used during system production: Near-real time weather data
Mid-term foreacast (updated daily)		Used in the set-up of the system: • Historical weather data (at least 1 year in the past)* (useful to calibrate and validate WRF model when setting-up the system) Used during system production: Near-real time weather data (useful to operational validate of GEFS outputs)
Seasonal forecast (updated monthly)	Used in the set-up of the system: Historical weather data (at least 15 years)*	Historical weather data (at least 30 years in the past)* (useful to calibrate and validate bias-correction and downscaling techniques)

4. Networking activities

VISCA consortium has been performing networking activities to exchange experiences, best practices and establish synergies that could support the deployment of project results or further developments or demonstration if required for replicability. These networking activities have been achieved through attending events, workshops, email exchanges, e-meetings and One-to-One Meetings.

Various contacts and follow up mechanisms have been implemented to set up links which are summarised below:

4.1. Links with other projects & initiatives in the wine sector

Project/ Network	Short description	How?	Why?
INNOVI (Catalan Wine Cluster) **- PAB**	INNOVI represents the Catalan wine cluster and it is a non-profit organization and a certified cluster in the Catalonia Clusters program of the Government of Catalonia. They're part of VISCA PAB. [link]	- Invite them to VISCA workshops - Send them progress reports *Done regularly by VISCA consortium.*	-Provide advice & suggestions to the project. - Connect VISCA to wine stakeholders in the Catalan region
Clim4Vitis (Climate Change Impact Mitigation for European Viticulture)	Clim4Vitis´s main objective is to strengthen and raise UTAD´s – and more specifically its research group CITAB´s – science and technology (S&T) capacity and performance in two main specific fields of research in viticulture & climate: • Grapevine modelling; • Methods and tools for assessing climate change impacts on European viticulture, in general, and on grapevine productivity, quality attributes and risk of diseases and pests in particular. [link]	- Invite them to VISCA workshops - Join their events. - Exchange information and results. *Clim4Vitis coordinator presented the project and results at VISCA final conference*	- Make synergies - Compare results

Project/ Network	Short description	How?	Why?
ICVV (Institute of Grapevine and Wine Sciences)	It is a Research Center devoted to scientific investigation on Viticulture and Oenology. [link]	- Invite them to VISCA workshops - Join their events. *VISCA participated at at the 'International Congress on Grapevine and Wine Sciences' conference, 7 - 9 November 2018 in La Rioja and presenting a poster and making exchanges [link]*	- Connect VISCA to wine stakeholders (Dissemination & exploitation)
LIFE VITISOM (Vineyard organic fertilization management through a variable-rate distribution system)	VITISOM project aims to improve viticulture through sustainable treatments applied to the vine and to the soil. [link]	- Invite them to VISCA workshops - Join their events. - Exchange information and results. *VISCA organised a call to exchange the potential synergies with the coordinator and they were invited to VISCA 3rd Stakeholders' Workshop.*	- Make synergies
Med-Gold (Turning climate-related information into added value for traditional MEDiterranean Grape, Olive and Durum wheat food systems)	The MED-GOLD project demonstrates the proof-of-concept for climate services in agriculture by developing case studies for three staples of the Mediterranean food system: grape, olive and durum wheat. [link]	- Invite them to VISCA workshops - Join their events. - Exchange information and results. *VISCA has participated in several common workshops at "Climateurope Festival 2018", "Wine production in the Pyrenees and hungry caribous and why it matters" and annual workshops of the project (and vice-versa).*	- Make synergies - Compare results
Ochravine	The project aims at creating an integrated management ICT based smart model system at pre- and post-harvest level to control Aspergillus infection	- Invite them to VISCA workshops - Organise e-calls for networking. - Exchange information and results.	- Make synergies & compare results (they focus more on

Project/ Network	Short description	How?	Why?
	and OTA in vine cultivation by combining epidemiological data, biological and chemical management strategies, OTA sensors and precision agriculture tools. [link]	*VISCA consortium organised a call to exchange the potential synergies.*	diseases, but they also create a DSS).
OENEO	*As a unique community of visionary experts, the OENEO group offers stakeholders within the wine industry innovative tools, personalised advice, safe and efficient processes to craft, mature, preserve, and celebrate the wines and spirits they desire. [link]*	- *Invite them to VISCA workshops* - *Share results* *OENEO participated at VISCA workshops*	- Connect VISCA to wine stakeholders (exploitation)
SOIL4WINE	The project is aimed at improving soil management in the agriculture sector and at defining tools and methodologies aimed to support soil's functions and ecosystem services. [link]	- Invite them to VISCA workshops - Organise e-calls for networking - Exchange information and results. *VISCA consortium organised a call to exchange the potential synergies.*	- Make synergies
PTV (Plataforma Tecnológica del Vino)-**PAB**	The digital magazine for the professional of the wine industry. They're part of VISCA PAB. [link]	- Invite them to VISCA workshops - Send them progress reports *Done regularly by VISCA consortium.*	- Connect VISCA to wine stakeholders (Dissemination & exploitation)
Vineas	A collaborative platform for Mediterranean vine and wine stakeholders Vineas is a Mediterranean panorama of initiatives around Vine, Wine and Climate Change, and promotes the sharing of experiences on a large scale. VINEAS connects Solutions & Levers,	- Invite them to VISCA workshops - Share results - Be part of the platform stakeholders	- Connect VISCA to wine stakeholders (Dissemination & exploitation)

Project/ Network	Short description	How?	Why?
	Actors, Projects, Documents and news from all stakeholders interested in the vine and wine and their climate issues. [link]	*VISCA is registering at the platform as an Actor.*	
WETWINE (Transnational cooperation project to promote the conservation and protection of the natural heritage of the wine sector in the SUDOE area)	The project contributes in managing the waste generated by the wine industry during the winemaking process and to control its impact on the environment, as well as promoting the rational use of fertilizers based on the development of an innovative pilot experience using both treatments anaerobic digestion and sludge and water constructed wetlands. [link]	- Invite them to VISCA workshops - Organise e-calls for networking - Exchange information and results. *VISCA consortium organised a call to exchange the potential synergies*	- Make synergies

4.2. Links with other projects & initiatives in the agriculture sector in general (focus on Olives, cereals and rice)

Table 5 List of projects and networks in the agricultural sector in general

Project / Network	Short description	How?	Why?
AEMO (Spanish Oliva Association) - **PAB**	The association is made up of more than 120 municipalities and Spanish councils linked to the cultivation of olive tree. They're part of VISCA PAB.[link]	- Invite them to VISCA workshops - Send them progress reports *Done regularly by VISCA consortium.*	-Provide advice & suggestions to the project. -Connect VISCA to olive stakeholders
AgMIP (The Agricultural Model Intercomparison and Improvement Project)	The AgMIP Mission is to significantly improve agricultural models, and scientific and technological capabilities, for assessing impacts of climate variability and change and other driving forces on agriculture, food security, and poverty at local to global scales. [link]	- Invite them to VISCA workshops.	- Make synergies - Compare results

Project / Network	Short description	How?	Why?
Aprol Campania (Olive Oil Organization)-**PAB**	The aim of the organisation is to give value to the regional olive production through technical assistance to the business partners and giving information of the territory. They're part of VISCA PAB. [link]	- Invite them to VISCA workshops - Send them progress reports *Done regularly by VISCA consortium.*	-Provide advice & suggestions to the project. -Connect VISCA to olive stakeholders
COTOLIVA- PAB	OP LATIUM is the largest Organization of Olive Producers and Transformers in the region of Latium (Rome - Italy). They're part of VISCA PAB. [link]		
INGC (National Institute of Field Crops)-**PAB**	INGC is a non-administrative state-owned company under the supervision of Minister of Agriculture in charge of applied research and the dissemination of innovation by betting on the use of modern communication tools in order to achieve food security in the light of the climate change considerations. They're part of VISCA PAB. [link]	- Invite them to VISCA workshops - Send them progress reports *Done regularly by VISCA consortium.*	-Provide advice & suggestions to the project. -Connect VISCA to cereals stakeholders
OLIVE4CLIMATE	Climate Change Mitigation Through a Sustainable Supply Chain for the Olive Oil Sector. [link]	- Invite them to VISCA workshops - Organise e-calls for networking.	- Make synergies & compare results
SUSTAINOLIVE	The objective of the project is the improvement in the sustainability of the olive grove, based in the exchange of knowledge among the partners in the sector [link]		
Pôle Terralia-Pass - PAB	It is a network of companies, research and training actors from the agricultural, food and plant technology sectors. They're part of VISCA PAB. [link]	- Invite them to VISCA workshops - Send them progress reports *Done regularly by VISCA consortium.*	-Provide advice & suggestions to the project. -Connect VISCA to agricultural stakeholders

4.3. Links with climate services projects and networks

Table 6 List of climate services projects and networks

Project / Network	Short description	How?	Why?
CLARA Integrated Climate Adaptation Service Tools for Improving Resilience Measure Efficiency	The aim of CLARA innovation action is to develop a set of leading edge climate services building upon the newly developed Copernicus Climate Change Services. [link]	- Invite them to VISCA workshops - Join their events. *VISCA made networking with CLARA at "Climate services at work – Exchange and networking project lab" 29-30 November 2017 in Brussels & VISCA 3rd Stakeholders' workshop 2019.*	- Make synergies - Compare results - Dissemination
ClimApp project	Translating climate service information into personalized adaptation strategies to cope with thermal climate stress. [link]		
Climate-fit.city	The project provides cities with the best scientific high-resolution climate data and tailored-to-fit climate services to help them prepare for extreme weather and the changing climate.). [link]	- Invite them to VISCA workshops - Join their events. *VISCA participated at their event 'Making climate services a reality' [link]*	
Climateurope	Coordination and support action that pursues synergies with other EU initiatives through a Europe-wide network for researchers, suppliers and users of climate information. [link]	- Invite them to VISCA workshops - Join their events. *VISCA attended their event 'Climate Services Festival' 17-19 October 2018, in Belgrade, and participating at 2 roundtables (speakers) + a poster [link]* *A section with a general description of VISCA available on the Climateurope website.*	

Project / Network	Short description	How?	Why?
EU-MACS (EUropean MArket for Climate Services)	EU-MACS is concerned with market research for climate services. Their goal is to improve matching of supply with demand for climate services products and make climate information more accessible. [link]	- Invite them to VISCA workshops - Join their events.	- Make synergies - Compare results - Dissemination
INDECIS	Integrated approach for the development across Europe of user oriented climate indicators for GFCS high-priority sectors: agriculture, disaster risk reduction, energy, health, water and tourism. [link]		
MedECC (Mediterranean Experts on Climate and environmental Change)	MedECC is an open and independent international scientific expert network acting as a mechanism for decision-makers and the general public on the basis of available scientific information and on-going research. [link]		
MEDSCOPE (MEDiterranean Services Chain based On climate PrEdictions)	A project that will enhance the exploitation of climate predictions from seasonal to decadal timescales [link]		
PRIMAVERA	A project aims to develop a new generation of advanced and well-evaluated high-resolution global climate models, capable of simulating and predicting regional climate with unprecedented fidelity. [link]		
S2S4E	**Sub-seasonal to Seasonal climate forecasting for Energy** S2S4E offers an innovative service to improve renewable energy (RE) variability management by developing new research methods exploring the frontiers of weather conditions for future weeks and months. [link]	- Invite them to VISCA workshops - Join their events. *VISCA participated at the innovation camp "Climate Sprint: Accelerating Climate Solutions",as 'speakers' and they presented the project at VISCA Final e-conference [link]*	- Make synergies - Compare results - Dissemination

Project / Network	Short description	How?	Why?
WMO (World Meteorological Organisation) – **PAB**	World Meteorological Organization is the United Nations' authoritative voice on weather, climate and water. They're part of VISCA PAB. [link]	- Invite them to VISCA workshops - Send them progress reports *Done regularly by VISCA consortium.*	- Provide advice & suggestions to the project.
Union for the Mediterranean (UfM) Climate Change task force	The UfM task force on Climate change explore the CC impact on agriculture, Climate finance and strategies for mitigation and adaptation in the Mediterranean region	- Join their events - Present VISCA solution *VISCA project was presented in a dedicated workshop on the impact of climate change on the agricultural sector during 'UfM Climate Week 2019', 9-11 April 2019, Barcelona.*	- Dissemination to policy makers - Contacts with financing instruments

Furthermore, the project has organised **one-to-one meetings** with potential resellers and end-users mainly for **exploitation** purposes, examples are:

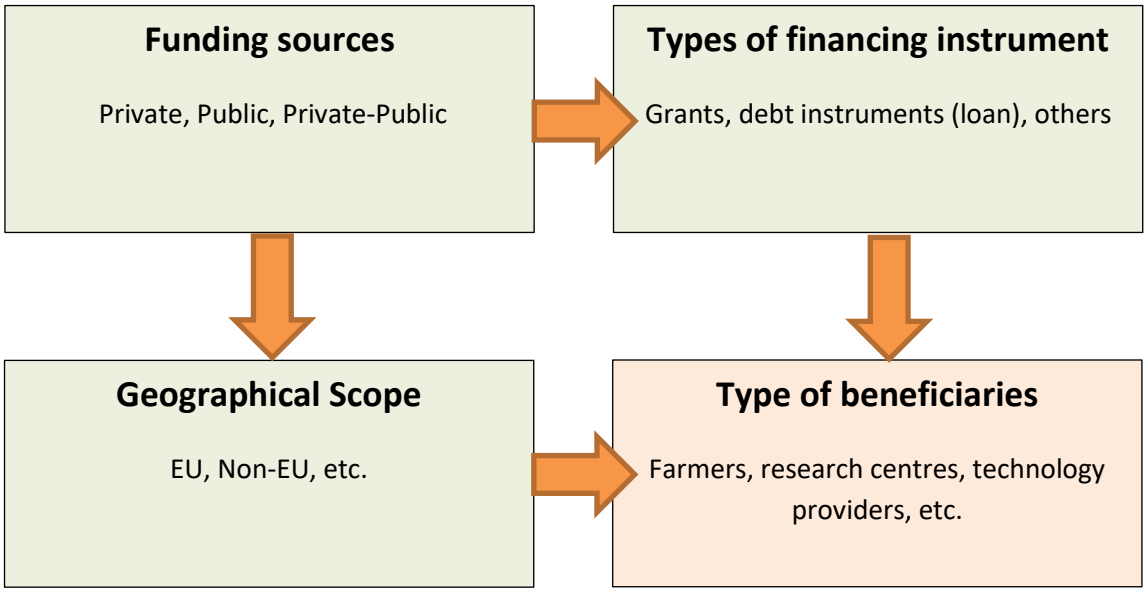
- **Agricolus**: Agricolus s.r.l. is an innovative start-up which develops solutions for Smart Agriculture. The core of the company is a cloud ecosystem of precision farming applications: Decision Support System, forecast models, smart pest and disease control, and remote sensing. [link]
- **Agropixel:** Agropixel is service company dedicated to productive improvement, input optimization and production and quality planning in the agriculture sector. [link]
- **X Farm:** It is an application which helps farmers to be more efficient in terms of agricultural practices. [link]

Moreover, as a great interest in VISCA was recorded, some iterations with other actors have been carried out throughout the duration of the project to seek potential synergies. These are namely Bodegas Bilbainas (Winery)[link], Bodegas Riojanas (Winery)[link], Prescient weather (Climate Service provider)[link], EVOINOS (Wine Consultancy) [link], OENEO (Wine Consultancy)[link], and HISPATEC (Agronomical software providers)[link], HEMAV (Technology company) [link], RAWDATA (Agronomical software provider)[link] and PHENOME Networks (Agronomical software provider)[link].

5. Funding mechanisms

The objective of this list of funding mechanisms is to provide detailed information on financing instruments enabling the replicability of VISCA project in other regions or in other crops (see above: *3.1 Possible replicability options*) as well as to give some opportunities for exploitation. This list has been made based on 4 elements:

- **Funding sources:** Where do the funds come from?
- **Types of financing instrument**: What is the form is the financing?
- **The geographic scope**: Which countries/regions are eligible?
- **Types of beneficiaries:** Who are the recipients?



1st/ Funding sources:

Funding sources can have three forms based on where they come from:

- **Private:** Private investments, private international funds for agricultural / climate projects, etc.
- **Public:** These are the funds provided by a public party at several levels:
  - At the EU level: Funds given by the European Commission through agricultural, climate or/and research and innovation programme (e.g. EAGF, EAFRD, FACCE-JPI, and H2020).
  - At the national and local levels: Funds coming from the general governmental budget, bonds, state revolving funds, etc.
- **Private-public:** a mix of the two sources mentioned above.

2nd/ Types of financing instrument

Financing instruments can be delivered in different forms (*Quesnel et al, 2016*):

- **Grants**: sums of money received by a grantee that do not have to be repaid to the grantor; awarded to co-finance specific projects or objectives, usually through calls for proposals
- **Loans**: the sum of money received by a grantee must be repaid to the grantor back in the future, often with an interest. Government loans are often partially or fully subsidized, resulting in low or no interest borrowing;
- **Rebates**: in this type of scheme, a customer purchases a device or service using his own money, and afterwards it is partially reimbursed by the government, and utility or another entity;
- **Tax credits**: these are used to promote a new technology or practice. Consumers or investors make the initial purchase or investment using their own money, the credit is then claimed when they file taxes for the previous year, and credit amount is subtracted from taxes they have to pay.
- **Private capital:** Money coming from clients' own resources.

3rd/ Geographical Scope:

The geographical scope for our analysis focuses mainly in EU and Non-EU countries in Europe as well as in the Mediterranean region countries as a first step for the replicability of VISCA project. There are certainly other funding sources for other regions in the world which can be further explored.

4th/ Type of beneficiaries:

VISCA's main target beneficiaries – for exploitation and replicability- are farmers and agri-businesses. However, research centres, technology providers and SMEs are also potential beneficiaries.

5.1. List of funding mechanisms/programmes

In the following list of funding mechanisms/programmes, ordered Alphabetically, the below points are presented:

- **Name of the financing mechanism/programme**
- **Description:** This includes a short description which gives a general overview of the aims and objectives of this type of financing.
- **Eligibility:** This gives an overview of which entities can apply to this type of financing (geographical scope and type of beneficiary)
- **Type of Financing:** Grants, debt instruments (loan), others
- **Source of resource**: Private, Public, Private-Public
- **Link:** To obtain further information

Finally, this list is concluded with a summary table (see below, table 7).

Agriculture, Food Security & Climate Change (FACCE-JPI)

The objective of FACCE-JPI is to promote the integration and alignment of national research resources in Europe under a common research strategy, to address the diverse challenges in agriculture, food security and climate change. FACCE-JPI brings together 24 countries comprised of EU Member States, associated countries and one Third Country (New Zealand) who are committed to building an integrated European Research Area addressing the interconnected challenges of sustainable agriculture, food security and impacts of climate change

Eligibility:

Depending on the call, the eligibility could vary. A general eligibility: each project proposal must involve eligible partners from at least two countries from FACCE-JPI participating countries in the call, unless specified otherwise in the national regulations. The eligibility of a partner can be assessed by checking the National Regulations and contacting the NCPs: each partner in an applying consortium must contact his/her NCP(s) before pre-proposal submission in this regard.

Type of Financing: Grant

Source: Public and Private

Link: https://faccejpi.net/

Common Agricultural Policy (CAP)

Description:

The EU's common agricultural policy (CAP) is a partnership between agriculture and society, and between Europe and its farmers. It aims to support farmers and improve agricultural productivity, ensuring a stable supply of affordable food safeguard European Union farmers to make a reasonable living help tackle climate change and the sustainable management of natural resources maintain rural areas and landscapes across the EU keep the rural economy alive by promoting jobs in farming, agri-foods industries and associated sectors.

The CAP is financed through two funds as part of the EU budget

- **the European agricultural guarantee fund (EAGF)** provides direct support and funds market measures.

Farmers' incomes are supported by the European Union by means of direct payments. In return, farmers are obliged to carry out agricultural activity and to respect a number of standards regarding food safety, environmental protection, animal welfare and the maintenance of land in good environmental and agricultural condition.

- **the European agricultural fund for rural development (EAFRD)** finances rural development

Rural Development funding helps to improve the competitiveness of farming and forestry, to protect the environment and the countryside, to improve the quality of life, to diversify the rural economy and to support locally-based approaches to rural development. [4]

Eligibility:

Eligibility criteria are established at the national level of the EU member states, in agreement with the European commission:

- For direct support and payments, applicants have to be active farmers and agribusinesses from EU member states countries. Each EU country, through its ministry of Agriculture, establishes the conditions for support in individual operational programmes and is responsible for managing the funds on its own territory.

- For financing rural development programmes, beneficiaries from EU member states countries can apply for ERDF Funds after checking the specific strategy and needs of the concerned country/region while respecting EU priorities for rural development.

Type of beneficiaries based on the funding:

- For direct payments: farmers and agribusinesses
- For financing rural development programmes: administrative bodies, local Regional authorities' institutions, institutes, educational institutions, NGOs, companies, SMEs and associations.

Type of Financing:

- Income support (subsidies)
- Market measures and rural development measures, can be in the form of direct payment, Loans, microcredits, guarantees or equity.

Source:

Public and (sometimes private sources for EAFRD)

Link: https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy_en

EIT Climate-KIC

Description:

EIT Climate-KIC is a Knowledge and Innovation Community (KIC), working to accelerate the transition to a zero-carbon economy. Supported by the European Institute of Innovation and Technology, it identifies and supports innovation that helps society mitigate and adapt to climate change. EIT Climate-KIC launches a package of proposal calls. Each call area is looking to support ambitious

[4] http://www.europarl.europa.eu/EPRS/Funding_Guide_EN.pdf

initiatives with a clear pathway to positive climate impact, consistent with the Paris Agreement targets and Climate Innovation Impact Goals.

Eligibility:

To be eligible to receive EIT funding for any of these calls, the applicant must be an EIT Climate-KIC partner. Non-EIT Climate-KIC Partners can apply to the call but will not be eligible to receive EIT funding until they have partner status. For more information on how to get this, please contact local Climate-KIC office.

Type of Financing: Grant

Source: Public -Private

Link: https://www.climate-kic.org/get-involved/apply-for-a-grant/

European Investment Bank (EIB)

Description:

The EIB provides long-term loan financing to both public and private clients in the agriculture sector, using a range of instruments. Climate-smart and innovative resource management is one of the focus areas of sustainability and rural livelihoods. Only limited levels of resources, including land/soil, water, fossil fuels and minerals, are available for agricultural production. Changing weather patterns brought on by global warming threaten fragile ecosystems and livelihoods which includes investing in activities and research that prioritise climate-resilient production, the use of

Eligibility

Open to all entities for direct loans: EIB loan application procedures can be accessed here: https://www.eib.org/en/products/loans/index.htm. All intermediated loans must further at least one of EIB's public policy goals, which include environmental sustainability and climate-resilient growth.

Type of Financing: Loans

Link: https://www.eib.org/en/projects/sectors/agriculture/index.htm

Eurostars

Description:

Eurostars supports international innovative projects led by research and development- per-forming small- and medium-sized enterprises (R&D-performing SMEs). A Eurostars project can address any technological area for any market, but must have a civilian purpose and be aimed at the development of a new product, process or service. 'Agriculture and Marine Resources' as well as 'Agrofood technology' are included. Key is the R&D activity in SMEs.

Eligibility:

Any type of organisation can be part of a Eurostars project consortium, although the main partner must be an R&D-performing SME. To qualify as an R&D-performing SME an organisation must first comply with the EC definition of an SME. In addition, it must also meet the thresholds for dedicated R&D FTEs or turnover set by EUREKA. This and all other eligibility criteria are described in detail in the Guidelines for Eligibility.

Type of Financing: Grants - National funding rules can be checked here: https://www.eurostars-eureka.eu/eurostars-countries/europe

Link: https://www.eurostars-eureka.eu/

Horizon 2020 – Environment and climate action (Green Deal)

Description:

Environmental research and innovation finds its centre of gravity in Horizon 2020's: "Climate action, environment, resource efficiency and raw materials", which has the objective of achieving a resource efficient and climate change resilient economy and society, protecting and sustainably managing natural resources and ecosystems and ensuring a sustainable supply and use of raw materials, in order to meet the needs of a growing global population within the sustainable limits of the planet's natural resources and eco-systems.

The **Green Deal Call** worth €1 billion has been launched on the 18th of September. The call is the last within the H2020 Programme and just ahead of the launch of Horizon Europe, the next research and innovation programme kicking-off in 2021. The topic ID LC-GD-9-2-2020 'Developing end-user products and services for all stakeholders and citizens supporting climate adaptation and mitigation' would fit in the replication of VISCA.

Eligibility:

Depending on the call the eligibility requirements may vary. In general, a proposal is **eligible** if:

- its contents are in line with the topic description in the call
- it involves enough of the right participants and meets **standard eligibility criteria** and any other eligibility conditions set out in the call or topic page

Type of beneficiaries could be end-users (farmers), research institutions, universities, NGOs, consulting companies, etc.

Type of Financing: Grant

Source: Public

Link: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/fighting-and-adapting-climate-change-1#Article | Green Deal: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-gd-9-2-2020

HORIZON Europe

Description:

Horizon Europe follows the path outlined by the successful Horizon 2020 programme. The intervention logic and priorities for 2021 2024 are defined in the Strategic Plan. Depending on the call the eligibility requirements may vary. Five missions proposed on the 22 September during the R&I Days

1. Conquering Cancer: Mission Possible

2. A Climate Resilient Europe Prepare Europe for climate disruptions and accelerate the transformation to a climate resilient and just Europe by 2030

3. Mission Starfish 2030: Restore our Ocean and Waters

4. 100 Climate Neutral Cities by 2030 by and for the citizens

5. Caring for Soil is Caring for Life

Candidate Partnership 'Agriculture of Data' Co-funded, foreseen to start in 2023.

DG R&I and DG AGRI to co-design with potential partners.

Eligibility:

Depending on the call the eligibility requirements may vary. In general, a proposal is eligible if: (this is for Horizon 2020)

- its contents are in line with the topic description in the call
- it involves enough of the right participants and meets standard eligibility criteria and any other eligibility conditions set out in the call or topic page

Type of beneficiaries could be end-users (farmers), research institutions, universities, NGOs, consulting companies, etc.

Type of Financing: Grant

Source: Public

Link: https://ec.europa.eu/info/horizon-europe_en

Finally, **private capital** is one source of funding for the replicability of VISCA DSS. This funding is invested by the farmer and/or agribusiness (end-user). The funding mechanism would be through direct payment for the solution/ service fee for replicating VISCA project (refer to exploitation plan).

IFAD

Description:

IFAD grants support research, innovation, institutional change and pro-poor technologies. They are closely linked to IFAD's country programmes and often support connections between different initiatives in a country.

Eligibility:

Grant recipients include research organizations, centres of excellence involved in rural poverty reduction, NGOs, governments, and private sector and civil society organizations. Geographical location is indicated here: [link]

Type of Financing:

There are two types of grants: global or regional grants, and country-specific grants:

- Global and regional grants fund innovative responses to rural and agricultural challenges being faced by several partner countries. These grants are driven by thematic and regional corporate-level strategic priorities for partnership, research, policy engagement and capacity-building.
- Grants for activities implemented in specific countries focus mainly on strengthening institutional, implementation and policy capacities and on innovating in thematic areas. Country-specific grants also pilot new technologies, approaches and methodologies that can subsequently be scaled up through IFAD's country programmes and by other stakeholders.

Source: Public

Link: https://www.ifad.org/en/

INNEON

Description:

The INNEON network for eco-innovation investment aims to extend the public and private funding sources available for eco-innovation and social innovation in Europe. It provides a unique forum dedicated to the interaction between a select cohort of innovators and relevant investors.

Eligibility:

Companies based in the EU with a product, service or business model that is eco-innovative (i.e. has economic as well as environmental and/or social benefits)

Type of Financing:

Potential access to three types of investors servicing different segments of the capital market: business angels, venture capital and corporate investors.

Source: Private Public

Link: http://www.inneon.eu/

Interreg

Description:

Interreg is a European territorial cooperation programme that focuses on strengthening cross-border collaboration and it provides a framework for implementation of joint actions and policy exchanges between actors from different Member States. Many member states, regions and cities have made use of Interreg to fund climate change adaptation (CCA) planning and implementation.

Now Interreg V (2014-2020) is in operation and is structured as follows:

1. Interreg A – Cross-Border: to enhance cross-border cooperation between NUTS III regions from at least two different Member States lying directly on the borders or adjacent to them. Interreg A can be used to invest in innovation, health care, education, employment and labour mobility. Risk prevention and emergency response as part of climate adaptation can be financed by this programme.

2. Interreg B - Transnational: to enhance transnational cooperation between regions from several countries by developing a joint approach to tackle common issues like in the fields of innovation, environment, accessibility, telecommunication, urban development. This programme can finance climate change adaptation strategies as for instance related to, for instance flood management, nature-based solutions.

3. Interreg C - Networking: to enhance interregional cooperation to build up networks to develop good practice and to facilitate the exchange and transfer of experience by successful regions.

Eligibility:

- For **Interreg Europe**: cooperation area covers the whole territory of the European Union with its 28 member states, including their insular and outermost areas, as well as Norway and Switzerland.
- The **Interreg Med**: cooperation area consists of 57 regions divided among 10 EU Member States and 3 countries from the Instrument for Pre-Accession Assistance (IPA).

While types of beneficiaries include:

- Local, regional, national authorities
- Bodies governed by public law
- Private non-profit organisations

Type of Financing: Grant

Source: Public

Link: https://interreg.eu/

JPI Climate

Description:

JPI Climate is an initiative of European member states and associated members to align national programmes by jointly coordinating their climate research and funding new transnational research activities. Transnational coordination of the research base aims to overcome unwanted fragmentation, to make better use of public R&D resources by creating synergies and to facilitate cross border collaboration between top scientists.

JPI Climate connects various scientific disciplines, enables cross-border research and increases science-practice interaction. The ambition of JPI Climate is to significantly contribute to underpinning the European efforts in tackling the societal challenge of climate change

Eligibility:

Depending on the call, the eligibility could vary. So far, there have been 3 calls for JPI climate [link]. A general eligibility criterion, which could vary, is each project proposal must combine significant contributions by eligible partners [link] from at least three countries participating in the call. It is possible to have more than one participant from a country in each consortium. However, consortia should aim for balanced national contributions to the research project. The main beneficiaries include research centres, universities.

Type of Financing: Grant

Source: Private Public

Link: http://www.jpi-climate.eu/programme/about-JPI-Climate

LIFE Climate Action

Description:

LIFE Climate Action supports projects in the development of innovative ways to respond to the challenges of climate change in Europe. LIFE Climate Action supports public authorities, non-governmental organisations and private actors, especially small and medium-sized enterprises, in implementing low-carbon and adaptation technologies and new methods and approaches.

The programme focuses on three priority areas:

- Climate change mitigation
- Climate change adaptation
- Climate change governance and information

Eligibility:

Proposals are checked for their compliance with the eligibility criteria depending on the call. In general, in order to comply with the eligibility criterion, a full proposal needs to demonstrate that:

- it contributes to one or several of the general objectives set out in Article 3 of the LIFE Regulation and of the applicable specific objectives in Articles 14, 15 and 16 of the LIFE Regulation,
- it falls within the scope of the priority areas (as set out in Article 13 of the LIFE Regulation) of the LIFE sub-programme for Climate Action under which the project proposal was submitted,
- it takes place in the Union and/or territories to which the Treaties and relevant acquis apply or it fulfils one of the exceptions laid down in Articles 5 and 6 of the LIFE Regulation and specified in the Guidelines for applicants 2018, and
- it corresponds to one of the following project types as defined in Article 2 (a), (b), (c) and (h) of the LIFE Regulation
- it is **not** focused on research or dedicated to the construction of large infrastructure
- it **does not serve** to fund compensation measures deriving from obligations under national or EU law.

The types of beneficiaries include public bodies, private commercial organisations and private non-commercial organisations (including NGOs).

Type of Financing: Grant

Source: Public

Link: https://ec.europa.eu/clima/policies/budget/life_en

Partnership for Research and Innovation in the Mediterranean Area on agriculture and water (PRIMA)

Description:

The overall objective of the PRIMA programme is to build research and innovation capacities and to develop knowledge and common innovative solutions for agro-food systems, to make them sustainable, and for integrated water provision and management in the Mediterranean area, to make those systems and that provision and management more climate resilient, efficient, cost-effective and environmentally and socially sustainable, and to contribute to solving water scarcity, food security, nutrition, health, well-being and migration problems upstream.

Eligibility:

Depending on the objective of the PRIMA call, all proposals must comply with the eligibility conditions set out in Rules for Participation of Horizon 2020 Regulation No.1290/2013 and any derogations to these as specified in the Decision (EU) 2017/1324.

A proposal will only be considered eligible if:

(a) its content corresponds, wholly or in part, to the topic for which it is submitted;

(b) it complies with the eligibility conditions for participation set out below:

Consortia must include at least three legal entities established in three different countries considered as Participating States, out of which:

- at least one must be established in Croatia, Cyprus, France, Germany, Greece, Italy, Luxembourg, Malta, Portugal, Slovenia, Spain
- at least one must be established in Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Tunisia, Turkey

The types of beneficiaries include research institutions/universities, farmers, NGOs, etc.

Type of Financing: Grant

Source: Public

Link: http://prima-med.org/calls-for-proposals/general-information/

Finally, **private capital** is one source of funding for the replicability of VISCA DSS. This funding is invested by the farmer and/or agribusiness (end-user). The funding mechanism would be through direct payment for the solution/ service fee for replicating VISCA project (refer to exploitation plan).

Table 7 Summary of funding mechanisms opportunities

Financing Name	Eligibility	Type of Financing	Link
Agriculture, Food Security & Climate Change (**FACCE-JPI**)	Depending on the call, the eligibility could vary. A general eligibility: each project proposal must involve eligible partners from at least two countries from FACCE-JPI unless specified otherwise.	Grant	https://faccejpi.net/
CAP- European agricultural guarantee fund (**EAGF**)	Active farmers and agribusinesses from EU member states countries	Income support (subsidies)	https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/financing-cap/cap-funds_en
CAP- European agricultural fund for rural development (**EAFRD**)	Beneficiaries (administrative bodies, local Regional authorities' institutions, institutes, educational institutions, NGOs, companies, SMEs and associations) from EU member states countries having projects which meet the needs of the concerned country/region and EU priorities for rural development	Market measures and rural development measures, can be in the form of direct payment, Loans, microcredits,	

Financing Name	Eligibility	Type of Financing	Link
		guarantees or equity	
EIT Climate-KIC	To be eligible to receive EIT funding for any of these calls, the applicant must be an EIT Climate-KIC partner. Non-EIT Climate-KIC Partners can apply to the call but will not be eligible to receive EIT funding until they have partner status.	Grant	https://www.climate-kic.org/get-involved/apply-for-a-grant/
EIB	Open to all entities for direct loans once the application procedures are accepted.	Loans	https://www.eib.org/en/projects/sectors/agriculture/index.htm
Eurostars	Any type of organisation can be part of a Eurostars project consortium, although the main partner must be an R&D-performing SME. To qualify as an R&D-performing SME an organisation must first comply with the EC definition of an SME.	Grants	https://www.eurostars-eureka.eu/
Horizon 2020 – Environment and climate action (**Green Deal**)	Depending on the call the eligibility requirements may vary. In general, a proposal is **eligible** if: • its contents are in line with the topic description in the call • it involves enough of the right participants and meets **standard eligibility criteria** and any other eligibility conditions set out in the call or topic page Type of beneficiaries could be end-users (farmers), research institutions, universities, NGOs, consulting companies, etc.	Grant	https://ec.europa.eu/programmes/horizon2020/en/h2020-section/fighting-and-adapting-climate-change-1#Article and https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-gd-9-2-2020
Horizon Europe – "Climate adaptation" and "Soil health and food" missions calls	Horizon Europe follows the path outlined by the successful Horizon 2020 programme. Depending on the call the eligibility requirements may vary.	Grant	https://ec.europa.eu/info/horizon-europe_en
INNEON	Companies based in the EU with a product, service or business model that is eco-innovative (i.e. has economic as well as environmental and/or social benefits)	business angels, venture capital	http://www.inneon.eu/

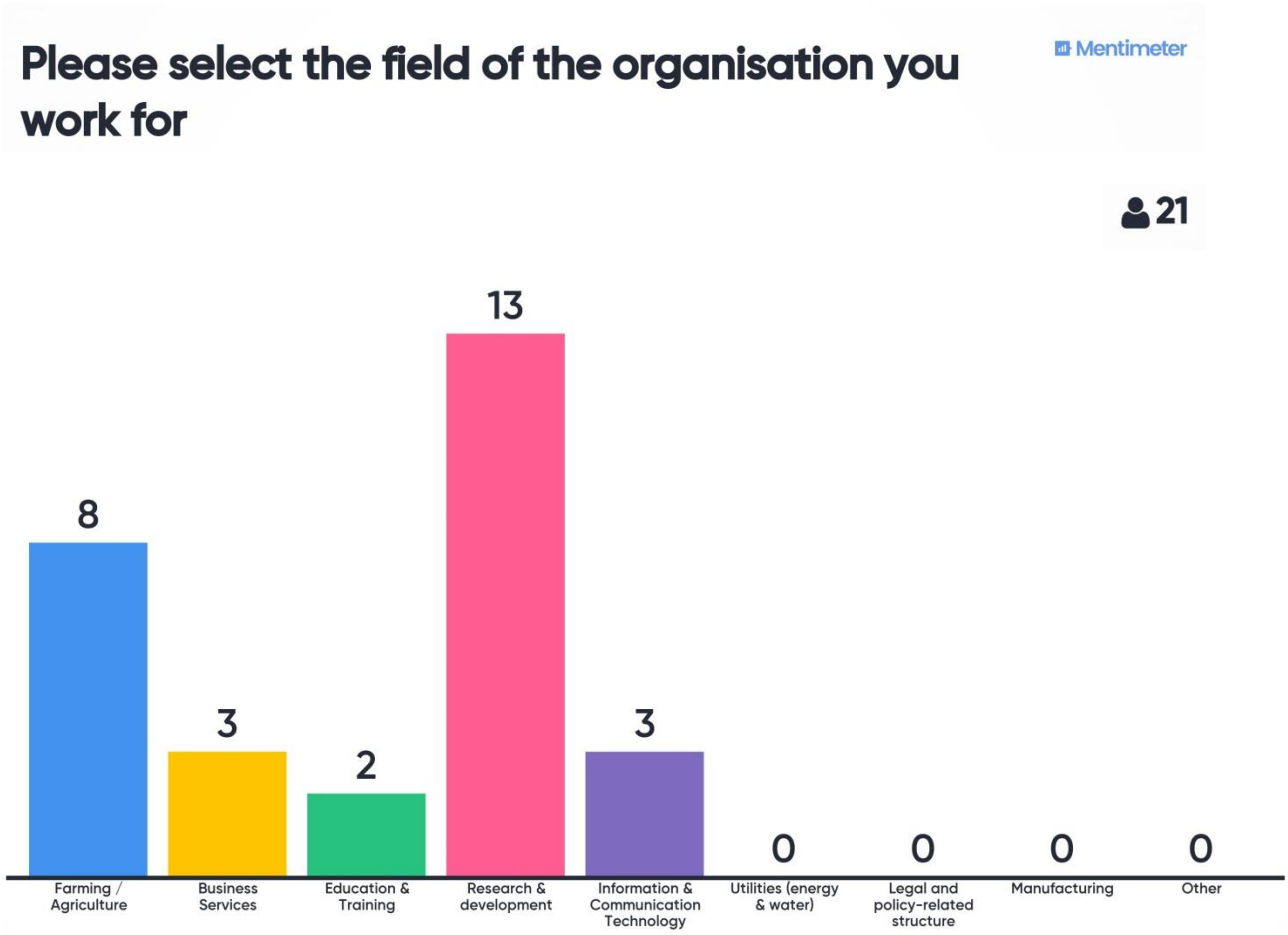
Financing Name	Eligibility	Type of Financing	Link
		and corporate investors.	
LIFE Climate Action	Proposals are checked for their compliance with the eligibility criteria depending on the call. The types of beneficiaries include public bodies, private commercial organisations and private non-commercial organisations (including NGOs).	Grant	https://ec.europa.eu/clima/policies/budget/life_en
Interreg - Interreg Europe	Cooperation area for projects funding shall cover the whole territory of the EU, as well as Norway and Switzerland. Type of beneficiaries: -Local, regional, national authorities -Bodies governed by public law -Private non-profit organisations	Grant	https://interreg.eu/
Interreg- Interreg Med	Cooperation area for projects funding shall cover 57 regions divided among 10 EU Member States and 3 countries from the Instrument for Pre-Accession Assistance (IPA). Type of beneficiaries: -Local, regional, national authorities -Bodies governed by public law -Private non-profit organisations	Grant	
JPI Climate	Depending on the call, the eligibility could vary. Each project proposal must combine significant contributions by eligible partners from at JPI countries participating in the call. The main beneficiaries include research centres and universities.	Grant	http://www.jpi-climate.eu/programme/about-JPI-Climate
Partnership for Research and Innovation in the Mediterranean Area on agriculture and water (**PRIMA**)	Depending on the objective of the PRIMA call, all proposals must comply with the eligibility conditions set out in Rules for Participation of Horizon 2020 Regulation No.1290/2013, while types of beneficiaries include research institutions/universities, farmers, NGOs, etc.	Grant	http://prima-med.org/calls-for-proposals/general-information/

6. Annex

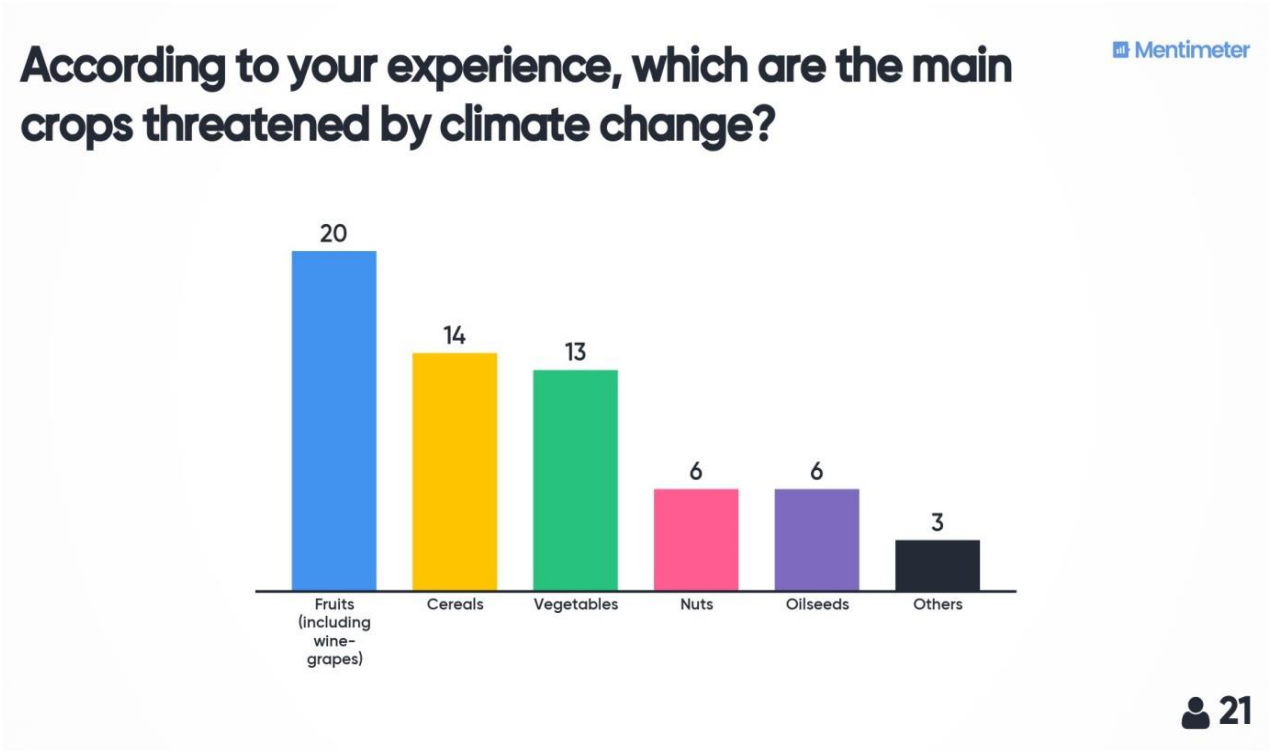
VISCA workshops:

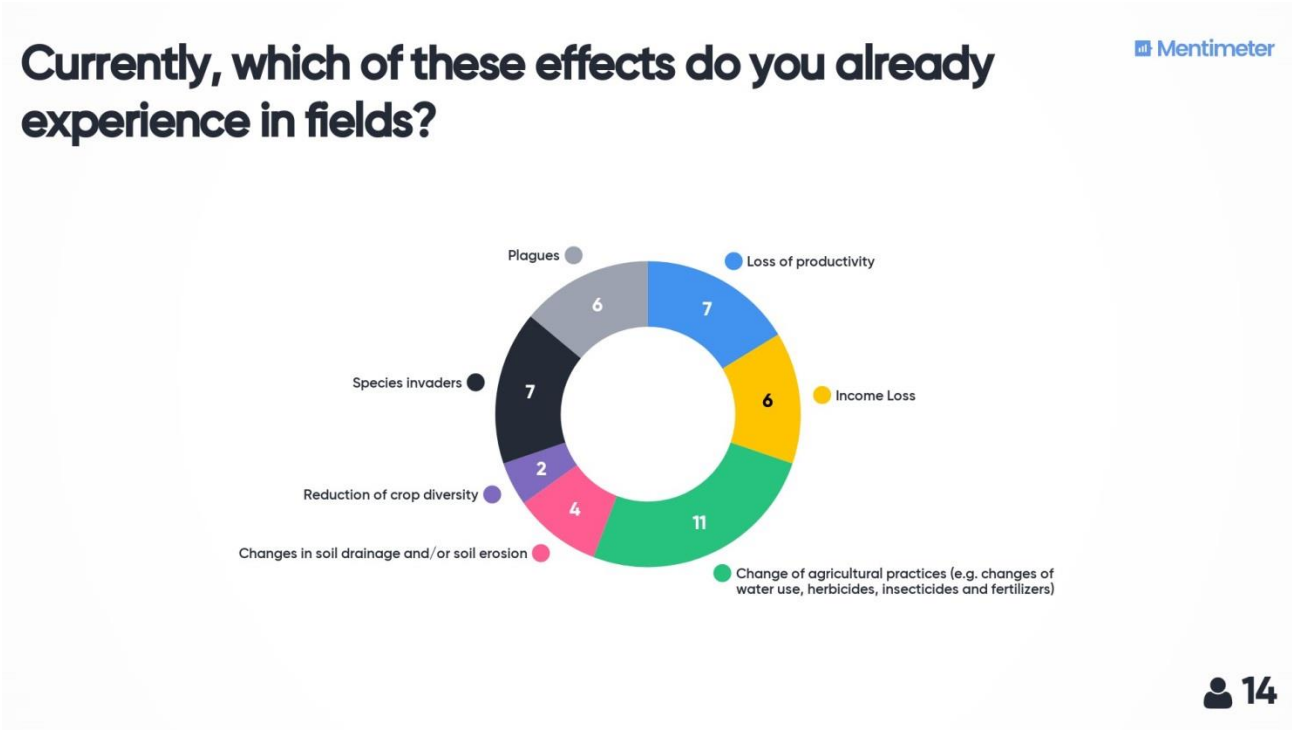
a) **VISCA 3rd stakeholders' workshop:**

During VISCA 3rd stakeholders' workshop, which took place on 11th December 2019 in Barcelona, VISCA consortium invited the Advisory Board members and external guests to present VISCA DSS where several discussions on the functions and its added value took place. Furthermore, a dedicated session on the replicability opportunities was organised in the event. A live survey was made to gather feedback and the answers of this survey are presented in the figures below:

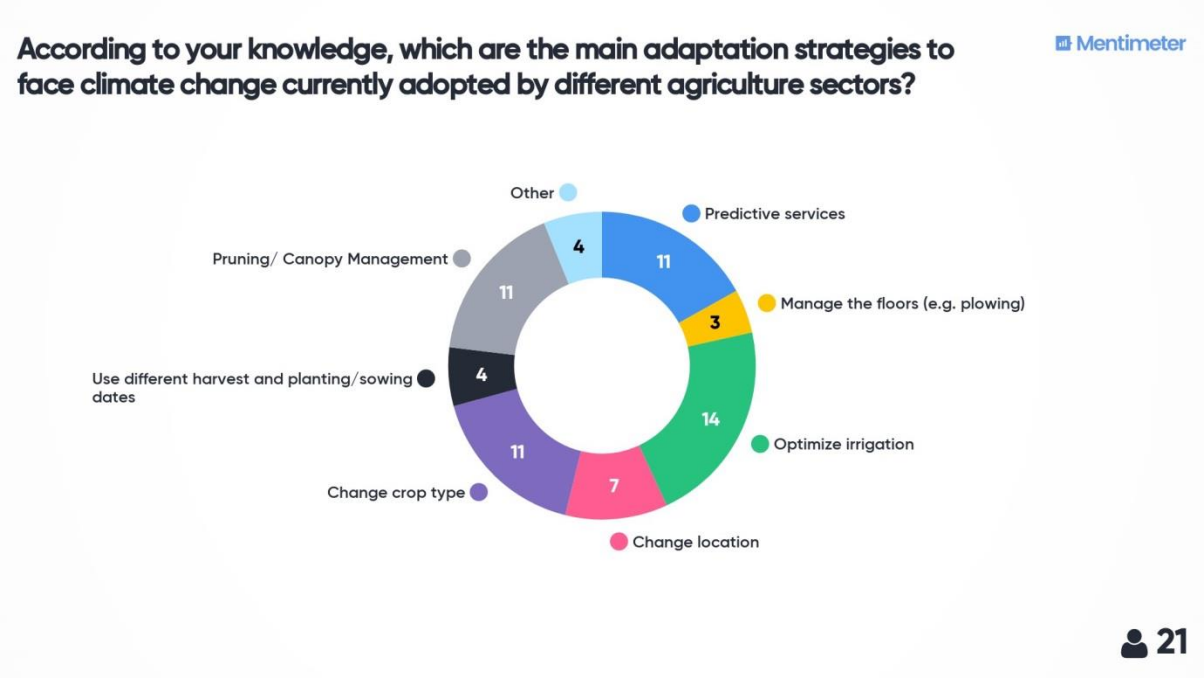


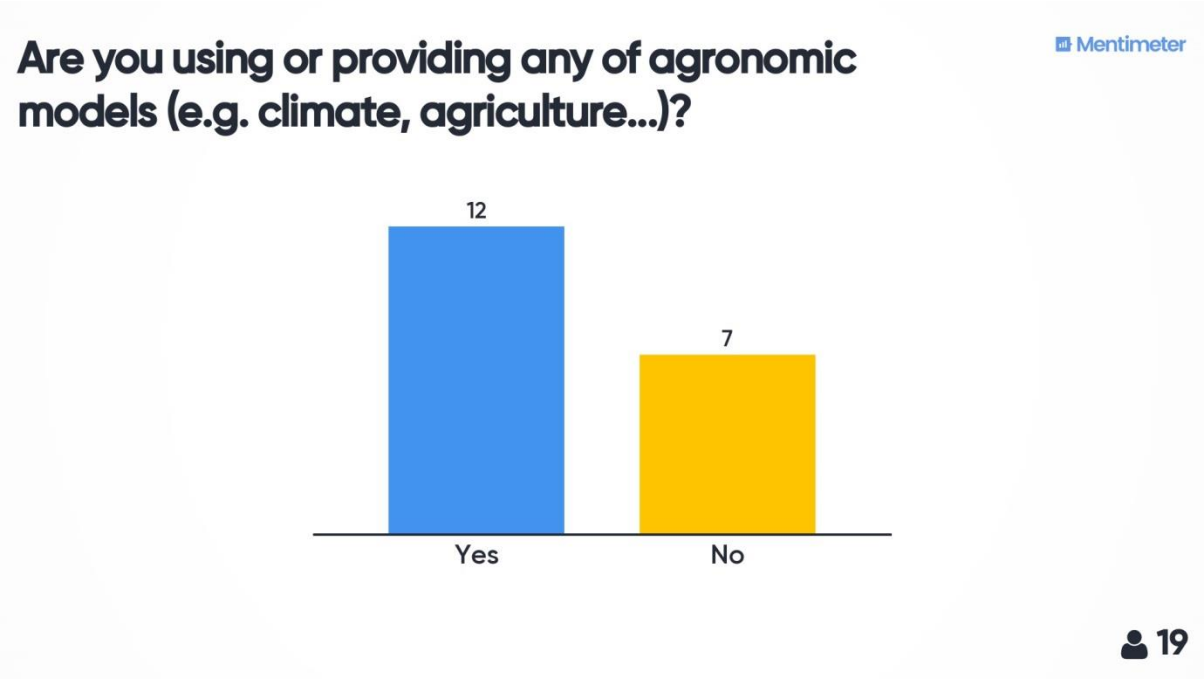
Question#2 with answers:

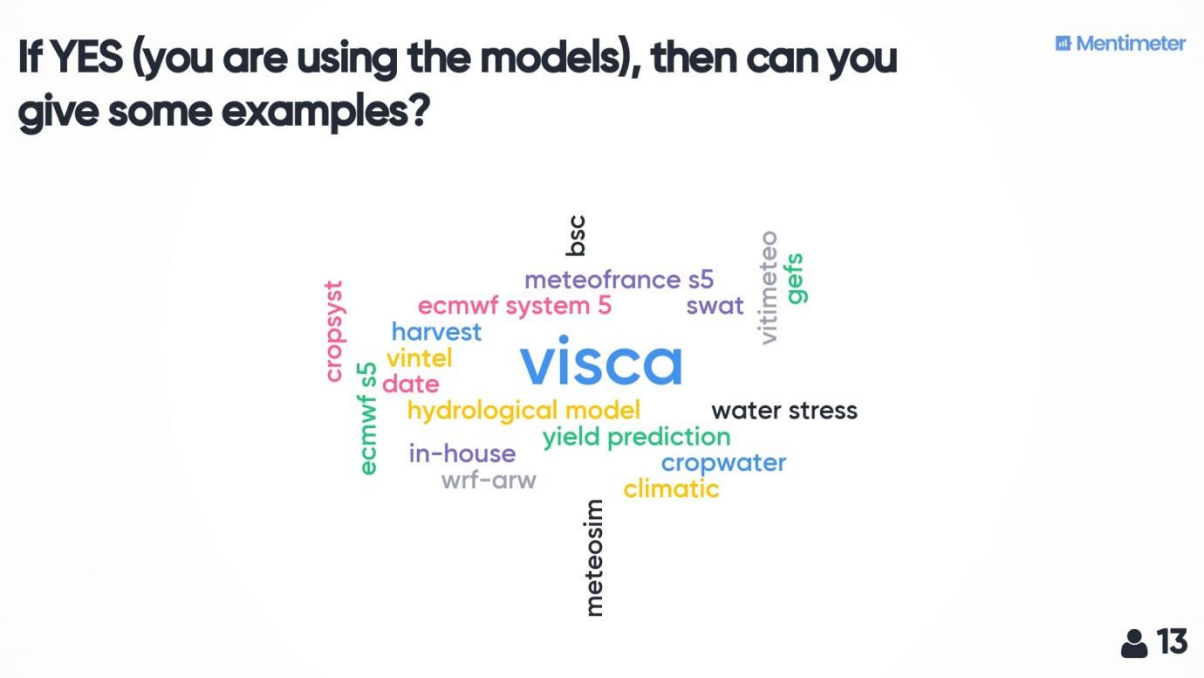


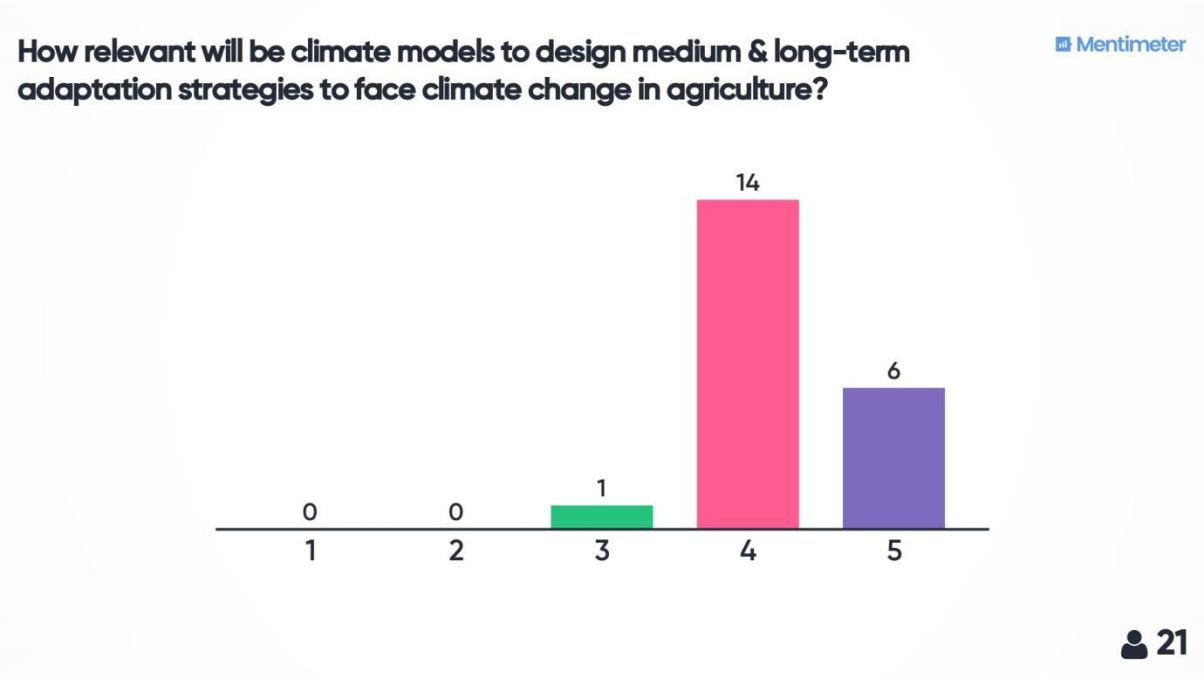


Question#4 with answers:

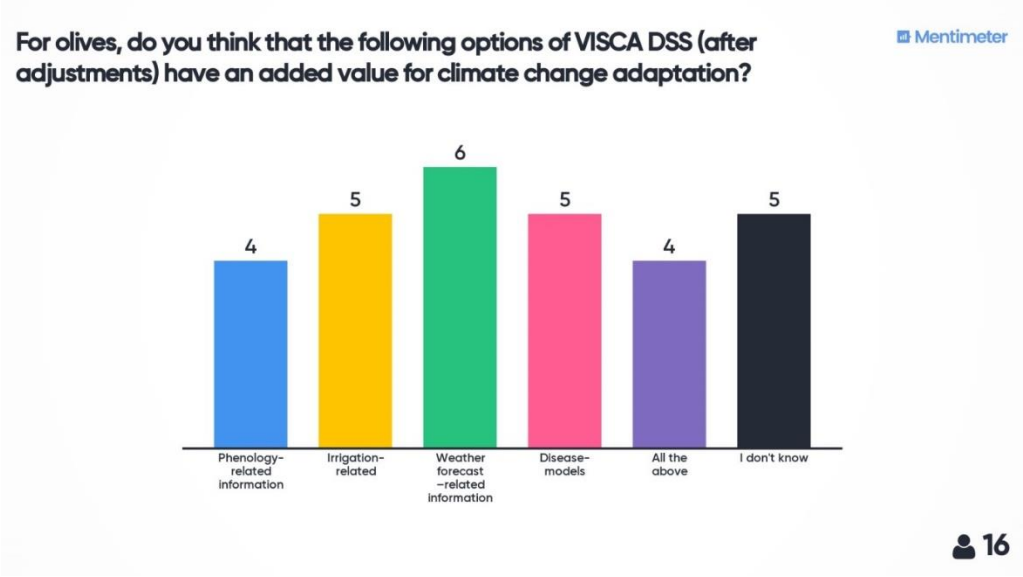

According to your knowledge, which are the main adaptation strategies to face climate change currently adopted by different agriculture sectors?
Mentimeter
Other
Predictive services
Pruning/ Canopy Management
Manage the floors (e.g. plowing)
Use different harvest and planting/sowing dates
Optimize irrigation
Change crop type
Change location
4
11
11
3
4
14
11
7
21


Are you using or providing any of agronomic models (e.g. climate, agriculture...)?
Mentimeter
12
7
Yes
No
19


If YES (you are using the models), then can you give some examples?
Mentimeter
bsc
meteofrance s5
ecmwf system 5
swat
vitimeteo
gefs
cropsyst
harvest
visca
vintel
date
ecmwf s5
hydrological model
water stress
yield prediction
in-house
cropwater
wrf-arw
climatic
meteosim
13


How relevant will be climate models to design medium & long-term adaptation strategies to face climate change in agriculture?
Mentimeter
14
6
1
0
0
1
2
3
4
5
21


Which decisions can you make by using VISCA DSS?
Mentimeter
treatments
spraying
harvest
harvest outlook
harvest time
irrigation plan
irrigation strategies
frost protection
irrigation scheduling
spray
techniques like crop
schedule pray time
canopy management
yield
irrigation quantity
irrigation
agronomic decisions
prepare for risks
irrigation time
harvest planning
soil management
irrigation management
16

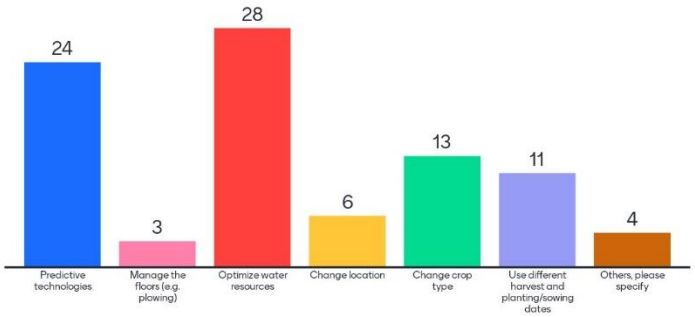

For olives, do you think that the following options of VISCA DSS (after adjustments) have an added value for climate change adaptation?
Mentimeter
4
5
6
5
4
5
Phenology-related information
Irrigation-related
Weather forecast -related information
Disease-models
All the above
I don't know
16

b) **VISCA e-workshop:**

On 29th October 2020, VISCA consortium organized an e-Workshop to present the latest release of VISCA Decision Support System (DSS) & its added value through a live demo. It attracted participants with a variety of profiles: viticulturists, wine producers, scientists, agricultural communities, software providers, entrepreneurs, media, among others who connected to the e-Workshop from 11 countries: Belgium, France, Germany, Greece, Italy, Netherlands, Portugal, Serbia, Spain, Tunisia and the UK. The majority of the questions were focused on the VISCA DSS functionality which were included in deliverable D4.9 with few questions on the exploitation and replicability, including:

23) Which are the main adaptation strategies to face climate change currently adopted by different agriculture sectors?

Mentimeter

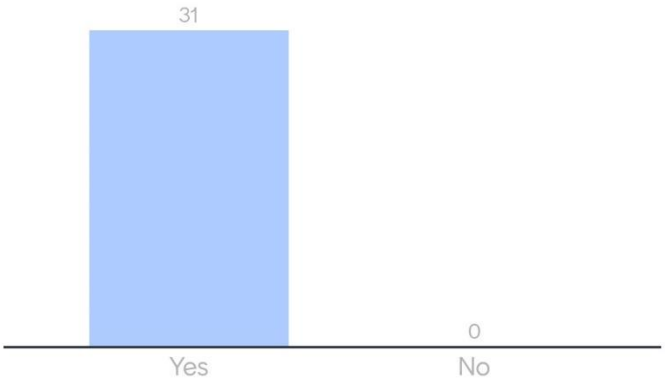


32

24) Would you be interested to test / replicate VISCA climate services?

Mentimeter

None of the options are correct!



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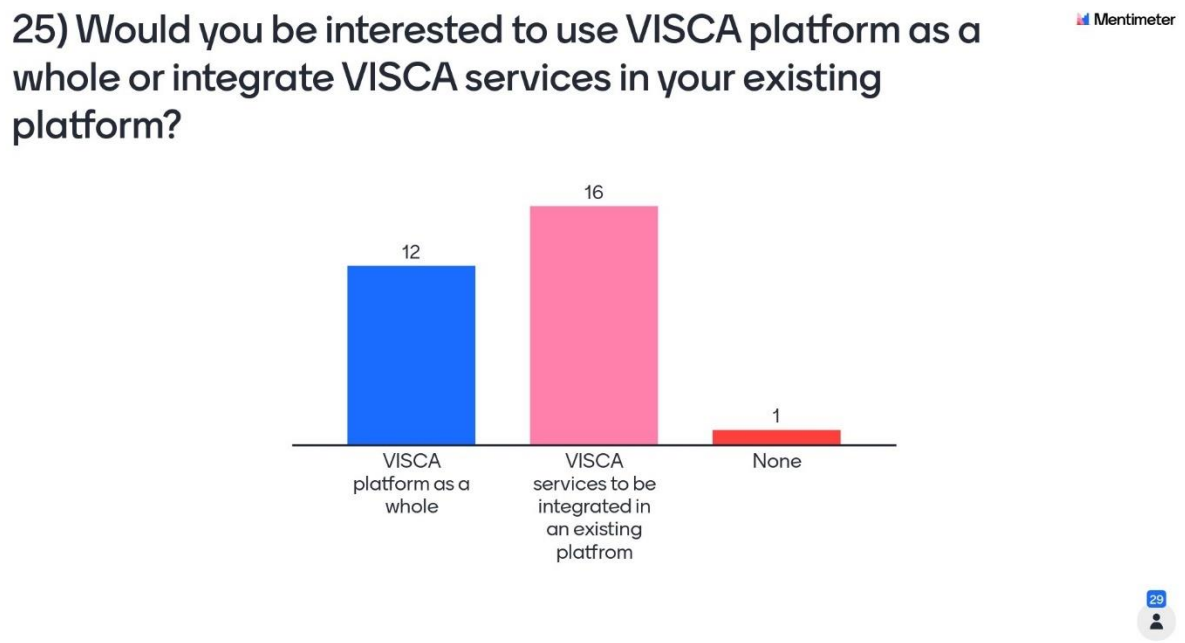

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