



## “Valorisation of thistle-curdled CHEESES in MEDiterranean marginal areas” Acronym VEGGIE-MED-CHEESES

<b>Deliverable title</b>	<b>D1.10 Report 3<sup>rd</sup> year</b>
<b>Deliverable Lead:</b>	Università Politecnica delle Marche
<b>Related Work Package:</b>	<b>WP1 Project coordination and overall management</b>
<b>Related Task:</b>	Task 1.3 Communication with PRIMA-IS and the Funding Authorities
<b>Author(s)</b>	Lucia Aquilanti
<b>Dissemination level</b>	Public
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<b>Actual submission:</b>	30.04.2022
<b>Start date of project</b>	01.05.2019
<b>Duration</b>	36 months (after project end extension: 48 months)
<b>Abstract</b>	The 3 <sup>rd</sup> year Report describes the main results and goals achieved during the second year of activity of the Veggie-Med-Cheeses Consortium

### Versioning and Contribution History

Version	Date	Modified by	Modification reason
V1.0	13/04/2022	Lucia Aquilanti	First version
V2.0	30/04/2022	Lucia Aquilanti	Comments after peer review process

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## Report 3rd year – Veggie-Med-Cheeses project

### LIST OF PARTICIPANTS

Partner No.	Organisation	Participant (Permanent Staff)	Role
<b>Coordinator (P1)</b>	Dipartimento di Scienze Agrarie, Alimentari e Ambientali, Università Politecnica delle Marche, Italy (short name: D3A-UNIVPM)	<b>Lucia Aquilanti</b>	<b>Project Coordinator (PC) and Principal Investigator (PI) of UNIVPM</b>
<b>Partner 2 (P2)</b>	Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria - Centro di ricerca Alimenti e Nutrizione (short name: CREA-AN)	<b>Pamela Manzi</b>	<b>PI of CREA-AN</b>
<b>Partner 3 (P3)</b>	Departamento de Tecnología de Alimentos y Nutrición, Universidad Católica San Antonio De Murcia (short name: UCAM)	Luis Tejada Portero	<b>PI of UCAM</b>
<b>Partner 4 (P4)</b>	Department of Food Hygiene and Technology, Veterinary Research Institute, Hellenic Agricultural Organization, DEMETER (short name: DEMETER)	Akis Psomas	<b>PI of DEMETER</b>
<b>Partner 5 (P5)</b>	High Institute of Agronomy of Chott-Mariem, Sousse University (ISA-CM)	Bouthaina Al Mohandes Dridi	<b>PI of ISA-CM</b>

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

### WP1 Project coordination and overall management

#### OBJECTIVES

The objective of WP1 was to ensure optimal co-ordination and management of VEGGIE-MED-CHEESES, as well as collaboration among Partners, with the final aim of maximising progress of knowledge and innovation outputs.

#### TASKS AND STATUS

**Task 1.1** Organization of general Project meetings. Partners involved: PARTY 1 **(IN PROGRESS)**

**Task 1.2** Project coordination, management, supervision and quality control, Partners involved: All Partners **(IN PROGRESS)**

**Task 1.3** Communication with PRIMA-IS and the Funding Authorities; Partners involved: All Partners **(IN PROGRESS)**

**Task 1.4** Preparation of mid-term and final reports; Partners involved: All Partners **(IN PROGRESS)**

#### DELIVERABLES DELIVERED IN THE REPORTING PERIOD

Deliverable number	Deliverable title	Due date of delivery	Effective date of delivery
D1.5	General Project meeting 3 report	31.10.2020 (month 18)	31.10.2020 (month 18)
D1.6	General Project meeting 4 report (Month 24)	30.04.2021 (month 24)	30.04.2021 (month 24)
D1.10	3rd year (final) report (Month 36)	30.04.2022 (month 36)	30.04.2022

#### BRIEF DESCRIPTION OF WORK DONE IN THE REPORTING PERIOD

- **Organization and scheduling of the General project meeting 5**, which has been held on-line (using TEAMS) on 28<sup>th</sup> May 2020 with the participation of all partners and the following agenda:

13 h 30 – 13 h 45 (Rome time) **Connection and Greetings**

13h 45– 14h 30 **Presentations of the main results achieved by Research partners involved in WP2, WP3, WP4**

14h 30 - 15h 00 **Planning of WP5 activities** (including packaging, delivery, analyses, etc.)

15h 00 – 15h 15 **Discussion and issues from the Partners**

15h 15 **Closure of the meeting**

All the details about the meeting are reported in the Deliverable 1.8.

- **Organization and scheduling of the General project meeting 6**, which has been held on-line (using TEAMS) on 4<sup>th</sup> November 2021 with the participation of all partners and the following agenda:

10 h 00 – 10 h 15 (Rome time) **Connection and greetings**

10h 15– 10h 30 **Communications from the Project Coordinator**

10h 30 - 11h 00 **Presentations of the main results achieved by Research partners (ISA-CM, UNIVPM) involved in WP2 and open discussion on WP2 issues**

11h 00 - 11h 30 **Presentations of the main results achieved by Research partners (ISA-CM, UNIVPM) involved in WP3 and open discussion on WP3 issues**

11h 30 - 11h 45 **Presentations of the main results achieved by Research partners involved in WP4 (UNIVPM, UCAM, CREA-AN, DEMETER) and open discussion on WP4 issues**

11h 45 - 12h 15 **Presentations of the main results achieved by Research partners (UNIVPM, DEMETER, CREA-AN, UCAM) involved in WP5 and open discussion on WP5 issues**

12h 15 - 12h 30 **Presentations of foreseen activities related to WP6 (UNIVPM)**

12h 30 – 13h 00 **WP7 products and deliverables**

13h 00 **Closure of the meeting**

All the details about the meeting are reported in the Deliverable 1.9.

- The Coordinator has reviewed the **periodic reports** prepared by the WP leaders to verify their consistency with the project tasks, in view of their assembling and transmitting them to PRIMA-IS and the funding agencies on behalf of the Consortium.
- The Coordinator has drafted the **minutes of general meetings 5 and 6** as well as the **3<sup>rd</sup> year report**.

## WP2 Characterization of spontaneously grown thistle populations

### OBJECTIVES

The objective of WP2 was the characterization of Mediterranean spontaneous thistle populations ascribed to species and genera traditionally exploited in local cheese-making for the manufacture of thistle-curdled sheep's and goat's milk cheeses: *C. humilis*, *O. nervosum ssp. platylepis* and *O. tauricum*. To reach this goal both qualitative and quantitative morphological traits will be evaluated, and different ecotypes will be (eventually) identified (even using genetic markers).

### TASKS AND STATUS

**Task 2.1** Sampling and morphological characterization of spontaneously growing thistles; Partners involved: PARTY 1, PARTY 5 (**COMPLETED**)

**Task 2.2** Lyophilization of sampled spontaneous thistles; Partners involved: PARTY 1, PARTY 5 (**COMPLETED**)

**Task 2.3** Sampling, cataloguing, and storing of seeds; Partners involved: PARTY 1, PARTY 5 (**COMPLETED**)

**Task 2.4** Elaboration of morphological data and potential identification of different ecotypes; Partners involved: PARTY 1, PARTY 5 (**IN PROGRESS**)

### DELIVERABLES DELIVERED IN THE REPORTING PERIOD

None

### BRIEF DESCRIPTION OF WORK DONE IN THE REPORTING PERIOD

During the reporting period, the molecular analyses for the collection of genetic data from the Mediterranean populations under study started.

## WP3 Sustainable cultivation of thistles

### OBJECTIVES

The objective of WP3 is the evaluation of the adaptability and agronomic productivity of *C. humilis*, *O. tauricum* and *Onopordum platylepis* in rainfed areas of the Mediterranean basin under zero/low inputs of fertilizers and use of non-chemical weed control methods. The final goal of this WP is to produce recommendations and guidelines for the sustainable cultivation, in the Mediterranean basin, of thistles exploitable by dairy industries for the manufacturing of high-quality and safe thistle-curdled cheeses.

## TASKS AND STATUS

**Task 3.1** Design of the field experiments; Partners involved: PARTY 1, PARTY 5 (**COMPLETED**)

**Task 3.2** Germination tests; Partners involved: PARTY 1, PARTY 5 (**COMPLETED**)

**Task 3.3** Soil characterization; Partners involved: PARTY 1, PARTY 5 (**COMPLETED**)

**Task 3.4** Seeds multiplication and transplantation; Partners involved: PARTY 1, PARTY 5 (**IN PROGRESS**)

**Task 3.5** Phenological development survey; Partners involved: PARTY 1, PARTY 5 (**IN PROGRESS**)

**Task 3.6** Analysis of the above ground fresh and dry biomass; Partners involved: PARTY 1, PARTY 5 (**NOT STARTED**)

**Task 3.7** Lyophilization of sampled cultivated thistles; Partners involved: PARTY 1, PARTY 5 (**NOT STARTED**)

## DELIVERABLES DELIVERED IN THE REPORTING PERIOD

None

## BRIEF DESCRIPTION OF WORK DONE IN THE REPORTING PERIOD

Field experiments planned in 2 experimental sites, each modelling a Mediterranean scenario with different landscapes and climatic conditions, namely:

- a central Italian hill area next to the Adriatic coast, with a warm and rainy temperate climate (classified as Csa = hot-summer Mediterranean climate, according to Köppen and Geiger) at least three times as much precipitation in the wettest month of winter as in the driest month of summer and driest month of summer receives less than 30 mm (1.2 in) (PARTY 1);
- an area in North Tunisia with an arid climate (classified as BSh = hot semi-arid climate, according to Köppen and Geiger), which is characterized by scarce rainfall and high temperatures during the whole year (PARTY 5).  
In both the two sites the following species and ecotypes have been compared: *Cynara humilis* L., *Onopordum tauricum* Willd (two ecotypes), *Onopordum platylepis* Murb., *Cynara cardunculus* L. This latter species has also been included, though its cultivation was not foreseen in the original Workplan (see for more details section 5)

were successfully continued.

## WP4 Characterization of thistle aqueous crude extracts (CEs)

### OBJECTIVES

The objective of WP4 is the full characterization (chemical, microbiological, technological, and biochemical) of aqueous crude extracts (CEs) derived from both spontaneously grown and cultivated thistles (CE\_st and CE\_ct, respectively) from either whole plants or separate plant sections: stalks, leaves, capitula.

### TASKS AND STATUS

**Task 4.1** Chemical characterization of CEs; Partners involved: PARTY 1, PARTY 2, PARTY 5 (**IN PROGRESS**)

**Task 4.2** Microbiological characterization of CEs; Partners involved: PARTY 1, PARTY 3, PARTY 4, PARTY 5 (**IN PROGRESS**)

**Task 4.3** Evaluation of technological properties of CEs; Partners involved: PARTY 1, PARTY 3, PARTY 4 (**IN PROGRESS**)

**Task 4.4** Purification of proteases from CEs; Partners involved: PARTY 1 (**IN PROGRESS**)

**Task 4.5** Biochemical characterization of purified proteases; Partners involved: PARTY 1 (**IN PROGRESS**)

#### DELIVERABLES DELIVERED IN THE REPORTING PERIOD

None

#### BRIEF DESCRIPTION OF WORK DONE IN THE REPORTING PERIOD

The biochemists working at UNIVPM-D3A (PARTY 1) completed the biochemical characterization of the purified protease from *Onopordum tauricum*, according to the activities detailed in the Task 4.5.

### WP5 Cheese-making trials and characterization of thistle-curdled and control cheeses

#### OBJECTIVES

The objective of WP5 is to carry out cheese-making trials allowing for the full characterization (physico-chemical, chemical, microbiological, textural and sensory) of local thistle-curdled cheeses as well as for the investigation of nutritionally valuable substances (e.g. minerals, vitamins, etc), health-beneficial (e.g. phenolic compounds, bioactive peptides with ANTI-ACE activity) and hazardous (biogenic amines) compounds

#### TASKS AND STATUS

**Task 5.1** Cheese-making trials; Partners involved: PARTY 1, PARTY 3, PARTY 4 (COMPLETED)

**Task 5.2** Physico-chemical and chemical analyses; Partners involved: PARTY 1, PARTY 3, PARTY 4 (IN PROGRESS)

**Task 5.3** Microbiological analyses; Partners involved: PARTY 1, PARTY 4 (IN PROGRESS)

**Task 5.4** Textural and sensory analyses; Partners involved: PARTY 2, PARTY 3, PARTY 4 (IN PROGRESS)

**Task 5.5** Analysis of nutritionally valuable, health-beneficial and hazardous substances (Month 8-Month 14: cheeses made with CE\_st; Month 22-Month 28: cheeses made with CE\_ct); Partners involved: PARTY 1, PARTY 2, PARTY 3 (IN PROGRESS)

**Task 5.6** Statistical elaboration of data; Partners involved: PARTY 1 (IN PROGRESS)

#### DELIVERABLES DELIVERED IN THE REPORTING PERIOD

None

#### BRIEF DESCRIPTION OF WORK DONE IN THE REPORTING PERIOD

During the reporting period, cheese-making trials started in all the involved partners for production of control and experimental Caciopire (PARTY1), Feta (PARTY 5) as well as Queso de Murcia and Torta del Casar (PARTY3). The analyses foreseen for the manufactured cheese prototypes also started, according to the original plan, with some additional parameters considered (see Section 5 for more detail).

### WP6 Evaluation of consumer needs, preferences, and acceptance towards thistle-curdled and control

#### OBJECTIVES

The objective of WP6 is to evaluate the degree of liking of consumers towards experimental and control “second round” cheeses, as well as to provide analytical insights on the prospect value-chain potential of thistle-curdled traditional local cheeses in the Mediterranean

#### PLANNED TASKS AND STATUS

**Task 6.1** Focus groups and consumer tests; Partners involved: PARTY 1, PARTY 3, PARTY 4 **(IN PROGRESS)**

**Task 6.2** Prospect value chain analysis and business model canvas analysis; Partners involved: PARTY 1, PARTY 3, PARTY 4 **(IN PROGRESS)**

#### DELIVERABLES DELIVERED IN THE REPORTING PERIOD

None

#### BRIEF DESCRIPTION OF WORK DONE IN THE REPORTING PERIOD

During the reporting period, guidelines for focus groups and consumers tests were sent by prof Raffaele Zanolli (UNIVPM) to all the involved partners (see Annex I); data about production of the 4 cheeses under study were also collected by Prof. Zanolli to start model canvas analysis.

## WP7 Multi-actor internal and external communication and technology transfer

#### OBJECTIVES

The objectives of WP7 are to ensure participation of stakeholders, as well as dissemination and exploitation of VEGGIE-MED-CHEESES outputs. A distinction can be made between objectives of internal and external communication.

Objectives of **internal communication** (within the Project), are:

- I. communicate project results within the Consortium so that all partners are updated timely on the knowledge generated by all WPs and tasks;
- II. coordinate the use of participatory approaches to utilise stakeholder and research knowledge and innovation to prioritise research activities within the project.

Objectives of **external communication** (to Stakeholders), are:

- I. use participatory approaches to utilise stakeholder and research knowledge to prioritise dissemination and training activities;
- II. communicate and disseminate project outputs to stakeholders and create a dairy farm-level observatory and knowledge exchange network;
- III. build capacity through technology transfer to ensure that the industry can effectively use the outputs from the project.
- IV. create a roadmap for future implementation and exploitation of project outputs at dairy farm, on regional and Mediterranean scales and for further research.

As a whole these actions aim to promote participation and effectively translate the Project outputs to meet the needs of the dairy industry and so that the results are disseminated in a way that can be promptly implemented and exploited by the following stakeholder groups: i) crop producers; ii) dairy farms, dairy industries, dairy operators, iii) retail and consumers and the general public; iv) Non Governative Organisations; v) scientists; vi) policy makers. All the partners will be involved in this WP.

## TASKS AND STATUS

**Task 7.1** Establishment of a stakeholder-platform (Month 1–Month 36); Partners involved: All partners **(IN PROGRESS)**

**Task 7.2** Installation of a website and production of dissemination materials; Partners involved: All partners **(IN PROGRESS)**

**Task 7.3** Documentation of scientific results; Partners involved: All partners **(IN PROGRESS)**

## DELIVERABLES DELIVERED IN THE REPORTING PERIOD

None

## BRIEF DESCRIPTION OF WORK DONE IN THE REPORTING PERIOD

- Stakeholders have periodically received updated information/news about the project and its progresses and main outcomes (4 additional newsletters have been sent, in the Reporting period)
- On December 2021 a Stakeholder Survey (reported in Annex II).was sent by email to all the identified VEGGIE-MED-CHEESES Stakeholders (both in English and the official languages of the Project). The objective of this questionnaire was to identify potential stakeholders to be involved in future Veggie-Med-Cheese activities (e.g. Sending of Newsletters, invitation to the final Workshops, Distribution of divulgation materials (e.g. leaflets, published papers, etc); involvement into the consumer tests, etc.).This questionnaire sought to find out what motivated Stakeholders to engage in the VEGGIE-MED-CHEESES project, as well as the extent and the way they would have liked to get involved. In addition, the questionnaire aimed at determining which potential barriers stakeholder had experienced or were expecting to encounter when engaging in VEGGIE-MED-CHEESES project. The results of this questionnaire have facilitated initial science-stakeholder dialogues; it was also useful to manage expectations and to identify needs from the onset of a partnership.
- Preliminary scientific results collected through the VEGGIE-MED-CHEESES research activities have been published in peer-reviewed Journals and presented at Internal Congresses, as detailed as follows:

## CONFERENCE PROCEEDINGS

- Abstract in Proceedings of 6th ISEKI-Food Conference “Sustainable Development Goals in Food Systems – Challenges and Opportunities for the Future” – Online Event (23-25 June 2021) (POSTER)  
Title: Cultivated *O. tauricum* vegetable rennet as a sustainable alternative for cheese-making.  
Authors: Foligni R, Mozzon M., Rampanti G., Aquilanti L., Zenobi S., Mannozi C.
- Abstract in Proceedings of 12nd NIZO Dairy Conference 2021 “Innovations in Dairy Ingredients” - Online Event - Live and On-demand (5-7 October 2021) (POSTER)  
Title: Technological properties of vegetable rennets for cheese-making: comparison between wild and cultivated *O. tauricum*.  
Authors: Foligni R, Mozzon M., Rampanti G., Aquilanti L., Zenobi S., Mannozi C.
- Short paper in Proceedings of the 3RD Euro-Mediterranean Conference for Environmental Integration -Online event 10-13/06/2021 (ORAL Communication)  
Title: Effect of gibberellic acid on seed germination of *Onopordum nervosum* subsp. *platylepis* Murb.  
Authors: Dhen N., Essaidi I., Naffati L., Kouki R. and Al Mohandes Dridi B
- Abstract in Proceedings in the 3rd International Cukurova Agriculture and Veterinary Congress. 9-10/07/2021, Adana Turkey. (ORAL Communication)  
Title: Morphological traits evaluation, phenolic composition, antioxidant activity and clotting milk activities of flower aqueous extract of wild and cultivated *Onopordum nervosum platylepis*  
Authors: Dhen N., Essaidi I., Kouki R., Ben Romdhane S., Ayed C. and Al Mohandes Dridi B



- Abstract in Proceedings in The 3rd International Cukurova Agriculture and Veterinary Congress. 9-10/07/ 2021, Adana Turkey. (ORAL Communication)  
Title :Comparative study between the effect of aqueous extraction and buffer solution on chemical composition, antioxidant and clotting milk activities of Onopordum nervosum Ssp platylepis flowers  
Authors: Essaidi I., Dhen N., Chebil S., Kouki R., Ayed C. Al Mohandes Dridi B
- Abstract in Proceedings in The 3rd International Cukurova Agriculture and Veterinary Congress. 9-10/07/ 2021, Adana Turkey. (ORAL Communication)  
Title : In\_situ morphological characterization of Onopordum nervosum platylepis Murb. populations from northern and central Tunisia.  
Authors: Kouki R., Ayed C. Dhen N., Dhibi R., Essaidi I., and Al Mohandes Dridi B.
- Abstract in Proceedings in The 3rd International Cukurova Agriculture and Veterinary Congress. 9-10/07/ 2021, Adana Turkey. (ORAL Communication)  
Title : In\_situ phenotypic diversity of Onopordum nervosum spp platylepis in the region Kairouan in Tunisia  
Authors: Ayed C., Kouki R., Dhibi R., Dhen N., Essaidi I. and Al Mohandes Dridi B

#### **PUBLISHED PAPERS**

- Full-length research paper published by the open-access peer-reviewed journal Agronomy – MDPI, 2021, 11, 135. <https://doi.org/10.3390/agronomy11010135>  
Title: Effect of planting density in two thistle species used for vegetable rennet production in marginal Mediterranean areas.  
Authors: Zenobi, S., Fiorentini, M., Aquilanti, L., Foligni, R., Mannozi, C., Mozzon, M., Zitti, S., Casavecchia, S., Al Mohandes Dridi, B., Orsini, R.  
Dissemination Event of the PRIMA Project : “Valorisation of thistle-curdled CHEESES in MEDiterranean marginal areas”. Held at High Institute of Agronomy of Chott-Mariem, Sousse University (ISA-CM) on 27/10/2021.
- Project results and cheese prototypes have also been presented at event/exhibition aimed at promoting Mediterranean agri-food products where the supply and demand can encounter each other and the researchers, as detailed:
  - UNIVPM - Innovation Festival 2021  
Università Politecnica delle Marche - 3<sup>rd</sup> December 2021  
[https://www.univpm.it/Entra/Universita\\_Politecnica\\_delle\\_Marche\\_Home/Innovation\\_Festival\\_2021](https://www.univpm.it/Entra/Universita_Politecnica_delle_Marche_Home/Innovation_Festival_2021)  
UNIVPM, in collaboration with the European Institute of Innovation & Technology and the EIT Food Hub of the University of Bari, has organized a workshop titled "Training and Innovation in the Agrifood sector for young people".
  - Green Innovation days. **GrID2022**. 11-13/10/2022. Beirut.

## 2. Update of the plan for exploitation and dissemination of result

No updates have been performed, yet

## 3. Update of the data management plan

No updates have been performed, yet

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

Not applicable

## 5. Deviations from original proposal in the Reporting period

A few deviations from the original proposal have been foreseen; they are briefly described as follows:

- At UCAM (PARTY 3), Queso de Murcia produced with 20% thistle rennet and animal rennet was also manufactured in addition to control and experimental cheeses planned in Task 5.1.
- All control and experimental Queso de Murcia and Torta del Casar cheeses were also analysed by UCAM (PARTY 3) for their content of free aminoacids (this is an additional parameter in respect with those listed in Task 5.2 of the original proposal)

## ANNEX I

### 1 Screening Questionnaire

*To be filled out at the end of the interview if they accept to participate (see below):*

<p><b>1.1 Name:</b></p> <p>_____</p> <p><b>Address:</b> _____</p> <p><b>Postal code:</b> _____ <b>City:</b> _____</p> <p><b>Region:</b> _____</p> <p><b>Telephone home:</b> _____ <b>Tel ph. work:</b> _____</p> <p><b>Mobile</b> _____</p> <p><b>E-mail:</b> _____</p> <p><b>Comments (e.g., has no car, cannot participate after 8 pm, very shy person, day/time availability, etc.):</b></p> <p>_____</p> <p>_____</p>
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Hello, my name is..... I am from ..... [name of institution]. We are conducting a study on cheese consumption at the moment, and we would like to know something about what kinds of products people buy. I have a few questions we want to ask people responsible for food shopping in their own households.

1. In your household, would you say that you are the person who is **mainly** responsible for **food shopping**?

Yes:

No:  ⇒ **End interview**

2. Are you or is someone else in your household employed in one of the following professions?

**Read up each category, one at a time:**

Agriculture (farmer or grower) .....  ⇒ **End interview**

Food industry/ food processing .....  ⇒ **End interview**

Food wholesale or retail.....  ⇒ **End interview**

Market research companies .....  ⇒ **End interview**

No, none of the mentioned professions.

3. Which kind of dietary habits do you have? ⇒ **Be careful about quotas**

a. Omnivore

b. Vegetarian

c. Vegan  ⇒ **End interview**

4. Do you have food allergies?

a. Yes  ⇒ **End interview**

b. No

5. Do you currently buy **cheese**?

c. Yes

d. No  ⇒ **End interview**

6. Do you usually **eat** cheese?

- a. Yes, 1 or more times per week
- b. Yes, less than 1 time per week
- c. No, I never eat cheese  ⇒ **End interview**

7. What is your work status?
- a. Student/Unemployed/Housewife/Retired ⇒ **Check quotas**
- b. Active worker

8. May I ask what year you were born? ⇒ **Check quotas**

**Note the exact year:** \_\_\_\_\_

9. Sex (by observation)

Male:

Female:

We would like to invite you to participate in a tasting study on cheese in the next 3 weeks at the University/Institute. You will be asked to commit to coming and tasting cheese on two different days. **To thank you for your participation in the study, you will receive a reward consisting of .....**, [Italy 20€, Spain 18€, Greece 15€, Tunisia 17 dinars equivalent approx. to 5€ (we used Purchasing Power Parity to define country-equivalent rewards) In Italy, we will give a 20-euros Amazon voucher, but you can also pay the reward in cash, considering they will need to spend 1-1.5 hours in the lab and will need to use part of the money to participate in the cheese auction the second day. **IMPORTANT: the money/voucher should be given the second day, in the beginning, BEFORE the auction]**

10. Do you think that you might like to participate in this study?

Yes:  ⇒ **we will call you back approximately in 3 weeks to confirm the final date of the meeting**

No:  ⇒ **End interview**

Thank you for your cooperation and for agreeing to participate in the study. We will contact you very soon and try to find a date for the interview that is convenient for you. You are very welcome to contact us if you have any questions. **[REMEMBER to give them your business card or a short memo with your contact details]**

I will now note down your name, address and telephone number so that we will be able to contact you.



The PRIMA programme is an Art. 185 initiative supported and funded under Horizon 2020, the European Union's Framework Programme for Research and Innovation'



**⇒ Contact information to be written on the front page**

***Note: if the interview has ended at an earlier point, briefly explain the reason why and thank the person for helping.***

## Quotas

We will need to recruit about 100 tasters in each country.

To be sure you actually get 100 tasters, you may need to recruit more.

**ATTENTION: Be sure you stop recruiting one category of consumers once you have reached the maximum.**

Check that your final sample of 100 consumers that participate to the tasting is composed as such

- **Working Status** (see Q. 7):

	TN	GR	ES	IT
Active worker	45	50	57	48
Inactive	55	50	43	52

**AND**

- **Age** (see Q. 8):

age group	TN	GR	ES	IT
20-39	51	37	39	33
40-59	34	37	38	39
60-80	15	26	23	28

## ANNEX II

# Stakeholder Questionnaire

## Introduction into the VEGGIE-MED-CHEESES project

VEGGIE-MED-CHEESES (“Valorisation of thistle-curdled CHEESES in MEDiterranean marginal areas”) is supported by the Ministry of University Research (MUR, Italy), the Ministry of Education, Research and Religious Affairs (GSRT, Greece), the Ministry of Higher Education and Scientific Research (Tunisia), the Ministry of Economy, Industry and Competitiveness (Spain) and part of the PRIMA programme supported by the European Union. The project aspires to a **full valorization of thistle rennet for manufacturing of Mediterranean ovine cheeses** through a multidisciplinary integrated research performed in 4 countries of the Mediterranean basin (IT, SP, GR, TN). The research work is focused on the characterization of **unexploited thistles** (*Onopordum tauricum*, *Onopordum platylepis*, *Cynara humilis*, *Cynara cardunculus*) spontaneously growing in these countries, as well as on their sustainable cultivation. Hence, the aqueous extracts (CEs) from both the spontaneous and cultivated thistles under study have been fully characterized and further used for the production of either two cheeses traditionally manufactured with thistle rennet, namely “Caciofiore” (IT) and “Torta del Casar” (SP), or two cheeses traditionally produced with animal rennet, namely “Queso de Murcia” (SP) and “Feta” (GR). All the cheese prototypes will be characterized through physicochemical, chemical, microbiological, textural, colorimetric and sensory analyses; nutritionally valuable, health-beneficial and hazardous substances ascribable to the use of CEs will be also investigated, as well as consumer needs, preferences and acceptance towards thistle-curdled cheeses.

More info and news about VEGGIE-MED-CHEESES and its progresses can be found at <https://veggiemedcheeses.com/>

## Objective of this questionnaire

- The objective of this questionnaire is to identify potential stakeholders to be involved in future Veggie-Med-Cheese activities (e.g. Sending of Newsletters, invitation to the final Workshops, Distribution of divulgative materials (e.g. leaflets, published papers, etc); involvement into the consumer tests, etc.).
- This questionnaire seeks to find out what motivates to engage in the VEGGIE-MED-CHEESES project, as well as the extent and the way they would like to get involved.
- This questionnaire aims at determining which potential barriers stakeholder have experienced or are expecting to encounter when engaging in VEGGIE-MED-CHEESES project.



- The results of this questionnaire will facilitate initial science-stakeholder dialogues, as well as to manage expectations and identify needs from the onset of a partnership.

## Confidentiality

Any data and information given in this questionnaire will be treated strictly confidential and will not be transferred to any third parties. Participants interested in getting actively engaged in VEGGIE-MED-CHEESES project are encouraged to fill in their contact details at the end of this questionnaire. We will then be in touch shortly.

**1. Which of the following Stakeholder groups do you associate with?**

- Industry and business
- Farming system
- Media
- Policy
- Science
- Other, please specify: \_\_\_\_\_

**2. Which of the following categories best describes your position?**

- Crop producer
- Dairy farmer
- Retailer/Distributor
- Scientist/Researcher
- Policy maker
- Consumer
- Other, please specify: \_\_\_\_\_

**3. On which level do you generally operate? (multiple answers possible)**

- International
- National
- Regional
- Local

**4. Which VEGGIE-MED-CHEESES objective(s) is/are of interest for you? (multiple answers possible)**

- Sustainable cultivation of thistle crops
- Production/distribution of new ingredients for the dairy industry
- Production/distribution of local/typical dairy specialities
- Other, please specify: \_\_\_\_\_

**5. Did you gain new information or professional contacts through the project?**

- A lot
- Some
- Few
- None

**6. How satisfied are you with the outcomes of the project (newsletters, website, publications, networks or other products)?**

- A lot
- Some
- Few
- None

**7. Did the project bring any change to your professional life?**

- A lot
- Some
- Few
- None

**12. Which changes? Please specify:** \_\_\_\_\_

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**8. Please could you suggest any stakeholders who you think we should contact?** \_\_\_\_\_



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9. Do you have any comments or suggestion for the project? Please write here: \_\_\_\_\_

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**For Participants interested in getting actively engaged in VEGGIE-MED-CHEESES project**

Name and Surname: \_\_\_\_\_

Name of your organisation or business: \_\_\_\_\_

Adress: \_\_\_\_\_

Web-site (if available): \_\_\_\_\_

Telephone number: \_\_\_\_\_

Email: \_\_\_\_\_