



**«VALorization of Mediterranean small-scale FARMs by cropping wild  
UnExploited species»**

**Project Number: 1436**

**Project Acronym: Valuefarm**

## **Project Progress 2<sup>nd</sup> Annual Report**

**Period covered by the report:** from 01/09/2021 to 31/08/2022

**Annual report:** 2<sup>nd</sup>

### **Partners:**

- University of Thessaly (UTH), **Greece**
- Instituto Politécnico de Bragança (IPB), **Portugal**
- Cyprus University of Technology (CUT), **Cyprus**
- Dokuz Eylul University (DEU), **Turkey**
- Ege University (EGE), **Turkey**
- Consejo Superior de Investigaciones Científicas (CSIC), **Spain**
- Bergische Wuppertal University (BUW), **Germany**
- Greek Fresh Vegetables IKE (GFV), **Greece**
- Benha University (BU), **Egypt**
- University of Mostaganem (UM), **Algeria**

## **1. Explanation of the work carried out by the beneficiaries and Overview of the progress**

### **1.1 Objectives**

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The objectives of VALUEFARM related to the mid-term report are the following:

- 1) to **propagate and cultivate selected WEPs species**, (WP2)
- 2) to **describe and evaluate agronomic performance of WEPs** through laboratory-based research and farm experimentation in order to establish best practice guides of plant requirements with respect to mineral nutrition, soil and climate, environmental footprint (low GHG emissions, water and energy use), (WP2)
- 3) to evaluate the potential of cultivating WEPs in degraded soils and assess their **soil improvement** properties, (WP3)
- 4) to **diversify existing farming systems** from monocropping to agroecological systems rich in diversity through the incorporation of WEPs in mixed and intercropping systems and crop rotation programs combined with legumes, (WP2)
- 5) to evaluate **innovative approaches** (biofertilizers, biostimulants or tailored composts that include beneficial microorganisms plant growth-promoting rhizobacteria (PGPR); plant growth-promoting fungi (PGPF); arbuscular mycorrhizal fungi (AMF)), (WP3)
- 6) to **analyze chemical composition, nutritional value and bioactive compounds content** of WEPs, (WP4)
- 7) to **increase knowledge and public awareness** on the nutritional value and the bioactive compounds content of WEPs, as well as on their environmental impact (resistance/tolerance to drought and salinity stress factors), (WP5)
- 8) to create **physical labs through a network of farmers** for the on-farm demonstration and to implement **living lab platforms** for technological transfer in each zone of the project of the obtained key results, both of which will facilitate the adaptation of Mediterranean small-scale farms to the proposed farming systems. (WP6)

### **1.2 Explanation of the work carried per WP**

#### **1.2.1 Work Package 1**

Working package 1 is related to the administration of the project, starting in M1 and ending in M36.

The 1<sup>st</sup> technical meeting was held online on 3-9-2021

The agenda of the meeting included the following:

- The presentation of the performed activities during the report period from each partner
- The discussion about issues related to the project progress and alleviation measures
- The reorganization of Communication and Dissemination activities

The minutes and the outcome of this meeting were submitted to PRIMA through deliverables D.1.4, D1.5 and D1.6.

The 2<sup>nd</sup> technical meeting was held online on 01-02-2022.

The agenda of the meeting included the following:

- The presentation of the performed activities during the report period from each partner

- The discussion about issues related to the project progress and alleviation measures.
- The discussion about the extension of the project duration.

The program of the meeting, the presentations from the partners and the discussion that followed are presented in **Deliverable D1.8**.

In brief, the consortium decided that the Principal coordinator should apply for a 12 months' extension of the project duration (suggested ending date: 31/8/2024). During the first 18 months of the Valuefarm project, the research, dissemination and communication tasks of WP2, WP3, WP4, WP5 and WP6 have been partially implemented. This has led to the postponement of specific deliverables which has been already approved by PRIMA project officer Dr. Fabrice Dentressangle.

The mid-term report was submitted and the evaluation meeting is pending (due in September, 2022). In addition, an additional mid-term report was submitted presenting the activities for the project period between March and August, 2022.

The ongoing research is interrelated between WP2 and WP3 which will result in plant samples that will be used in WP4 for detailed chemical analyses.

### 1.2.2 Work package 2

This working package is related to the evaluation of WEPs under innovative farming systems, starting in M1 and ending in M24. Specific tasks related to this interim report are **Task 2.1: Genetic material collection database**, **Task 2.2: Agronomical characterization of WEPs under various cultivation conditions** and **Task 2.3: Mixed cropping and intercropping systems, and short-term crop rotation systems**.

It is important to highlight that WP2 which is related with experimental activities was severely affected by Covid-19 pandemic. Project partners have shown various levels of progress in the execution of the tasks due to the different degrees by which COVID-19 outbreak affected the normal functioning of their institutions, namely within the partners responsible for wild edible species cultivation due to several restrictions implemented in the involved countries (e.g. Greece, Cyprus, Egypt, Spain and Turkey). All these affected the first growing period as well as the collection of seeds from the wild which was essential for setting up the experiments. Limited experiments were conducted with species where propagational material was available through the PI of the project and the personal collection of Dr. Petropoulos Spyridon who distributed a limited number of seeds to the rest of the partners.

The progress of the ongoing tasks related to this WP is the following:

**Task 2.1:** The partners involved in this Task are UTH, CUT, DEU, EGE, BU and CSIC. The identification of hotmaps of wild edible plants (WEPs) was completed and the new version of the interactive map is available in the project website as part of deliverable D2.1.2. However, the database and the interactive map will be updated throughout the project.

**Task 2.2:** The partners involved in this Task are UTH, CUT, DEU, EGE, BU and CSIC. Germination protocols have been performed according to the assignments defined in the 1<sup>st</sup> interim report. The 2<sup>nd</sup> round of experiments is completed and the results will be integrated in deliverable D2.2. Considering the request for an extension of WP2 by 12 months we are asking to postpone the submission date of this deliverable to M36 in order to integrate the results of all the related activities of Task 2.2.

The completed results of experiments related to germination protocols are presented in **ANNEX I**.

The following activities refer to Task 2.2. and the agronomic characterization of the studied species under various cultivation conditions. The specific activities of each project partner are described below:

- **University of Thessaly (UTH)** is performing/has performed the following experiments:
  - (a) pot experiments regarding the nutrient requirements of *Cichorium spinosum*, *Crithmum maritimum*, *Portulaca oleracea*, *Scolymus hispanicus*, *Sonchus oleraceus*.
  - (b) Field experiments regarding the use of mulching with plastic films in the cultivation of *Crithmum maritimum* and *Cichorium spinosum*.

UTH has also scheduled the following activities for the next autumn:

- (c) field experiments regarding the evaluation of irrigation requirements of *Cichorium spinosum* and *Scolymus hispanicus*
- (d) Experiments under controlled environments (growth chambers) in order to identify photoperiod and temperature requirements of *Scolymus hispanicus* and *Cichorium spinosum*.

- **Cyprus University of Technology (CUT)** has performed the following experiments for the evaluation of the agronomic performance of the selected species:
  - (a) Greenhouse (hydroponic-NFT) experiment regarding the nitrogen ratio (ammonium to total nitrogen ratio) requirements for *Sonchus oleraceus* and *Portulaca oleracea* for the Spring 2022 study.
  - (b) Greenhouse (hydroponic-NFT) experiment regarding the potassium (K) and phosphorus (P) levels for *Sonchus oleraceus* and *Portulaca oleracea*.Experiments are completed. Analysis of samples is in progress.
- **Consejo Superior de Investigaciones (CSIC)** has planned to perform the following experiment:
  - A pot experiment where the effect of organic (compost extracts) and inorganic fertilization (different ratios of N-P-K) on the growth of *Sonchus oleraceus* and *Portulaca oleracea* will be evaluated.
- **Dokuz Eylul University (DEU)**
  - pot experiments will be repeated to investigate the agronomic and morphological characterization of *Portulaca oleracea* under stress, using the variables of alkalinity in the soil, heavy metal pollution in the soil and water stress, as well as the effect of soil organic matter content.
  - Greenhouse pot experiments have been also planned to evaluate the effect of drought stress on the growth of *Crithmum maritimum*, *Portulaca oleracea* and *Scolymus hispanicus* plants
- **Ege University (EGE)**
  - (a) Field and pot experiments have been scheduled to investigate the agronomic and morphological characterization of *Portulaca oleracea*, *Crithmum maritimum* and *Scolymus hispanicus* plants under drought conditions.
- **Benha University (BU)**
  - (a) Pot experiments are being performed to study the effect of salinity on the growth and chemical composition of *Portulaca oleraceae* plants
  - (b) Pot experiments are being performed to study the effect of drought on the growth and chemical composition of *Portulaca oleraceae* plants

The results of the completed experiments and those that will be performed within the next months will be integrated and included in the electronic handbook (D2.2) which is postponed to M20 of the project.

**Task 2.3.** The involved partners (UTH, CUT, DEU, EGE, BU and CSIC) are performing the second series of experiments related to this task. BUW will receive soil samples that will be analyzed and the results will be used in WP3.

In particular, the following activities are/will be performed by the individual partners:

- **University of Thessaly (UTH)** is performing the following experiments for the evaluation of the agronomic performance of the selected species:
  - a) field experiments regarding the use of *Cichorium spinosum*, *Crithmum maritimum*, *Sonchus oleraceus* and *Portulaca oleracea*, in crop rotation systems, following the cultivation of *Phaseolus vulgaris* (ongoing experiments).
  - b) field experiments with *Cichorium spinosum*, *Crithmum maritimum*, *Sonchus oleraceus* and *Portulaca oleracea* where the effect of crop rotation with peas will be tested in comparison to sole cropping systems (planned experiments).
  - c) field experiments with *Portulaca oleracea* where the effect of intercropping with common bean and crop rotation will be tested in comparison to sole cropping systems (ongoing experiment).  
Plant and soil samples will be collected for chemical analyses that will be performed within the framework of WP 3 and 4.
  
- **Consejo Superior de Investigaciones (CSIC)**
  - (a) has planned an experiment to study the effect of different cropping practices (crop rotation, mixed cropping and intercropping) with purslane (*Portulaca oleracea* L.) and peas (*Pisum sativum* L.) on plant establishment and yield, soil quality, rhizosphere bacterial and fungal communities is going on in field conditions.  
Plant and soil samples will be collected for chemical analyses that will be performed within the framework of WP 3 and 4.
  
- **Greek Fresh Vegetables (GFV)**
  - (a) is repeating the experiments in order to evaluate the use of *Portulaca oleracea* in short-term cropping systems with legumes.  
Samples will be collected for chemical analyses that will be performed within the framework of WP4.
  
- **Cyprus University of Technology (CUT)**
  - (a) has scheduled field experiments and local farmers have been contacted in order to evaluate the species under field conditions and different cropping systems.
  
- **Dokuz Eylul University (DEU)**
  - (a) Field trials where the effect of green manuring, crop rotation and intercropping are in progress.
  
- **Ege University (EGE)**
  - (a) will repeat the field trial for the purpose of mixed planting and co-planting system of purslane (*Portulaca oleracea*), sea fennel (*Crithmum maritimum*) and *Scolymus* (*Scolymus hispanicus* L.) plants under field conditions.
  
- **Benha University (BU)**
  - (a) is performing field trails for the second growing period with *Portulaca oleracea* in mixed cropping, intercropping and short-term crop rotation systems with legumes and other crops to define the most suitable cultivation systems.

### 1.2.3 Work package 3

This work package has just started (starting month M13). Specific tasks related to this WP include **Task 3.1 Evaluation of PGPRs, PGPFs and AMFs as novel cultural practices for WEPs; Task 3.2 Soil improving properties of WEPs; Task 3.3 The effect of root types on**

**soil weathering; Task 3.4 The effect of root types of WEPs on functional and structural soil microbial diversity; Task 3.5 Evaluation of non microbial biostimulants for WEPs cultivation**

- **University of Thessaly (UTH)** is performing experiments related to Tasks 3.1-3.4 in order to obtain samples that will be analyzed by BUW.
  - (a) field experiments regarding the use of manure in cultivation of *Cichorium spinosum*, *Crithmum maritimum*, *Portulaca oleracea*, *Sonchus oleracea* within the context of incorporating the selected species in organic farming systems (Task 3.2-3.4).
  - (b) pot experiments regarding the use of manure and zeolite in cultivation of *Cichorium spinosum*, *Crithmum maritimum*, *Portulaca oleracea*, *Sonchus oleracea* within the context of incorporating the selected species in organic farming systems (Task 3.2-3.4).
  - (c) Moreover, field and pot experiments are in progress/planned in order to evaluate the effect of non-microbial biostimulants on WEPs cultivation (Task 3.5).
  
- **Cyprus University of Technology (CUT)**
  - (a) CUT is programming to evaluate plant residues/wastes as a growing media for both *Sonchus oleraceus* and *Portulaca oleracea* (Task 3.5).
  
- **Consejo Superior de Investigaciones (CSIC)** has planned to repeat the experiments related to Tasks 3.1-3.4:
  - a) A pot experiment in greenhouse conditions is going on to study the effects of inoculation with different species of plant growth promoting bacteria's (PGPRs), arbuscular mycorrhizal fungi (AMFs) and plant growth promoting fungi's (PGPFs) on growth, yield and rhizosphere dynamics of purslane (*Portulaca oleracea* L.).
  - b) A pot experiment where different treatments of organic fertilization will be tested (biochar and composts).
  - c) A field experiment where the effect of AMF, PGPR, Organic compost and biofertilizers on the growth of *Portulaca oleracea* and *Sonchus oleraceus* will be studied.
  
- **Bergische Wuppertal University (BUW)**
  - (a) Analyzed soil properties of samples from the previous experiments.
  - (b) Finished the extraction of the plant samples.
  - (c) Extracted the total and available content of nutrients and trace elements in soil samples
  - (d) Analyzed nutrients and trace elements in soil and plant samples
  - (e) Analyzed PLFA in the rhizosphere of some soil samples
  - (f) Starting the new pot experiment with *Portulaca oleracea*, *Sonchus oleraceus* and *Scolymus hispanicus* using two contaminated soils with toxic elements.
  
- **Dokuz Eylul University (DEU)** will performed experiments related to Task 3.2 and 3.3.
  - In particular, the soil alkalinity level and soil remediation effects of WEPs will be determined in case of soil contamination with heavy metals. The initial values of the first trial set have still been obtained. In addition, the distribution of metals in the soil according to chemical bonding types will also be considered. Different plant species (*Crithmum maritimum* and *Scolymus hispanicus*) will also be studied in future trial sets.
  - The evaluation of the effect of *Portulaca oleracea* plant roots on soil decomposition (Task 3.3)
  
- **Benha University (BU)** has planned to perform the following experiments related to Task 3.1 and 3.5:

- a) The effect of bacterial strains *viz*, *Azotobacter chroococcum*, *Paenibacillus polymyxa* GQ375783.1 on plant growth and chemical compositions of *Portulaca olearacea* (Task 3.1).
- b) *Portulaca olearacea* plants were irrigated with different concentrations of saline water: 1000, 2000, 3000, 4000, 5000, 6000 ppm and control, while they were also sprayed with plant growth stimulants such as melatonin, proline and salicylic acid at different concentrations to evaluate the amelioration effects of these treatments on salinity stress related damage (Task 3.5).

The completed results of these experiments are presented in Annex III.

#### 1.2.4 Work package 4

This WP is related to the evaluation of quality, environmental footprint and nutritional value of WEPs

The following activities are planned or ongoing:

#### 1.4 Work package 4

This WP is related to the evaluation of quality, environmental footprint and nutritional value of WEPs and includes the following activities: **Task 4.1 Characterization of physical properties and quality; Task 4.1 Characterization of physical properties and quality; Task 4.3 Determination of individual bioactive compounds; Task 4.4 Environmental footprint for WEPs; Task 4.5 Statistical analysis and interpretation of the obtained data.**

The following activities are planned or ongoing:

- **University of Thessaly (UTH)**
  - (a) UTH has collected samples which is preparing to send to IPB for analyses related to quality and nutritional value of WEPs. Moreover, the data for LCA analysis of the new experiments will be sent to CUT for the evaluation of the environmental footprint of WEPs.
- **Cyprus University of Technology (CUT)**
  - (a) CUT provided the first set of samples to IBP, as prepared through freeze drying. CUT is preparing the 2<sup>nd</sup> set of samples for IBP. CUT is progressing mineral analysis (N, K, P etc).
  - (b) Collecting the relevant info for the Environmental footprint in different experiments performed by the consortium. Analysis is in progress.
  - (c) CUT has received relevant info from UTH for several experiments and is performing data analysis. More data will be received in due time.
- **Instituto Politécnico de Bragança (IPB)**
  - (a) as lead beneficiary of WP4 has scheduled the analysis of the nutritional profile, chemical characterization and bioactivity properties of samples from all the partners. Moreover, the sustainable recovery of targeted bioactive compounds is scheduled. All these activities are related to deliverables D4.1, D4.2 and D4.3.
- **Benha University (BU)**
  - (a) BU has collected and sent samples to IPB for analyses related to quality and nutritional value of WEPs.
- **University of Mostaganem (UM)**
  - (a) UM has performed the first series of analyses related to the *in vivo* anti-inflammatory activity. The samples will be dispatched by IPB after the determination of bioactive properties.

The completed results of these experiments are presented in Annex IV.

#### 1.2.4 Work package 5

This working package is related to the communication activities of the project.

The communication activities are taking place according to the communication Plan which was finalized through the online meeting held on 23/02/2021. Considering that specific deliverables related to Communication activities include several delivery months e.g. D5.1 and D5.3 it was requested and accepted by the PRIMA officer to divide them in subdeliverables according to the delivery month. Therefore, D5.1 was divided to D5.1.1, D5.1.2 and D5.1.3 and each one could be submitted on the corresponding deadlines e.g. M12, M24 and M36. Similarly, D5.3 was divided to D5.3.1, and D5.3.2 and each one could be submitted on the corresponding deadlines e.g. M6 and M33. The related tasks that are already completed are presented below.

The establishment of physical labs (deliverable D5.4) was postponed due to problems with setting up the experimental and demonstration fields. The request was accepted by the PRIMA officer and the deliverable will be submitted at the end of the second growing period (e.g. M24). Meanwhile, all the demonstrated activities will take place according to plan and depending on the restrictions of the pandemic.

Regarding the completed activities of D5.1.1:

- **Dokuz Eylul University (DEU)** has completed the creation of physical laboratories. An Open Day was held in the greenhouse, which is a physical laboratory created by DEU, on December 2021 to inform the public about the project subject and WEPs. This activity was part of deliverable D5.1.1. The video material of this openday has been uploaded in the YouTube channel of the project at: <https://www.youtube.com/channel/UCmEyuuirXgkI5lRKvtqdSJA>  
Moreover, questionnaires regarding the Valuefarm project were circulated during the openday. The results of these questionnaires are presented in ANNEX V.
- **University of Thessaly (UTH)** carried out a workshop on December 9, 2021 at the experimental farm of the University of Thessaly with the participation of University students. This activity was also part of Deliverable D5.1.1. The video material of this openday has been uploaded in the YouTube channel of the project at: <https://www.youtube.com/channel/UCmEyuuirXgkI5lRKvtqdSJA>  
Moreover, questionnaires regarding the Valuefarm project were circulated during the workshop and the living lab, as well as in the University of Thessaly faculty, administrative staff and undergraduate and postgraduate students. The results of these questionnaires are presented in ANNEX V.
- **Benha university (BU)** has performed group meetings. Moreover, three training courses were conducted for sixty trainers. Also, three field days were done by the project members for the farmers to discuss with them about the project idea and benefits. This activity was part of deliverable D5.1.1.

Particular communication activities related to D5.1.2:

- **Cyprus University of Technology (CUT)**
  - (a) A Living Lab has been organized by Cyprus University of Technology (Dr. N. Tzortzakis) for the needs of ValueFarm Project. The Living Lab was held at the Hydroponic Infrastructures of Cyprus University of Technology (K. Polemidia, Limassol, Cyprus). Undergraduate students and local farmers were the attendants of the lab, for which Dr. N. Tzortzakis had prepared and demonstrated the induction of unexploited species in hydroponic (NFT) systems. Additionally, a demonstration has been conducted on how to manage and monitor the hydroponic solution, in terms of pH and Electrical Conductivity.











(b) CUT designed the **project poster** related to Cyprus activities which will be used in any dissemination activities from now on.

**PRIMA**  
PRIORITY 1 - RURAL DEVELOPMENT  
IN THE MEDITERRANEAN AREA

United with Diversity

**VALUEFARM PROJECT**

RESEARCH INNOVATION FOUNDATION

EUROPEAN UNION

### VALORIZATION OF MEDITERRANEAN SMALL-SCALE FARMS BY CROPPING WILD UNEXPLOITED SPECIES

Cyprus University of Technology (CUT), Cyprus, University of Thessaly (UTH), Greece, Instituto Politécnico de Bragança (IPB), Portugal, Dokuz Eylül University (DEU), Turkey, Ege University (EGE), Turkey, Consejo Superior de Investigaciones Científicas (CSIC), Spain, Bergische Wuppertal University (BUW), Germany, Greek Fresh Vegetables IKE (GFV), Greece, Benha University (BU), Egypt, University of Mostaganem (UM), Algeria

- ValueFarm is a 3-year project and aims to valorize Mediterranean small farms by introducing **wild edible plants** of the Mediterranean (WEPs) such as *Crithmum maritimum* L., *Portulaca oleracea* L., *Sonchus* sp., *Scolymus hispanicus* L., and *Cichorium spinosum* L. as complementary crops within a competitive farming sector and a climate-changing world and cropping them in a sustainable point of view.
- The assessment of using WEPs in arduous conditions (drought and salinity stress) and marginal soils with low organic matter, compacted, or eroded where conventional crops cannot be cultivated will also be carried out.
- Moreover, the contribution of WEPs cultivation to soil properties improvement will be assessed by reducing or eradicating the use of agrochemicals, and by introducing the use of a more sustainable agriculture with biostimulants, biofertilizers and biopesticides and the use of tailored composts.
- WEPs will be assessed for their nutritional value and bioactive compounds content in order to select and propose those farming systems that increase the quality of the final product and its added value.

**Project Objectives:**

- to propagate and cultivate selected WEPs species
- to describe and evaluate agronomic performance of WEPs
- to evaluate WEPs in degraded soils and assess their soil improvement properties,
- the incorporation of WEPs in mixed and intercropping systems
- to evaluate innovative approaches (biofertilizers, biostimulants or tailored composts with PGPRs, PGPFs, AMFs)
- to analyze chemical composition, nutritional value and bioactive compounds of WEPs,
- to increase knowledge and public awareness on the nutritional value and the bioactive compounds content of WEPs,
- to create a network of farmers for the on-farm demonstration and technological transfer to facilitate the adaptation of Mediterranean small-scale farms to the proposed farming systems.

**Work packages**

WP1. Knowledge update and administration of the project  
 WP2. Evaluation of WEPs under innovative farming systems  
 WP3. Evaluation of novel biofertilizers and soil amelioration properties of WEPs  
 WP4. Evaluation of quality, environmental footprint and nutritional value of WEPs  
 WP5. Communication activities  
 WP6. Dissemination of achieved knowledge

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(c) CUT designed/printed the **project banner** which was presented at the VI Postharvest Pathology International Symposium and will be used in any other dissemination activities



## VALUEFARM PROJECT

### VALORIZATION OF MEDITERRANEAN SMALL-SCALE FARMS BY CROPPING WILD UNEXPLOITED SPECIES

✓ ValueFarm is a 3-year project and aims to valorize Mediterranean small farms by introducing wild edible plants of the Mediterranean (WEPs) such as *Crithmum maritimum* L., *Portulaca oleracea* L., *Sonchus* sp., *Scolymus hispanicus* L., and *Cichorium spinosum* L. as complementary crops within a competitive farming sector and a climate-changing world and cropping them in a sustainable point of view.



*Sonchus* sp.



*Portulaca oleracea* L.

#### Project Objectives

- 1) to propagate and cultivate selected WEPs species
- 2) to describe and evaluate agronomic performance of WEPs
- 3) to evaluate WEPs in degraded soils and assess their soil improvement properties,
- 4) the incorporation of WEPs in mixed and intercropping systems
- 5) to evaluate innovative approaches (biofertilizers, biostimulants or tailored composts with PGPRs, PGPFs, AMFs
- 6) to analyze chemical composition, nutritional value and bioactive compounds content of WEPs,
- 7) to increase knowledge and public awareness on the nutritional value and the bioactive compounds content of WEPs,
- 8) to create a network of farmers for the on-farm demonstration and technological transfer to facilitate the adaptation of Mediterranean small-scale farms to the proposed farming systems.



#### PROJECT PARTNERS

- University of Thessaly (UTH), Greece
- Instituto Politécnico de Bragança (IPB), Portugal
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- The 1<sup>st</sup> newsletter which refers to deliverable 5.3.1 is completed and submitted to the MEL platform. Moreover, the newsletter is available online at the project website. In the same deliverable, UTH in collaboration with IPB has presented the results of the project in two conferences:
  - a. one poster in the proceedings of Natural Products Application conference that was held on-line on 4-5 February, 2021. The details of the presentation are the following:

Nikolaos Polyzos, Ángela Fernandes, Maria Inês Dias, Spyridon A. Petropoulos, Isabel C.F.R. Ferreira, Lillian Barros. *Nutritional value and chemical composition of purslane leaves in relation to harvesting stage. Natural products application: Health, Cosmetic and Food (on-line edition). Braganca, Portugal, 4-5 February, 2021;*

- b. one poster in the proceedings of III International Symposium on Soilless Culture and Hydroponics: Innovation and Advanced Technology for Circular Horticulture conference that was held on-line on 19-21 March, 2021. The details of the presentation are the following:

*Elina Nastou, Georgios Thalassinos, Nikolaos Polyzos, Vasileios Antoniadis, Spyridon A. Petropoulos. The effect of nitrogen fertilization rate on growth and physiological parameters of three purslane genotypes grown in a soilless cultivation system. III International Symposium on Soilless Culture and Hydroponics: Innovation and Advanced Technology for Circular Horticulture, Lemesos, Cyprus, 19-21 March 2021. Acta Horticulturae 1321: 125-132. <https://doi.org/10.17660/ActaHortic.2021.1321.16>*

### 1.2.5 Work package 6

Regarding the dissemination activities of the project:

The publicity material related to D6.4 divided in 6 subdeliverables (e.g. D6.4.1, D6.4.2, D6.4.3, D6.4.4, D6.4.5 and D6.4.6) and each one should be submitted on the corresponding dates e.g. M6, M12, M18, M24, M30 and M36. The first deliverables (D6.4.1, D6.4.2 and D6.4.3) are already completed and the prepared material is uploaded on the project website.

In particular, D6.4.1 includes the following dissemination material:

- The official presentation of the project is available online at the project website.
- **University of Thessaly (UTH)** as part of Task 6.4.1 has published an informative material to the Greek magazine Γεωργία και Κτηνοτροφία (<https://www.agrotypos.gr/>) which is addressed to Greek farming stakeholders such farmers, farming industry, agrofood industry, agronomists. The material is published in Greek. The publication is available online at the project website.
- The **Polytechnic Institute of Bragança (IPB)** as part of Task 6.4.1 has published a press release in the national newspaper Revista TecnoAlimentar, entitled “Valorização de pequenas empresas agrícolas da região Mediterrânica através do cultivo de plantas silvestres não convencionais - Valorization of small agricultural farms in the Mediterranean region through the cultivation of unconventional wild plants” (<http://www.tecnoalimentar.pt/noticias/valorizacao-de-pequenas-empresas-agricolas-da-regiao-mediterranica-atraves-do-cultivo-de-plantas-silvestres-nao-convencionais/>).
- A review paper regarding the use of WEPs in the Mediterranean diet has been published by UTH and IPB in Applied Sciences, MDPI. The paper is published open access and free for download at the publisher website. It is also available at the project website. The details of the paper are the following:  
*Elena Chatzopoulou, Marcio Caroch, Francesco Di Gioia, Spyridon A. Petropoulos. 2020. The Beneficial Health Effects of Vegetables and Wild Edible Greens: The Case of the Mediterranean Diet and Its Sustainability. Applied Sciences 10(9144): 1-27. <https://doi.org/10.3390/app10249144>*

D6.4.2 includes the following dissemination material:

- **University of Thessaly (UTH)** has presented one poster in the proceedings of HELECOS 10: 10ο Συνέδριο της Ελληνικής Οικολογικής Εταιρείας that was held on-line on October 14-17, 2021. The details of the presentation are the following:  
*N. Πολύζος, Σ. Πετρόπουλος. Η αξιοποίηση των αυτοφυών φυτών ως εναλλακτικών καλλιεργειών στο πλαίσιο της κλιματικής αλλαγής. HELECOS 10: 10ο Συνέδριο της Ελληνικής Οικολογικής Εταιρείας, 14-17 Οκτωβρίου, 2021*
- **Polytechnic Institute of Bragança (IPB)** in collaboration with **UTH** has presented one poster communication in XXI EuroFoodChem that was held on-line on 22-24 November, 2021. The details of the presentation are the following:  
*Beatriz H. Paschoalinotto, Ángela Fernandes, Miguel A. Prieto, Nikolaos Polyzos, Spyridon Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros. Study of the nutritional*

profile of *Cichorium spinosum* L. after fertilization with different nutritional solutions. XXI EuroFoodChem (on-line edition). 22-24 November 2021.

- **Polytechnic Institute of Bragança (IPB)** in collaboration with **UTH** has presented two oral communications in First Meeting on Biochemistry that was held on-line on 9-10 December 2021. The details of the presentation are the following:  
*Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compocholi, Spyridon Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros. Effect of fertilization via nutrient solution on the nutritional profile and chemical composition of *Chicorium spinosum* L. First Meeting on Biochemistry (on-line edition). Maringá, Brazil, 9-10 December 2021.*
- **University of Thessaly (UTH)** has presented one poster in the proceedings of 12th International Scientific Agriculture Symposium “AGROSYM 2021” that was held in Jahorina, Bosnia and Herzegovina on October 7-10, 2021. The details of the presentation are the following:  
*Spyridon A. Petropoulos, Nikolaos Polyzos, Maria Compocholi. The effect of fertilization regime on *Scolymus hispanicus* plant growth. 12th International Scientific Agriculture Symposium “AGROSYM 2021”. Jahorina, Bosnia and Herzegovina, October 7-10, 2021*

D6.4.3 includes the following dissemination material:

- The **Polytechnic Institute of Bragança (IPB)** in collaboration with **UTH** has presented the results of the project in 14 Simpósio Latino Americano de Ciência de Alimentos that was held on-line on 12-14 December, 2021. The details of the presentation are the following:  
*Paschoalinotto, B.H.; Fernandes, Á.; Prieto, M.A.; Petropoulos, S.; Ferreira, I.C.F.R.; Dias, M.I.; Barros, L. Estudo do perfil nutricional de *Cichorium spinosum* L. após fertilização com diferentes soluções nutritivas. 14 Simpósio Latino Americano de Ciência de Alimentos (on-line edition). Campinas, Brasil, 12-14 Dezembro, 2021.*
- **Dokuz Eylul University (DEU)** has performed an oral presentation entitled METALS ACCUMULATION AND TRANSFER IN *Portulaca oleracea* L. SAMPLES AS EDIBLE WILD PLANTS IN AEGEAN REGION OF MEDITERRANEAN AREA at the MESMAP7- The 7th International Mediterranean Symposium on Medicinal and Aromatic Plants meeting held in Izmir on 18-20 November 2021 was carried out. The summary of the presentation will be published in the booklet. This study is being prepared for publication in SCI journals with some additional data.
- **University of Thessaly (UTH)** has published a review paper regarding the use of *Crithmum maritimum* in saline agriculture in Applied Sciences, MDPI. The paper is published open access and is free for download at the publisher website. It is also available at the project website. The details of the paper are the following:  
*Anestis Karkanis, Nikolaos Polyzos, Maria Kompocholi, Spyridon A. Petropoulos. 2022. Rock Samphire, a Candidate Crop for Saline Agriculture: Cropping Practices, Chemical Composition and Health Effects. Applied Sciences 12(737): 1-18 <https://doi.org/10.3390/app12020737>*
- The **Polytechnic Institute of Bragança (IPB)** in collaboration with **UTH** has presented an oral communication in the conference “Chromatography helps in times of crises” that was held on-line on 17 December 2021. The details of the presentations are the following:  
*Paschoalinotto, B.H.; Fernandes, Á.; Prieto, M.A.; Calhelha, R.; Polyzos, N.; Petropoulos, S.; Ferreira, I.C.F.R.; Dias, M.I.; Barros, L. Chromatographic analysis at the service of new agricultural production systems: chemical composition of *Chicorium spinosum* L. with bioactive properties. Chromatography helps in times of crisis (on-line edition). Webinar, 17<sup>th</sup> December 2021.*

Regarding other dissemination activities of the project:

- More data will be produced in WPs related with research activities (WP2, WP3 and WP4), which will result in:
  - New presentations in scientific international conferences,
  - New scientific papers in high impact factor international peer-reviewed journals
  - Publicity materials that could be disseminated in conferences, exhibitions etc.

- Releases of results in popular farming magazines, daily newspapers and media
  - Dissemination of outcomes and key findings via practical seminars/workshops and the final conference.
  - Preparation of flash content in video format for dissemination purposes (DVD, YouTube, etc.).
  - Farming events with project partners' countries with presentations and on farm activities demonstrations for the benefit of farmers, consumers and their organisations, food and feed producing and processing companies.
  - Video/DVD materials available in seminars, local fairs, as well as to educational institutions.
  - Brochures/leaflets will be disseminated during local fairs, exhibitions, conferences, to educational institutions, during the farm days, etc.
- The 2<sup>nd</sup> Newsletter has been completed and it is available on the project's website.
  - **Consejo Superior de Investigaciones (CSIC) – University of Thessaly (UTH)**
    - (a) Manuscript in preparation: Carrascosa A, Pascual JA, López-García A, Ros M, Petropoulos SA, Alguacil MM: Effects of chemical and compost tea fertilizers application on the taxonomic and functional microbial diversity of the purslane rhizosphere, which we are going to submit for the journal: Science of the total environment
    - (b) Conference proceedings: Carrascosa A, Pascual JA, Ros M, Petropoulos S, Alguacil MM. "The effect of fertilization regime on growth parameters of *Sonchus oleraceus* and two genotypes of *Portulaca oleracea*" 1st International Electronic Conference on Horticulturae (iecho 2022). Section: New Trends and Innovations in Medicinals, Herbs, and Specialty Crops. 16-30 April, 2022 (online)
    - (c) Conference proceedings: Carrascosa A, Pascual JA, López-García A, Ros M, Petropoulos S, Alguacil MM. "Microbial community structure in purslane rhizosphere after different organic and inorganic fertilizer rates" 13th International Scientific Agriculture Symposium "AGROSYM 2022"; Jahorina mountain (Bosnia and Herzegovina) 6- 9 October, 2022. Type communication: Poster
  - **Polytechnic Institute of Braganca (IPB)-University of Thessaly (UTH)**
    - (a) Conference proceedings: Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compochoi, Spyridon Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros. Análise do perfil nutricional de partes comestíveis da *Portulaca oleracea* L. produzida pela técnica de rotação de culturas. III Colóquio Nacional de Plantas Aromáticas e Medicinais, Castelo Branco, Portugal, 24-26 March, 2022. Type of dissemination: oral.
    - (b) Conference proceedings: Nikolaos Polyzos, Beatriz Paschoalinotto, Maria Compochoi, Maria Inês Dias, Lillian Barros, Spyridon A. Petropoulos. The effects of fertilization regime on growth parameters and bioactive properties of pot grown *Cichorium spinosum* L. plants. 1st International Electronic Conference on Horticulturae (on-line). 16-30 April, 2022. Type of dissemination: proceedings paper
    - (c) Conference proceedings: Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compochoi, Spyridon Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros. "Impacto de diferentes métodos de produção agrícola no perfil nutricional de beldroega (*Portulaca oleracea* L.)". *Ciência 2022 – Encontro com a*



ciência e Tecnologia em Portugal. Lisboa, Portugal, 16-18 May, 2022. Type of communication: poster

- (d) Conference proceedings: Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compochoi, Spyridon Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros. Crop rotation and irrigation experiment effects the nutritional and chemical profile of *C. spinosum*. Ciência 2022 – Encontro com a ciência e Tecnologia em Portugal. Lisboa, Portugal, 16-18 May, 2022. Type of dissemination: oral
- (e) Conference proceedings: Nikolaos Polyzos, Maria Kompochoi, Alexios Alexopoulos, Maria Ines Diaz, Beatriz Paschoalinotto, Lillian Barros, Spyridon A. Petropoulos. The effect of fertilization regimes on growth and chemical composition of *Cichorium spinosum* plants. 13th International Scientific Agriculture Symposium “AGROSYM 2022”. Jahorina, Bosnia and Herzegovina, October 6-09, 2022. Type of dissemination: poster.
- (f) Conference proceedings: Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compochoi, Spyridon Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros. “Functionality assessment of *Scolymus hispanicus* (golden thistle) for its daily-basis incorporation in the Mediterranean diet”. Ciência 2022 – XVI Encontro de Química dos Alimentos Castelo Branco, Portugal, 23-26 October, 2022. Type of dissemination: poster
- (g) Conference proceedings: Beatriz H. Paschoalinotto, Miguel A. Prieto, Maria Compochoi, Nikolaos Polyzos, Spyridon Petropoulos, Isabel C.F.R Ferreira, Maria Inês Dias, Lillian Barros. Avaliação da influência da adubação via solução nutritiva no perfil nutricional de *Scolymus hispanicus* L. IV Congresso das Escolas Superiores Agrárias, Santarem, Portugal, November 3-4, 2022. Type of dissemination: oral
- (h) Conference proceedings: Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compochoi, Spyridon Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros. “Impacto del riego en el perfil nutricional y químico de las partes comestibles del cardo dorado (*Scolymus hispanicus* L.). III Congreso Nacional de Jóvenes Investigadores en Ciencia, Ingeniería y Tecnología de los Alimentos, Salamanca, Spain, 10-11 November, 2022. Type of dissemination: oral

### 1.3 Impact

The information on section 2.1 of the proposal submitted is still relevant and according to schedule.

### 2. Update of the plan for exploitation and dissemination of result (if applicable)

Include in this section whether the plan for exploitation and dissemination of results as described in the proposal submitted needs to be updated and give details.

The communication plan has been revised following the subdivision of specific deliverables in subdeliverables. Considering that specific deliverables related to Communication activities include several delivery months e.g. D5.1 and D5.3 it was requested and accepted by the PRIMA officer to divide them in subdeliverables according to the delivery month. Therefore, D5.1 was divided to D5.1.1, D5.1.2 and D5.1.3 and each one could be submitted on the corresponding deadlines e.g. M12, M24 and M36. Similarly, D5.3 was divided to D5.3.1, and D5.3.2 and each one could be submitted on the corresponding deadlines e.g. M6 and M33. The related tasks that are already completed are presented below.

The establishment of physical labs (deliverable D5.4) was postponed due to problems with setting up the experimental and demonstration fields. The request was accepted by the PRIMA officer and the deliverable will be submitted at the end of the second growing period (e.g. M24). Meanwhile, all the demonstrated activities will take place according to plan and depending on the restrictions of the pandemic.

### **3. Update of the data management plan (if applicable)**

Include in this section whether the data management plan as described in the proposal submitted needs to be updated and give details.

Nothing has changed in the data management plan.

### **4. Follow-up of recommendations and comments from previous review(s) (if applicable)**

Include in this section the list of recommendations and comments from previous reviews and give information on how they have been followed up.

Not applicable.

### **5. Deviations from the proposal submitted (if applicable)**

Explain the reasons for deviations (scientific aspects, planned work, estimated budget, etc.) from the proposal submitted, the consequences and the proposed corrective actions.

#### **5.1 Tasks**

Specific changes applied so far in specific tasks are described below:

Tasks of WP2 were affected by the COVID pandemic and specific deliverables are behind schedule (D2.2, D5.1 and D5.4). Therefore, a postponement has been asked and granted by the PRIMA officer for the better administration of the whole project and the harmonization of activities among the partners. This delay is not going to severely affect the research activities of the rest of the WPs (WP3 and WP4) as soon as the situation comes back to normal within the next months.

Other deviations from the proposal submitted include the division of deliverables D2.1, D5.1, D5.3 and D6.4 in subdeliverables in order to submit the corresponding deliverables according to the schedule mentioned in the proposal submitted. In particular:

Deliverable D2.1 is divided in two subdeliverables (e.g. D2.1.1 and D2.1.2). The first one is already completed and available online via the project website. The second will be completed in due time (M24).

Deliverable 5.1. is divided in three subdeliverables (e.g. D5.1.1, D5.1.2 and D5.1.3 and each one could be submitted on the corresponding deadlines e.g. M12, M24 and M36), according to the proposal submitted. The first subdeliverable (D5.1.1) is already completed and the publicity material has been uploaded on the project website and on the MEL platform.

Deliverable D5.3 is divided in three subdeliverables (e.g. D5.3.1, and D5.3.2 and each one could be submitted on the corresponding deadlines e.g. M6 and M33), according to the proposal submitted. The first subdeliverable (D5.3.1) is already completed and the publicity material has been uploaded on the project website and on the MEL platform.

Deliverable D6.4 is divided in 6 subdeliverables (e.g. D6.4.1, D6.4.2, D6.4.3, D6.4.4, D6.4.5 and D6.4.6) and each one should be submitted on the corresponding dates e.g. M6, M12, M18, M24, M30 and M36, according to the proposal submitted. The first deliverable (D6.4.1) is already completed and the prepared material is uploaded on the project website. Deliverable D6.4.2. which is due on 31-08-2021 was postponed to 31-12-2021.

There are two more issues to be mentioned that were mentioned by the partners in the technical meeting that was held on September, 2021. First of all, the Egyptian partner (Benha University) signed very late the Grant Agreement with its national funding agency (10 May 2021); therefore, the planned tasks are behind the schedule due to lack of funds. Moreover, for some reason the German partner (Bergische Wuppertal University) has signed a Grant Agreement with its national funding agency which started on May 2021 and ends after 24 months (April 2023). Therefore, funding does not cover the project throughout its duration (until August 2023).

The work produced from all the partners of the project was profoundly affected by the COVID-19 worldwide outbreak, which halted field and laboratorial work from November 2020 until May 2021, approximately. Firstly, the research institutes of the consortium were affected by the COVID restrictions applied in some countries (e.g. Greece) regarding the in person activities and remote

working caused a significant delay in contract assignments with direct results to the progress of the activities of the projects where temporary staff was needed (e.g. field experiments and laboratory work). In fact, the delay in the field work led to the delay in all the subsequent steps (sample collection, laboratorial work, etc.), mostly related to WP2 and WP3 and the rest of the directly linked WPs (WP4). When field and laboratorial work was resumed in May 2021, the dedication of researchers to the activities was greatly reduced due to the implementation of contingency measures in the research institutions. It is also important to refer that some research institutions have converted their laboratories and human resources to participate in the global effort of COVID-19 detection (e.g. IPB laboratories). Moreover, the untimely project initiation did not allow to conduct properly the first growing period (WP1) on schedule (e.g. the starting date of September 01, 2020 was nearly at the end of growing period for all the tested species *Cichorium spinosum*, *Crithmum maritimum*, *Portulaca oleraceae*, *Sonchus oleraceus* and *Scolymus hispanicus*) which usually grow in spring-summer. Even in Egypt where cultivation could probably start the Grant agreement was not signed to allow the initiation of field experiments). Thus, the impact of the pandemic produced a negative impact in the implementation of WP2 as well as in the seed collection from the wild due to COVID restrictions (only in the case of *Crithmum maritimum*, since the rest of the species usually set seeds in the summer period), WP4 (lack of samples for the chemical analyses) and WP5 (communication activities related to physical and living labs).

The corrective action proposed by the Valuefarm coordinator and agreed by all partners is to re-schedule the time line of the affected work packages, milestones and deliverables. In order to make this effective, the project partners have agreed on requesting PRIMA for an extension of the project's end date to August 2024, i.e. 12 months extension. No partner will request for an increase in budget to their local funding agencies and the requested extension should refer to the extension of individual WPs and the submission dates of deliverables.

## **5.2. Deviations due to non-responsive partner and proposed corrective action**

Not applicable

## **5.3 Explanation for unachieved tasks**

Include explanations for tasks not fully implemented, critical objectives not fully achieved and/or not being on schedule. Explain also the impact on other tasks on the available resources and the planning.

In the first year's project meeting, putting together the delays of each partner, a new schedule of project implementation was proposed assuming the end date will not change (31/08/2023). See the updated Gantt chart in Figure 1. The re-scheduled duration of the respective Tasks are shown in yellow color. Accordingly, the due dates of deliverables and milestones has been also re-scheduled, and are compiled in Tables 4 and 5.



Table 4. List of deliverables of Valuefarm project, displaying re-scheduled delivery months (in bold font). Completed indicates that the deliverable has been reached.

#	Deliverable name	WP	Lead	Type	Dissemination level	Due month	New due date
1.1	<b>Technical meeting organisation</b>	1	UTH	OTHER	CO	2	<b>Completed</b>
1.2	<b>Constitution of the Steering Group</b>	1	UTH	OTHER	CO	2	<b>Completed</b>
1.3	<b>Semestrial internal progress report</b>	1	UTH	R	CO	6	<b>Completed</b>
1.4	<b>Technical meeting organisation</b>	1	UTH	OTHER	CO	12	<b>Completed</b>
1.5	<b>Semestrial internal progress report</b>	1	UTH	R	CO	12	<b>Completed</b>
1.6	<b>Annual report</b>	1	UTH	OTHER	CO/PU	12	<b>Completed</b>
1.7	<b>Semestrial internal progress report</b>	1	UTH	R	CO	18	<b>Completed</b>
1.8	Technical meeting organisation	1	UTH	OTHER	CO	24	24
1.9	Semestrial internal progress report	1	UTH	R	CO	24	24
1.10	Annual report	1	UTH	R	CO/PU	24	24
1.11	Semestrial internal progress report	1	UTH	R	CO	30	30
1.12	Technical meeting organisation	1	UTH	OTHER	CO	33	33
1.13	Semestrial internal progress report	1	UTH	R	CO	36	36
1.14	Final report	1	UTH	R	CO/PU	36	48
2.1.1	A DATABASE map of the selected WEPs in the participating countries	2	CSIC	DEC	PU	6	<b>Completed</b>
2.1.2	<b>A DATABASE map of the selected WEPs in the participating countries</b>	2	<b>CSIC</b>	<b>DEC</b>	<b>PU</b>	<b>6</b>	<b>24</b>
2.2	<b>Multilingual electronic handbook of technical information and best practice guides of the selected WEPs</b>	2	<b>CSIC</b>	<b>R</b>	<b>PU</b>	<b>8</b>	<b>20</b>
2.3	Selection of the most environmentally sustainable WEP for each country conditions	2	CSIC	OTHER	PU	24	36
2.4	Selection of the most sustainable WEP and legume combinations for each country conditions	2	CSIC	OTHER	PU	24	36
3.1	Report for soil chemical properties in soil samples collected from the second field experiment	3	BUW	R	CO	30	42

3.2	Determination of plant nutrients and potentially toxic elements in both soil and plant samples collected from the first experiment	3	BUW	R	CO	30	42
3.3	Report for soil chemical properties in soil samples collected from the second field experiment	3	BUW	R	CO	30	42
3.4	Determination of plant nutrients in both soil and plant samples collected from the second experiment	3	BUW	R	CO	30	42
3.5	Determining the soil microbial community in soil samples collected from the second field experiment	3	BUW	R	CO	36	48
3.6.1	Reports	3	BUW	R	CO, PU	36	36
3.6.2	Reports	3	BUW	R	CO, PU	36	48
3.7	Publications in peer-reviewed scientific journals in an open access mode	3	BUW	OTHER	PU	36	48
4.1	Proximate composition and chemical profile of the different WEP's	4	IPB	R	PU	18	36
4.2	Report with the most suitable extraction conditions and mathematical models obtained by RSM) of the dependent variables used in the optimization of the extraction of the bioactive compounds from WEP's	4	IPB	R	CO	20	38
4.3	Overall composition description reports of the different WEP's	4	IPB	R	PU	24	42
5.1.1	Public meetings	5	CUT	DEC	PU	12	Completed
5.1.2	Public meetings	5	CUT	DEC	PU	24	24
5.1.3	Public meetings	5	CUT	DEC	PU	36	36
5.2	Project website	5	CUT	DEC	PU	4	Completed
5.3.1	Communication and Publicity material	5	CUT	DEC	PU	6	Completed
5.3.2	Communication and Publicity material	5	CUT	DEC	PU	33	45
5.4	Establish physical and living labs	5	CUT	DEM	PU	6	36
6.1.1	Scientific publications	6	DEU, EGE	R	PU	24	36
6.1.2	Scientific publications	6	DEU, EGE	R	PU	30	42
6.1.3	Scientific publications	6	DEU, EGE	R	PU	36	48
6.2.1	Video/DVD material	6	DEU, EGE	DEC	PU	24	36
6.2.2	Video/DVD material	6	DEU, EGE	DEC	PU	36	48
6.3.1	Handbooks	6	DEU, EGE	R	PU	18	30

<b>6.3.2</b>	Handbooks	<b>6</b>	<b>DEU, EGE</b>	<b>R</b>	<b>PU</b>	<b>36</b>	<b>48</b>
6.4.1	Publicity material	6	DEU, EGE	DEC	PU	6	Completed
6.4.2	Publicity material	6	DEU, EGE	DEC	PU	12	Completed
<b>6.4.3</b>	Publicity material	<b>6</b>	<b>DEU, EGE</b>	<b>DEC</b>	<b>PU</b>	<b>18</b>	<b>Completed</b>
<b>6.4.4</b>	Publicity material	<b>6</b>	<b>DEU, EGE</b>	<b>DEC</b>	<b>PU</b>	<b>24</b>	<b>36</b>
<b>6.4.5</b>	Publicity material	<b>6</b>	<b>DEU, EGE</b>	<b>DEC</b>	<b>PU</b>	<b>30</b>	<b>42</b>
<b>6.4.6</b>	Publicity material	<b>6</b>	<b>DEU, EGE</b>	<b>DEC</b>	<b>PU</b>	<b>36</b>	<b>48</b>

Table 5. List of milestones of the Valuefarm project, showing re-scheduled due month. Completed indicates that the deliverable has been reached. New milestones are highlighted with yellow color.

<b>Milestone number</b>	<b>Milestone name</b>	<b>Related work package(s)</b>	<b>Means of verification</b>	<b>Due date (in month)</b>	<b>New due date</b>
<b>M1.1.1</b>	<b>Reports on technical meetings</b>	<b>1</b>	<b>Reports available on the project website (PW)</b>	<b>2</b>	<b>Completed</b>
<b>M1.1.2</b>	<b>Reports on technical meetings</b>	<b>1</b>	<b>Reports available on the project website (PW)</b>	<b>12</b>	<b>Completed</b>
<b>M1.1.3</b>	<b>Reports on technical meetings</b>	<b>1</b>	<b>Reports available on the project website (PW)</b>	<b>24</b>	<b>24</b>
<b>M1.1.4</b>	<b>Reports on technical meetings</b>	<b>1</b>	<b>Reports available on the project website (PW)</b>	<b>33</b>	<b>33</b>
<b>M1.1.5</b>	<b>Reports on technical meetings</b>	<b>1</b>	<b>Reports available on the project website (PW)</b>	<b>45</b>	<b>45</b>
<b>M1.2</b>	Establishment of steering committee	1	List of the Steering Committee members available on the PW	2	Completed
<b>M1.3.1</b>	<b>Semestrial and annual progress reports completed</b>	<b>1</b>	<b>Reports available on the PW and sent to PRIMA</b>	<b>6</b>	<b>Completed</b>
<b>M1.3.2</b>	<b>Semestrial and annual progress reports completed</b>	<b>1</b>	<b>Reports available on the PW and sent to PRIMA</b>	<b>12</b>	<b>Completed</b>
<b>M1.3.3</b>	<b>Semestrial and annual progress reports completed</b>	<b>1</b>	<b>Reports available on the PW and sent to PRIMA</b>	<b>18</b>	<b>18</b>
<b>M1.3.4</b>	<b>Semestrial and annual progress reports completed</b>	<b>1</b>	<b>Reports available on the PW and sent to PRIMA</b>	<b>24</b>	<b>24</b>

M1.3.5	<b>Semestrial and annual progress reports completed</b>	<b>1</b>	<b>Reports available on the PW and sent to PRIMA</b>	<b>30</b>	<b>30</b>
M1.3.6	<b>Semestrial and annual progress reports completed</b>	<b>1</b>	<b>Reports available on the PW and sent to PRIMA</b>	<b>36</b>	<b>36</b>
M1.3.7	<b>Annual progress reports completed</b>	<b>1</b>	<b>Reports available on the PW and sent to PRIMA</b>	<b>48</b>	<b>48</b>
M1.4	Final report completed	1	Final report on the website and sent to PRIMA	36	48
M3.1	Development of experimental design and implementation for the first field and pot experiment	3	Field and pot experiments have been done, agronomic measurements have been done, soil and plant samples collected, and ready for analyses	24	36
M3.2	Providing data of the first experiment	2	Analyses have been finished and the results are collected, validated, and available	30	42
M3.3	Development of experimental design and implementation for the second field experiment	2	Field experiment results	30	42
M3.4	Providing data of the second experiment	2	Analyses have been finished and the results are collected, validated, and available for publication	33	45
M3.5	Preparing scientific paper(s)	1,2,4	Submitted/Published paper	33	45
M4.1	Up-scalable and eco-friendly extraction processes for bioactivities compounds	4	High yields in the procedure of extraction	18	30
M4.2	Optimized conditions for bioactive compounds	4	Parametric estimation responses resulting from RSM	24	36



	profiling and fingerprinting				
M5.1	Establishment of physical and living labs	5	On-line and printed questionnaires filled by users, comments through the project website	6	36
M5.2	Video material prepared	5	Video material available in project website and the Internet	33	45

## 6. Use of resources

Below are presented any deviations of the use of resources between actual and planned use of resources in proposal submitted by each partner (when applicable)

UTH

	WP1	WP2	WP3	WP4	WP5	WP6	Total
Planned PMs	20	30	10	4	6	6	76
Modified PMs							57

The adjustment of PMs was necessary due to National regulations for each personnel category. The allocation of new PMs to each WP is not possible due to different layout of the project in the Greek version. For example, there is no WP1 related to the administration of the project, as well as to the communication and dissemination activities (WP5 and 6).

GFV

	WP1	WP2	WP3	WP4	WP5	WP6	Total
Planned PMs	1	1	1		1	1	5
Modified PMs							11

GFV has applied for modification in PMs which have not been officially approved by GSRT until the submission of the mid-term report.

UM

	WP1	WP2	WP3	WP4	WP5	WP6	Total
Planned PMs							
Modified PMs							

Below are presented the adjustments in budget categories already approved by the National agencies of each partner (when applicable), as well as the actual budget until the end of February 2022:

UTH

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	200000	200000	61722.48
Consumables	10000	10000	3297.79
Travels	13000	10000	2161.5
Equipments	0	0	0
Other costs	15096		1342.2
Overheads	11904	11280.00	4512.00
Total budget	250000	250000	73035.97

The overheads of UTH were adjusted and approved according to National regulations and the regulations of the host institution. The decrease in the amount of travels was necessary due to covid restrictions and due different allocation in Other costs that were planned in the submitted template to PRIMA.

#### IPB

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	40572.36		17553.90
Consumables	27627.64		8177.24
Travels	11000		179.80
Equipments	0		
Other costs	1000		
Overheads	19800		
Total budget	100000		25910.94

#### CUT

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	99.078		
Consumables	13931.5		
Travels	13220		
Equipments	3000		
Other costs	2500		
Overheads	26305.90		
Total budget	169935.40		

#### DEU

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	2800	2800	731.1
Consumables			

Travels	1090	1090	
Equipments	76110		
Other costs		76110	6564.4
Overheads			
Total budget	80000	80000	7295.5

#### EGE

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	2800	2800	324.5
Consumables	3155	3155	889
Travels	1610	1610	
Equipments	72435	72435	40835.2
Other costs			
Overheads			
Total budget	80000	80000	42048.7

#### CSIC

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	54000		7744.01
Consumables	40000		13940.07
Travels	12000		565.22
Equipments	0		0.00
Other costs	44000		322.73
Overheads	0		0.00
Total budget	150000		22572.03

#### BUW

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	187407.52		64681.56
Consumables	56034.39		7000
Travels	10953		17.36
Equipments			
Other costs			
Overheads			
Total budget	254394.91		71698.92

#### GFV

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources			
Consumables	12000		0
Travels	3000		0
Equipments			
Other costs			
Overheads			
Total budget	15000		0

GFV has applied for modifications which have not been approved by GSRT until the submission of mid-term report. The partner has not applied for funding for the 1<sup>st</sup> mid-term but will receive funding after the mid-term, based on the requested changes in budget allocation.

BU

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	20290	3678	3678
Consumables	38000	5000	5000
Travels	16000	-	-
Equipments	30000	16977	16977
Other costs	15710	5945	5945
Overheads	-		
Total budget	120000	31600	31600

UM

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources			
Consumables			
Travels			
Equipments			
Other costs			
Overheads			
Total budget			

### 5.2.1 Unforeseen subcontracting (if applicable)

Not applicable

### 5.2.2 Unforeseen use of in-kind contribution from third party against payment or free of charges (if applicable)

## 6. Use of resources

Below are presented any deviations of the use of resources between actual and planned use of resources in proposal submitted by each partner (when applicable)

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Category	Planned use of resources in the submitted proposal	Adjustments approved by the	Actual budget until February
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		National Agency in question	
Human resources	40572.36		17553.90
Consumables	27627.64		8177.24
Travels	11000		179.80
Equipments	0		
Other costs	1000		
Overheads	19800		
Total budget	100000		25910.94

#### CUT

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	99.078	99.078	31710.40
Consumables	13931.5	13931.5	4934.14
Travels	13220	13220	1178.47
Equipments	3000	3000	2056.87
Other costs	2500	2500	79.47
Overheads	26305.90	26305.90	7991.87
Total budget	169935.40	169935.40	47951.22

#### DEU

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	2800	2800	731.1
Consumables			
Travels	1090	1090	
Equipments	76110		
Other costs		76110	6564.4
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Equipments			
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Travels	3000		0
Equipments			
Other costs			
Overheads			
Total budget	15000		0

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Consumables	38000	5000	5000
Travels	16000	-	-
Equipments	30000	16977	16977
Other costs	15710	5945	5945
Overheads	-		
Total budget	120000	31600	31600

UM

Category	Planned use of resources in the submitted proposal	Adjustments approved by the National Agency in question	Actual budget until February
Human resources	28000		
Consumables	20000		6189.41
Travels	12000		
Equipments		8000	7993.03
Other costs			
Overheads			136.89
Total budget	60000	60000	14319.33



The results are available upon request at [spetropoulos@uth.gr](mailto:spetropoulos@uth.gr)