
Supplementary Materials

Greek Semi-Hard and Hard Cheese Consumers' Perception in the New Global Era

Dimitris Skalkos ^{1,*}, Katerina Bamicha ¹, Ioanna S. Kosma ¹ and Elpida Samara ²

¹ Laboratory of Food Chemistry, Department of Chemistry, University of Ioannina, 45110 Ioannina, Greece; pch01419@uoi.gr (K.B.); i.kosma@uoi.gr (I.S.K.)

² Department of Regional Development and Cross Border Studies, University of Western Macedonia, 50100 Kozani, Greece; esamara@uowm.gr

* Correspondence: dskalkos@uoi.gr; Tel.: +30-(26)-5100-8345

Table. S1. Questionnaire consumers' perception for quality greek semi-hard and hard cheese in the post covid-19 era i. demographics (customers' profile).

SEX
MALE
FEMALE

1. Age
18-25
26-35
36-45
46-55
56+

2. Level of education
None/Primary school
Secondary school
High school
University

3. Civil state
Single
Married
Divorced
Widow / widower

4. Job situation
Employed
Unemployed
Student
Retired

5. Permanent resident in Greece
NORTH GREECE (regions of Macedonia – Thrace)
WEST GREECE (region of Epirus – Aitolokarnania prefecture)
CENTRAL GREECE (including Athens)
SOUTH GREECE (region of Peloponnese)
ISLANDS

Choose in the scale between Not at all important and very important regarding the following sentences

(Mark your answer with X).

II. PURCHASE AND CONSUMPTION OF GREEK SEMI-HARD AND HARD CHEESE IN THE POST COVID-19 ERA

1. From where DID YOU PURCHASE the Greek semi-hard and hard cheese you consumed before COVID-19? (give ONE answer for every choice)	Never	Very seldom	Seldom	Often	Very often
From supermarket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From the neighborhood grocery store	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From open market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Via online	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. From where DO YOU PURCHASE the GREEK SEMI-HARD AND HARD CHEESE you consume now? (give ONE answer for every choice)	Never	Very seldom	Seldom	Often	Very often
From supermarket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From the neighborhood grocery store	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From open market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Via online	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. How much GREEK SEMI-HARD AND HARD CHEESE do you buy per month today (ONLY one answer)	Mark only ONE answer				
One (1) Kg per month			<input type="checkbox"/>		
Two (2) Kg per month			<input type="checkbox"/>		
Three (3) Kg per month			<input type="checkbox"/>		
Four (4) Kg per month			<input type="checkbox"/>		
Zero (0) Kg per month (don't buy such cheese at all)			<input type="checkbox"/>		
4. How much MONEY do you send MONTHLY for the purchase of GREEK SEMI-HARD AND HARD CHEESE (ONLY one answer)	Mark only ONE answer				
Up tp 10 euros			<input type="checkbox"/>		
10 – 20 euros			<input type="checkbox"/>		
20-30 euros			<input type="checkbox"/>		
More than 30 euros			<input type="checkbox"/>		
5. How often do you consume GREEK SEMI-HARD AND HARD CHEESE	Mark only ONE answer				
Every day			<input type="checkbox"/>		
Once a week			<input type="checkbox"/>		
Two times per week			<input type="checkbox"/>		
Once every two weeks			<input type="checkbox"/>		
Once per month			<input type="checkbox"/>		
6. Do you consume MORE or LESS GREEK SEMI-HARD AND HARD CHEESE TODAY as compared with the period BEFORE COVID-19 (ONLY one answer)	Mark ONE answer only				
	More		Less		
	<input type="checkbox"/>		<input type="checkbox"/>		

7. Do you consume MORE GREEK SEMI-HARD AND HARD CHEESE as compared with IMPORTED SEMI-HARD AND HARD CHEESE (i.e. cheddar, pecorino, edam etc.) (ONLY one answer)	Mark ONE answer only	
	More	Less
	<input type="checkbox"/>	<input type="checkbox"/>
8. Which KINDS OF GREEK SEMI-HARD AND HARD CHEESES do you consume TODAY (You can give more than one answer)	Mark as many choices you want	
Graviera	<input type="checkbox"/>	
Kefalograviera	<input type="checkbox"/>	
Ladotyri	<input type="checkbox"/>	
Kaseri	<input type="checkbox"/>	
Kefalotiri	<input type="checkbox"/>	
Others	<input type="checkbox"/>	
9. With what do you consume THE GREEK SEMI-HARD AND HARD CHEESE TODAY (you can give more than one answer)	Mark as many choices you want	
Meat	<input type="checkbox"/>	
Fish	<input type="checkbox"/>	
Wine	<input type="checkbox"/>	
Bread and olives	<input type="checkbox"/>	
Fruits	<input type="checkbox"/>	
Nuts	<input type="checkbox"/>	
Alone	<input type="checkbox"/>	
10. Where do you consume mostly the SEMI-HARD AND HARD CHEESE TODAY? (you can give more than one answer)	Mark as many choices you want	
At home	<input type="checkbox"/>	
At the restaurant	<input type="checkbox"/>	
With friends	<input type="checkbox"/>	
During lunch time	<input type="checkbox"/>	
During the dinner	<input type="checkbox"/>	
Occasionally	<input type="checkbox"/>	

III. PREFERENCE OF CHOICE FOR QUALITY GREEK SEMI-HARD AND HARD CHEESE IN THE POST COVID-19 ERA

11. How important are for you the following INFORMATION for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE	Not at all	Little	Medium Level	Much	Very much
1. The price of the semi-hard and hard cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The branding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The date of production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The geographical origin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The existence of quality certificates such as PDO (Protected Designation of Origin) etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. How important are the following <u>ORGANOLEPTIC PARAMETERS</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE	Not at all	Little	Medium Level	Much	Very much
1. The flavor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The aroma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The taste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The hardness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. How important are the following <u>APPEARANCE PARAMETERS</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE	Not at all	Little	Medium Level	Much	Very much
1. The color	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The texture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The package appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The size of the package (i.e. 200 gr / 400gr / 0,5Kg / 1 Kg etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. How important are the following <u>SUSTAINABLE CHARACTERISTICS</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE	Not at all	Little	Medium Level	Much	Very much
1. Origin of the milk (cow, goat, sheep, or mixture)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Biological	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Nutritional indications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Fat sanity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Low salt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. How important are the following <u>GENERAL CHARACTERISTICS</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE	Not at all	Little	Medium Level	Much	Very much
1. Rational value for money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Unique and special	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Added value for the region where it is produced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. A myth (historical narrative)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Timeless but also modern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV. KNOWLEDGE AND PREFERENCE OF THE "LADOTYRI» CHEESE IN THE POST COVID-19 ERA

16. Do you know the LADOTYRI CHEESE?	YES	NO
	<input type="checkbox"/>	<input type="checkbox"/>
17. Have you tasted LADOTYRI or are you consuming it occasionally?	YES	NO
	<input type="checkbox"/>	<input type="checkbox"/>
18. Where do you think is LADOTYRI produced?	Mark ONE answer ONLY	
Epirus region	<input type="checkbox"/>	
Samos island	<input type="checkbox"/>	
Macedonia region	<input type="checkbox"/>	
Creta island	<input type="checkbox"/>	
Peloponnese region	<input type="checkbox"/>	
Lesvos island	<input type="checkbox"/>	
Lemnos island	<input type="checkbox"/>	

None of the above		<input type="checkbox"/>	
19. Which do you think are the unique characteristics of LADOTYRI?	Mark ONE to TWO answers only		
Bitter taste		<input type="checkbox"/>	
Unique aroma		<input type="checkbox"/>	
Unique flavor		<input type="checkbox"/>	
Low salt		<input type="checkbox"/>	
Healthy		<input type="checkbox"/>	
POD product of origin		<input type="checkbox"/>	
You don't know		<input type="checkbox"/>	
20. Do you think it is an added value the OLIVE OIL in which LADOTYRI is inside?	YES		NO
	<input type="checkbox"/>		<input type="checkbox"/>
21. Do you think it will be an added value if LADOTYRI is the ONLY NON-REFRIGERATED GREEK CHEESE preserved by the olive oil it is in?	YES		NO
	<input type="checkbox"/>		<input type="checkbox"/>
22. Would you buy, or prefer a non-refrigerated CHEESE TODAY, after the COVID-19 pandemic?	YES		NO
	<input type="checkbox"/>		<input type="checkbox"/>
23. What would you like to eat with the LADOTYRI CHEESE if you had the chance? (ONLY one answer)	Mark ONE or TWO answers		
Meat		<input type="checkbox"/>	
Fish		<input type="checkbox"/>	
Wine		<input type="checkbox"/>	
Bread and olives		<input type="checkbox"/>	
Fruits		<input type="checkbox"/>	
Nuts		<input type="checkbox"/>	
Alone		<input type="checkbox"/>	
24. Where would you like to purchase LADOTYRI cheese if you had the chance TODAY (ONLY one answer)	Mark only ONE answer		
From supermarket		<input type="checkbox"/>	
From the neighborhood grocery store		<input type="checkbox"/>	
From open market		<input type="checkbox"/>	
Via on line		<input type="checkbox"/>	
25. Do you believe that LESVOS' island is producing quality cheeses or not, compared with the rest of Greece	YES		NO
	<input type="checkbox"/>		<input type="checkbox"/>

Table S2. Associations between motives on purchase and consumption of Greek semi-hard and hard cheese and the sociodemographic variables.

	Gender			Age			Level of Education			Civil state			Job situation			Residency		
	X ² *	V**	p***	X ²	V	p	X ²	V	p	X ²	V	p	X ²	V	p	X ²	V	p
From where DID YOU PURCHASE the Greek semi-hard and hard cheese you consumed before COVID-19?																		
From supermarket							51.174		0.175		0.000							
From the neighborhood																		
grocery store																27.677	0.100	0.035
From open market																53.786	0.143	0.000
Via on line				63.711	0.156	0.001	325.401	0.500	0.000	83.932	0.208	0.000	40.661	0.145	0.001	46.313	0.134	0.000
From where DO YOU PURCHASE the GREEK SEMI-HARD AND HARD CHEESE you consume now?																		
From supermarket	12.641	0.123	0.013				53.735	0.179	0.001									
From the neighborhood																		
grocery store																33.018	0.110	0.007
From open market																41.879	0.127	0.00
Via on line							134.631	0.324	0.001	35.527	0.136	0.001	23.211	0.110	0.026			
How much GREEK SEMI-HARD AND HARD CHEESE do you buy per month today?																		
One (1) Kg per month	6.192	0.085	0.013													15.865	0.136	0.003
Two (2) Kg per month																		
Three (3) Kg per month																		
Four (4) Kg per month	4.985	0.076	0.026				37.171	0.208	0.000	35.691	0.205	0.000				10.457	0.111	0.033
Zero (0) Kg per month																		
(don't buy such cheese at all)																		
How much MONEY do you send MONTHLY for the purchase of GREEK SEMI-HARD AND HARD CHEESE																		
Up tp 10 euros	15.895	0.136	0.001	53.769	0.250	0.001				34.771	0.202	0.001	59.505	0.264	0.001	25.823	0.174	0.000
10 – 20 euros				16.068	0.137	0.003				13.48	0.126	0.004	18.486	0.147	0.000			
20-30 euros	8.820	0.101	0.003	14.338	0.129	0.006				10.278	0.110	0.016	16.673	0.140	0.001	19.487	0.151	0.001
More than 30 euros				52.805	0.248	0.000	38.768	0.213	0.000	24.23	0.169	0.010	23.300	0.165	0.000	11.935	0.118	0.018
How often do you buy GREEK SEMI-HARD AND HARD CHEESE																		
Every day																		

Once a week															
Two time per week															
Once every two weeks															
Once per month															
Do you consume MORE or LESS GREEK SEMI-HARD AND HARD CHEESE TODAY as compared with the period BEFORE COVID-19															
Do you consume MORE GREEK SEMI-HARD AND HARD CHEESE as compared with IMPORTED SEMI-HARD AND HARD CHEESE (i.e. cheddar, pecorino, edam etc.)															
Which KINDS OF GREEK SEMI-HARD AND HARD CHEESES do you consume TODAY															
Graviera		11.419	0.116	0.022				14.762	0.132	0.002	27.703	0.181	0.000		
Kefalograviera								9.770	0.107	0.021	16.059	0.137	0.003		
Ladotyri	5.004	0.077	0.025												
Kaseri		37.966	0.211	0.000			13.117	0.124	0.004	22.123	0.161	0.000	125.493	0.384	0.001
Kefalotiri		20.001	0.153	0.000			11.117	0.117	0.008						
Others															
With what DO YOU THE SEMI-HARD AND HARD CHEESE consumption TODAY															
Meat															
Fish	5.229	0.078	0.022			28.651		0.184	0.000						
Wine															
Chicken		9.807	0.107	0.044								10.590	0.112	0.032	
Fruits															
Bread and Olives							14.085	0.129	0.003			15.560	0.136	0.004	
Alone		12.202	0.120	0.016			9.896	0.108	0.019						
Where do you consume mostly the SEMI-HARD AND HARD CHEESE TODAY?															
At home		4.450	0.072	0.035											
At the restaurant							8.000	0.097	0.046						
With friends					7.449	0.094	0.024	12.382	0.121	0.006					
During lunch time		10.436	0.111	0.034	7.203	0.092	0.027	20.972	0.157	0.000					
During the dinner								10.214	0.110	0.017					
Occasionally															
* chi-square test, ** Cramer's or Phi coefficient, and *** level of significance of 5%: $p < 0.05$.															

Table S3: Associations between preference of choice for quality Greek semi-hard and hard cheese and the sociodemographic variables.

	Gender			Age			Level of education			Civil state			Job situation			Residency		
	χ^2 *	V**	p***	χ^2	V	p	χ^2	V	p	χ^2	V	p	χ^2	V	p	χ^2	V	p
How important are for you the following <u>INFORMATION</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE																		
The price of the semi-hard and hard cheese	10.981	0.114	0.027															
The branding				37.379	0.106	0.002	15.622	0.097	0.048				23.657	0.098	0.023			
The date of production	15.703	0.138	0.003															
The geographical origin				88.629	0.163	0.000				76.495	0.176	0.000	51.648	0.144	0.001	46.411	0.118	0.000
The existence of quality certificates such as PDO.				32.008	0.098	0.010				25.906	0.102	0.011				28.139	0.092	0.030
How important are the following <u>ORGANOLEPTIC PARAMETERS</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE																		
The Taste	10.687	0.112	0.030															
The aroma	21.441	0.161	0.001															
The hardness																		
The odor	30.228	0.191	0.000				15.554	0.097	0.049									
How important are the following <u>APPEARANCE PARAMETERS</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE																		
The color	16.675	0.141	0.002	29.091	0.093	0.023												
The appearance	16.348	0.140	0.003															
The texture	32.647	0.197	0.001															
The package appearance										21.279	0.093	0.046						
The size of the package										21.053	0.093	0.050						
How important are the following <u>SUSTAINABLE CHARACTERISTICS</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE																		
Origin of the milk	10.162	0.110	0.038	28.540	0.092	0.027				21.109	0.092	0.049	22.528	0.094	0.032	35.650	0.103	0.003
Biological										22.497	0.095	0.032				35.436	0.104	0.003
Nutritional indications	10.145	0.111	0.038							25.654	0.102	0.012						
Percentage of fats				27.125	0.090	0.040				24.187	0.099	0.019						
Low salt	25.565	0.176	0.000	30.060	0.095	0.018												
How important are the following <u>GENERAL CHARACTERISTICS</u> for the selection of QUALITY GREEK SEMI-HARD AND HARD CHEESE																		
Rational value for money							50.230	0.173	0.000	35.347	0.118	0.000						

Unique and special	31.799	0.098	0.011						
Added value for the region where it is produced	30.367	0.096	0.016	24.264	0.099	0.019	34.478	0.103	0.005
A myth (historical narrative)									
Timeless but also modern									
* chi-square test, ** Cramer's or Phi coefficient, and *** level of significance of 5%: $p < 0.05$.									

Table S4: Associations between knowledge and preference of Ladotyri and the sociodemographic variables.

Gender			Age			Level of education			Civil state			Job situation			Residency		
χ^2 *	V**	p***	χ^2	V	p	χ^2	V	p	χ^2	V	p	χ^2	V	p	χ^2	V	p
Do you know the LADOTYRI CHEESE?																	
			54.305	0.253	0.000				34.735	0.203	0.000	36.028	0.206	0.000	14.772	0.132	0.005
Have you tasted LADOTYRI or are you consuming it occasionally?																	
9.475	0.106	0.002	60.361	0.267	0.000				32.148	0.195	0.001	30.697	0.190	0.001	12.151	0.120	0.016
Where do you think is LADOTYRI produced?																	
Epirus region			10.736	0.112	0.030										16.936	0.141	0.002
Samos island						44.796	0.229	0.000	10.730	0.112	0.013	10.932	0.113	0.012			
Macedonia region																	
Creta island																	
Peloponnese region																	
Lesvos island			19.216	0.150	0.001				14.602	0.131	0.002				12.384	0.120	0.015
Lemnos island												10.884	0.113	0.012			
None of the above																	
Which do you think are the unique characteristics of LADOTYRI?																	
Bitter taste						15.796	0.136	0.001				8.466	0.100	0.037	9.487	0.106	0.050
Unique aroma												12.638	0.122	0.005			
Unique flavor			17.054	0.142	0.002												
Low salt			14.248	0.129	0.007												
Healthy																	
POD product of origin			17.691	0.144	0.001				12.958	0.124	0.005	8.217	0.098	0.042			
You don't know			15.244	0.134	0.004							8.659	0.101	0.034			
Do you think it is an added value the OLIVE OIL in which LADOTYRI is inside?																	
			12.158	0.120	0.016							9.094	0.104	0.028			
Do you think it will be an added value if LADOTYRI is the ONLY NON-REFRIGERATED GREEK CHEESE preserved by the olive oil it is in?																	
			10.673	0.112	0.031				9.570	0.107	0.023	8.431	0.100	0.038			
Would you buy, or prefer a non-refrigerated CHEESE TODAY, after the COVID-19 pandemic?																	
8.048	0.098	0.005													12.981	0.125	0.011

What would you like to eat with the LADOTYRI CHEESE if you had the chance?														
Meat				12.595	0.123	0.013								
Fish	4.528	0.074	0.033	19.509	0.153	0.001	23.785	0.170	0.001	12.013	0.120	0.007		
Wine				9.521	0.107	0.049				11.455	0.117	0.010		
Bread and olives	4.483	0.073	0.034									13.104	0.126	0.011
Fruits														
Nuts														
Alone														
Where would you like to purchase LADOTYRI cheese if you had the chance TODAY														
From supermarket														
From the neighborhood														
grocery store														
From open market														
Via on line														
Do you believe that LESVOS' island is producing quality cheeses or not. compared with the rest of Greece														
* chi-square test, ** Cramer's or Phi coefficient, and *** level of significance of 5%: $p < 0.05$.														