

Deliverable 2.1
Operation and update of project website



Development of innovative priming technologies safeguarding yield security in soft fruit crops through a cutting-edge technological approach



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Document Summary

Deliverable number & title: D2.1 – Operation and update of project website

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Lead Beneficiary: CUT

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Contributors to deliverable: CUT, UP, KUL, CSIC, NTUA

Reviewers: Bernd Müller-Röber (UP), Maarten Hertog (KUL), Francisco Tomas-Barberan (CSIC), Magda Krokida (NTUA)

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☒ **PU** Public

☐ **CO** Confidential, only for members of the consortium (including the Commission Services)

Approved by: Steering Committee

Final version of the deliverable to be approved by the respective GA members (before submission to the EU).

☒ CUT (Coordinator)

☒ KUL

☒ CSIC

☒ NTUA

☒ UP

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Start date of Project: November 1, 2022

Duration: 3 years

Project coordinator: CUT



Abstract

The D2.1 entitled 'Operation and update of project website' was provided in three editions, during M3, M17, M36 of the project, respectively. The current version is the third edition (v3) of this deliverable. It is linked with **Task 2.1: Website and other dissemination tools** and took place throughout the whole life span of PRIMESOFT.

Task 2.1 description: Development of a user-friendly website with continuous updating of project information, as well as the use of popular social media that are widely adopted both by the Scientific community (LinkedIn, ResearchGate) and wider (Twitter). The public Section of the website will contain an overall description of the project (objectives, structure, Consortium, methodology, etc.), the public deliverables, as well as an agenda with events, scientific papers and popular articles carried out by PRIMESOFT partners. A restricted area will also be created on the website for access and storage of confidential information by Consortium partners. The website will be continuously updated throughout the duration of the project and will additionally serve as an information tool that provides an open communication with the society, the scientific community and interested stakeholders.

The website structure has been discussed and agreed during the kick-off meeting, held in Cyprus (9-10 November 2022). The initial version of the website became available internally (<https://dev.prime-soft.eu>) and the pertinent feedback was considered and incorporated into the final design of the project's website.

The website aimed to widely promote the objectives, activities and achievements of the project, as a communication tool for all partners and members of the project, such as scientists, end-users as well as the general public. It profiles the project including an overview, all partners and participants, activities, news, scientific outputs and other. The website was one of the first actions implemented upon the project's initiation and was continuously updated. The statistics emerged from the website visibility showed the positive reception from both the research and non-scientific communities. In addition, social media on LinkedIn and X were set-up and will remain operational with updates beyond the end of the project. The social media presence, particularly on LinkedIn, acted as a fruitful and solid ground towards project's wider dissemination and communication of its activities.

The website was officially released on 31st of January 2023 and its domain is www.prime-soft.eu
The social media of PRIMESOFT were established during M1 of project implementation:

- LinkedIn: **PRIMESOFT_Horizon Europe**
<https://www.linkedin.com/company/86415277/admin/>
- X: **PrimesoftE**
<https://twitter.com/PrimesoftE>



1.PRIMESOFT website

1.1 Conceptual design

The website conceptual design and actual implementation was one of the first actions carried out with the activation of the project, and it will be constantly updated as the project progresses. The idea behind the PRIMESOFT website and its development was to present and communicate in a clear manner the main activities of the project along with the possible strategies that will be followed to achieve the scientific outputs and results. The outline of the website was developed considering the concept behind the logo and the colors of the logo (**Figure 1**).

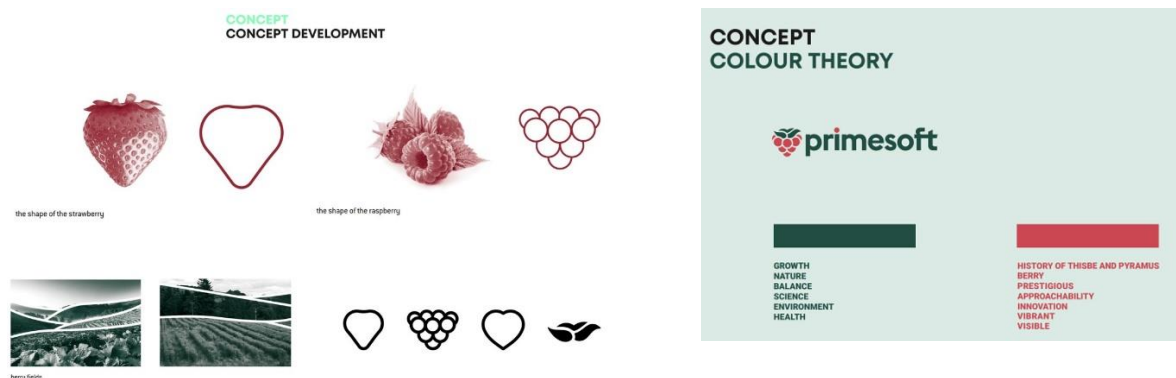


Figure 1. (a) Concept development of PRIMESOFT logo based on the shape of the two under study fruit crops: strawberry (*Fragaria x ananassa*) and raspberry (*Rubus idaeus*). (b) Concept color theory of PRIMESOFT logo. The green color is linked with the terms: 'growth', 'nature', 'balance', 'science', 'environment', 'health'. The red color reflects the following terms: 'history of Thisbe and Pyramus', 'berry', 'prestigious', 'approachability', 'innovation', 'vibrant', 'visible'.

As the website is considered the project's main tool of presentation of its activities and research results to audiences, the Consortium deemed best to include also links to PRIMESOFT's social media accounts (LinkedIn, Twitter, Research Gate). We additionally aim to exploit the academic repository of the Widening Institution (CUT) named KTISIS, where all the publications, newsletters, and public deliverables will be uploaded for better outreach and dissemination.

Three different options of website outline were presented to the partners, and the 3rd option was selected as the most appealing (**Figure 2**). The website was developed using interface design based on HTML5 coding. The web designer applied (i) devices responsiveness and compatibility, cross-browser testing, quality assurance, (ii) research and content development, (iii) web content set up and upload and (iv) slideshow & video applications.

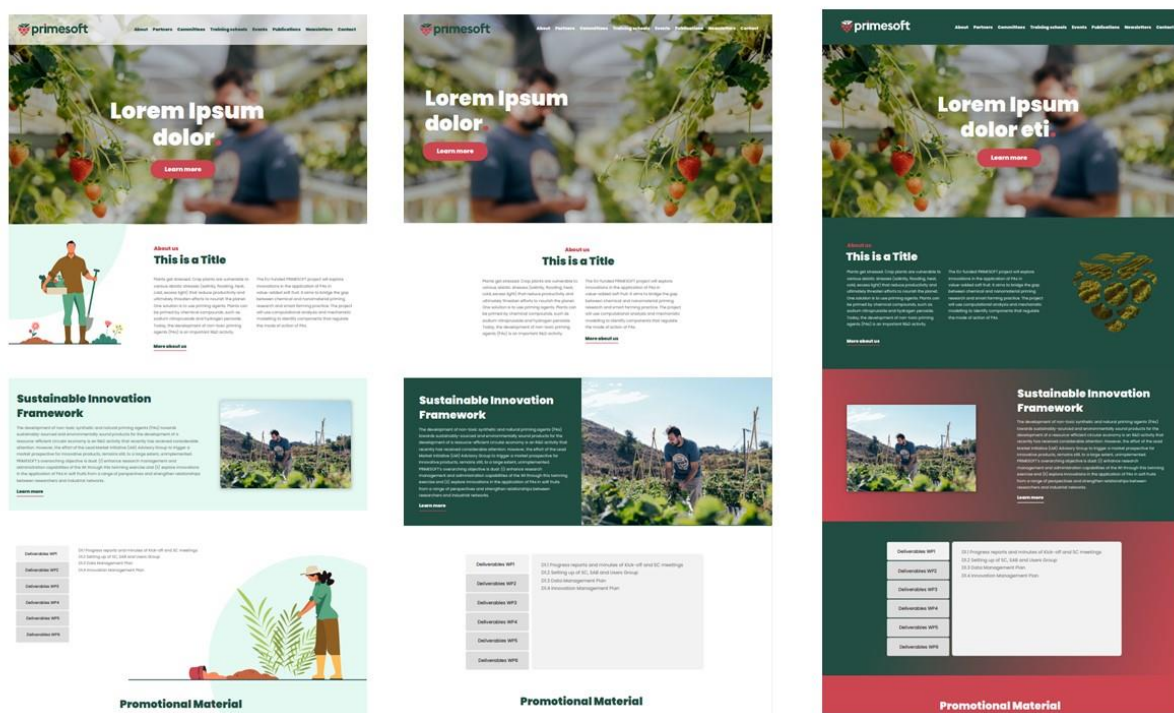


Figure 2. Different options regarding the outline of PRIMESOFT website.

1.2 Website structure

The website was built using a responsive theme, ensuring its aspect ratio won't get distorted when displayed in smaller screens (i.e. mobile phone, tablet, etc.). Visitors are being given the opportunity to read more details about the project and the Consortium, where external links redirect the visitor to personnel's webpages either to their University's or to their profile at their respective laboratories, including their personal LinkedIn accounts. Furthermore, there is a dedicated section for the outputs of the project that will be updated throughout the life span of the project with publications and posters presented in distinguished conferences/journals of the field.

The outline of the website of a Horizon 2020 project (<https://ploutos-h2020.eu/>) was used as an excellent paradigm for PRIMESOFT website. The navigation on PRIMESOFT website is realised through its primary menu, which is composed of the following tabs: (i) Home, (ii) About us, (iii) Partners, (iv) Committees, (iv) Training Schools, (v) Events and (vi) Contact.

Home: The dissemination video (<https://www.youtube.com/watch?v=Op7qhx1d6hA>) in the forefront of the homepage that additionally provides information in brief about the project, its



sustainable innovation framework and deliverables. It additionally includes in a downloadable format promotional material, namely: (i) digital leaflet of PRIMESOFT (**Appendix I**), (ii) printed leaflet of PRIMESOFT (**Appendix II**), (iii) banner of PRIMESOFT (**Appendix III**).

About us: This tab provides information regarding (1) PRIMESOFT at a glance, (2) scientific, technological and widening objectives and (3) list of deliverables per Work Package. An activated link was/will be included for each of the publicly available deliverables that will redirect accordingly the user.

About Us

[At a glance](#) [Objectives](#) [Deliverables](#)

PRIMESOFT at a glance

The development of non-toxic synthetic and natural priming agents (PAs) towards sustainably-sourced and environmentally sound products for the development of a resource-efficient circular economy is an SDG activity that society has needed considerable attention. However, the effort of the Local Market Initiative (LMI) Advisory Group to trigger a market perspective for innovative products, remains still, to a large extent, unimplemented. PRIMESOFT's overarching objective is to explore innovations in the application of PA in value added soft fruit crops from a range of perspectives and strengthen educational, research and innovation activities among the Widening Institution (Cyprus University of Technology) and 4 internationally-renowned Advanced Partners (APs). Through this multi-actor approach, we aim to bridge the gap between chemical and nonchemical priming research and agricultural practice in order to bring the inventions closer to application and commercialization towards resource-efficient smart farming practices.

Besides the novelty of its technological approach that will be validated by sophisticated life cycle cost analysis, PRIMESOFT's ambition is to use computational analysis and mechanistic modelling to identify key components that regulate the mode of action of PAs through the employment of transcriptomic and metabolomic approaches. The WI is expected to receive pioneering education, research and technological capacity by a polymorphic Consortium that share highly complementary skills and the nature of their activities creates added value. Outreach activities are expected to create significant scientific, societal and economic impacts and are particularly dedicated to 8 researchers of the WI in order to acquire the necessary competencies to seek a position of professional maturity. Specifically, PRIMESOFT has planned 2 thematic workshops, 4 training schools with hands-on practice in state-of-the-art methodologies, and an international scientific conference. PRIMESOFT expects to enhance strategic networking activities of its with both APs and stakeholders of the agro/food sector during and beyond the end of the project. To this aim, a business plan towards the development of a Regional Center of Excellence in Plant Sciences will be developed.

Eco-efficiency approaches

- Life Cycle Analysis & Life Cycle Cost Analysis
- Assessment of proposed cultivation protocols
- Product development (i.e. encapsulation of PA)

-Omic tools

- Gene expression analysis
- Global transcriptomic analysis (RNAseq)
- Metabolomic analysis (Volatile organic compounds and phytochemical compounds)

Data analysis & modelling

- Integration of -omics data
- Multivariate statistics
- Annotation and network analysis

Widening objectives

- To develop a critical mass of high-profile researchers of the Widening institution and raise reputation, research profile and attractiveness of the Cyprus University of Technology
- Knowledge transfer to the small-holder Cypriot farmers for greater resilience in agricultural practice.
- To strengthen research management capacities and administrative skills of the WI staff and raise the profile of the WI within the European research Area.
- To establish long-term collaborations with the APs towards increment of the S&T capacity and innovation potential.

Deliverables WP1	Deliverables WP2	Deliverables WP3	Deliverables WP4	Deliverables WP5
D2.1 Operation and update of project website D2.2 DAC&A plan and activities D2.3 Scientific publications in journals/conferences D2.4 Organization of international Scientific conference D2.5 Signed MoUs with industrial partners				



Partners: This tab includes the following information per partner: (i) description of the partner at a glance, (ii) contact information, (iii) team members, (iv) contribution to the project.



University of Potsdam

University of Potsdam (UP) is the largest university in the federal state of Brandenburg, Germany. In 2016, UP was awarded the certificate 'HR Excellence in Research' by the European Commission that identifies the organisation as provider and supporter of a stimulating and favourable working environment for researchers. Plant Science and Genomics in particular, are at the forefront of academic teaching and research at Faculty of Science. The Department of Molecular Biology is part of the Institute of Biology and Biochemistry, which belongs to this Faculty. The Department has a wide-ranging expertise in plant genomics, in particular with respect to analysis of transcriptional factors and gene regulation, abiotic stress response, and senescence, including priming. UP has expertise on plant genomics, in particular with respect to the analysis of transcription factors and gene regulatory networks, physiological and developmental processes leading to abiotic stress tolerance in model plants and crops, plant aging, molecular and physiological analysis of priming processes in plants, advanced molecular biological methods, establishment of new cloning and gene regulatory systems, synthetic biology of plants and microorganisms.

Contact Info Team members Contribution

Website

<https://www.uni-potsdam.de/en/ibb-molecularbiology/research-overview>

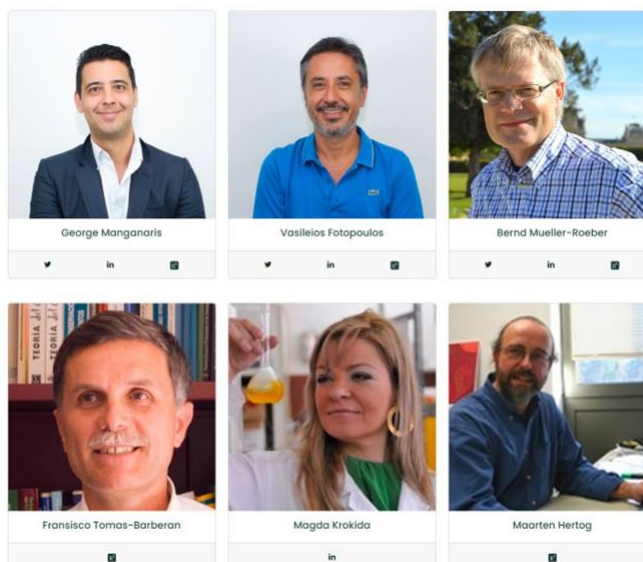
Phone

+49 331 977 2650



Committees: This tab includes information about (i) the Steering Committee, (ii) the Scientific Advisory Board and (iii) the User's Group.

Steering Committee





Training schools: The outline of the [2] exploratory workshops and [4] training schools (one per Advanced Partner) is being presented. In addition, there are dedicated sub links per training school:

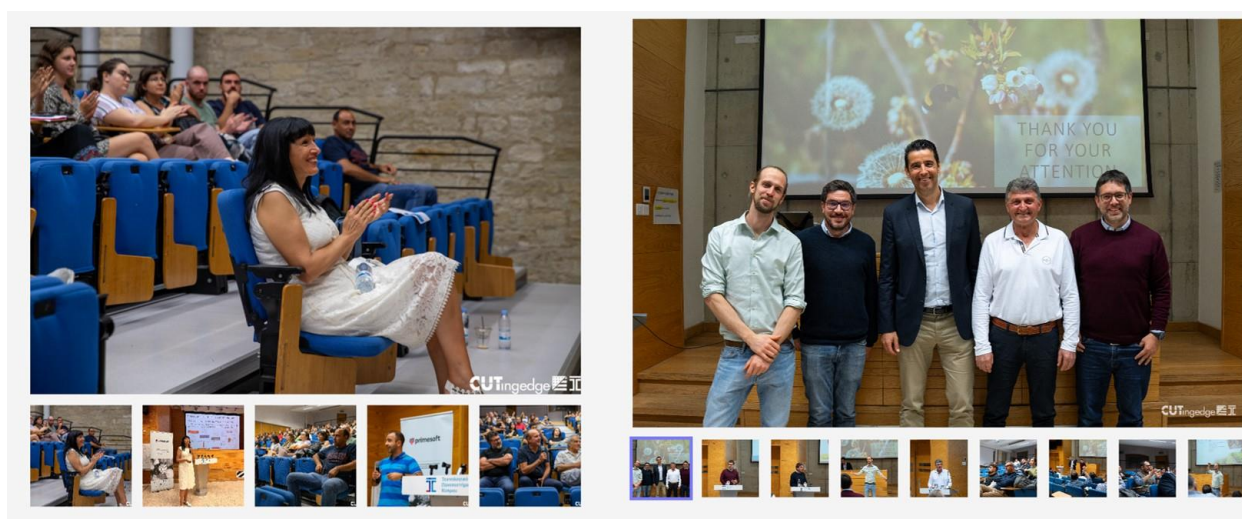
<https://www.prime-soft.eu/potsdam.html> (organized by University of Potsdam)

<https://www.prime-soft.eu/cebas.html> (organized by CEBAS-CSIC)

<https://www.prime-soft.eu/kuleuven.html> (organized by KULeuven)

<https://www.prime-soft.eu/ntua.html> (organized by the National Technical University of Athens)

Events: This tab will include information regarding (i) a registration-free Scientific Workshop [4-5 November 2024] and (ii) two info days that will take place in Cyprus targeted to local stakeholders and to the general public. Details for the info day that already took place at the premises of Cyprus university of Technology are available through the link: <https://www.prime-soft.eu/events.html>



The flyers prepared for the info day is available in Appendix (IV,V).

Contact us: A 'Contact-us' form was created where visitors have the option to write a message that will be sent to the Coordinator of the project, Dr. Manganaris.

Social media: Regarding the navigation of the user to the social media accounts of the project, a corresponding menu was created and placed on the website, containing the accounts of the



project social networks i.e. LinkedIn and X platforms where the user by clicking on each icon is being redirected to the corresponding medium.

Deliverables: The publicly available deliverables can be additionally downloaded by the project website at Homepage.

Publications: This tab (<https://www.prime-soft.eu/publications.html>) includes details about the publications in open access journals (title, authors, link), including conference proceedings and technical magazines.



2. PRIMESOFT LinkedIn account

LinkedIn is a business and employment-focused social media platform that works through websites and mobile applications. The platform is primarily used for professional networking and career development, and allows job seekers to post their cv and employers to post jobs. It additionally serves as an excellent medium for communication and dissemination activities of research projects. LinkedIn has more than 830 million registered members. Leveraging on the popularity and widespread use of the social media, the Consortium has created a dedicated LinkedIn page (**Figure 3**), targeting also the non-scientific audience for purposes of optimal dissemination of the research results. Within the time frame of the first 3 months of project life span, the LinkedIn page of PRIMESOFT project is being feed continuously. European Research Executive Agency (REA) and Horizon Europe are highly visible in the majority of the posts. Some facts and figures are being presented below:

Link: <https://www.linkedin.com/company/86415277/admin/>

Followers: 1306

Posts: >100

Impressions per post: 300-1300

Likes per post: 10-196

Hashtags: #priming, #innovation, #strawberry, #raspberry, #HorizonEU

Nature of posts: promotion of scientific and widening activities of the PRIMESOFT project, kick off meeting, presentation of members of the scientific advisory board, leaflets and brochures linked to PRIMESOFT objectives, dissemination video, the story behind the PRIMESOFT logo, experimental analysis.

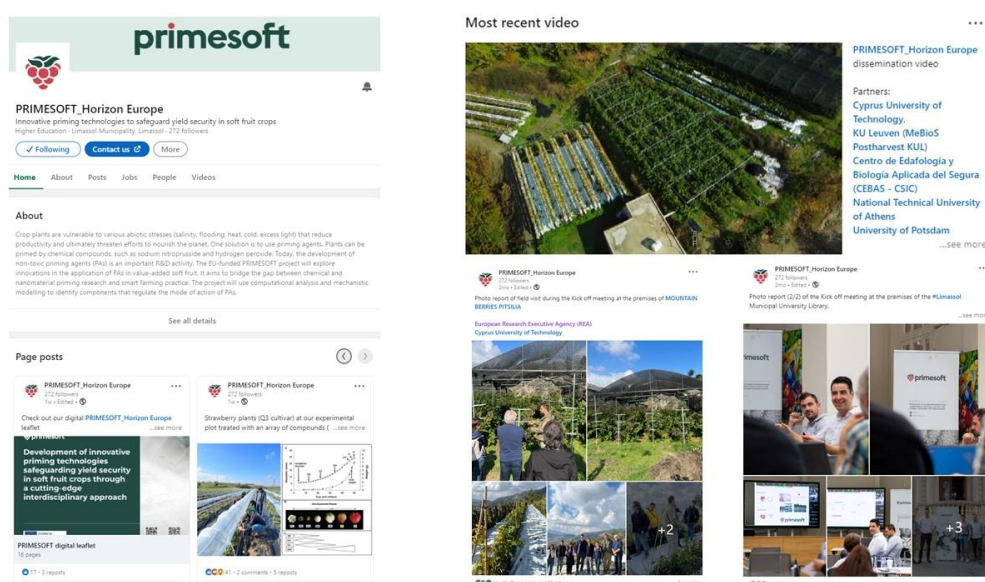


Figure 3. Outline of PRIMESOFT LinkedIn page that within 3 months upon its establishment is having nearly 300 followers. At the end of PRIMESOFT project it surpassed the 1300 followers.



Several posts are being additionally promoted through the personal account of the Coordinator to take advantage of the possibility the messages to reach a wider audience. Indicatively, the communication of the dissemination video and the site-visit at the experimental orchard of PRIMESOFT have received a significant number of impressions, highlighting the engagement of a wider number of interested partners (**Figure 4**). Our ultimate goal through the project's LinkedIn account is to increase visibility of PRIMESOFT to companies working with priming agents and soft fruits. The latter is tightly linked with the Deliverable 1.2 (Setting up of User's Group) and the Deliverable 5.4 (Report on stakeholder map).

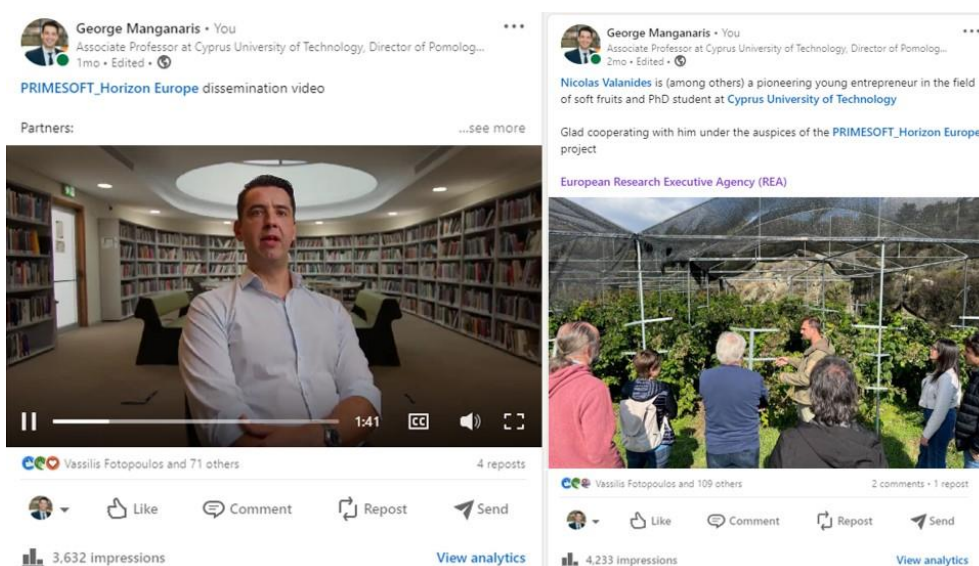


Figure 4. Communication of PRIMESOFT activities through the Coordinator's personal LinkedIn account with the aim to attract a wider audience, including companies.

The LinkedIn page of PRIMESOFT was updated systematically with posts linked to the training schools conducted (**Figure 5**), scientific and technological activities, communication of results in conferences etc.

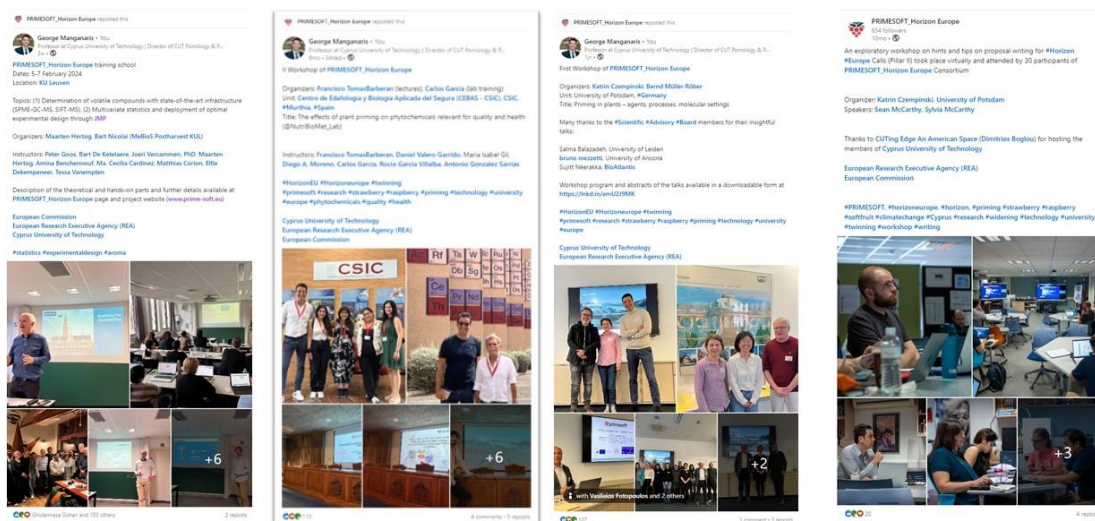


Figure 5. Communication of PRIMESOFT activities linked to three training schools and one exploratory workshop.



3. PRIMESOFT X account

X (Twitter) is a microblogging and social networking service on which users post and interact with messages known as "tweets". It is a social medium that over time has shown significant impact to public audiences, therefore the consortium believes that is an opportunity worth exploring in order for the project to receive more attention and publicity during its running years. Thus, the Consortium members created a dedicated page (**Figure 6**), targeting also the non-scientific audience for purposes of optimal dissemination of the research results. Within the time frame of the first 3 months of project life span, the page of PRIMESOFT [[@PrimesoftE](https://twitter.com/PrimesoftE)] project is being feed continuously (**Figure 7**). The funding agent (European Commission) and the funding scheme (Horizon Europe) are highly visible in the majority of the posts. Some facts and figures are being presented below:

Link: <https://twitter.com/PrimesoftE>

Followers/Following: 68/116

Tweets: 124

Impressions per post: 160-1060

Likes per post: 3-14

Hashtags: #priming, #innovation, #strawberry, #raspberry, #climatechange, #HorizonEU

Nature of posts: promotion of scientific and widening activities of the PRIMESOFT project, kick off meeting, presentation of members of the scientific advisory board, leaflets and brochures linked to PRIMESOFT objectives, dissemination video, the story behind the PRIMESOFT logo, experimental analysis.

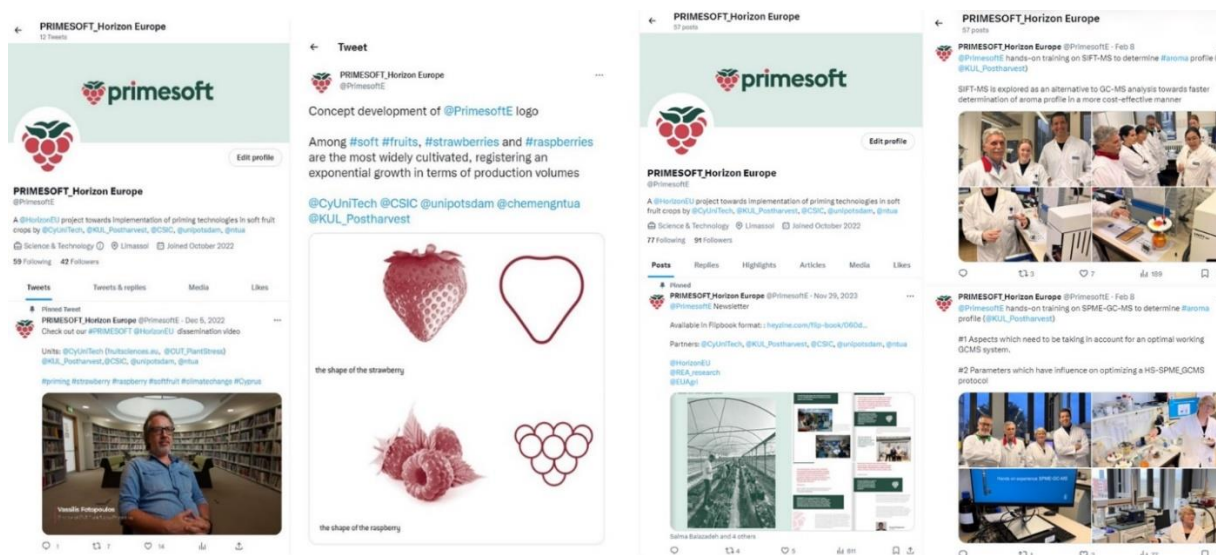


Figure 6. Metrics of PRIMESOFT X page during M4 (left) and M17 (right).

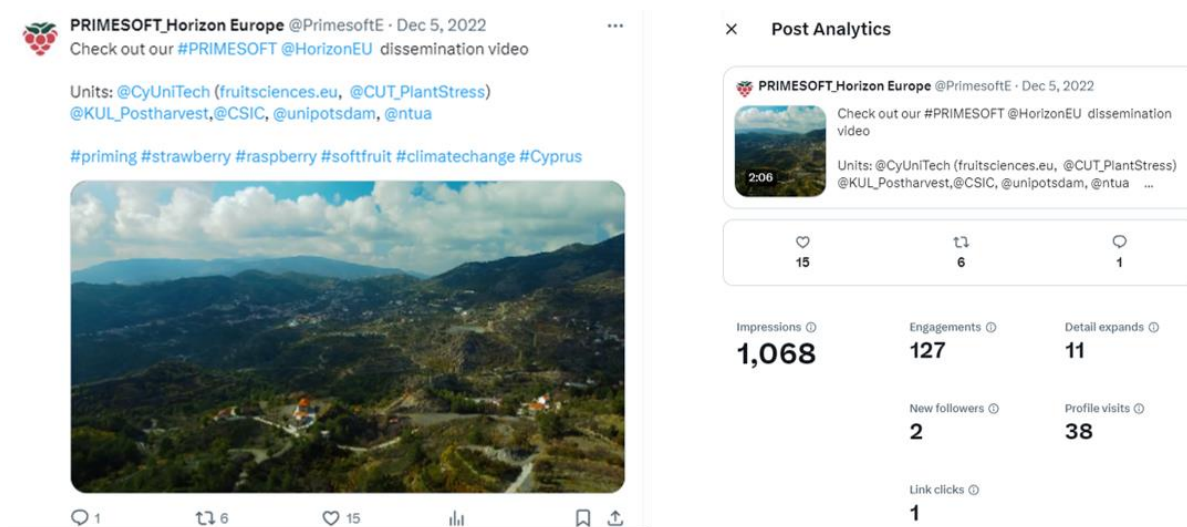


Figure 7. PRIMESOFT X tweet with the highest engagement rate. It was related to the dissemination video that was created for the needs of the project.



4. Appendix

- I. PRIMESOFT Leaflet [digital form]
- II. PRIMESOFT Leaflet [printed form]
- III. PRIMESOFT banner
- IV. Flyer of PRIMESOFT info day (October 2023)
- V. Flyer of PRIMESOFT info day (February 2025)



Funded by
the European Union

The project has received funding from the European Union's Horizon Europe programme under Grant Agreement 101079119



Development of innovative priming technologies safeguarding yield security in soft fruit crops through a cutting-edge interdisciplinary approach



Funded by
the European Union



LinkedIn



twitter

PRIMESOFT at a glance

The development of non-toxic synthetic and natural priming agents (PAs) towards sustainably-sourced and environmentally sound products for the development of a resource-efficient circular economy is an R&D activity that recently has received considerable attention. However, the effort of the Lead Market Initiative (LMI) Advisory Group to trigger a market prospective for innovative products, remains still, to a large extent, unimplemented. PRIMESOFT's overarching objective is to explore innovations in the application of PAs in value-added soft fruit crops from a range of perspectives and strengthen educational, research and innovation activities among

innovation activities among the Widening Institution (Cyprus University of Technology) and 4 internationally-renowned Advanced Partners (APs). Through this multi-actor approach, we aim to bridge the gap between chemical and nanomaterial priming research and agricultural practice in order to bring the inventions closer to application and commercialization towards resource-efficient smart farming practices. Besides the novelty of its technological approach that will be validated by sophisticated Life cycle cost analysis, PRIMESOFT's ambition is to use computational analysis and mechanistic modelling to identify key components



that regulate the mode of action of PAs through the employment of transcriptomic and metabolomic approaches. The WI is expected to receive pioneering education, research and technological capacity by a polymorphic Consortium that share highly complementary skills and the nature of their activities creates added value. Outreach activities are expected to create significant scientific, societal and economic impacts and are particularly dedicated to the researchers of the WI in order to acquire the necessary competencies to seek a position of professional maturity. Specifically, PRIMESoft has planned 2 thematic

workshops, 4 training schools with hands-on practice in state-of-the-art methodologies, and an international scientific conference. PRIMESoft aspires to enhance strategic networking activities of WI with both APs and stakeholders of the agro/food sector during and beyond the end of the project. To this aim, a business plan towards the development of a Regional Center of Excellence in Plant Sciences will be developed.

Scientific and technological objectives



- ~ To establish a community of practice and spread excellence in the domain of applying PAs on soft fruit crops.
- ~ To create knowledge hubs with a core in the application of PAs as a cutting-edge technological approach for direct use in modern agricultural practices.
- ~ To evaluate the commercial potential and conduct technology marketing to encourage industry engagement of the inventions and execute the exploitation activities.
- ~ Transfer of knowledge activities, access of infrastructure and technological know-how and to enhance creativity by new approaches in R&I collaboration.
- ~ To provide ground-breaking work in the correlation of multi omics approaches with field data modelling and Life cycle analysis.
To enhance production and explore possibilities to adapt cultivation of soft fruits under adverse conditions due to climate change.

Widening objectives

- ~ To develop a critical mass of high-profile researchers of the Widening Institution and raise reputation, research profile and attractiveness of the Cyprus University of Technology.
- ~ Knowledge transfer to the small-holder Cypriot farmers for greater resilience in agricultural practice.
- ~ To strengthen research management capacities and administrative skills of the WI staff and raise the profile of the WI within the European Research Area.
- ~ To establish long-term collaborations with the APs towards increment of the S&T capacity and innovation potential.



PRIMESOFT

scientific strategy:

overview
of experimental
approaches

Agronomic, Physiological Features

- ~ Yield, net photosynthesis, time of flowering
- ~ Qualitative attributes
- ~ Cellular damage indicators
- ~ Assays of enzymatic & non-enzymatic antioxidants

Data analysis & modelling

- ~ Integration of -omics data
- ~ Multivariate statistics
- ~ Annotation and network analysis

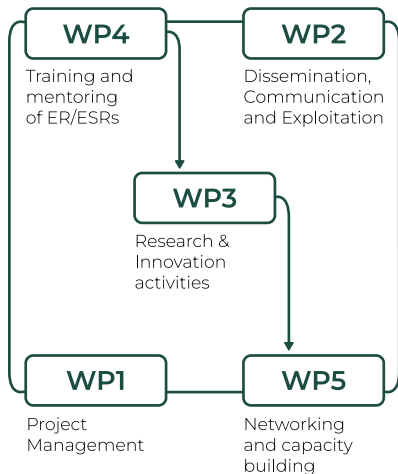
Omic tools

- ~ Gene expression analyses
- ~ Global transcriptomic analysis (RNAseq)
- ~ Metabolomic analysis (Volatile organic compounds and phytochemical compounds)

Eco-efficiency approaches

- ~ Life Cycle Analysis & Life Cycle Cost Analysis
- ~ Assessment of proposed cultivation protocols
- ~ Product development (i.e. encapsulation of PA)

Work packages



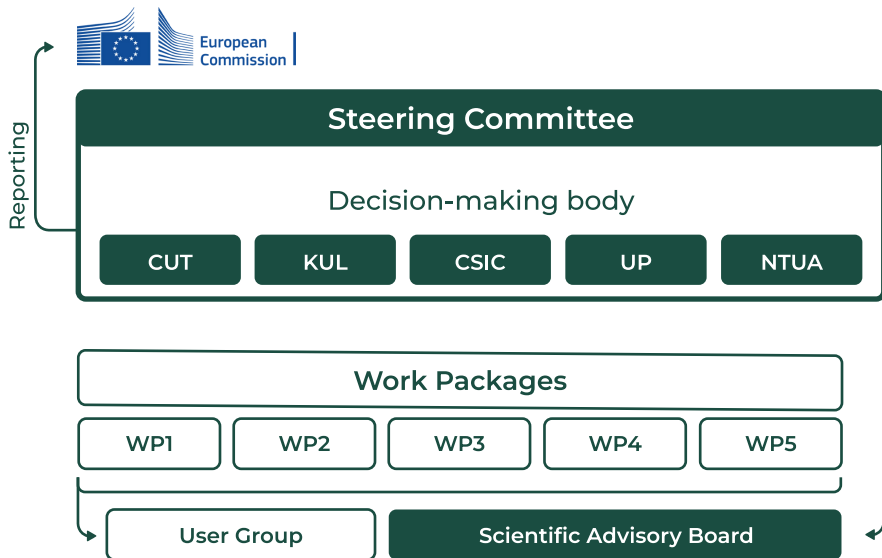
Training schools – Exploratory workshops

- ~ Grant proposal writing & implementation (University of Potsdam)
- ~ Priming in plants – agents, processes, molecular settings (University of Potsdam)
- ~ LCCA as a decision support tool on agro/food value chain (National Technical University of Athens)
- ~ Volatile Organic Compounds analysis: techniques, data processing and statistical tools (Katholieke University of Leuven)
- ~ Phytochemicals, food quality and health-promoting effects (CSIC)





Project management scheme for PRIMESOPT



Coordinator

CUT is a dynamic University with six leading Schools/Faculties and 13 Academic Departments, able to offer education and high-level research, in primary branches of science and applied technology. CUT has set as its strategic target the design and development of research activities both within the University and in cooperation with Advanced research Institutes in Cyprus and abroad. CUT Fruit Sciences/Postharvest Group [www.fruitsciences.eu] and CUT Plant Stress Physiology Group [<http://plant-stress.weebly.com/>] belong at the Department of Agricultural Sciences, Biotechnology and Food Science. These groups have highly complementary expertise on fruit crops, priming effect in plant systems, plant adaptation to

abiotic stress conditions and postharvest physiology and technology. A PRIMESOFIT key impact is to develop a business plan towards establishment of a Regional Center of Excellence in Plant Sciences for the whole Eastern Mediterranean region through the merging of CUT Fruit Sciences and Plant Stress Physiology groups in a single entity. This Center will tackle research, educational and communication/outreach activities related to the agricultural and food sector and will gradually establish close and productive relationships with key national academic and research centers as well as international agencies and specialized academics/personnel.

Partner

National Technical University of Athens (NTUA) is the top Technical University in Greece. The Laboratory of Process Analysis and Design (LPAD) is the oldest laboratory of the School of Chemical Engineering at NTUA, which has systematically contributed in the development of the School, since 1908. The area of expertise of LPAD can be summarized in (a) the development of novel, functional food products, including product design, quality and sensory control of the final product, as well as shelf-life determination, (b) toolbox development for functional foods and novel processes - development of user-friendly database systems including literature data on food properties, (c) analysis

of data, (d) development of mathematical models describing the physical processes and thermo-physical properties of materials, (e) experimental and applied study of the physical industrial processes, such as drying methods, extraction methods, novel encapsulation methods, etc. applied in the food industry, (f) process scale-up, (g) recovery of functional compounds from various natural sources, (i) *in vitro* digestion studies, and (k) life cycle assessment and environmental management for the determination of the economic and environmental impact of several products and processes.

Partner

University of Potsdam (UP) is the largest university in the federal state of Brandenburg, Germany. In 2016, UP was awarded the certificate 'HR Excellence in Research' by the European Commission that identifies the organisation as provider and supporter of a stimulating and favourable working environment for researchers. Plant Science and Genomics in particular, are at the forefront of academic teaching and research at Faculty of Science. The Department of Molecular Biology is part of the Institute of Biology and Biochemistry, which belongs to this Faculty. The Department has a wide-ranging expertise in plant genomics, in particular with respect to analysis of transcriptional factors and gene regulation, abiotic stress response, and

senescence, including priming. UP will coordinate analyses on how priming agents exert their function at the genome or biochemical/physiological levels and will provide its expertise in unravelling the cellular control points underlying the priming process. This will in particular cover priming-dependent transcriptome studies and the identification of transcription factors that control priming-affected genes, e.g. using yeast one-hybrid screens. The UP will lead the organization of two exploratory workshops in grant proposal writing and implementation and one hands-on training school entitled 'Priming in plants – agents, processes, molecular settings'.

Partner

KU Leuven participates through its research division MeBioS which investigates the interaction between biological systems and physical processes. MeBioS is one of the leading postharvest research groups worldwide. Half of its research is in collaboration with the agro-food industry. These activities are founded in a deep knowledge on physiological behavior of fruits and vegetables after harvest combining omics techniques with advanced biostatistics and biophysics models to interpret the results. MeBioS has a longstanding experience on non-destructive fruit quality evaluation and has been at the front of developments like NIR spectroscopy, hyperspectral imaging and acoustic firmness detection.

In addition, MeBioS has put much effort in optimizing fast profiling techniques for fruit aroma and taste. Aroma is a key quality indicator for soft fruits and KU Leuven has a long-standing experience on such analysis. KU Leuven will support a training school entitled “VOCs analysis: techniques, data processing and statistical tools” and WI staff will have access to the relevant infrastructure (HS-SPME-GCMS, TDU-CIS-GCMS, SIFT-MS). Knowledge and expertise on the analytical technology, data processing and multivariate data analysis will be shared with the WI staff.

Partner

The Spanish National Research Council (CSIC) is the largest public institution dedicated to research in Spain and the third largest in Europe. CEBAS-CSIC has expertise on phytochemical analysis with advanced analytical chromatographic methods, bioavailability and metabolism of food bioactives, pharmacokinetics; biological mechanisms of action of phytochemicals and their metabolites; interaction of phytochemicals with gut microbiota and metabolomic approaches. CSIC will assess the potential beneficial effect of priming agents in phytochemicals and nutraceutical properties of horticultural commodities, a research area of prime importance with significant technological

implications. To this aim state-of-the-art infrastructure (UPLC-Q-TOF-MS; UPLC-QQQ-MS; HPLC.IT-ESI-MS-MS; HPLC-TOF MS- NMR; GC-MS) will be used. In addition. CSIC will organize a training school in the fields of phytochemicals, food quality and health-promoting effects. Training sessions in metabolomics studies for identification of biomarkers related to food quality, safety and bioactivity will be also performed. In addition, based on the available infrastructure, CSIC will accomplish a cost/benefit analysis and propose infrastructure that will render CUT autonomous in a series of analysis.





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Scientific and technological objectives

Widening objectives

PRIMESoft at a glance

The development of non-toxic synthetic and natural priming agents (PAs) towards sustainably-sourced and environmentally sound products for the development of a resource-efficient circular economy is an R&D activity that recently has received considerable attention. However, the effort of the Lead Market Initiative (LMI) Advisory Group to trigger a market prospective for innovative products, remains still, to a large extent, unimplemented. PRIMESoft's overarching objective is to explore innovations in the application of PAs in value-added soft fruit crops from a range of perspectives and strengthen educational, research and innovation activities among the Widening Institution (Cyprus University of Technology) and 4 internationally-renowned Advanced Partners (APs). Through this multi-actor approach, we aim to bridge the gap between chemical and nanomaterial priming research and agricultural practice in order to bring the inventions closer to application and commercialization towards resource-efficient smart farming practices.

Besides the novelty of its technological approach that will be validated by sophisticated Life cycle cost analysis, PRIMESoft's ambition is to use computational analysis and mechanistic modelling to identify key components that regulate the mode of action of PAs through the employment of transcriptomic and metabolomic approaches. The WI is expected to receive pioneering education, research and technological capacity by a polymorphic Consortium that share highly complementary skills and the nature of their activities creates added value. Outreach activities are expected to create significant scientific, societal and economic impacts and are particularly dedicated to the researchers of the WI in order to acquire the necessary competencies to seek a position of professional maturity. Specifically, PRIMESoft has planned 2 thematic workshops, 4 training schools with hands-on practice in state-of-the-art methodologies, and an international scientific conference. PRIMESoft aspires to enhance strategic networking activities of WI with both APs and stakeholders of the agro/food sector during and beyond the end of the project. To this aim, a business plan towards the development of a Regional Center of Excellence in Plant Sciences will be developed.

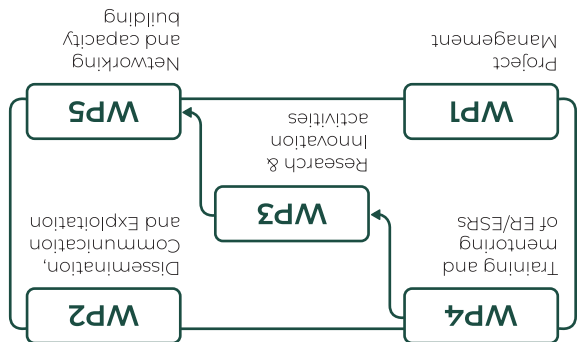


- Agonomic, Physiological, Features**
 - ~ Yield, net photosynthesis, time of flowering
 - ~ Qualitative attributes
 - ~ Cellular damage indicators
 - ~ Assays of enzymatic & non-enzymatic antioxidants
- Omic tools**
 - ~ Gene expression analyses
 - ~ Global transcriptomic analysis (RNAseq)
 - ~ Metabolomic analysis (Volatile organic compounds and phytochemical compounds)
- Data analysis & modelling**
 - ~ Integration of - omics data
 - ~ Multivariate statistics
 - ~ Annotation and network analysis
- Eco-efficiency approaches**
 - ~ Life Cycle Analysis & Life Cycle Cost Analysis
 - ~ Assessment of proposed cultivation protocols
 - ~ Product development (i.e. encapsulation of PA)

PRIMESoft scientific strategy: overview of experimental approaches

- ~ Grant proposal writing & implementation (University of Potsdam)
- ~ Priming in plants - agents, processes, molecular settings (University of Potsdam)
- ~ Phytochemicals, food quality and health - promoting effects (CSIC)
- ~ Volatile Organic Compounds analysis: techniques, data processing and statistical tools (Katholieke University of Leuven)
- ~ LCCA as a decision support tool on agro/food value chain (National Technical University of Athens)

Training schools - Exploratory workshops



Work packages

primesoft

Development of innovative priming technologies safeguarding yield security in soft fruit crops through a cutting-edge interdisciplinary approach

www.prime-soft.eu



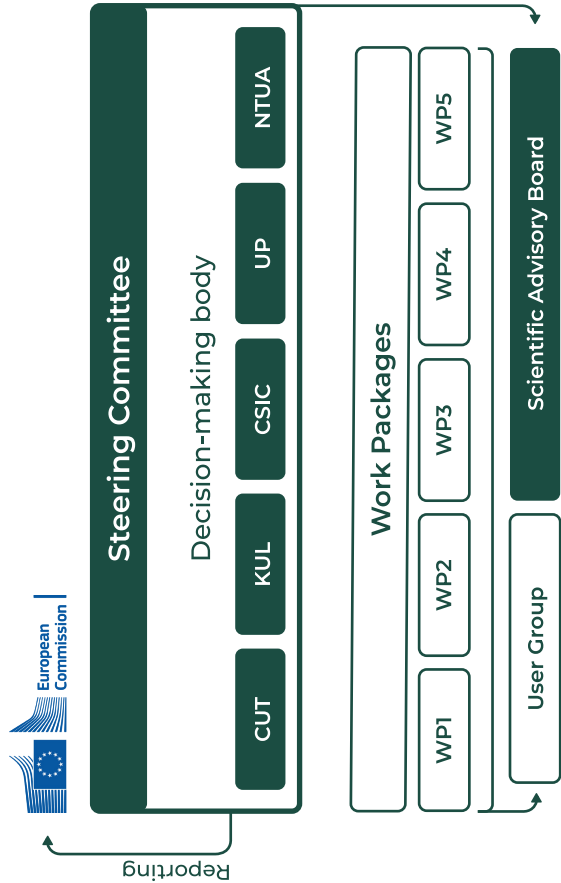
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Project management scheme for PRIMESOFT



Coordinator

CUT is a dynamic University with six leading Schools/Faculties and 13 Academic Departments, able to offer education and high-level research, in primary branches of science and applied technology. CUT has set as its strategic target the design and development of research activities both within the University and in cooperation with Advanced research Institutes in Cyprus and abroad. CUT Fruit Sciences/Postharvest Group [www.fruitsciences.eu] and CUT Plant Stress Physiology Group [http://plant-stress.weebly.com/] belong at the Department of Agricultural Sciences, Biotechnology and Food Science. These groups have highly complementary expertise on fruit crops, priming effect in plant systems, plant adaptation to

abiotic stress conditions and postharvest physiology and technology. A PRIMESOFT key impact is to develop a business plan towards establishment of a Regional Center of Excellence in Plant Sciences for the whole Eastern Mediterranean region through the merging of CUT Fruit Sciences and Plant Stress Physiology groups in a single entity. This Center will tackle research, educational and communication/outreach activities related to the agricultural and food sector and will gradually establish close and productive relationships with key national academic and research centers as well as international agencies and specialized academics/personnel.

Cyprus University of Technology



08

Partner

National Technical University of Athens (NTUA) is the top Technical University in Greece. The Laboratory of Process Analysis and Design (LPAD) is the oldest laboratory of the School of Chemical Engineering at NTUA, which has systematically contributed in the development of the School, since 1908. The area of expertise of LPAD can be summarized in (a) the development of novel, functional food products, including product design, quality and sensory control of the final product, as well as shelf-life determination, (b) toolbox development for functional foods and novel processes - development of user-friendly database systems including literature data on food properties, (c) analysis

of data, (d) development of mathematical models describing the physical processes and thermo-physical properties of materials, (e) experimental and applied study of the physical industrial processes, such as drying methods, extraction methods, novel encapsulation methods, etc. applied in the food industry, (f) process scale-up, (g) recovery of functional compounds from various natural sources, (i) *in vitro* digestion studies, and (k) life cycle assessment and environmental management for the determination of the economic and environmental impact of several products and processes.

Partner

University of Potsdam (UP) is the largest university in the federal state of Brandenburg, Germany. In 2016, UP was awarded the certificate "HR Excellence in Research" by the European Commission that identifies the organisation as provider and supporter of a stimulating and favourable working environment for researchers. Plant Science and Genomics in particular, are at the forefront of academic teaching and research at Faculty of Science. The Department of Molecular Biology is part of the Institute of Biology and Biochemistry, which belongs to this Faculty. The Department has a wide-ranging expertise in plant genomics, in particular with respect to analysis of transcriptional factors and gene regulation, abiotic stress response, and

senescence, including priming. UP will coordinate analyses on how priming agents exert their function at the genome or biochemical/physiological levels and will

provide its expertise in unravelling the cellular control points underlying the priming process. This will in particular cover priming-dependent transcriptome studies and the identification of transcription factors that control priming-affected genes, e.g. using yeast one-hybrid screens. The UP will lead the organization of two exploratory workshops in grant proposal writing and implementation and one hands-on training school entitled 'Priming in plants – agents, processes, molecular settings'.

National Technical University of Athens



09

Partner

KU Leuven participates through its research division MeBioS which investigates the interaction between biological systems and physical processes. MeBioS is one of the leading postharvest research groups worldwide. Half of its research is in collaboration with the agro-food industry. These activities are founded in a deep knowledge on physiological behavior of fruits and vegetables after harvest combining omics techniques with advanced biostatistics and biophysics models to interpret the results. MeBioS has a longstanding experience on non-destructive fruit quality evaluation and has been at the front of developments like NIR spectroscopy, hyperspectral imaging and acoustic firmness detection.

The Spanish National Research Council (CSIC) is the largest public institution dedicated to research in Spain and the third largest in Europe. CEBAS-CSIC has expertise on phytochemical analysis with advanced analytical chromatographic methods, bioavailability and metabolism of food bioactives, pharmacokinetics, biological mechanisms of action of phytochemicals and their metabolites; interaction of phytochemicals with gut microbiota and metabolomic approaches. CSIC will assess the potential beneficial effect of priming agents in phytochemicals and nutraceutical properties of horticultural commodities, a research area of prime importance with significant technological

implications. To this aim state-of-the-art infrastructure (UPLC-Q-TOF-MS; UPLC-QQQ-MS; HPLC-IT-ESI-MS-MS; HPLC-TOF MS- NMR; GC-MS) will be used. In addition, CSIC will organize a training school in the fields of phytochemicals, food quality and health-promoting effects. Training sessions in metabolomics studies for identification of biomarkers related to food quality, safety and bioactivity will be also performed. In addition, based on the available infrastructure, CSIC will accomplish a cost/benefit analysis and propose infrastructure that will render CUT autonomous in a series of analysis.

University of Potsdam



10

Partner

KU Leuven



11

Spanish National Research Council



12



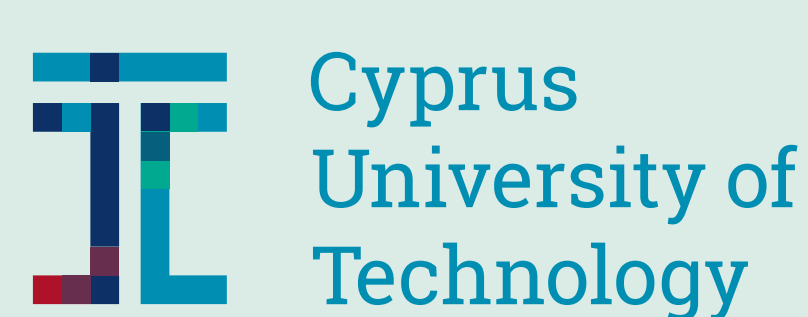
**Development of innovative priming technologies
safeguarding yield security in soft fruit crops
through a cutting-edge technological approach**



@PrimesoftE



@PRIMESOFT_Horizon Europe



Funded by
the European Union

The project has received funding from the European Union's Horizon Europe programme under grant agreement N° Project 101079119

Invitation

**Soft fruit production within
a global context: Challenges
and constraints in the
cultivation of strawberry
and raspberry towards
enhanced yield efficiency**

Thursday
14 September 2023
18:30–20:30

Amphitheater 1,
Tassos Papadopoulos Building,
Cyprus University of Technology,
Themidos & Ifigeneias corner, Limassol



Cyprus
University of
Technology

Department of Agricultural
Sciences, Biotechnology
and Food Science



Funded by
the European Union

primesoft

The PRIMESOFT project has received funding from the European's
Union Horizon Europe programme under Grant Agreement 101079119

Program (Πρόγραμμα)

18:30–18:45 Registrations (Εγγραφές)

**18:45–19:00 Το ερευνητικό πρόγραμμα PRIMESOFT:
Ανάπτυξη καινοτόμων τεχνολογιών έναυσης
σε καλλιέργειες μαλακών καρπών**
George Manganaris,
Cyprus University of Technology

19:00–19:30 Constraints and challenges on raspberry production
Prof. Jasminka Milivojević,
University of Belgrade

**19:30–20:00 Η καλλιέργεια της φράουλας στην Ελλάδα:
Νέες προκλήσεις και προοπτικές ανάπτυξης
μέσω προγραμμάτων γενετικής βελτίωσης
για την ανάπτυξη νέων ποικιλιών**
Dr Ευάγγελος Τσορμπατσίδης,
Berryplasma Worldwide

20:00–20:30 Discussion (Συζήτηση)

20:30–21:00 Reception (Δεξίωση)

Abstracts (Περίληψεις)

Constraints and challenges on raspberry production

The Republic of Serbia is one of the world's leading producers and exporters of raspberries, with an average annual production of 117,214 tons in the last five years. More than 90% of raspberries produced are exported frozen to foreign markets, while the export of fresh raspberries is almost negligible. Although the total area under raspberry cultivation has increased to 20,807 ha, the average yield per hectare has steadily decreased and in 2021 was 5.3 tons (FAOSTAT, 2023). Raspberry production is concentrated in the western and southwestern parts of Serbia mainly on small farms with an average area of 0.25 ha. 'Willamette' is still the predominant floricanne fruiting cultivar in raspberry plantations, occupying more than 90% of the total area under cultivation. The main reason for the slow replacement of this cultivar by the new and better cultivars is the high demand of the Western European processing industry for its dark red and delicious fruits, which are mostly exported frozen to foreign markets. The floricanne fruiting cultivars 'Meeker' and 'Fertödi Zamatos', suitable for both frozen and fresh consumption, are slowly spreading and currently account for 3-5% of the total cultivated area. Other cultivars, such as 'Tulameen' and 'Glen Ample', which are suitable for fresh consumption, are grown only on a small scale, as there is no organized export of fresh raspberries from Serbia. Recently, primocane fruiting cultivars 'Enrosadira' and 'Kwanza' have been spread in protected environments (greenhouses) to meet the growing needs of producers and consumers. These cultivars continually set fruit on the current season's canes from mid-July to fall and in early June on the previous season's canes, extending the harvest season and providing the total yield of the two crops to exceed 30 tons per hectare. In contrast, average yields of floricanne fruiting raspberry cultivars vary and range from 5 to 20 tons per hectare, depending on the orchard management. The floricanne fruiting cultivars are cultivated in the vertical trellis system consisted of pillars with two wires and an additional support for long fruiting branches, while the primocane fruiting cultivars are grown in the hedgerow system with additional trellises, depending on the vigor and yield potential of the cultivar. Main constraints in raspberry production include: the poor quality of planting material; the choice of unsuitable locations for establishment of new plantations; the adverse effects of climatic factors; the lack of field extension services and, accordingly, inadequate management of raspberry plantations. The challenges in raspberry production are related to the development of new cultivation techniques through the use of soilless systems, anti-hail nets, rain shelters, and plastic tunnels to avoid unfavorable climatic and soil conditions, and infestation with various fungal diseases.

Η καλλιέργεια της φράουλας στην Ελλάδα: νέες προκλήσεις και προοπτικές ανάπτυξης μέσω προγραμμάτων γενετικής βελτίωση για την ανάπτυξη νέων ποικιλιών

Η Ελλάδα είναι μια από τις πιο σημαντικές ζώνες για πρώιμη παραγωγή φράουλας στην Ε.Ε. Το 2022/2023 καλλιεργήθηκαν 20000 στρέμματα με αξία προϊόντος περισσότερο από 150 εκατ. €. Παρόλο που διαθέτει συγκριτικά πλεονεκτήματα, στερείται δικών της ποικιλιών φράουλας. Το υπάρχον μοντέλο παραγωγής βασίζεται σε διεθνείς ποικιλίες, τα χαρακτηριστικά των οποίων είναι προσαρμοσμένα στις απαιτήσεις των χωρών που αναπτύχθηκαν. Το πρόγραμμα ανάπτυξης ποικιλιών της Berryplasma στοχεύει στην δημιουργία γενοτύπων φράουλας οι οποίοι να συνδυάζουν βελτιωμένα παραγωγικά χαρακτηριστικά (πρωιμότητα, μέγεθος καρπού, συνολική παραγωγή) και ποιοτικά χαρακτηριστικά όπως μετασυλλεκτική διάρκεια ζωής του καρπού και υψηλό % εμπορευσιμότητας. Στα πλαίσια του προγράμματος έχουν αναπτυχθεί 4 ποικιλίες, 3 Short day (Kallisti, Elektra and Phaedra) και 1 Day neutral (Aethra) απόλυτα προσαρμοσμένων στις συνθήκες την Νοτίου Ευρώπης συνδυάζοντας ταυτόχρονα όλα τα επιθυμητά εμπορικά και ποιοτικά χαρακτηριστικά.

Speakers (Ομιλητές)



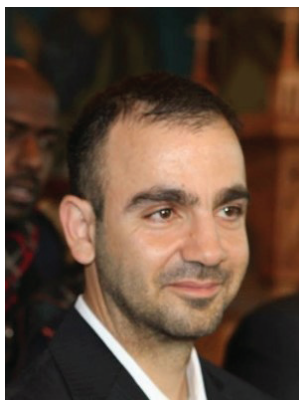
Dr. Jasminka Milivojević

Dr. Jasminka Milivojević is a Full Professor with 24 years of experience at the University of Belgrade, Faculty of Agriculture. She is a member of several faculties' councils, committees and boards. Currently, she is involved in teaching at the Faculty of Agriculture as a lecturer of six subjects at undergraduate, master and doctoral studies. Her teaching and research areas comprise of fruit science with a research focus on soft fruits, chemical fruit characterization, fruit storage, plant growth regulators,

training systems and nutrient management in fruit production.

This enables her to have an inter-disciplinary approach to various topics in the field of fruit science. She has published about 150 scientific papers (over 50 peer-reviewed articles in international journals, Hirsh index of 13, source: Scopus) and 5 books in Serbian and 1 book in English language (monograph "The Blueberry").

Dr. Jasminka Milivojević also acts as a reviewer for number of international and national journals. She is the member of international scientific societies (ISHS) and scientific boards of international and national conferences. During her academic career, she participated in three international and ten national projects, which were financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia and the Republic of Slovenia, and several projects financed by USAID (American Agency for International Development). A special segment of her engagement is related to cooperation with fruit industry sector in order to bring inventions and scientific achievements closer to application in the commercial berry fruit production. Current studies are crucial to develop much more effective and sustainable solutions to help growers to maintain productivity and fruit quality in the face of climate change. Therefore, special focus is based on exploring some of the basis physiological responses of various soft fruits to modified climate conditions under protected environment and developing ways to produce high quality berries and to extend the harvest season.



Dr Evangelos Tsormpatsidis

Dr Evangelos Tsormpatsidis, Plant and Soft Fruit Physiologist, is Head of R&D Department at Berryplasma World LLC (Varda Ilias, Greece) responsible for applied research on soft crops. His research activity so far has been focusing on the physiology of small fruit crops (strawberry, raspberries, blackberries and blueberries). I am a graduate of Aristotle University of Thessaloniki with a Msc and PhD from the University of Reading, UK. During my academic

career I lectured in the undergraduate and postgraduate programs of the University of Reading related to small fruit crops. During my professional career, I was responsible for the Research & Development Department of the University of Reading, Soft Fruit Technology Group conducting applied research on soft fruit crops.

Invitation



Soft fruit production systems and challenges throughout the whole supply chain

Tuesday
18 February 2025
17:00–21:00

Amphitheater 2,
Tassos Papadopoulos Building,
Cyprus University of Technology,
Themidos & Ifigeneias corner, Limassol



**Funded by
the European Union**

primesoft

The PRIMESOFT project has received funding from the European's Union Horizon Europe programme under Grant Agreement 101079119

Program (Πρόγραμμα)

17:00–17:30 **Registrations (Εγγραφές)**

17:30–17:45 **Το ερευνητικό πρόγραμμα PRIMESoft: Ανάπτυξη καινοτόμων τεχνολογιών έναυσης σε καλλιέργειες μαλακών καρπών**
George Manganaris

17:45–18:10 **The blueberry fruit production within a global context: Challenges and constraints**
Marco Butera

18:10–18:35 **Postharvest Challenges and Opportunities in the context of global berry markets**
Jordi Giné-Bordonaba

18:35–19:00 **Berry Me, I Berry You – A Journey through the World of Raspberries**
Tobias Bönisch

19:00–19:30 **Η καλλιέργεια της φράουλας: Προκλήσεις και προοπτικές ανάπτυξης**
Θεοφάνης Παπανικολόπουλος

19:30–20:00 **Round table discussion**

20:00–21:00 **Reception (Δεξίωση)**

Abstracts (Περίληψεις)

The PRIMESOFT project in a snapshot: Development of innovative priming technologies safeguarding yield security in soft fruit crops through a cutting-edge technological approach

Soft fruits, also referred to as small fruits or berries, represent a wide and very diverse group of crops that have high nutritional value but are very perishable with limited shelf-life potential. These crops are also greatly affected by stress conditions (salinity, flooding, heat, cold, excess light) that reduce productivity. The concept of the application of priming agents (PAs) to enhance yield performance and quality attributes of soft fruit crops is entirely novel. The presentation will provide information regarding the prospects of priming agents as a novel agricultural and technological approach to improve stress tolerance, giving special reference to strawberry cultivation. To our knowledge, existing technologies representing major competition are limited to relatively few formulations/biostimulants based on silicon nutrition/supplementation and which do not always provide cross-protection against multiple abiotic stress factors, such as drought, salinity and heat. The novelty of our scientific strategy lays on the fact that it encompasses (1) the exploration of both a naturally derived priming agent (PA) in the form of melatonin as well as a synthetic PA recently co-patented by the HO (use of NOSH/NOSH-A in plants; WO/2015/123273) and (2) the employment of both advanced nanomaterial engineering and encapsulation techniques through electro-hydrodynamic processes to enhance PA's efficiency towards increment of yield, enhancement of health-promoting properties and additionally ameliorate plant damage under climate change-related abiotic stress conditions in added-value soft fruit crops, namely strawberry and raspberry.

The blueberry fruit production within a global context: Challenges and constraints

Blueberry (*Vaccinium* spp.) commercial cultivation is considered long term in comparison to other soft fruit investments. Therefore, when a grower or agronomist designs a new blueberry orchard, they need to justify establishment costs and generate adequate income at acceptable quantitative and qualitative levels for at least 10 to 15 years. To that extend, an orchard designed in 2024, planted in 2025 will still be in production in 2035 or 2040. Consequently, the agronomical investment must consider both depreciations, return of investment but also potential challenges of the world's market in 15 years. Climate change was primarily a topic discussed by scientists and academics since the mid-1980's, however it is now becoming harsh and real for everyone, especially people working in agriculture. The climate anomalies that in the past were only local events now are happening increasingly at global scale., According to climate change projections, high-chill zones will transition to mid-chill in 10 years, and many mid-chill areas will become low-chill. Eventually, low-chill regions will turn into no-chill areas. These changes will significantly affect production cycles and the global blueberry market in the coming years. The global spread in many blueberry areas also bring new pests: *Drosophila suzukii* and *Scirtothrips dorsalis* have already altered the mindset of several blueberry producers. Looking ahead, due to the global movement of plant material and the more suitable climate condition for some diseases due to the climate change, we may witness a global pressure of important diseases, such as *Xylella fastidiosa*, *Monilinia vaccinii-corymbosi* (Mummy berry), or *Popillia japonica*. Economically, the massive expansion of new berry plantations by small and major blueberry players over the last 5 years will inevitably transform blueberries into an increasingly common commodity; this market evolution, coupled with climate change and the spread of new pests, will increase the complexity to achieve economic success for producers and investors. The challenges before us are immense and global, whereas the decision to make a blueberry orchard will need careful and professional design. This decision will need to be accommodated with serious contemplation on how the world will be like in 10 or 20 years. Only then the blueberry entrepreneur can make conscious and profitable decisions.

Postharvest Challenges and Opportunities in the context of global berry markets

Berries are among the most delicate horticultural produce with a limited shelf-life mainly due to their high susceptibility to decay, bruising, shriveling or water loss as well as textural changes during postharvest handling. Despite of their limited shelf-life, berries have been the most valuable produce category in Europe over the past decade. In the context of current growth for the fresh berry market category and the need to supply further distant markets, a perfect execution from the field until the final customer is key to ensure Driscoll's primary mission of delighting the consumer. Perfect execution involves that all the steps and process across the value chain are taken into consideration and set to high standards. A clear example is Driscoll's pursuit to maintain an excellent cold chain across all postharvest operations (from field to cooler, at the cooler, during transport as well as at the customer site) aiming to ensure maximum shelf-life and delight when our strawberries, raspberries, blueberries or blackberries reach the final customer. Nevertheless, at specific moments during the season, lead times to certain markets may challenge the berries shelf-life and hence there is a need to deploy additional postharvest strategies that, in combination with an excellent cold chain, can facilitate that not only quality is maintained for longer but also that the fruit delight is not impacted. Multiple postharvest technologies are indeed available in the market yet not all of them may be suitable for all berries or moments along the producing season. The correct choice and implementation of these postharvest technologies will not only depend on the berry type, the variety itself but also on the origin and the supply chain conditions until the destination market. An overview of the most relevant postharvest innovations/technologies available will be discussed for each of the targeted berries.

Berry Me, I Berry You – A Journey through the World of Raspberries

Raspberries – these vibrant, ruby-red fruits are far more than just a sweet delight. They symbolize nature, indulgence, and global connection. In this talk, we'll explore the fascinating journey of a raspberry: from propagation, breeding, cultivation and care to harvest, cooling, and consumption – whether in a personal garden, through community initiatives like plant adoptions, or on sprawling plantations from Down Under to the northernmost regions. There is always a place for the beauty of this precious fruit. Raspberries are more than just a fruit – they are a story of passion, sustainability, and the joy of sharing nature's treasures. Drawing from personal experiences, including a life shaped by the deep love for Raspberries this presentation combines insights into raspberry farming with a reflection on how these small fruits are a call to return to more mindful agricultural practices. As market demand for healthier, more natural produce grows, and climate change is an ongoing event to handle, it becomes clear that robust plant varieties and high end production systems might only be part of the solution. The real success lies in understanding your plants and being attentive to their needs. Long-term sustainability in raspberry farming cannot rely solely on chemical interventions. Instead, the focus must shift toward a systemic, protective approach that emphasizes prevention rather than reactive, curative methods. Join me as we celebrate the raspberry's journey, its role in global agriculture, and its unique place in our hearts. From seedling to taste explosion – let's dive into the world of this most precious red diamond and discover how she can inspire big changes in the way we grow, nurture, and enjoy our food.

Η καλλιέργειας της φράουλας: Προκλήσεις και προοπτικές ανάπτυξης

Η Ελλάδα είναι μια από τις πιο σημαντικές ζώνες για πρώτη παραγωγή φράουλας στην Ε.Ε. Το 2022/2023 καλλιεργήθηκαν 20000 στρέμματα με αξία προϊόντος περισσότερο από 150 εκατ. €. Παρόλο που διαθέτει συγκριτικά πλεονεκτήματα, στερείται δικών της ποικιλιών φράουλας. Το υπάρχον μοντέλο παραγωγής βασίζεται σε διεθνείς ποικιλίες, τα χαρακτηριστικά των οποίων είναι προσαρμοσμένα στις απαιτήσεις των χωρών που αναπτύχθηκαν. Το πρόγραμμα ανάπτυξης ποικιλιών της Berryplasma στοχεύει στη δημιουργία γενοτύπων φράουλας οι οποίοι να συνδυάζουν βελτιωμένα παραγωγικά χαρακτηριστικά (πρωιμότητα, μέγεθος καρπού, συνολική παραγωγή) και ποιοτικά χαρακτηριστικά όπως μετασυλλεκτική διάρκεια ζωής του καρπού και υψηλό % εμπορευσιμότητας. Στα πλαίσια του προγράμματος έχουν αναπτυχθεί 4 ποικιλίες, 3 Short day (Kallisti, Elektra and Phaedra) και 1 Day neutral (Aethra) απόλυτα προσαρμοσμένων στις συνθήκες την Νοτίου Ευρώπης συνδυάζοντας ταυτόχρονα όλα τα επιθυμητά εμπορικά και ποιοτικά χαρακτηριστικά.

Speakers (Ομιλητές)



George Manganaris

George Manganaris is founder of the Fruit Sciences & Postharvest Group (www.fruitsciences.eu) at Cyprus University of Technology under his capacity as full Professor. His main scientific interests include the quality evaluation of fleshy fruits through the employment of physiological, biochemical and molecular approaches, the elucidation of fruit ripening syndrome with emphasis in the development of disorders and overall the postharvest maintenance of fresh produce. Additionally, he is

involved in projects and synergies dealing with the application of preharvest treatments and/or novel technologies for maintaining quality of fruit crops and their responsiveness to abiotic stress conditions. Currently, Dr. Manganaris is Coordinator of the PRIMESoft project (Horizon Europe, WIDERA, www.prime-soft.eu) and Institutional Coordinator of the FRIETS project (Horizon 2020, Marie-Curie RISE, www.friets.eu). To date, Dr. Manganaris is the author of 64 Tier I scientific papers in refereed journals [<https://www.fruitsciences.eu/research-papers.html>] with overall 100 contributions, 44000 citations and 33 h-index according to Scopus Database. He is the Editor in Chief in 'Scientia Horticulturae' and a member of the Editorial board in 'Postharvest Biology & Technology' and 'BMC Plant Biology' journals. He has been assigned to evaluate/monitor competitive research proposals/projects for EU [Horizon 2020, European Commission Executive Agency for Small & Medium-sized Enterprises (EASME), Eurostars] and for National agencies, (Italy, France, Belgium, Denmark, Poland, Chile, Greece, Slovenia, Serbia, Israel, Latvia, Qatar, Canada). He has been appointed by the Hellenic Authority for Higher Education to participate as Committee member for the accreditation of [4] Departments and [6] undergraduate study programs. He has/is acted/acting as (co-)PI of [5] accomplished and [3] on going PhD programs, while he has acted as an external examiner of MSc theses/PhD dissertations in Italy, Spain, United Kingdom, Greece, Australia. He is currently Council Member of the International Society for Horticultural Science (ISHS), elected Vice Chair of the ISHS (Division Temperate Fruit Crops) for the period 2022-2026 and Board member of European Fruit Research Institute Network.



Marco Butera

After earning his degree in Forestry and Environmental Sciences from the Faculty of Agriculture at the University of Torino, he began his professional career as a technical advisor specializing in fresh and frozen horticultural crops. Two years later, he joined Consorzio Piccoli Frutti, a highly specialized growers' consortium based in Northern Italy, with producers spread across the country from North to South. As the second-largest berry producer in Italy, the consortium offered

a dynamic and challenging environment where Marco served as an internal technical advisor. His role involved supporting growers throughout the season by overseeing farm management, planning and establishing new production sites, conducting trials for new selections and varieties from European and U.S. breeding programs, and implementing innovative cultivation techniques and processes. During his tenure at Consorzio Piccoli Frutti, Marco established a robust network of collaborations with nurseries and research institutions dedicated to berry production. He also worked closely with leading consultants and technology providers in the berry sector. By regularly participating in prominent conferences and trade fairs for the soft fruit industry, he remained at the cutting edge of industry developments, consistently expanding his knowledge and maintaining strong professional relationships. In January 2023, Marco took a major step forward in his career by transitioning to freelance consulting. Since then, he has collaborated with berry growers across a wide range of countries, including Greece, Vietnam, Serbia, and currently focusing on France, Bulgaria, Turkey, Georgia, Cyprus, Israel, Romania and Slovenia. Adopting a practical, hands-on approach, Marco provides comprehensive on-site and online support for all aspects of berry crop planning and management, from initial project development to full-scale operations. His expertise encompasses cultivation in tunnels, greenhouses, and open fields, utilizing both soil and substrate systems. He delivers tailored solutions, including data-driven variety selection, customized fertigation strategies, pest and disease management, staff training, production forecasting, and more, ensuring that each grower's specific needs are met with precision and effectiveness.



Jordi Giné-Bordonaba

Jordi Giné-Bordonaba is an Agricultural Engineer (University of Lleida, 2006), MSc in Environmental Diganostics (Cranfield University, 2006) and PhD in Postharvest Biosciences (Cranfield University, 2010) with over 15 years of experience in topics related to Postharvest Physiology and Technology including basic physiological aspects of fruit ripening and the development or deployment of new storage techniques/treatments to maximize fruit quality while reducing postharvest

fruit losses, mainly caused by physiological disorders or rots. Since 2021, Jordi is the Postharvest Specialist for Driscoll's of Europe, Middle East & Africa. Before joining Driscoll's, the entire Jordi's career was in Research and Academia. After his PhD, he did a short postdoctoral stage at the University Rovira i Virgili in Tarragona, before joining the Postharvest programme at IRTA in 2011. During his 14 years at IRTA, he participated in 20 projects funded with EU, international or national funds as well as over 40 contracts with companies. In 2019, he was granted a José Castillejo fellowship from the Spanish government, to carry out part of his research at the Fondazione Edmund Mach. In the same year and until 2022 he was a visiting lecturer at the University of Barcelona teaching on Postharvest Physiology and Technology. He has over 60 peer-reviewed articles (h index= 27), a patent, 7 book chapters and over 55 contributions to national and International conferences.



Tobias Bönisch

Tobias Bönisch is an expert in raspberry production and sustainable plant management. Born and raised on a farm, he has been growing raspberries for over 20 years. He earned a degree in Agricultural Science from the University of Kiel, specializing in Plant Science, with a thesis focusing on *Botrytis cinerea* in raspberries and its unique challenges in Northern Germany. As the founder of A-Berry Consult, Tobias offers practical consultancy services for bramble and vegetable production, particularly

raspberries. His expertise includes staff training, production integration, plant health and the implementation of organic and biodynamic practices. To stay connected to the field, he manages a small farm where he focuses on raspberries and vegetables while conducting cultivation experiments tailored to northern German climate conditions. Tobias is also a part of the Biolchim team, advising on biostimulants, specialty fertilizers, and plant health in Northern Germany, Denmark, and Sweden. Additionally, he works as an internal consultant for Westhof-Bio, one of Germany's largest organic vegetable producers. Here, he implements sustainable growing techniques, focuses on employee motivation and leadership development, and contributes to plant health and development. His international experience spans managing a large raspberry farm in Australia, contributing to breeding programs at Advanced Berry Breeding in the Netherlands, and working closely with Geert De Weert ongoing for many years and consulting in multiple countries. Tobias combines scientific knowledge with hands-on expertise to drive innovative and sustainable approaches in agriculture.



Θεοφάνης Παπανικολόπουλος

Ο Θεοφάνης Παπανικολόπουλος είναι απόφοιτος της Σχολής Τεχνολογίας Γεωπονίας (Λάρισα, Θεσσαλία, 1978-1982). Εργάστηκε για 4 έτη στην εταιρία Agroexport ως υπεύθυνος για τις καλλιέργειες τομάτας και αγγουριού σε υδροπονικό σύστημα (NFT) και σε υποστρώματα με RockWool και περλίτη. Το 1989 ίδρυσε την πρώτη του εταιρία με σκοπό την παροχή τεχνικών συμβουλευτικών υπηρεσιών για τους παραγωγούς της περιοχής της Βάρδας στον Νομό Ηλείας. Ταυτόχρονα, άρχισε

την ενασχόλησή του με την παραγωγή εμβολιασμένων φυτών κηπευτικών (καρπούζι και τομάτα) δημιουργώντας το πρώτο επαγγελματικό φυτώριο (Georion) στο είδος του στην Ελλάδα. Από το 1986 παρακολουθούσε τεχνικά τις καλλιέργειες της φράουλας στην περιοχή της Ηλείας κατευθύνοντας περισσότερο από το 80% της Ελληνικής παραγωγής. Ασχολήθηκε με την εξέλιξη της τεχνικής της καλλιέργειας και την οργάνωση της παραγωγής στην ευρύτερη περιοχή, συμβάλλοντας καθοριστικά και στη δημιουργία της πρώτης ομάδας παραγωγών (Υρμίνη). Το 2012 δημιούργησε την εταιρία BerryPlasma με σκοπό την εφαρμοσμένη έρευνα (R&D) στα μικρά οπωροφόρα (Soft Fruits).