



**MOUNTAIN
HER**

Deliverable achievement report

Consumers' appreciation report

Deliverable 6.1.2



This project is part of the PRIMA
programme supported by the
European Union



PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA

December 19th, 2025

D 6.1.1 – Consumers’ appreciation report

Description of the task

Digital sensorial panels

The use of a digital tool to reach out to a panel of users has been identified in the MountainHER project as the best way to determine potential consumers’ interest towards the project’s potential products. A service provider has been therefore involved, able to activate specific **CAWI (computer assisted web interviewing)** stratified panels in each of the 6 countries active in the project.

The service provider received the questionnaires – defined by partners through a validation process – in 3 languages (Italian, Croatian, Arabic) from the WP6 leader and was responsible to obtain the surveys from all six countries using representative panels of potential consumers.

Multiple-choice questions have been used in 3 wave surveys (3 “rounds”) and results collected in a database format onto MEL.

1. In the first round (1st wave), 200 respondents per country (total: 1200 respondents) have been required to provide opinions on **a 15 minutes survey**. **A set of 20 images** showing various products packages was shown, with the key difference determined by specific claims. A total of 5 traditional foods and malt products was presented, each with 3 different packages and **telling the “story” of their agro-ecological production using different key words**. In addition, 5 “check” foods representing, by visual analogy, well established commercial brands were included. For each image, respondents have been asked to select “emotion” the image has generated. The result can be used as an input for communication on the product, at all levels: on the packaging – to be used as a “silent seller” – as well as on other communication media, including the storytelling by store managers and assistants.
2. The second round (2nd wave) survey was set up after some time, so that the questionnaire – **again for a 15 minutes survey** - could be enriched by the results of the different project activities, such as in-store sale tests and nutritional analyses. This time the survey involved 100 respondents per country (600 overall). In this case, only the best 5 voted images and “stories” were shown but, for each one, three different - realistic because based on the nutritional analyses of WP5 - **nutritional labels** were presented, each giving priority to a different dietary element. Five “checks” were also included, showing the products’ actual nutrition labels. Again, the digital consumers were asked to define (by choosing from a list) the “emotion” that the image generated in them, but further questions were asked on purchase drivers, competence and interest in agroecology, value elements.
3. In the third round (3rd wave), 10 consumers per country received in their homes a sample of one or more of the project’s products: they were asked to follow a simple recipe to cook them and taste them. Questionnaires were administered to gather their appreciation. The final question checked their willingness to pay, and the conditions (product characteristics, packaging, etc.) that influence this aspect.

Description of completion

All the three wave surveys were completed, and some partners performed further tests, such as concept and product tests with the first products, especially on the occasion of events.

It is important to underline that, for a precise purpose, the panels of respondents included mostly consumers with a University-degree, and a smaller share of consumers with a High School degree. The reason for this was the need to assess the preferences of consumers that have the possibility to actually purchase the product – thanks to their socio-economic condition – and can therefore express matter-of-fact opinions.

In addition to the 3 rounds of surveys, partner Birrifificio Emiliano designed, made and tested – with success - a special bread made with beer (malt) dregs, and a focus comparative analysis among countries was made starting from the second-round survey data.

Justification of delay

Time needed to elaborate the data and for the completion of results from all Countries.

Executive summary

- The **first wave survey** has proven to be very useful, and the possibility to interview, in parallel, a significant set of respondents in all six countries provided very interesting comparative information. The survey, confirmed by smaller – scale surveys performed in a few countries, proved that the products **could be usefully brought to the market by associating, on pack and other communication media the value elements of mountain production and female cooperative production, with the elements of connection with nature, happiness and a «healthy» feeling**. Of course, communication on health is strictly ruled and this should be taken into account, by expressing messages according authorised claims and by evocative images (in Europe, claims are ruled by Efsa).
- The **second wave survey** confirmed the role of **healthy food** in consumers' choices, but mostly points out the relevance of **taste** as a purchase driver, as well as **ethical** and **eco-friendly** production methods. Taste can be an element of the appreciation of a visit to the mountains, which is a hedonistic element. And when the product has the preferred characteristics, a price premium is acceptable for most respondents. As far as nutrition is involved, particularly a higher percent of **proteins and fiber** can be preferred and should be evidenced in communication. Price is always a relevant element, but a significant share of respondents was ready to accept some price premium in exchange of the key value elements of the project: nature, tradition and the safeguard of the mountain natural and social environment.
- As regards the **third wave survey**, all tested products, in the different countries, received positive evaluations, (product described as better than the equivalent «mass» product), from the point of view of flavour, taste, and «processing» features. Consumers perceive also the «intangible assets» of the product, which contribute to an evaluation of middle-to-high probability of purchase and the expectation / acceptance of a probable higher-than-average price. The probability of purchase, for a significant share of respondents, is linked to the effective availability of the product in the usual food shopping places, and on its price. This implies that cooperatives must pay attention to: a) make the product available through

different channels (product + service); b) fine tune the pricing policy by keeping an eye to benchmark product prices; c) make sure that the product's intangible values are fully and continuously perceived; d) do not rely on these qualities only: taste and nutrition are always very important and must remain consistent.

The obtained databases were shared among partners, also for possible individual analyses.

Description of the activities

a) FIRST WAVE SURVEY

In the following image, the 5 traditional foods and malt products are shown (pasta, couscous, barley flour, malt drink and bread), each with 3 different packages and telling the “story” of their agro-ecological production using different key words, such as: soil, self produced fertilizers, female farmers, ecology and harmony with nature.

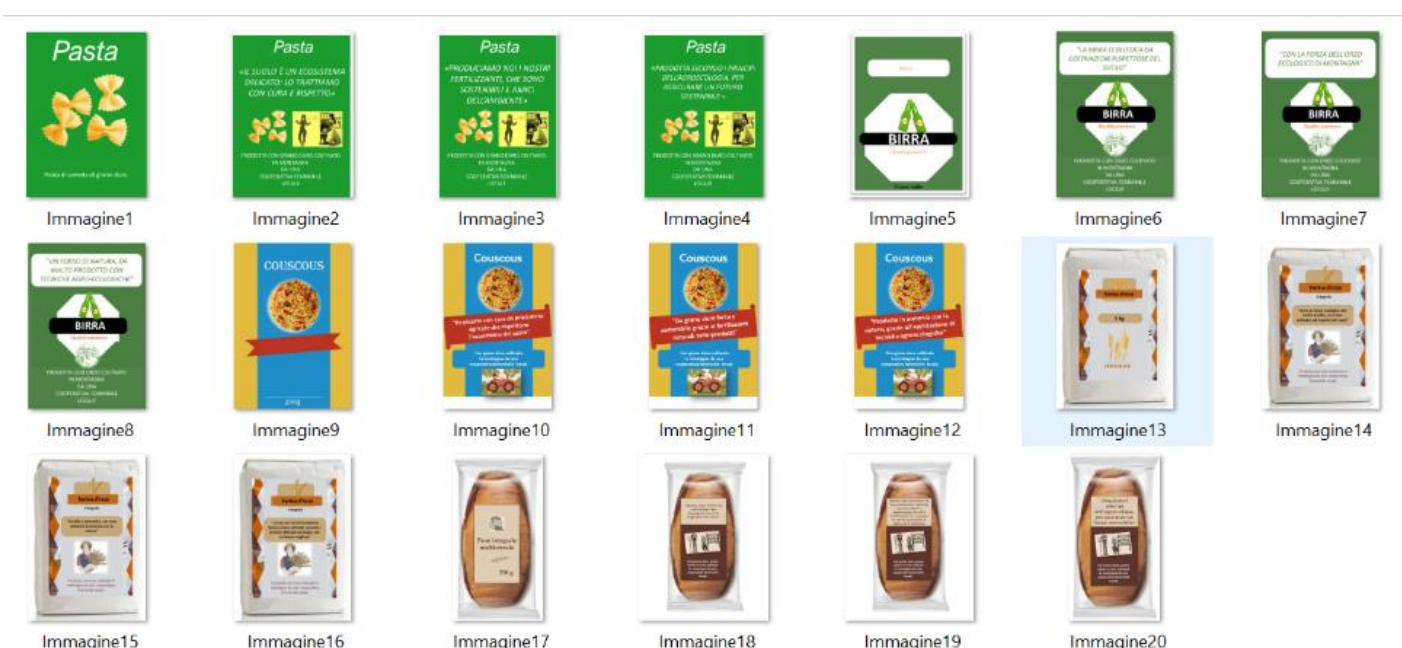


Figure 1 – The images of possible simplified packs shown to respondents

Table 1 – Sentences on the pack, according to which respondents were asked to select emotions

Pasta	Malt drink	Couscous	Barley flour	Bread
2 "Soil is a delicate ecosystem: we treat it with care and respect"	6 "The eco-friendly drink from soil-respectful practices"	10 "Made with care by mountain female farmers who respect the soil ecosystem"	14 "Give your recipes an eco-friendly touch with soil-respectful barley"	18 "This bread comes from a production system that uses soil respectful techniques"
3 "We produce our own fertilizers, that are sustainable and environmentally friendly"	7 "With the strength of eco-friendly mountain barley"	11 "From strong, sustainable durum wheat thanks to internally produced fertilizers"	15 "Gentle and fragrant, from barley grown in harmony with nature"	19 "This bread comes from "closed - loop" agriculture: we produce our own fertilizers, that are sustainable and environmentally friendly"
4 "Produced via agroecology principles, to ensure a sustainable future"	8 "A sip of nature, from agro-ecological malt"	12 "Produced in harmony with nature, thanks to the application of agroecological techniques"	16 "The barley for this flour is grown following agro-ecological principles, for a better future"	20 "We follow agro-ecology principles, to ensure a sustainable future"

Table 2 –List of possible emotions among which respondents were asked to choose 3, for each image

Disgusted	Negative	-2
Guilty	Negative	-2
Unhealthy	Negative	-2
Displeased	Negative	-1
Frustrated	Slightly adverse	-0.5
Bored	Slightly adverse	-0.5
Doubtful	Slightly adverse	-0.5
Indifferent	Indifferent	0
Hungry	Slightly favorable	0.5
Curious	Slightly favorable	0.5
Intrigued	Slightly favorable	0.5
Nostalgic (for the old days)	Positive	1
Modern	Positive	1
Connecting with nature	Positive	1
Pleasantly interested	Positive	1
Inspired	Positive	1
Healthy	Positive	1
Happy	Positive	1
	Sum	0

The choice of products to be shown, even before each cooperative's project products were made, was done according to several considerations, that are listed in the table below.

Table 3 – Reasons for the choice of products for the survey

Product	Reason
Pasta	Made with durum wheat only, it's a staple food in Italy, and consumed in all the world. Its unit price can be very low, and its characteristics very basic, although consumers are used to differentiation strategies and to the presence of niche products. It is interesting to observe how claims regarding the pluses brought about by the MountainHER project can affect the preception of a very traditional, common food product.
Malt drink	Malt, made with barley, as a key ingredient, but not the only one, of beer. The chatacteristics of the malt drink consumers segments, especially as regards beer, is different, often including a higher share of men and young persons. The scope in this case is to test the effect – on the perception of consumers for this very specific product - of claims on environment-friendly choices, and on the production on mountains, by a female cooperative.
Couscous	Similarly to pasta, also couscous is a staple food, with elements of vertical differentiation in local markets. Also in thgis case, it is interesting to evaluate the impact of the very specific differentiation elements brought about by the MounainHER project.

Wholemeal barley flour.	The consumers target changes again: barley flour is an ingredient, therefore it affects not only persons who are responsible for the purchase of food for their family, but the subset of them that also cooks, and uses flours. The cooking activity is no longer present in all families, as the diffusion of ready-to-eat products confirms.
Wholemeal bread	Some countries see a decrease of bread consumption in quantity, but an increase of interest in «speciality bread». It is interesting to evaluate how this trend applies to different ways to communicate a potential MountainHER bread.

b) SECOND WAVE SURVEY

The purpose of the **second wave survey** was to analyze the response of 100 people per Country, aiming to better understand consumers' interests in the ethical, environmental and social values embedded in these products, as well as their willingness to purchase them regularly, based on the emotions these characteristics evoke.

Respondents were firstly asked who is primarily responsible for grocery shopping within their household, to ensure that all answers come from aware shoppers. Then, consumers were demanded to ask specific questions on the characteristics sought in food products, on a Likert scale from "not interested" to "very important", and how much they would be willing to pay for them.

As the previous survey, consumers were shown five products and were asked, for each image, to indicate how did they feel. They were presented with a list of emotions, and for each one, they had to choose whether they felt it "not at all", "a little", or "intensely". And, related to the images, 4 different nutritional labels for each image were presented. Consumers were asked to select the most preferred one, how frequently would they be willing to purchase those products and how much would they be willing to pay for them.

Finally, the **third wave survey** was submitted to just 10 consumers per Country, that were asked to try to replicate at home a recipe of a sample of the chosen product and taste it. The survey aimed to check their willingness to pay, and the conditions (product characteristics, packaging, etc.) that influence this aspect.



A		B	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	354 kcal	Energia	349 kcal
Grassi	1,2 g	Grassi	1,8 g
Acidi grassi saturi	0,3 g	Acidi grassi saturi	0,3 g
Carboidrati	71 g	Carboidrati	66,0 g
Zuccheri	3,2 g	Zuccheri	3,7 g
Fibre	3,2 g	Fibre	6,5 g
Proteine	13 g	Proteine	14,0 g
Sale	0 g	Sale	0,0 g

C		D	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	351 kcal	Energia	353 kcal
Grassi	1,5 g	Grassi	2,0 g
Acidi grassi saturi	0,3 g	Acidi grassi saturi	0,3 g
Carboidrati	69,0 g	Carboidrati	69,0 g
Zuccheri	2,9 g	Zuccheri	3,3 g
Fibre	2,9 g	Fibre	8,0 g
Proteine	14,0 g	Proteine	15,0 g
Sale	0,01 g	Sale	0,01 g



A		B	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	360 kcal	Energia	339 kcal
Grassi	1,6 g	Grassi	1,5 g
Acidi grassi saturi	0,2 g	Acidi grassi saturi	0,4 g
Carboidrati	79 g	Carboidrati	65 g
Zuccheri	0 g	Zuccheri	3 g
Fibre	13 g	Fibre	8 g
Proteine	12 g	Proteine	12 g
Sale	< 0,01 g	Sale	< 0,04 g

C		D	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	364 kcal	Energia	349 kcal
Grassi	1,6 g	Grassi	1,5 g
Acidi grassi saturi	0,3 g	Acidi grassi saturi	0,3 g
Carboidrati	69,3 g	Carboidrati	67,2 g
Zuccheri	1,5 g	Zuccheri	2,1 g
Fibre	12,5 g	Fibre	6,5 g
Proteine	12,5 g	Proteine	12,5 g
Sale	+0,03 g	Sale	+0,03 g

PRIMA Foundation Grant Agreement 2112 Call 2021 Section 1 Farming IA | 3



A		B	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	403 kcal	Energia	403 kcal
Grassi	12 g	Grassi	12 g
Acidi grassi saturi	10,7 g	Acidi grassi saturi	10,7 g
Carboidrati	53,9 g	Carboidrati	72 g
Zuccheri	18,2 g	Zuccheri	27 g
Fibre	4,2 g	Fibre	2,5 g
Proteine	5,3 g	Proteine	5,4 g
Sale	+0,03 g	Sale	+0,7 g

C		D	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	409 kcal	Energia	409 kcal
Grassi	20,9 g	Grassi	19,3 g
Acidi grassi saturi	2,7 g	Acidi grassi saturi	2,7 g
Carboidrati	61,7 g	Carboidrati	66,8 g
Zuccheri	18 g	Zuccheri	24,8 g
Fibre	4,4 g	Fibre	3,9 g
Proteine	7,8 g	Proteine	7,8 g
Sale	+0,05 g	Sale	1 g

PRIMA Foundation Grant Agreement 2112 Call 2021 Section 1 Farming IA | 5



A		B	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	363 kcal	Energia	361 kcal
Grassi	1,8 g	Grassi	1,8 g
Acidi grassi saturi	0,4 g	Acidi grassi saturi	0,3 g
Carboidrati	77,7 g	Carboidrati	76 g
Zuccheri	0,8 g	Zuccheri	0,8 g
Fibre	10 g	Fibre	10 g
Proteine	15,2 g	Proteine	10 g
Sale	0,01 g	Sale	15,91 g

C		D	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	370 kcal	Energia	336 kcal
Grassi	2 g	Grassi	1,4 g
Acidi grassi saturi	0,4 g	Acidi grassi saturi	0,3
Carboidrati	78 g	Carboidrati	70,5
Zuccheri	0,8 g	Zuccheri	0,7 g
Fibre	7 g	Fibre	0,2
Proteine	10 g	Proteine	10,4 g
Sale	0,03 g	Sale	0,01 g

PRIMA Foundation Grant Agreement 2112 Call 2021 Section 1 Farming IA | 6



A		B	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	342 kcal	Energia	341 kcal
Grassi	0,8 g	Grassi	1,5 g
Acidi grassi saturi	0,2 g	Acidi grassi saturi	0,3 g
Carboidrati	83,2 g	Carboidrati	87,8 g
Zuccheri	0,9 g	Zuccheri	1,9 g
Fibre	2,8 g	Fibre	3,6 g
Proteine	11,8 g	Proteine	10,8 g
Sale	+1,4 g	Sale	+1,4 g

C		D	
Tabella nutrizionale	Valore per 100 g	Tabella nutrizionale	Valore per 100 g
Energia	227 kcal	Energia	241 kcal
Grassi	1,5 g	Grassi	1,5 g
Acidi grassi saturi	0,3 g	Acidi grassi saturi	0,3 g
Carboidrati	83,3 g	Carboidrati	85,9 g
Zuccheri	2,3 g	Zuccheri	2,3 g
Fibre	6,6 g	Fibre	5,7 g
Proteine	6,7 g	Proteine	8,3 g
Sale	+3,3 g	Sale	+3,3 g

PRIMA Foundation Grant Agreement 2112 Call 2021 Section 1 Farming IA | 4

Figure 2 – Images and nutritional tables shown to consumers

Respondents

The first wave survey was submitted to 200 respondents per Country, the second wave to 100 respondents per country, the third one to 10 respondents per country. In the first two waves, a good balance has been sought as regards age and gender, whereas, in order to obtain – as regards willingness to pay and willingness to purchase - by persons that could actually afford to perform the purchasing act, a quotas restraint has been introduced as regards education, focusing on large majority of respondents with a university degree and only a small share of respondents with a high school degree. No quotas were given to the respondents of the third wave surveys.

Results

1. According to the analysis of the **first wave survey**, besides underlining the production on mountains, by a female cooperative, communication should be focused on the following themes: Health, Nature, A happy mood.

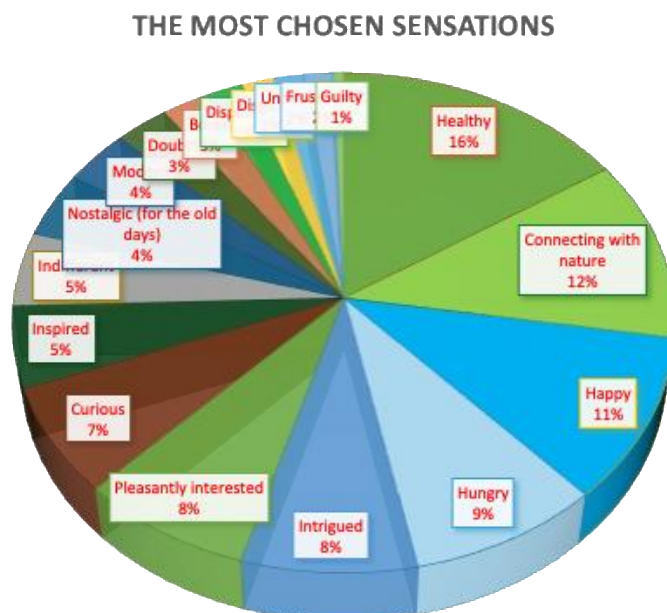


Figure 3 – The most chosen sensations in the wave 1 survey

Table 4 – The most chosen sensations by country in the 1st wave survey

	The most chosen emotions, excluding benchmark products						
	All countries	Algeria	Croatia	Italy	Lebanon	Morocco	Tunisia
Healthy	15.6%	20.8%	11.3%	7.1%	14.9%	20.1%	19.5%
Connecting with nature	12.6%	12.8%	13.0%	10.2%	10.9%	13.7%	14.8%
Happy	10.8%	11.9%	7.0%	9.0%	12.3%	11.9%	12.9%
Hungry	7.3%	8.3%	6.4%	5.7%	8.3%	8.3%	7.0%
Intrigued	8.1%	6.7%	11.7%	11.9%	5.6%	5.7%	7.1%
Pleasantly interested	7.5%	7.2%	5.9%	12.5%	5.7%	8.0%	5.9%
Curious	7.0%	5.5%	7.9%	12.3%	6.6%	4.7%	5.0%
Inspired	5.4%	4.4%	5.6%	6.7%	5.8%	4.9%	5.2%
Indifferent	4.7%	3.8%	6.5%	4.4%	5.1%	3.7%	4.6%
Nostalgic (for the old days)	4.0%	4.2%	5.3%	2.6%	3.7%	3.5%	4.9%
Modern	3.6%	2.9%	3.0%	6.3%	3.6%	3.6%	2.2%
Doubtful	3.0%	2.9%	3.7%	3.8%	2.5%	2.5%	2.4%
Bored	2.5%	1.9%	5.2%	2.7%	1.8%	1.9%	1.6%
Displeased	2.0%	1.7%	1.3%	1.0%	3.7%	2.3%	2.2%
Disgusted	1.8%	1.4%	1.5%	0.9%	4.6%	1.2%	1.3%
Unhealthy	1.6%	1.5%	1.6%	1.1%	2.0%	1.9%	1.5%
Frustrated	1.6%	1.7%	2.3%	1.0%	1.7%	1.6%	1.4%
Guilty	0.7%	0.3%	0.6%	0.8%	1.2%	0.5%	0.5%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

These sensations are distributed rather transversally between the different segments, even if we can notice:

- a slightly higher percent of consumers living in Algeria, Morocco and Tunisia

- the repartition according to gender is almost the same as overall respondents (slightly higher percent of females)
 - a slightly higher percent of younger consumers
 - a slightly higher percent of persons living in large cities
 - a slightly higher percent of persons with a University degree if compared with those who have a high-school degree.
2. The **second wave survey** showed that most respondents with a high educational degree care about ethical, environmental, and health-related values in food products. Therefore, communication about MountainHER products should focus on the following elements: ethics, low environmental impact techniques, and health benefits, conveying the following messages: “connection with nature,” “tradition,” “agroecological techniques,” and “respect for soil.”

Also through imagery, the following values and experiences should be evoked: tradition, belonging, respect for labor and the land, and a feeling of happiness.

From a nutritional standpoint, it is important, both in recipe development and communication, to highlight the following nutritional elements: fiber and proteins. In terms of gender and age, carbs and proteins are more sought after by men and younger individuals, while a high fiber content is preferred by women and older age groups.

Many are willing to pay up to 10% more for products that have these qualities, and there is also a share of respondents who would pay more.

Tasty food products are appreciated by everyone, and a good taste is taken for granted. Therefore, tasty features in the survey are often outperformed by products that offer health benefits or are made with respect for workers and the planet. For this reason, consumers have shown a greater willingness to pay a higher price for such products, whereas they may not be inclined to pay more for simply flavorful items.

When considering pricing, it is reasonable to assume that if the product possesses the highlighted characteristics and is well communicated, a price premium of 10%, and even something more, compared to a similar competing product, could be applied.

Lastly, awareness of agroecology was found to be rather low, but many respondents (especially younger people and those in Italy, Tunisia, and Morocco) were interested in learning more. The suggestion, from this point of view, is to organise communication moments targeted to consumers and farmers.

Main questions

55. How important do you consider the following characteristics of the food products you usually buy?
(1 = not at all important; 5 = very important)
(Rotate items – One response per row required)

Characteristic	1	2	3	4	5
1. Must contain nutrients with positive health effects	☐	☐	☐	☐	☐
2. Must be produced with low environmental impact techniques	☐	☐	☐	☐	☐
3. Must be local products, km 0	☐	☐	☐	☐	☐
4. Must be tasty and flavorful	☐	☐	☐	☐	☐
5. Must be ethically produced	☐	☐	☐	☐	☐
6. Must be organic	☐	☐	☐	☐	☐
7. Must have the lowest possible price	☐	☐	☐	☐	☐
8. Must be traceable	☐	☐	☐	☐	☐

57. How familiar are you with the principles of agroecology?
(Single Choice – do not rotate items)

- I don't know them and I'm not interested
- I don't know them, but I'm interested in learning more
- I know them well enough, no need for more information
- I know a little and would like to know more
- I know them fairly well, but would still like to go deeper
- I know them very well and I'm interested
- I know them very well, but I'm not particularly interested

D1. Please look at this label and read carefully. What emotion/sensation do you feel when viewing this product? Please indicate the intensity of the following emotions (One response per row – rotate items):

Emotion	Not at all	A little	Very much

D2. Now you'll see four different possible nutritional labels for this product. Please choose the one you prefer based on the information provided.
(Single Choice – A, B, C, or D)

D3. Only regarding the nutritional table you chose:
Based on this product and your preferred nutritional characteristics, how often would you buy it?
(Single Choice)

- Never
- Once a week
- Once or twice a month
- Three or four times a year
- I don't know

D4. Again referring to your preferred nutritional table:
How much more would you be willing to pay for this product compared to a similar one without those characteristics?

Important Note: DO NOT ask the following question to those who answered "quite important" or "very important" to item 7 (lowest price) in question 55.

56. Now think of a food product that fully reflects the values you consider important (as discussed above). How much more would you be willing to pay for such a product compared to a similar product without those characteristics?
(Single Choice – do not rotate items)

- It should cost the same
- I could accept a price up to 10% higher
- I could accept a price up to 20% higher
- I could accept a price up to 30% higher

Figure 4 – The questionnaire of the Second wave CAWI survey

Products, images, emotions, nutrition, willingness to pay

2nd wave CAWI survey

April 2025

Products	1) Pasta	2) Biscuits
3) Couscous	4) Barley flour	5) Bread

Features

- Target: 100 respondents per country (Algeria, Croatia, Italy, Lebanon, Morocco, Tunisia)
- 3 languages: Croatian, Italian, Arabic
- 50% males and 50% females
- 25-65 years old
- University degree or at least high school (to ensure economic possibility to purchase higher value products)
- Responsible or co-responsible for family food purchase

Themes

- Profile of preferences for key food quality features, associated with accepted price premium
- Awareness of agroecology principles and relative interest
- 5 images shown and emotions evaluated
- Choice between 4 different nutritional labels associated with each image / product, probability of purchase and accepted price premium

Images

- The preferred images from 1st survey
- Associated with different nutritional labels

Imagine 1: Pasta

Imagine 2: Couscous

Imagine 3: Biscuits

Imagine 4: Barley flour

Imagine 5: Bread

Figure 5 – The key elements of the second wave CAWI survey

If the products feature characteristics deemed as important / rather important, a price premium is mostly accepted (only 15% of respondents would not accept it): 10% higher could be ok for 47% of respondents (not involving those who are focused on very low price as a key choice element), a 20% price premium might be acceptable for 29% of respondents, and a 30% premium for 8% of respondents (none in Croatia).

Table 5 - if the product has the preferred characteristics, what happens to the price consumers accept to pay?

	Algeria		Croatia		Italy		Lebanon		Morocco		Tunisia		Total
	F	M	F	M	F	M	F	M	F	M	F	M	
It should have the same price	19%	16%	14%	43%	17%	14%	6%	6%	0%	9%	9%	14%	15%
I can accept a price 10% higher	29%	37%	76%	39%	39%	52%	33%	71%	61%	50%	36%	46%	47%
I can accept a price 20% higher	33%	37%	10%	18%	35%	29%	56%	18%	28%	32%	45%	25%	29%
I can accept a price 30% higher	19%	11%	0%	0%	9%	5%	6%	6%	11%	9%	9%	14%	8%

As regards the consumers' awareness of Agroecology, 32% of all respondents declared that they know nothing about it, 23% know little and would like to know more (overall, respondents who would appreciate more information are 59%), only 8% show no interest.

How well do you know agroecology?

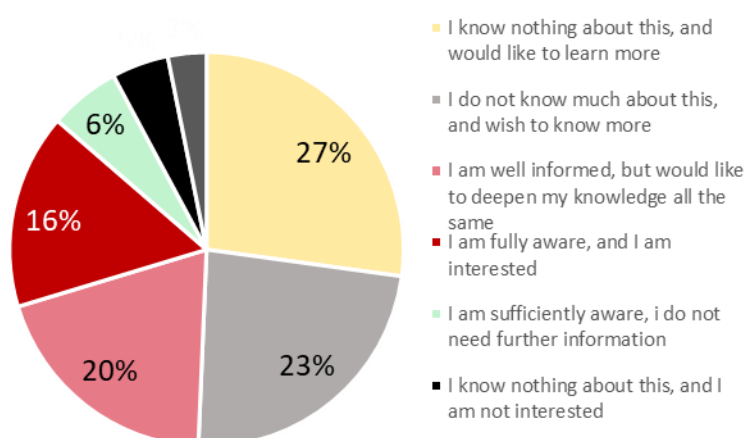


Figure 6 – Awareness of agroecology by the 600 respondents

The average shares are the results of very different data among countries.

Table 6 – Awareness of agroecology – country and gender

How much are you aware of agroecology principles?	A		C		I		L		M		T		Total
	F	M	F	M	F	M	F	M	F	M	F	M	
I am fully aware, and I am interested	9%	2%	2%	2%	20%	24%	8%	10%	34%	14%	46%	22%	16%
I am well informed, but would like to deepen my knowledge all the same	11%	23%	4%	12%	30%	6%	22%	12%	20%	30%	38%	26%	20%
I am sufficiently aware, i do not need further information	5%	2%	8%	14%	4%	14%	6%	8%	2%	4%	2%	2%	6%
I do not know much about this, and wish to know more	41%	30%	26%	16%	24%	28%	28%	22%	12%	34%	8%	14%	23,5%
I know nothing about this, and I am not interested	5%	4%	6%	12%	6%	4%	8%	6%	2%	0%	2%	2%	5%
I know nothing about this, and would like to learn more	27%	39%	54%	44%	14%	22%	22%	24%	26%	18%	2%	32%	27%
I am fully aware, but I am not interested	2%	0%	0%	0%	2%	2%	6%	18%	4%	0%	2%	2%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

For each image, respondents were asked the price difference they would accept for a product with the information they have seen on the simplified pack they have been shown, and their preferred nutritional table. The following graph shows that, if well communicated, the products might reach also a 20% price premium over basic substitutes.

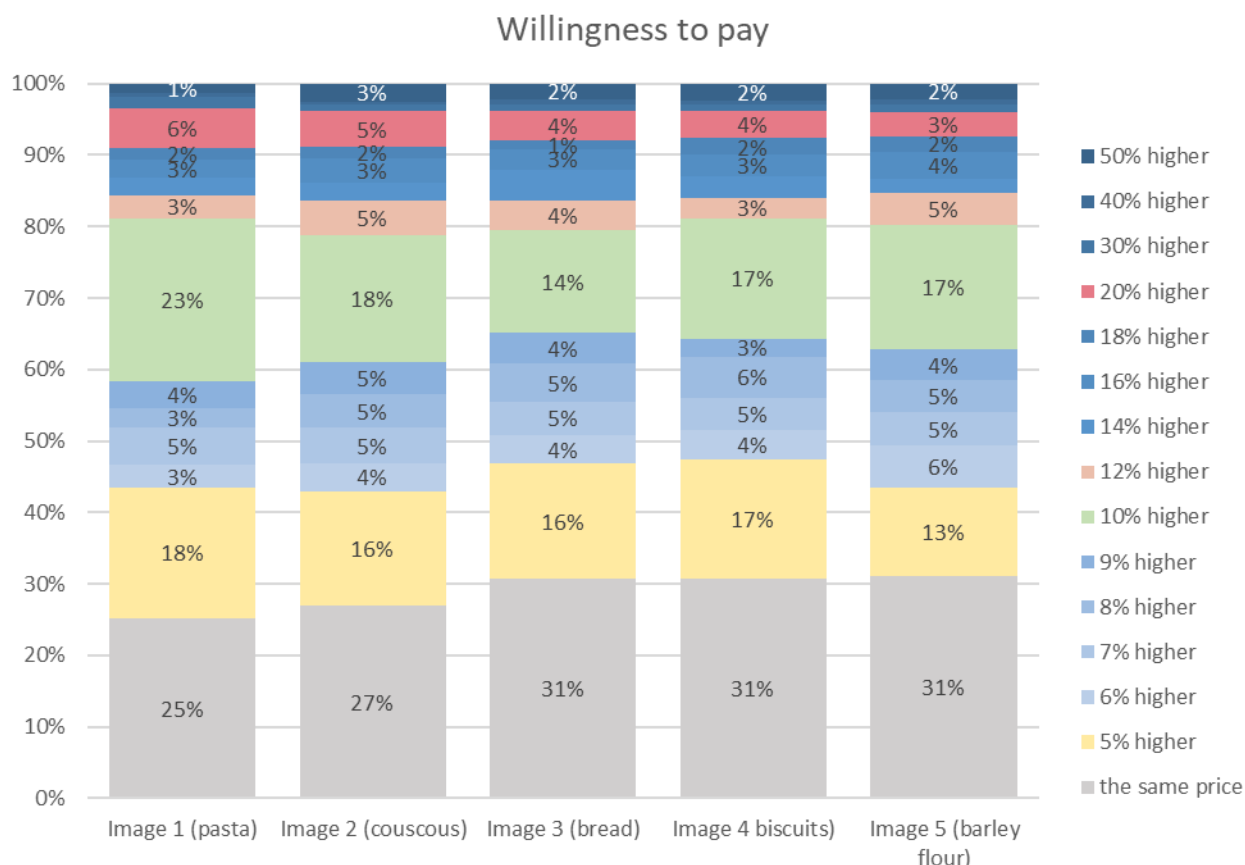


Figure 7 – Willingness to pay analysis

By processing the data of the second wave survey, an in-depth study was made by the Tunisian partner. The related document's title is "Comparative Analysis of Cultural Food preferences in Mediterranean Countries".

According to this study, the analysis of emotions expressed by respondents reveals a predominantly positive emotional dynamic among surveyed consumers. Of the 18 emotions tested, positive emotions such as feeling healthy (49.3% to 50.2% intensity), happy (up to 40.5%), pleasantly interested (48.7%), curious (35.0%), or inspired (up to 37.5%) are the most intensely felt. This reflects a strong emotional connection to the act of purchasing and consuming food, often associated with values of well-being, pleasure, nature, and discovery.

In contrast, negative emotions such as guilt (8.2%), frustration (6.2%), disgust (10.2%), boredom (9.3%), or sadness (9.2%) are rarely experienced with intensity, suggesting that the shopping experience is generally perceived as harmonious and does not provoke significant moral or sensory discomfort.

Some ambivalent emotions, such as nostalgia (31.7%), fascination (30.7%), or hunger (27.2%), reflect more complex emotional attitudes, which likely stem from specific product types, such as traditional, comforting, or memory-evoking items.

In addition, the strong intensity of the emotion "connected to nature" (49.0%) confirms the growing importance of ecological values and the appeal of products perceived as natural or sustainable. This reinforces the idea that food consumption also carries symbolic meanings.

In short, the emotional structure observed indicates that consumer behavior is not limited to functional criteria but is largely driven by positive affective expectations—opening up significant opportunities for emotional marketing, sensory positioning, and ethical communication (see Table 10).

Using a one-way univariate analysis of variance (ANOVA) followed by Tukey's post-hoc tests for multiple comparisons, the study reveals statistically significant differences in the importance attributed to food-related criteria such as quality, origin, ethics, and product sustainability.

Preference for **local products** ("zero km") is significantly higher in Italy, where respondents rated this criterion an average of 1.08 points higher than in Algeria ($p < 0.001$) and 0.61 points higher than in Croatia ($p = 0.001$). In contrast, Algeria and Tunisia show less sensitivity to this criterion, with respective differences of -0.50 ($p = 0.016$) and -0.37 points (not significant), indicating a lower prioritization of local consumption in these countries.

Regarding **organic products**, Croatia and Lebanon show a stronger interest, with scores higher by +0.67 ($p < 0.001$) and +0.48 ($p = 0.02$) compared to Tunisia, where this criterion is less valued. Morocco displays a moderate sensitivity, with no statistically significant differences.

Environmental concerns, measured by the value placed on low environmental impact production methods, are particularly high in Algeria and Croatia (differences of up to +0.94 points compared to Tunisia, $p < 0.01$), revealing varying levels of ecological awareness across national contexts. Morocco occupies a middle position, with no notable differences.

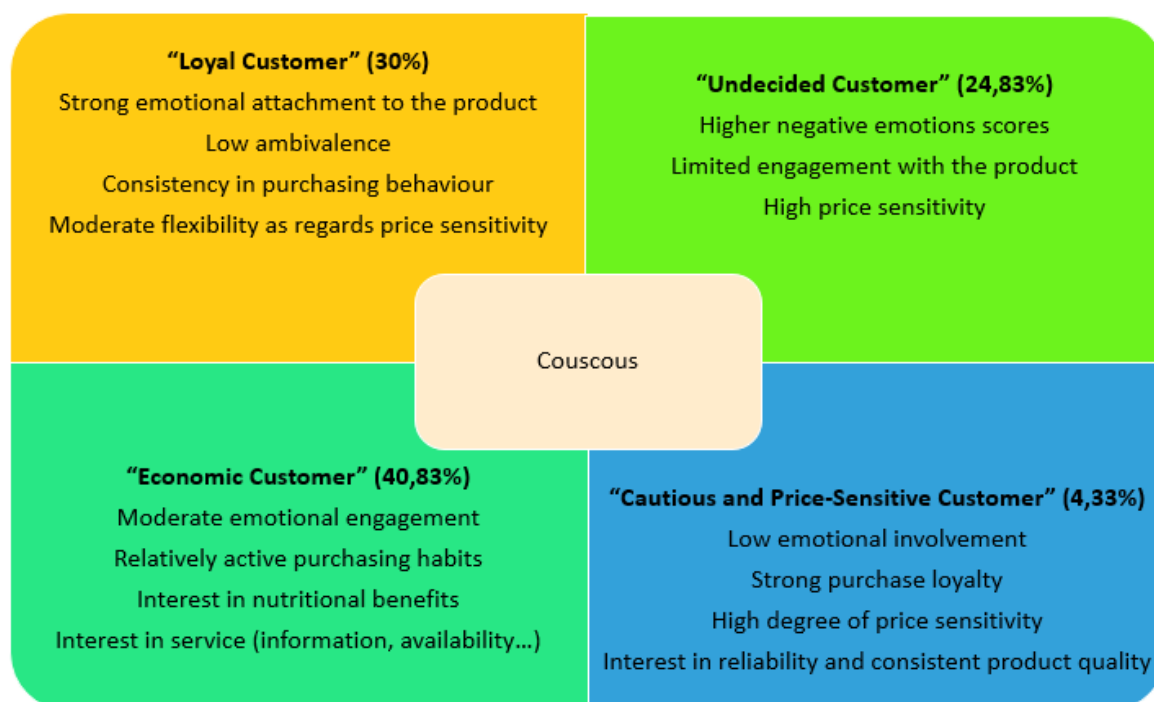
From a **nutritional standpoint**, Algeria shows greater awareness of nutritional benefits, with a score 0.33 points higher than Croatia ($p = 0.023$), while Morocco and Tunisia remain close to the overall average.

Ethical production is more highly valued in Algeria (+0.78, $p < 0.001$) and Italy (+0.39, $p < 0.05$) compared to Croatia, Lebanon, and Morocco, where this aspect is less of a priority. More specifically, Morocco and Tunisia assign less importance to ethical production than Algeria, with significant negative differences, suggesting that these dimensions, highly valued in some European markets, are still less prioritized in these countries.

Finally, regarding **traceability**, Italy stands out with significantly higher expectations, showing a difference of -0.69 points compared to Algeria ($p < 0.001$), while Tunisia and Morocco demonstrate lower interest in this aspect.

Based on the two emotional factors extracted from the factor analysis—the first factor representing positive emotions toward the product, and the second factor grouping negative emotions—a dynamic cluster analysis was conducted to identify the existence of specific consumer profiles. The option of four consumer groups was chosen, based on the structure of the factor scores and the statistical significance of intergroup differences. An analysis of variance (ANOVA) performed on the scores of the two factors shows that the distinctions between groups are highly significant ($p < 0.001$). Awareness of consumer profiles can be useful for cooperatives to choose the right target as regards market channels, pricing, visual and verbal communication.

Figure 8 – Synthetic example of consumer profile for couscous



3. Most important results of the **third wave survey**

The third wave qualitative results showed that overall, MountainHER products were very positively received by consumers across all contexts. Respondents consistently highlighted clear improvements compared to standard commercial products, particularly in terms of taste, texture, aroma, and overall quality. The products were frequently described as more natural, authentic, and closer to traditional or homemade foods, with superior sensory properties and better final results in preparation. Purchase intention was generally high: most respondents stated they would probably buy the products even if, for some of them, the final purchasing decision would mainly depend on price and product availability.

Across markets, consumers broadly expected a premium price for these products, which they considered justified by the products' perceived quality and added value.

The reasons supporting a higher price were strongly shared and included: the link to traditional and artisanal production, the use of mountain-grown raw materials, environmental respect, and the social impact of creating jobs for women and young people in mountainous areas. These values were seen as integral to the product's identity and competitiveness.

In addition, some consumers suggested opportunities for diversification, such as offering ready-to-eat or processed products, while still valuing the core characteristics of authenticity, quality, and heritage. Overall, MountainHER products were perceived as premium, trustworthy, and socially meaningful alternatives to industrial equivalents.

Focus: micro-malting and bread making activity

From Malt to Bread. Partner Birrificio Emiliano, while evaluating the malt produced in the MountainHER Project, integrated its activity within the project by experimenting, as a co-product, the preparation of bread using the “exhausted” malt used for beer (also called “beer dregs”, or “trebbie” in Italian) as an ingredient. Drags are rich in fiber and proteins. For this activity, an exper bread maker has been involved,

The results were positive and were presented, with a good customer appreciation, in a pop-up event in the Birrificio Emiliano’s bar in Modena (Al Goblet), on August 26th, 2025.



Figure 9 – Birrificio Emiliano tackling the micro-malting activity



Figure 10 – From drags to bread and focaccia



Figure 11 – Tasting of bread made from drags

APPENDIX – QUESTIONNAIRES

1st wave questionnaire



WP6 1st Wave survey questionnaire for CAWI interview

Italian original questionnaire translated into English

Nov 11 2023



DATA QUALITY TRACKING:

- RH USED (RH3, RH4)
- SPEEDERS CHECK NOT USED
- SL NOT USED
- BOE CHECK NOT USED

HIDDEN VAR: WAVE (Single Choice)

1. Wave 01
2. Wave 02

Please punch code 1

HIDDEN VAR: RECCOUNTRY (Single Choice)

1. ALGERIA
2. CROATIA
3. ITALY
4. LEANON
5. MOROCCO
6. TUNISIA

S1. Which genre do you most recognize yourself in?
Single Choice

1. Man
2. Woman
3. I do not wish to answer this question

S2. Please choose your age:
Single Choice

1. Less than 18 years → screen out
2. 18-24 years → screen out
3. 25-34 years
4. 35-44 years
5. 45-54 years
6. 55-65 years
7. Più di 65 years → screen out

IF RECCOUNTRY=3

S3. Where do you live?
Single Choice

SHOW THIS IF RECCOUNTRY=1

1. Central Algeria
2. North East Algeria
3. North West Algeria
4. Sébaouen, Algeria

SHOW THIS IF RECCOUNTRY=2

SHOW THIS IF RECCOUNTRY=3

1. Nord Ovest (Piemonte, Valle d'Aosta, Liguria, Lombardia)
2. Nord Est (Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Emilia-Romagna)
3. Centro (Toscana, Umbria, Marche, Lazio)
4. Sud e isole (Abruzzo, Molise, Puglia, Campania, Basilicata, Calabria, Sicilia, Sardegna)

SHOW THIS IF RECCOUNTRY=4

1. Akkar
2. Bekaa
3. Nabatieh
4. Baalbek-Plesmet
5. Beirut
6. Monte Libano
7. Sud Libano
8. Nord Libano

SHOW THIS IF RECCOUNTRY=5

1. Atlantic Morocco
2. Mediterranean Morocco
3. Sébaouen Morocco

SHOW THIS IF RECCOUNTRY=6

1. North East: Bizerte, Manouba, Ariana, Tunis, Ben Arous, Zaghwan, Nabeul
2. North West: Jendouba, Béja, Siliana, Kef
3. Center East: Sousse, Monastir, Mahdia, Sfax
4. Center West: Kairouan, Sidi Bouzid, Kasserine
5. South East: Gabès, Medenine, Tataouine
6. South West: Gafsa, Tozeur, Kébili

PLEASE INSERT RH3

S4. What is your educational level? *Single Choice*

1. Elementary school → SCREENOUT
2. Middle school
3. High school
4. University

HIDDEN VAR: EDUCATION (Single choice – Quota check)

1. Middle/High school → S4 CODE 2 OR 3 (10%)
2. University → S4 CODE 4 (90%)

Start with this decision and in case of difficulty you stop and you make a decision together.

S5. In your family, who is responsible for food purchase? *Single Choice*

1. Solamente io
2. Prevalentemente io e altri membri
3. Altri membri della famiglia, non io → SCREENOUT

S6. How large is the place where you live? *Single Choice*

1. Large city (> 1.000.000 inhabitants)
2. Medium city (tra 250.000 e 1.000.000 inhabitants)
3. Urban centre with 50.000 - 250.000 inhabitants
4. Rural area or sparsely populated area (less than 50.000 inhabitants)

S7. How can the area where you live be classified? *Single Choice*

1. Plains
2. Hill
3. Mountain

PLEASE INSERT RH1

INTRO. Thank you for your participation in the MountainHER project's first consumer survey (<https://mcl.cgiar.org/projects/mountainher/>). The title of the project is "Supporting women's associations as drivers of agroecological transformation to generate income for mountain agricultural communities".

The project, which takes a holistic farm-to-table approach, therefore aims at identifying the best ways to develop locally made traditional food and craft products that involve different elements of value: value that consumers can appreciate and reward.

This survey, which will be followed by other, more in-depth ones, is a first step to determine the interest of potential consumers towards the specific determinants of value that characterise the potential products of the project.

As the first element of evaluation we consider, as per the project methodology, the emotions aroused by the product and its sensory characteristics.

In this questionnaire you will be asked to look at extremely stylised images of different packages (or labels) for products that can be made with plum, wheat and barley.

These are not real examples of packaging: they are made very simply so that you can focus your attention on the messages.

You will be shown 5 products (pasta, beer, barley flour for home use, couscous and bread), each in 4 versions that differ only in a short description (color, video) could be included in the product packaging.

This description should evoke emotions in customers. You will then be asked to choose, from a list, the main emotions you feel when looking at the image but above all reading the message.

Since it is necessary to observe images, the compilation may be easier from the PC than from the smartphone. (info)

LOOP START – ASK FOR EACH FOR THE 20 IMAGES D1 AND D2 – DO NOT RANDOMIZE

D1. Please look at this image for a few seconds, carefully reading what you find written: what emotion do you feel?

Then choose three sensations from those listed here, those closest to your sensations.

Only THREE answers are allowed,

I feel: (MA, max. 3 answers per column; DO NOT randomize, SHOW IMAGE BASED ON COUNTRY, ZOOMABLE)

1. Intrigued
2. Indifferent
3. Hungry
4. Disgusted
5. Happy
6. Displeased
7. Connecting with nature
8. Frustrated
9. Healthy
10. Unhealthy
11. Guilty
12. Pleasantly interested
13. Nostalgic (for the old days)
14. Modern
15. Curious
16. Doubtful
17. Inspired
18. Bored

D2. Do you have any comments/suggestions to make about the image you just saw? (OPEN, MANDATORY, SHOW ZOOMABLE IMAGE)

END LOOP

END. Thank you for your contribution! (Info)

2nd wave questionnaire

S5. How important do you consider the following characteristics of the food products you usually buy?

(1 = not at all important; 5 = very important)

[Rotate items – One response per row required]

Characteristic	1	2	3	4	5
1. Must contain nutrients with positive health effects	☐	☐	☐	☐	☐
2. Must be produced with low environmental impact techniques	☐	☐	☐	☐	☐
3. Must be local products, km 0	☐	☐	☐	☐	☐
4. Must be tasty and flavorful	☐	☐	☐	☐	☐
5. Must be ethically produced	☐	☐	☐	☐	☐
6. Must be organic	☐	☐	☐	☐	☐
7. Must have the lowest possible price	☐	☐	☐	☐	☐
8. Must be traceable	☐	☐	☐	☐	☐

Important Note: DO NOT ask the following question to those who answered “quite important” or “very important” to item 7 (lowest price) in question S5.

S6. Now think of a food product that fully reflects the values you consider important (as discussed above). How much more would you be willing to pay for such a product compared to a similar product without those characteristics?

(Single Choice – do not rotate items)

1. It should cost the same
2. I could accept a price up to 10% higher
3. I could accept a price up to 20% higher
4. I could accept a price up to 30% higher

S7. How familiar are you with the principles of agroecology?

(Single Choice – do not rotate items)

1. I don't know them and I'm not interested
2. I don't know them, but I'm interested in learning more
3. I know them well enough, no need for more information
4. I know a little and would like to know more
5. I know them fairly well, but would still like to go deeper
6. I know them very well and I'm interested
7. I know them very well, but I'm not particularly interested

D1. Please look at this label and read carefully. What emotion/sensation do you feel when viewing this product? Please indicate the intensity of the following emotions (One response per row – rotate items):

Emotion	Not at all	A little	Very much
---------	------------	----------	-----------

D2. Now you'll see four different possible nutritional labels for this product. Please choose the one you prefer based on the information provided.

(Single Choice – A, B, C, or D)

D3. Only regarding the nutritional table you chose:

Based on this product and your preferred nutritional characteristics, how often would you buy it?

(Single Choice)

1. Never
2. Once a week
3. Once or twice a month
4. Three or four times a year
5. I don't know



Do you agree?

= Yes = No

Below are some reasons for this pricing. Please rate how much you agree with each statement on a scale from 1 to 5:

(1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Neutral, 4 = Somewhat Agree, 5 = Strongly Agree)

Reason	5	4	3	2	1
These products make mountain-grown grains available to urban consumers.	☐	☐	☐	☐	☐
Being mountain-grown, they are likely more "natural."	☐	☐	☐	☐	☐
The grains are cultivated using agroecological techniques that respect the environment.	☐	☐	☐	☐	☐
The project creates job opportunities for women and young people in mountain areas.	☐	☐	☐	☐	☐
The initiative empowers women and youth in decision-making and economic roles.	☐	☐	☐	☐	☐
This is a project to combat depopulation in mountain areas.	☐	☐	☐	☐	☐
These products have high gastronomic value.	☐	☐	☐	☐	☐
The products are traditional.	☐	☐	☐	☐	☐
The products are genuine and authentic.	☐	☐	☐	☐	☐

D4. Again referring to your preferred nutritional table:

How much more would you be willing to pay for this product compared to a similar one without those characteristics?

3rd wave questionnaire, key questions

B) The Test

We invite you to use MountainHER re-milled semolina in any way you prefer, as the main ingredient in dishes you regularly prepare.

B1) Please list all the products you made using the semolina:

B2) How did the test go?

How would you compare MountainHER semolina with the semolina you typically use? Did you like it?

Please provide your detailed feedback below:

B3) Would you consider purchasing this semolina regularly?

(Please select only one option.)

- ☐ Probably not
- ☐ Probably yes
- ☐ It depends on the price
- ☐ It depends on availability/ease of purchase
- ☐ I'm not sure

C) Perceived Value

C1) What do you think is a fair price for this product?

Please indicate below the price you consider reasonable for a 1 kg package:

€ _____

