ValueFarm 3rd Newsletter
April 2023

The PRIMA programme is supported under Horizon 2020 the European Union's Framework Programme for Research and Innovation

Introduction

Dear readers, we are sharing with you our 3rd newsletter.

In October 2021, we submitted the first annual report of the project to PRIMA. In February 2022, Valuefarm reached its mid-term which is a pivotal milestone for the project progress. 2nd Annual Report of Project Progress (September 2021-August 2022) and 4th semestrial internal progress report (March-August 2022) were delivered, and 5th semestrial internal progress report (September 2022-February 2023) as well. We also prepared and submitted the mid-term report; mid-term review meeting with PRIMA and national funding agencies of the participating partners was realized on September, 2022.

Valuefarm progress was heavily affected by COVID-19 pandemic and mitigation measures had to be implemented to ensure the progress of the project. However, achievements of our research partners were satisfactory and the project period of Valuefarm was extended for 12 months (end of the project August 2024).

In this newsletter, we are happily presenting the highlights of the project so far and the main activities that took place after our 2nd newsletter was released (September 2022-April 2023).

Project coordinator
Dr. Spyridon Petropoulos
University of Thessaly, Greece

Project Partners

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

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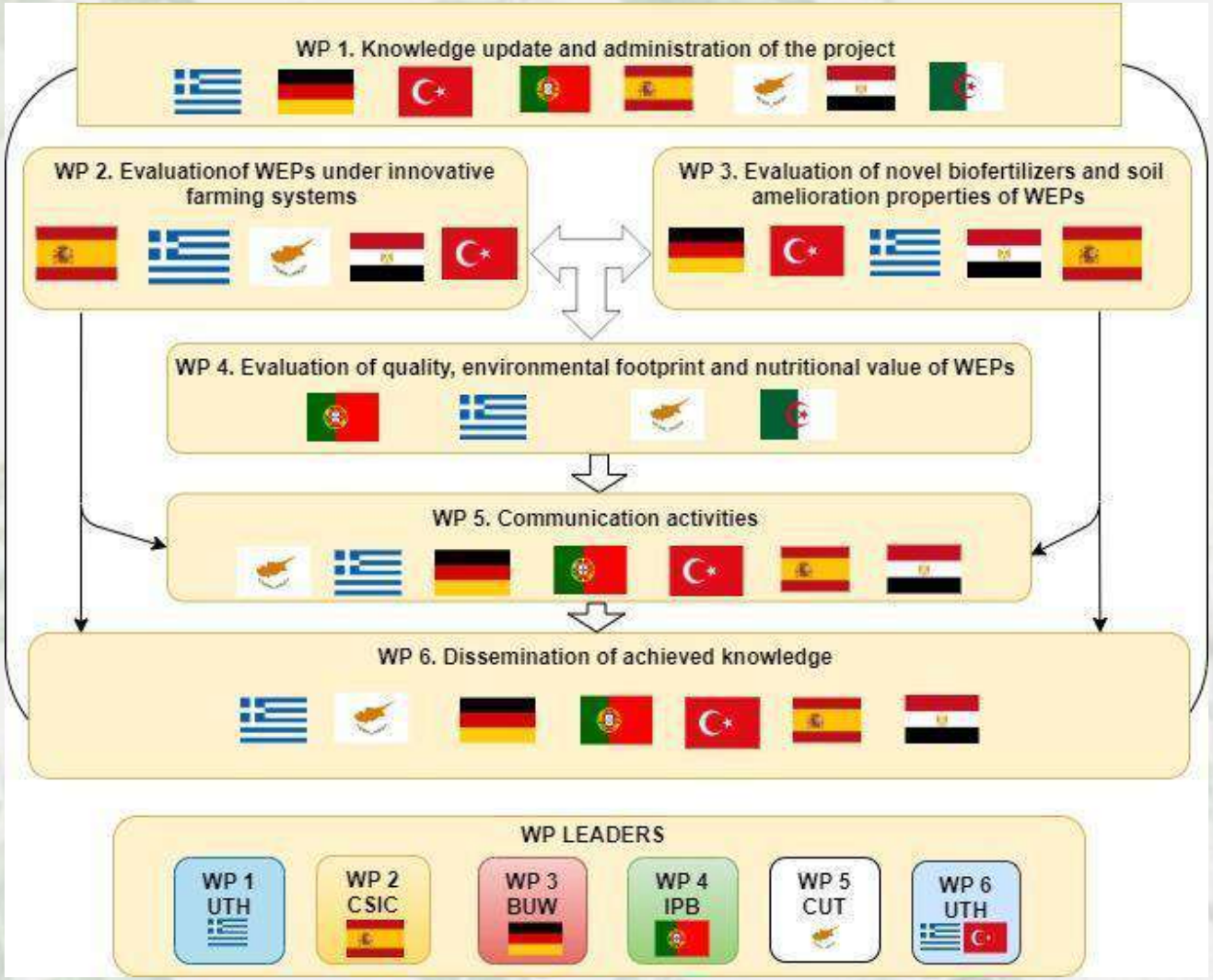
Project work packages



Project website and social media

- The project website was released on June 2021. You can be posted with project activities at http://valuefarm-prima.agr.uth.gr/
- The accounts in social media channels were also created
  - Facebook: https://www.facebook.com/Valuefarm-PRIMA-113138597266783
  - Instagram: https://www.instagram.com/valuefarm_prima/
  - Twitter: https://twitter.com/ValuefarmP
  - YouTube: https://www.youtube.com/channel/UCXWiPYDw5kPeUfwhj_bsY_Q/?guided_help_flow=5
- Researchgate: https://www.researchgate.net/project/VALUEFARM

SEPTEMBER 2022- APRIL 2023

Administration of the project(WP1)

- Partners Technical Meeting was held in Polytechnique Institute of Braganca, Braganca, Portugal on 26th of April 2023. Partners presented their recent work and planned the necessary actions in the next months of the Project.



RESEARCH ACTIVITIES-WP2

This work package is related to the evaluation of WEPs under innovative farming systems.

- **University of Thessaly (UTH)** is performing the following experiments:

Field experiments regarding the use of mulching with plastic films in the cultivation of *Crithmum maritimum* and *Cichorium spinosum.*, field experiments regarding the evaluation of irrigation requirements of *Cichorium spinosum* and *Crithmum maritimum*, field experiments regarding the use of *Cichorium spinosum*, *Sonchus oleraceus*, *Scolymus hispanicus* and *Portulaca oleracea*, in crop rotation systems, following the cultivation of *Phaseolus vulgaris* and *Pisum sativum (*ongoing experiments), field experiments with *Portulaca oleracea* where the effect of intercropping with common bean and crop rotation is 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 WP3 and WP4.

- **Cyprus University of Technology (CUT)** has performed the following experiments for the evaluation of the agronomic performance of the selected species:

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., has scheduled field experiments/demonstration and contacted local farmers in order to evaluate the species under field conditions and different cropping systems. The experimental set up is scheduled for Autumn 2023.

- **Consejo Superior de Investigaciones (CSIC)** has performed 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 *Porulaca oleracea* was evaluated. CSIC 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.

RESEARCH ACTIVITIES-WP2

- **Dokuz Eylul University (DEU)** has performed the following experiments;

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. Field trials where the effect of green manuring, crop rotation and intercropping are in progress.

- **Ege University (EGE)**

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. (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)**

Pot experiments are being performed to study the effect of salinity on the growth and chemical composition of *Portulaca oleraceae* plants, Pot experiments are being performed to study the effect of drought on the growth and chemical composition of *Portulaca oleraceae* plants, 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.

The results of the completed experiments have been integrated and included in the electronic handbook (D2.2).

RESEARCH ACTIVITIES-WP3

This work package is on the evaluation of novel biofertilizers and soil ameloration properties of WEPs

- **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. Such as; field experiments regarding the use of manure in cultivation of *Cichorium spinosum*, *Crithmum maritimum*, *Portulaca oleracea*, *Sonchus oleraceus* within the context of incorporating the selected species in organic farming systems (Task 3.2-3.4), pot experiments regarding the use of manure and zeolite in cultivation of *Portulaca oleracea* and *Sonchus oleraceus* within the context of incorporating the selected species in organic farming systems (Task 3.2-3.4), and Moreover, field and pot experiments are in progress in order to evaluate the effect of non-microbial biostimulants and biofertilizers on WEPs cultivation (Task 3.5).
- **Cyprus University of Technology (CUT)** is conducting pot experiment, evaluating the plant residues/wastes from olive-mill and grape-mill wastes as a growing media for both *Sonchus oleraceus* and *Portulaca oleracea* (Task 3.5)., the experiments are completed. Analysis of samples is in progress., CUT organizes the next experiment on plant residues/waste on the examined species.
- **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)

RESEARCH ACTIVITIES-WP3

- **Consejo Superior de Investigaciones (CSIC)** has performed and scheduled the following experiments related to Tasks 3.1-3.4; Completed field experiment: Cropping association with purslane and leguminous crops, testing intercropping and rotation effects on purslane yield and soil properties and biological communities. Soil samples have already been analyzed, Analysis of soil physicochemical properties and enzymatical activities of all the experiments finished to the date, Soil DNA (ITS and 16S) from two experiments was extracted and sequenced: Crop association purslane – leguminous crops; and the effect of an organic fertilizer made from waste derived from apiculture on purslane plants, A new field experiment is scheduled as a continuation of the cropping association experiment, testing the effects of cropping systems on purslane yield and the effect on soil over time, A new field experiment is scheduled in an orchard field for new experiments in 2023 spring – summer seasons, while two new experiments are scheduled under greenhouse conditions for the spring season.
- **Benha University (BU)** has planned to perform the following experiments related to Task 3.1 and 3.5: The effect of bacterial strains *viz*, *Azotobacter chroococcum*, *Paenibacillus polymyxa* GQ375783.1 on plant growth and chemical compositions of *Portulaca olearacea* (Task 3.1)., *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).

RESEARCH ACTIVITIES-WP3

- **Bergische Wuppertal University (BUW);** Finished with the analyses of the macro, micro, and toxic elements in the soils and plants samples of the first experiment (Task 3.2) , Analyzing the PLFA in the rhizosphere soil samples in the first experiment (Task 3.2 and 3.4), Finished the second pot experiment with Portulaca, Sonchus, Scolymus, and Plantago using two degraded contaminated soils (used instead of the eroded soils in Germany) in four replicates (Task 3.3), Harvested the plants, separated to roots and shoots, air dried, and recorded the fresh and dry biomass (Task 3.3), Collected soil samples from all pots, air dried, crushed, and sieved to be ready for extraction and analyses (Task 3.3), Analyzed soil properties (pH, soil salinity, total organic carbon content, particle size distribution, oxides content) (Task 3.3)

Their scheduled activities are;

Finishing the extraction of the pot experiment soil and plant samples as follow:

Extracting the root and shoot samples (March-April, 2023) (Task 3.3) , Extraction of the total content of macro-nutrients (C, P, K, Ca, Mg, S) in the soil samples (May-June, 2023) (Task 3.3), Extraction of the available (DTPA) content of macro-nutrients (C, P, K, Ca, Mg, S) in the soil samples (June-July, 2023) (Task 3.3), Microwave extraction of the total content of trace and toxic elements (Al, Ag, As, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Sb, Se, Sn, Tl, V, and Zn) in the soil samples (July- August, 2023) (Task 3.3), Extraction of the available (DTPA) content of trace and toxic elements (Al, Ag, As, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Sb, Se, Sn, Tl, V, and Zn) in the soil samples (August-September 2023) (Task 3.3) , Analyses of the macro, micro, and toxic elements in the root and shoot samples (May-August, 2023) (Task 3.3), Analyses of PLFA in the rhizosphere soil samples (May-August, 2023) (Task 3.2 and Task 3.4), Contributing to the work on the communication activities (Work package 5), Contributing to the work on the dissemination of achieved knowledge (Work package 6)

RESEARCH ACTIVITIES-WP4

WP4 is related to the evaluation of quality, environmental footprint and nutritional value of WEPs.

- **University of Thessaly (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)** provided the second set of samples to IBP, as prepared through freeze drying. CUT has finalized the mineral analysis (N, K, P, Mg, Ca, and Na), Collecting the relevant info for the Environmental footprint in different experiments performed by the consortium. Analysis is in progress., and 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)** has begun the assessment of the nutritional value and chemical composition, as foreseen in task 4.3., of the samples *Scolymus hispanicus*, *Cichorium spinosum*, *Sonchus oleraceus*, *Portulaca olearacea*, and *Crithmum maritimum*, with different fertilization treatments, different irrigation treatments, pot and field experiments provided by the project coordinator (UTH). In due time the evaluation of the bioactivity profile and phenolic compounds of samples provided by the partners involved in WP2 (namely the samples *Portulaca oleracea* and *Sonchus oleraceus* from the CUT partner) will be performed within the next months.
- Regarding the samples from Greece, nutritional value including total fat, crude protein, ash, total dietary fiber, and carbohydrates (by difference) was evaluated following AOAC methods. Energy was calculated according to the equation: energy (kcal per 100 g) = 4 x (g protein + g carbohydrate) + 2 x (g total dietary fiber) + 9 x (g fat). The total fat, crude protein, ash of the samples has already been done. Regarding the samples from Cyprus, the hydroethanolic extracts have been performed and in the next months the bioactivity profile and phenolic compounds of these samples will be evaluated.

RESEARCH ACTIVITIES-WP4

As further advances, complete nutritional and chemical profile will be performed in *Scolumys hispanicus* and *Crithmum maritimum* hydroethanolic extracts, while the samples from Cyprus will be prepared and the bioactive properties will be evaluated:

- **Benha University (BU)** has collected and sent samples to IPB for analyses related to quality and nutritional value of WEPs.
- **University of Mostaganem (UM) ;** The samples will be dispatched by IPB after the determination of bioactive properties, UM has performed the first series of analyses related to the *in vivo* anti-inflammatory activity, Statistical analysis and interpretation of the obtained data, The *in vivo* anti-inflammatory activity – histological parameter.

Communication Activities (WP5)

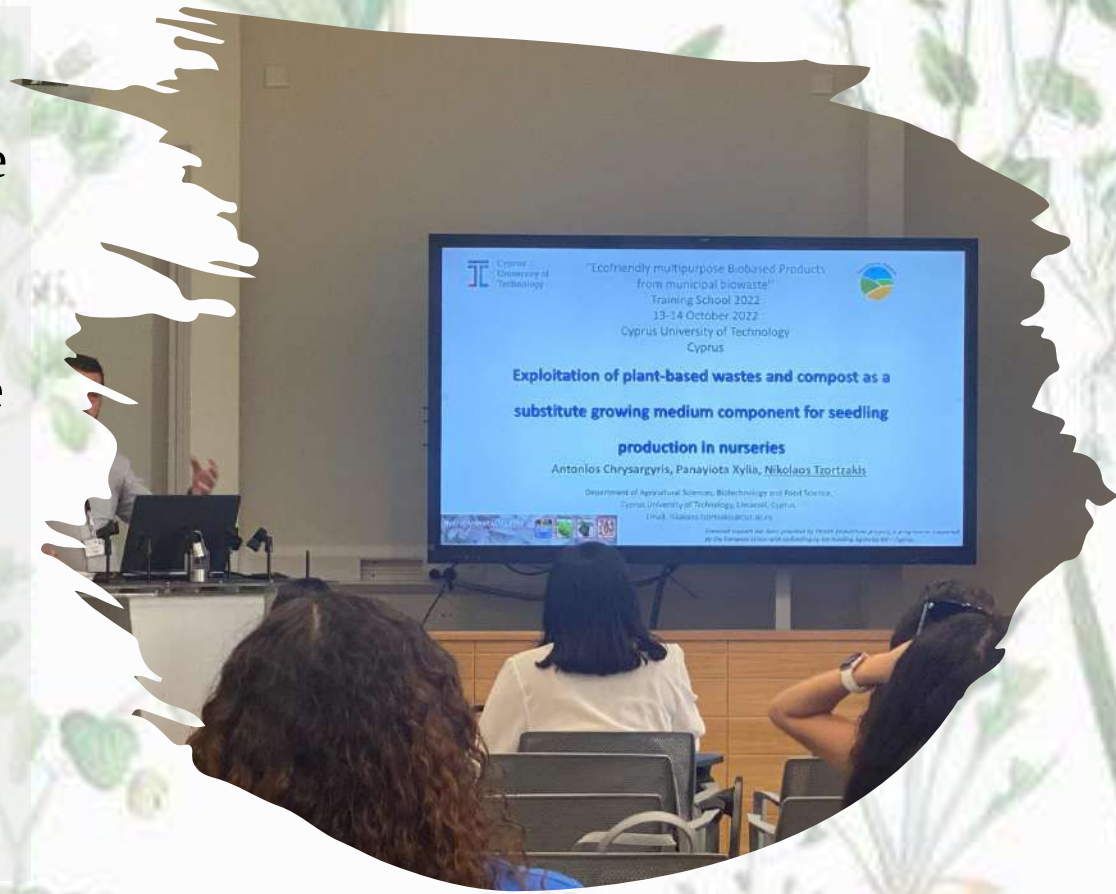
Regarding the ongoing activities:

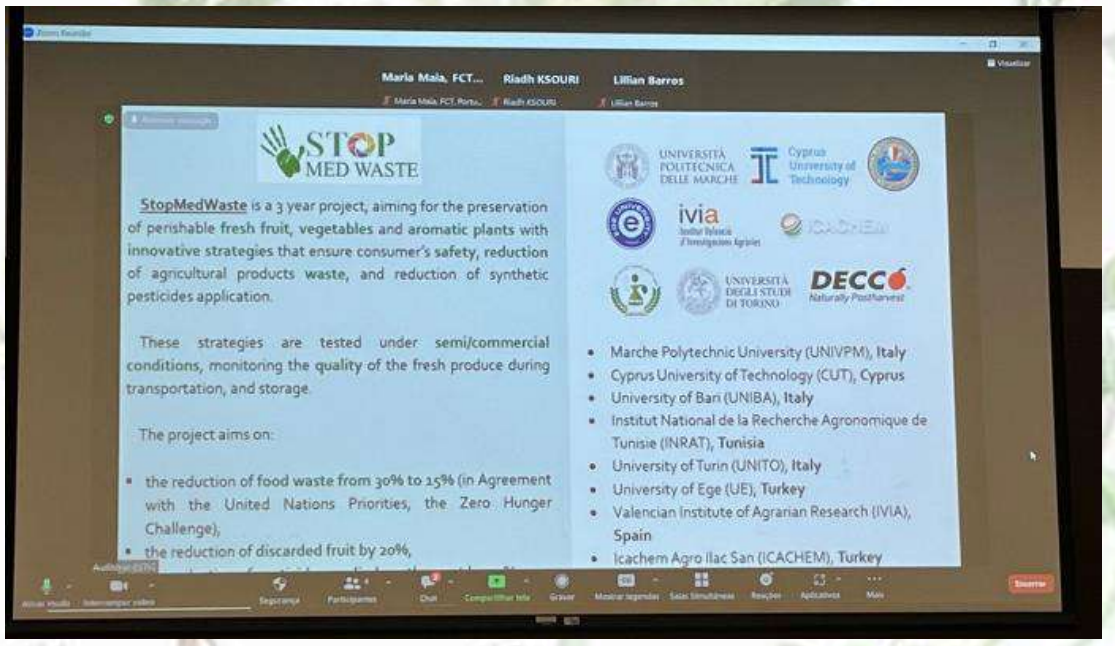
- **University of Thessaly (UTH):** The ValueFarm Project was presented to participants of Erasmus+ Little farmers (https://www.littlefarmers-erasmus2020-2022.com/448138275) at the experimental farm of the university of Thessaly on February 23 2023 (~ 20 kids from Greece, Bulgaria, Romania and Turkey)

UTH participated in Agrothessaly, an exhibition that took place in Larisa, Greece on March 2-5, 2023. The results of the project were disseminated via printed material (posters, banners and flyers) as well as with in-person interactions with participants.

Communication Activities (WP5)

- **Cyprus University of Technology (CUT)** The ValueFarm Project was presented at a specialized training school (~ 50 undergraduate and postgraduate students), that it was organized by LIFE EBP (www.lifeebp.eu), a LIFE+ project concerned with the valorization of the organic fraction of municipal solid waste towards fertilizer production for agricultural applications, between 13-14 October 2022, Limassol, Cyprus.





Communication Activities (WP5)

Workshop in Portugal

- Join meeting of ValueFarm and PULPING PRIMA projects/workshop on 27th of April 2023 at the Polytechnique Institute of Braganca, Braganca, Portugal.
- CUT members presented the objectives and selected results for the following 5 projects: MiDiVine-PRIMA; StopMedWaste-PRIMA; OptiAromaQ-Q, CyanoTech, and LIFE-EBP.
- Other partners also gave a brief on their recent ongoing projects

Communication Activities (WP5)

- **Dokuz Eylül University (DEU)** organized a special training for graduate students in collaboration with DEU School of Applied Sciences titled «Turkish Gastronomy Culture: Edible Wild Plants» on May 30th, 2023. More than 30 WEPs introduced and five courses wild edible dishes were cooked.

DisseminationActivities(WP6)

- WP6 is on dissemination of achieved knowledge and the realted tasks are:
  - Task 6.1 Development of physical labs;
  - Task 6.2 Planning of Dissemination Activities;
  - Task 6.3 Implementation of Dissemination Activities
- The ongoing and completed activities are as follows:

DisseminationActivities(WP6)

- Posters

DisseminationActivities(WP6)

- Leaflets

6. Η οριστική αξιολόγηση του περιβαλλοντικού αποτυπώματος, των κλιματικών απαιτήσεων και των απαιτήσεων σε έδαφος των ΑΕΦ καλλιεργούμενων σε μικρές γεωργικές εκμεταλλεύσεις.
7. Επίδειξη και ανταλλαγή της δημιουργούμενης καινοτομίας με δραστηριότητες στον αγρό και τη δημιουργία physical και living labs στην ευρύτερη περιοχή της Θεσσαλίας, έτσι ώστε να επιτρέπεται η ενσωμάτωση και υιοθέτηση της καινοτομίας μεταξύ των στοχοθετημένων φορέων κατά τη διάρκεια και μετά την ολοκλήρωση του έργου.

Πλεονεκτήματα

Τα πλεονεκτήματα που θα προκύψουν από την πραγματοποίησης του Valuefarm είναι:

1. η εισαγωγή καινοτόμων και επανασχεδιασμένων καλλιεργητικών συστημάτων με υψηλή προσαρμοστικότητα στις κλιματικές συνθήκες της Μεσογείου και την υψηλή αποδοτικότητα χρήσης των φυσικών πόρων
2. η αξιοποίηση τροφίμων με τοπικό εμπορικό σήμα, συμπληρωματικά προς το κύριο πλαίσιο για την αύξηση της ανταγωνιστικότητας των Μεσογειακών γεωργικών προϊόντων και του αγροτικού τομέα μικρης κλίμακας
3. την αξιοποίηση των ΑΕΦ της Μεσογειακής χλωρίδας με ιδιαίτερες θρεπτικές και φαρμακευτικές ιδιότητες για τους τελικούς χρήστες
4. η επαναδραστηριοποίηση των νέων στον αγροτικό τομές και η αναστροφή της τάσης της εγκατάλειψης της αγροτικης γης
5. η αξιοποίηση των επιλεγμένων ΑΕΦ ως φυτών με εδαφοβελτιωτικές ιδιότητες
6. η μείωση της περιβαλλοντικής επιβάρυνσης με την εισαγωγή αειφορικών καλλιεργητικών συστημάτων
7. η καλύτερη καθιέρωση της λεγόμενης Μεσογειακής διατροφής μέσω της ευαισθητοποίησης του ευρέος κοινού

Ενότητες Εργασίας

Το **ValueFarm** αποτελείται από έξι ενότητες εργασίας (ΕΕ) που αλληλοσυνδέονται μεταξύ τους

ΕΕ1. Αναβάθμιση της γνώσης και επιστημονικός σχεδιασμός πειραμάτων πεδίου

ΕΕ 2. Αξιολόγηση των αυτοφυών εδώδιμων φυτών σε καινοτόμα καλλιεργητικά συστήματα

ΕΕ 3. Αξιολόγηση καινοτόμων βιολιπασμάτων και των εδαφοβελτιωτικών ιδιοτήτων των επιλεγμένων αυτοφυών εδώδιμων φυτών

ΕΕ 4. Αξιολόγηση της ποιότητας, του περιβαλλοντικού αποτυπώματος και της διατροφικής αξίας των επιλεγμένων αυτοφυών εδώδιμων φυτών

ΕΕ 5. Δράσεις επικοινωνίας

ΕΕ 6. Διάχυση της παραγόμενης γνώσης

Συμμετέχοντες:

- Πανεπιστήμιο Θεσσαλίας (UTH), **Ελλάδα**
- Instituto Politécnico de Bragança (IPB), **Πορτογαλία**
- Cyprus University of Technology (CUT), **Κύπρος**
- Dokuz Eylul University (DEU), **Τουρκία**
- Ege University (EGE), **Τουρκία**
- Consejo Superior de Investigaciones Científicas (CSIC), **Ισπανία**
- Bergische Wuppertal University (BUW), **Γερμανία**
- Greek Fresh Vegetables IKE (GFV), **Ελλάδα**
- Benha University (BU), **Αίγυπτος**
- University of Mostaganem (UM), **Αλγερία**

Στοιχεία επικοινωνίας:

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

ValueFarm

Financial support has been provided by PRIMA (grant Number Prima2019-11, PRIMA/0009/2019, P2P/PRIMA/1218/0006, 01DH20006, Prima2019-12, STDF Valuefarm, 18-3-2021, TUBITAK-119N494, 301 / october 18th, PO2020-112091) a programme supported by the European Union.

agricultura resiliente e de pequena escala às incertezas climáticas

5. A documentação da composição nutricional e química das WEPs com o intuito de explorar o desenvolvimento de novos fármacos e cosméticos, bem como alimentos "saudáveis" e "funcionais" para uma efetiva inclusão na chamada "dieta Mediterrânea"
6. A avaliação da pegada ambiental, das condições climáticas e dos requerimentos do solo para a produção de WEPs em pequena escala, focando a sua utilização como espécies potencialmente benéficas (por exemplo, para o cultivo misto, consorciação, cultivo sucessivo e rotação de culturas) e a sustentabilidade dos agrossistemas através da diminuição de agroquímicos, bem como o uso otimizado de recursos naturais e os princípios de bioeconomia circular
7. A demonstração e partilha da inovação desenvolvida com atividades desenvolvidas nas empresas agrícolas assim como o estabelecimento de laboratórios físicos e dinâmicos que permitam a integração e adoção da inovação entre todas as partes interessadas durante e após a conclusão do projeto.

Benefícios

Os benefícios que surgirão com a implementação do projeto ValueFarm serão:

a) A introdução de sistemas agrícolas inovadores e reestruturados, com elevada adaptabilidade às condições climáticas mediterrâneas e uso eficiente dos recursos naturais
b) A valorização dos produtos alimentares com marca regional, sendo complementar com os objectivos delineado para aumentar a competitividade dos produtos agrícolas mediterrânicos e da agricultura de pequena escala
c) A exploração das WEPs da flora mediterrânea com propriedades nutricionais e farmacêuticas especiais, para os consumidores finais
d) A reativação da população jovem no setor agrícola e a reversão da tendência de abandono das terras
e) A avaliação das WEPs selecionadas como espécies potenciais para melhoria do solo
f) A diminuição da carga ambiental através da introdução de sistemas agrícolas sustentáveis
g) O estabelecimento da chamada "dieta mediterrânea" na consciência pública

Divisão do trabalho

ValueFarm está dividido em seis Pacotes de Trabalho

PT1. Atualização do conhecimento e administração do projeto
PT2. Avaliação das WEPs em sistemas agrícolas inovadores
PT3. Avaliação de novos biofertilizantes e propriedades de melhoramento do solo das WEPs
PT4. Avaliação da qualidade, pegada ambiental e valor nutricional das WEPs
PT5. Atividades de comunicação
PT6. Disseminação do conhecimento alcançado

Participantes:

- Universidade de Tessália (UTH), **Grécia**
- Instituto Politécnico de Bragança (IPB), **Portugal**
- Universidade de Tecnologia do Chipre (CUT), **Chipre**
- Universidade de Dokuz Eylul (DEU), **Turquia**
- Universidade de Ege (EGE), **Turquia**
- Conselho Superior de Investigação Científica (CSIC), **Espanha**
- Universidade de Wuppertal (BUW), **Alemanha**
- Greek Fresh Vegetables IKE (GFV), **Grécia**
- Universidade de Benha (BU), **Egito**
- Universidade de Mostaganem (UM), **Argélia**

Detalhes de Contacto:

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«VALorização de pequenas empresas AGRÍCOLAS da zona Mediterrânica através do cultivo de plantas silvestres não convencionais»

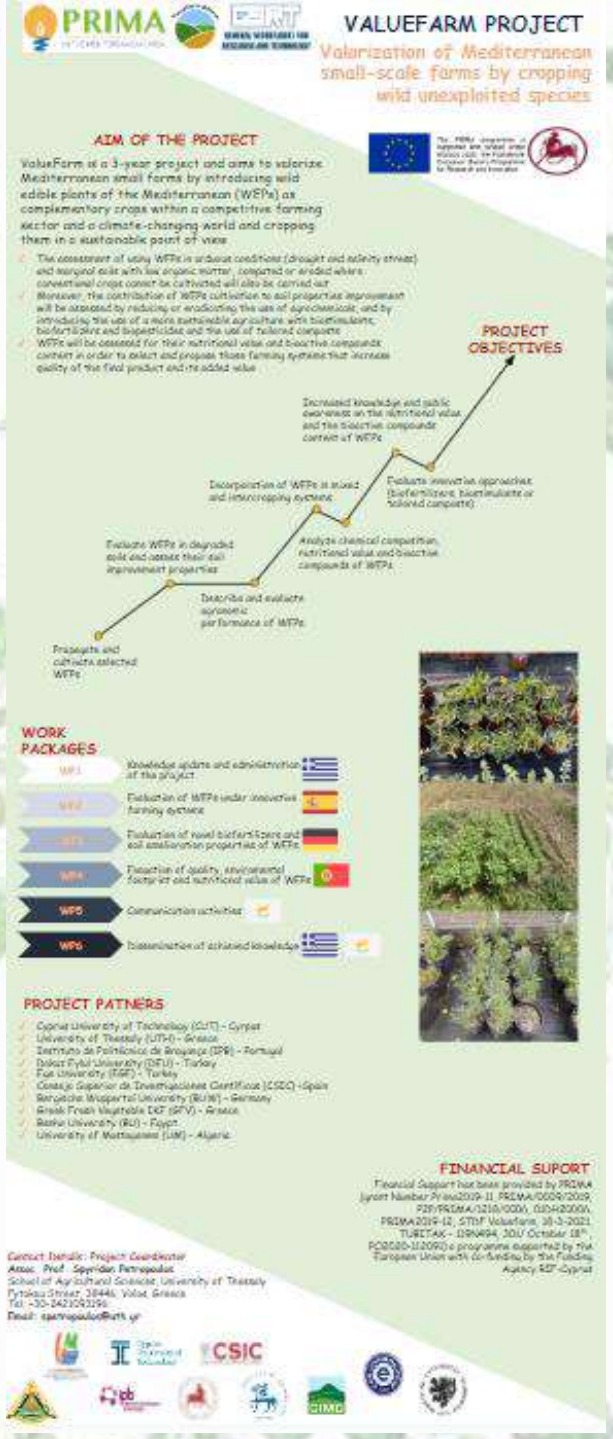
ValueFarm

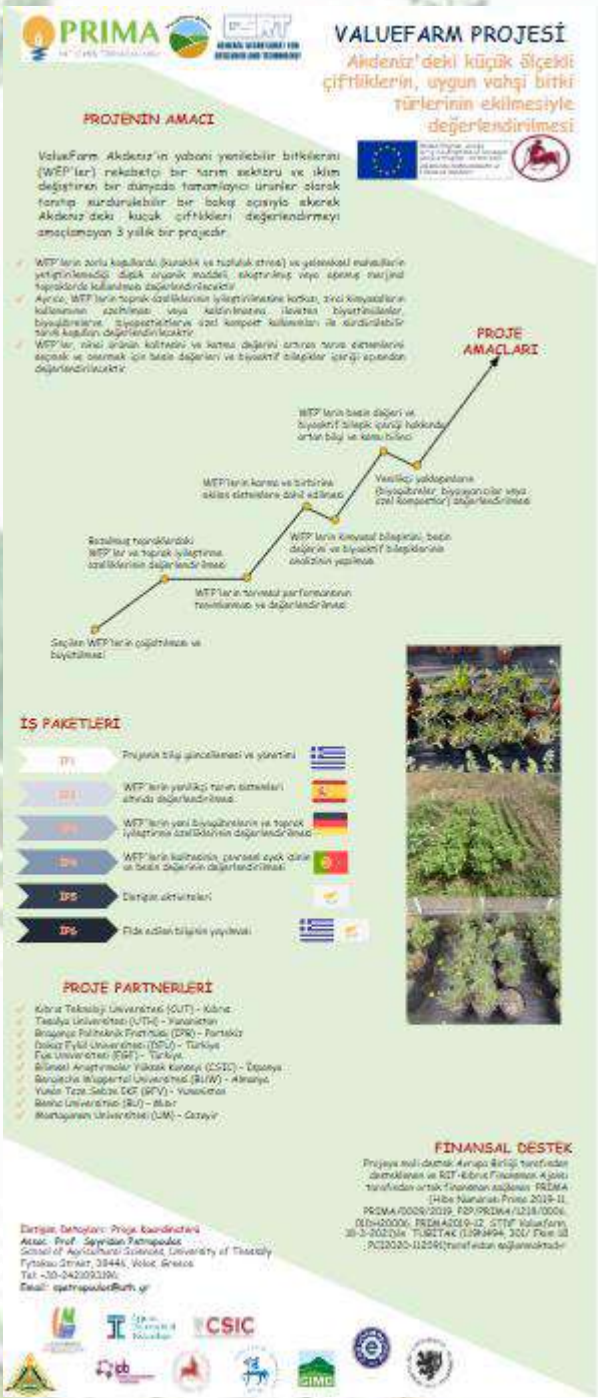
Financiado pelo programa PRIMA (Número da concessão Prima2019-11i, PRIMA/0009/2019, P2P/PRIMA/1218/0006, 01DH20006, Prima2019-12, STDF Valuefarm, 18-3-2021, TUBITAK-119N494, 301 / october 18th, apoiado pela União Europeia.

Financiado pelo programa PRIMA (Número da concessão Prima2019-11i, PRIMA/0009/2019, P2P/PRIMA/1218/0006,

Dissemination Activities(WP6)

- Banners





DisseminationActivities(WP6)

- **Open access publications**

1. **Beatriz H. Paschoalinotto, Nikolaos Polyzos, Maria Compocholi, Youssef Rouphael, Alexios Alexopoulos, Maria Inês Dias, Lillian Barros, Spyridon A. Petropoulos.** 2022. Domestication of Wild Edible Species: The Response of Scolymus hispanicus Plants to Different Fertigation Regimes. Horticulturae 9, 103. https://doi.org/10.3390/horticulturae9010103.
2. **Nikolaos Polyzos, Beatriz Paschoalinotto, Maria Compocholi, Maria Inês Dias, Lillian Barros, Spyridon A. Petropoulos. 2022.** Fertilization of Pot Grown Cichorium spinosum L.: How it can affect plant growth, chemical profile and bioactivities of edible parts? Horticulturae 8(890): 1-22. https://doi.org/10.3390/horticulturae8100890
3. **Güven, E. D., Özmıhçı, S., Akinci, G., Tümer, B., & Uyar, M.** (2022). Investıgatıon of the development of purslane plant (Portulaca Oleracea L.) under soil stress conditions. *Turkish Journal of Agriculture-Food Science and Technology*, *10*(sp2), 3014-3021. https://doi.org/10.24925/turjaf.v10isp2.3014-3021.5756

DisseminationActivities(WP6)

Published articles:

1. **Carrascosa, A., Pascual, J. A., López-García, A., Romo-Vaquero, M., Ros, M., Petropoulos, S. A., & Alguacil, M. D. M**. The Plant Genotype Determines the Functional and Taxonomic Composition of the Microbiome in Purslane Rhizosphere. *Available at SSRN 4396408*.
2. **Carrascosa, A., Pascual, J. A., Ros, M., Petropoulos, S. A., & Alguacil, M. D. M.** (2023). Agronomical Practices and Management for Commercial Cultivation of Portulaca oleracea as a Crop: A Review. *Plants*, *12*(6), 1246.
3. **Carrascosa, A., PASCUAL, J., López-García, Á., Vaquero, M. R., DeSantiago, A., Ros, M., ... & ALGUACIL, M. D. M**. Effects of inorganic and compost tea fertilizers application on the taxonomic and functional microbial diversity of the purslane rhizosphere. *Frontiers in Plant Science*, *14*, 1263.
4. **Chrysargyris A, Hajisolomou E, Xylia P, Tzortzakis N, 2023.** Olive-mill and grape-mill waste as a substitute growing media component for unexploded vegetables production. Sustainable Chemistry and Pharmacy, 31, 100940.
5. **Chrysargyris A, Goumenos C, Tzortzakis N, 2023.** Use of medicinal and aromatic plant residues for partially peat substitution in growing media for Sonchus oleraceus production. Agronomy, 13, 1074.
6. **Chrysargyris A, Louka S, Petropoulos SA, Tzortzakis N, 2023.** Soilless Cultivation of Portulaca oleracea Using Medicinal and Aromatic Plants Residues for Partially Peat Replacement. Horticulturae, 9, 474.

Dissemination Activities(WP6)

Sustainable Chemistry and Pharmacy 31 (2023) 100940

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Olive-mill and grape-mill waste as a substitute growing media component for unexploded vegetables production

Antonios Chrysargyris, Efraimia Hajisolomou, Panayiota Xylia, Nikolaos Tzortzakis

agronomy

MDPI

Article

Use of Medicinal and Aromatic Plant Residues for Partial Peat Substitution in Growing Media for *Sonchus oleraceus* Production

Antonios Chrysargyris *, Christos Goumenos and Nikolaos Tzortzakis *

horticulturae

MDPI

Article

Soilless Cultivation of *Portulaca oleracea* Using Medicinal and Aromatic Plant Residues for Partial Peat Replacement

Antonios Chrysargyris [1], Stavros Louka [1], Spyridon A. Petropoulos [2] and Nikolaos Tzortzakis [1,*]

Open Access Review

Agronomical Practices and Management for Commercial Cultivation of *Portulaca oleracea* as a Crop: A Review

by Angel Carrascosa [1], Jose Antonio Pascual [1], Margarita Ros [1], Spyridon A. Petropoulos [2,*] and Maria del Mar Alguacil [1,*]

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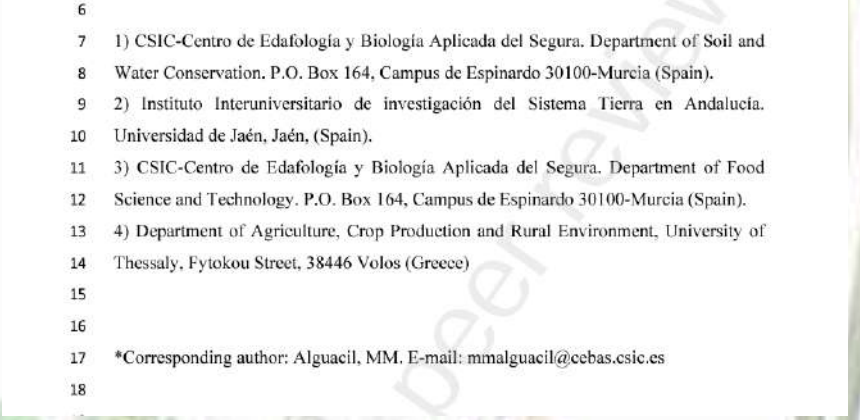

The plant genotype determines the functional and taxonomic composition of the microbiome in purslane rhizosphere

Carrascosa A[1], Pascual JA[1], López-García A[2], Romo-Vaquero M[3], Ros M[1], Petropoulos SA[4], Alguacil MM[1*]

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Dissemination Activities(WP6)

Conference proceedings:

1. **Nikolaos Polyzos, Maria Kompocholi, 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.
2. **Paraskevi Katsimantou, Stefania-Fani Plitsi, Chrysanthi Foti, Ourania Pavli, Spyridon A. Petropoulos**. Seed priming enhances seed germination and seedling growth of five wild edible species. 13th International Scientific Agriculture Symposium "AGROSYM 2022". Jahorina, Bosnia and Herzegovina, October 6-9, 2022. Type of dissemination: poster.
3. **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
4. **Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compocholi, Spyridon Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros**. "Functionality assessment of Scolymus hispanicus (golden thistle) for its dailybasis incorporation in the Mediterranean diet". Ciência 2022 – XVI Encontro de Química dos Alimentos Castelo Branco, Portugal, 23-26 October, 2022. Type of dissemination: poster

Dissemination Activities(WP6)

Conference proceedings:

5. **Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compocholi, 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. XVI Encontro de Química dos Alimentos Castelo Branco, Portugal, Portugal, 23-26 October, 2022.
6. **Beatriz H. Paschoalinotto, Miguel A. Prieto, Maria Compocholi, 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
7. **Beatriz H. Paschoalinotto, Miguel A. Prieto, Nikolaos Polyzos, Maria Compocholi, 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
8. **Paschoalinotto B. H., Prieto M.A., Compocholi M.; Polyzos N.; Pires, T.C.S.P.; Petropoulos S.; Ferreira I.C.F.R.; Dias M.I.; Barros L.** Estudo integrado da influência do tipo de cultivo e irrigação nas propriedades bioativas de Cichorium spinosum L. XXVI Encontro Galego-Português de Química, Santiago de Compostela, Espanha, 16- 18 November, 2022. Type of dissemination: oral

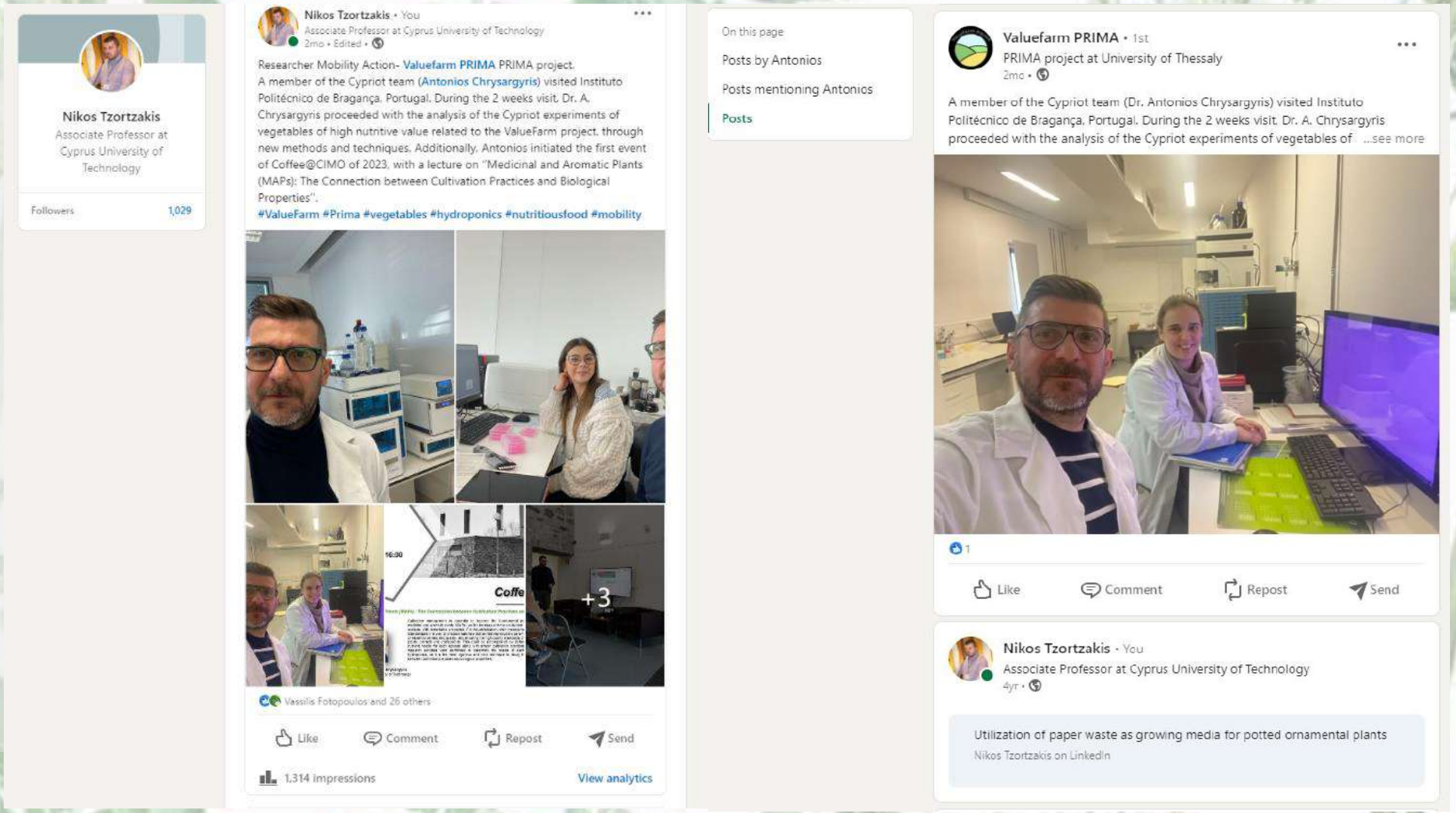
Dissemination Activities(WP6)

9. **Paschoalinotto B. H., Prieto M.A., Compocholi M.; Polyzos N.; Pires, T.C.S.P.; Petropoulos S.; Ferreira I.C.F.R.; Dias M.I.; Barros L.** Combinação de diferentes regimes de fertilização e irrigação para a produção de cardo dourado (Scolymus hispanicus L.) de alto valor nutricional e mineral. XXVI Encontro Galego-Português de Química, Santiago de Compostela, Espanha, 16-18 November, 2022. Type of dissemination: oral

10. **Polyzos N., Papaioannou E., Paschou M., Petropoulos S.A.** Commercial exploitation of Sonchus oleraceus: the response of plants to fertilization regimes. 4th Mediterranean Forum, Chania, Greece, 4-7 December, 2022.

Dissemination Activities(WP6)

- Social Media (LinkedIn) Announcements-CUT



Dissemination Activities(WP6)

- Social Media (YouTube) Video material for soil sampling for DNA analysis

https://youtu.be/TGULSDdIvDY

Dissemination Activities(WP6)

- **Social Media (Facebook) Announcements**-HYDRO-AROMATIC PLANTS GROUP-CUT Facebook

Dissemination Activities(WP6)

Scheduled activities

- **Manuscript preparations**

1. Effect of ammonium to total nitrogen ratio on Portulaca oleraceae grown in hydroponics. (**Submitted)**
2. Environmental footprint for unexplored vegetables production **(Under preparation)**
3. A review paper regarding the chemical composition of wild edible species **(Under preparation)**
4. A review paper regarding the integration of wild edible species in Mediterranean farming systems **(Under preparation)**
5. Grammenou, A., Petropoulos, S.A., Thalassinos, G., Shaheen, S.M., Rinklebe, J., Antoniadis, V., 2023. Biostimulants in the soil-plant interface: agro-environmental implications-A review. Earth Systems and Environment. (**Submitted)**
6. Shaheen, S.M., Boie, F., Rinklebe, J., V., 2023. Effect of soil types and biochemical properties on the growth of *Crithmum maritimum, Portulaca oleracea, and Sonchus oleraceus* under greenhouse and field conditions in German soils. **(Under preparation)**

Dissemination Activities(WP6)

Scheduled activities

- **Participation in conferences**

- **Paschoalinotto BH, Aiex VAP, Petropoulos S, Tzortzakis N, Chrysargyris A, Prieto MA, Dias MI, Barros L. 2023.** Impact of ammoniacal nitrogen on the centesimal composition and chemical profile of Portulaca oleracea L. 8th Portoguese Young Chemists Meeting (PYCheM), 17-19 May 2023, Vila Real, Portugal.
- **Tzortzakis N, Goumenos C, Xylia P, Chrysargyris A,. 2023**. Exploring Medicinal and Aromatic Plant residues after distillation as a peat substitute component in growing media for *Sonchus oleraceus* production. 10th International Conference on Sustainable Solid Waste Management, CHANIA2023, 21-24 June 2023, Chania, Greece (Oral).

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