

# *La parmigiana di melanzane - Eggplant pie*

- *Historically is still discussed where the Parmigiana first appeared. Some say Naples, some Sicily. The ones that support the sicilian origin, say that the name Parmigiana comes from “parmiciiana” which in English means “window shutter”; the reason is because both of them have a similar shape: one overlap the other.*



## Ingredients

*Eggplant, Eggs, Tomato sauce (tomato, garlic, onion, sugar, salt), Tuma cheese, Caciocavallo, Basil, Olive oil, Salt, Black pepper, Bread*

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Innovative Education towards  
Sustainable Food Systems



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**Area:** Sicily

**Brief description:** eggplant, cheeses, eggs and tomato sauce pie

**How to prepare it:** cut the eggplants in slices and let them dry under the salt for at least 30 mins; boil the egg and cut in slices; prepare a tomato sauce adding onion, olive oil, garlic bud, and a spoon of sugar; wash, dry and deep fry the eggplants. Into a baking tin, make different layers with the tomato sauce, the eggplants, the eggs, the tuma, the caciocavallo, the basil and the sauce again. Beat an egg and mix with a spoon of caciocavallo; pour it on top of the parmigiana and bake everything for about 20 mins. You can serve it both warm or cold.



## **Eating**

*It is usually eaten with some slices of bread on the side*

*Have you ever heard of Scarpetta?*

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## **Pre-processed foods**

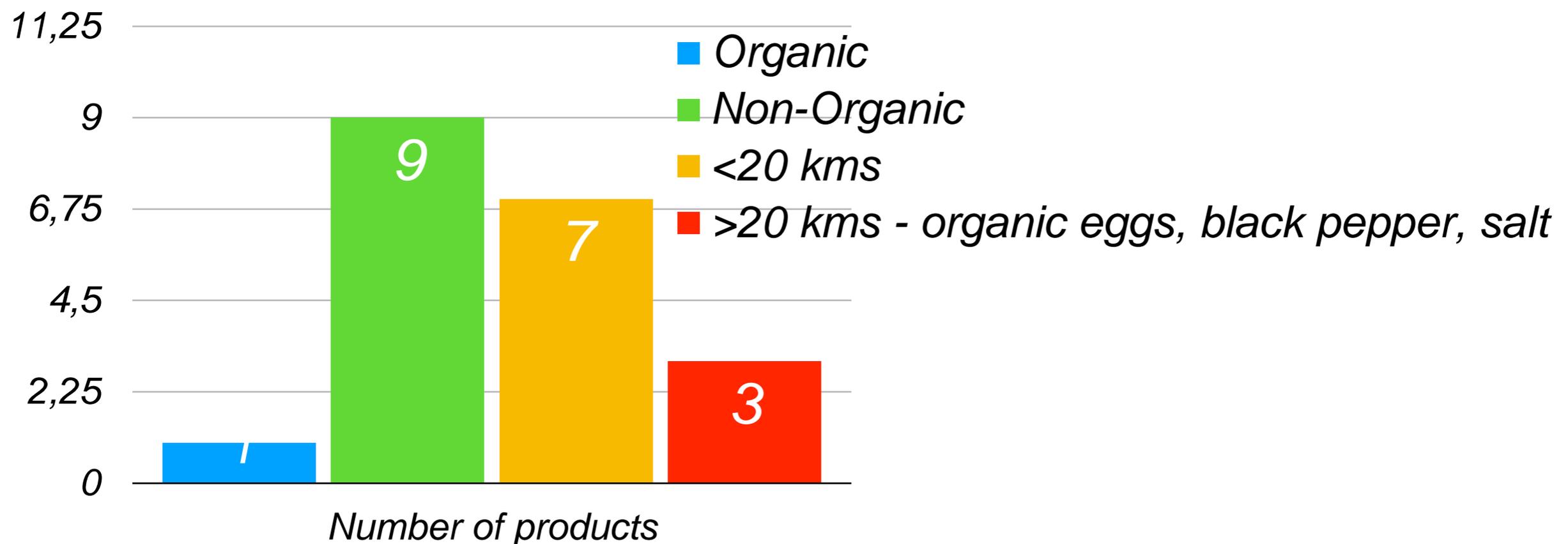
**Tomato sauce:** tomatoes were from a friend's garden; my mother made the sauce.

**Tuma cheese:** fresh cheese with a high water content; bought from one intermediate; has to be eaten within two weeks.

**Caciocavallo:** it's a raw cheese (cooked  $<38^{\circ}\text{C}$ ); 6-12 months aged; bought from one intermediate.

**Olive oil:** olives from my father's friend; cold extraction.

**Bread:** whole wheat flour (*Triticum durum*), mix of different origin, sourdough, typical from the area.



Nutrient content of the dish per 3 persons

	Proteins	Lipids	Carbohydrates	Energy (kcal) *	Content (g)**	Energy (kcal) ***
Eggplant	3,8%	1,4%	3,4%	41	940	385,4
Eggs	12,4%	8,7%	-	128	120	153,6
Tomato sauce	4,5%	0,2%	12,9%	73	300	219
Tuma cheese	18,09%	23,82%	2,98%	299	150	448,5
Sugar	-	-	104,5%	392	4	15,68
Caciocavallo	37,7%	31,1%	2,3%	439	50	219,5
Onion	4,1%	0,4%	23,6%	109	30	32,7
Basil	3,1%	0,8%	5,1%	39	10	3,9
Garlic	0,9%	0,6%	8,4%	41	10	4,1
EVO oil	-	99,9%	-	899	30	269,7
Bread	10,9%	3%	44%	251	350	878,5
<b>Total amount</b>				2711	1994	<b>2630,58</b>

\* per 100 g of produce

\*\* of the dish

\*\*\* according to the content of each ingredient in the dish

*According to EFSA this meal covers the lunch/dinner intake of required calories*

$$2630,58 : 3 = 876,86 \text{ kcal/capita}$$

	Age	ARs (kcal/day)
Girls/boys	6	1,500-1,600
	12	2,000-2,200
	17	2,300-2,900
Women/men	30-39	2,000-2,600
	50-59	2,000-2,500
	70-79	1,800-2,300

Average requirements (ARs) for energy intake (EFSA - 2013)

	Content (g)	Protein	Vegetable protein	Animal protein
Eggplant	940	3,8%	35,72	
Eggs	120	12,4%		14,88
Tomato sauce	300	4,5%		
Tuma cheese	150	18,09%		27,135
Sugar		-		
Caciocavallo	50	37,7%		18,85
Onion	30	4,1%	1,23	
Basil	10	3,1%	0,31	
Garlic	10	0,9%	0,09	
EVO oil		-		
Bread	350	10,9%	38,15	
<b>Total amount</b>			<b>75,5</b>	<b>60,865</b>

**Vegetable/animal protein ratio: 1,24**

According to Donini et al. 2016, the meal:

- Is produced under the “local food system” method because: most of the ingredients (7 out of 10) were bought at a short distances (range of 15-20 kms) from the production site and with one intermediate
- Can't be considered organic because just 1 out of 10 ingredients is Organic labelled.
- Reaches 5 points out 9 in the Adherence to the MedDiet (vegetables, cereals, olive oil, no meat, no alcohol)

Water footprint				
	Water footprint per L/kg of product	Amount used for the dish (kg)	Water footprint of the item (L)	
Eggplant *	267	0,94	250,98	
Bread *	571	0,35	199,85	
Cheese ***	5000	0,2	1000	
Tomato *	211	0,3	63,3	
Olive oil *	2388	0,03	71,64	
Onion *	280	0,03	8,4	
Garlic *	418	0,01	4,18	
Egg **	3265	0,12	391,8	
<b>Total water footprint of the dish</b>			<b>1990,15</b>	

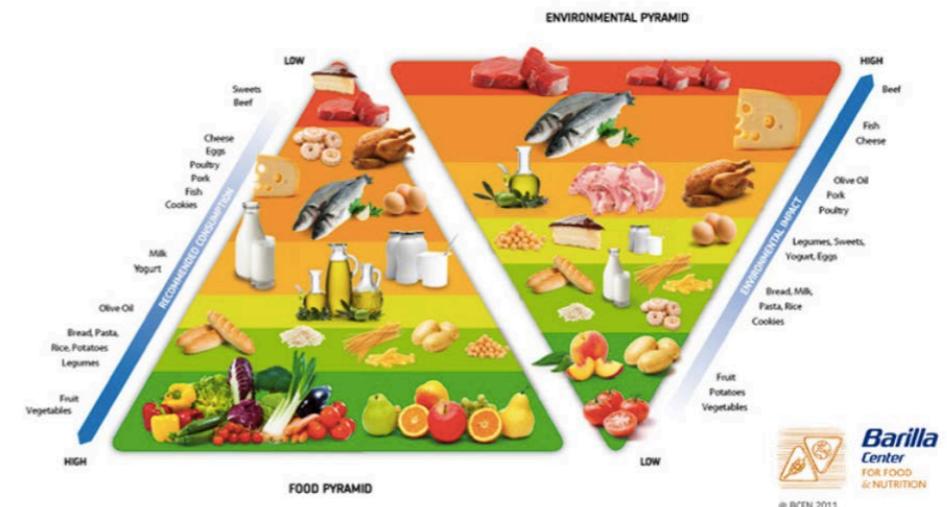
\* Amount of green and blue water footprint, Mekonnen, M.M. and Hoekstra, A.Y. (2011)

\*\* Mekonnen and Hoekstra (2010)

\*\*\* Hoekstra, A.Y. (2008)

According to the Barilla’s double pyramid the meal has a good scores on both recommended consumption and environmental impact

Figure 7: Double Pyramid model (2015), from the Barilla Center for Food and Nutrition (BCFN)



Amount of packaging: 150 g of plastic and paper

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## **Ways to improve the meal**

1. *Fry the eggplant on the pan instead of deep fry:*
  - *more micronutrients*
  - *less calories*
  - *more digestible*
  - *less prone to formation of toxic substances*
2. *Eliminate the egg:*
  - *better vegetable/animal protein ratio*
  - *3265 L less of water footprint*
3. *Lower the cheese content (the half)*
  - *saving 500 L of water*
  - *earn one more point on the Adherence to the MedDiet*
  - *lower the caloric content*
  - *raise the vegetable/animal protein ratio*
4. *Raise the percentage of the Organic product:*
  - *less CO2 footprint*
  - *less water footprint*
  - *more fair and safe*

*Thanks, Davide Fede*

# References

<http://www.regione.sicilia.it/Agricolturaeforeste/Assessorato/allegati/qualitasicura/altro/Schede%20PAT%20Sicilia%20giugno%202014.pdf>

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<http://nut.entecra.it> - tabella nutrizione

Base de Datos Españolas de Composición de Alimentos  
<http://www.bedca.net/bdpub/index.php>

SINU - Società Italiana di Nutrizione Umana  
<http://sinu.it/html/cnt/home.asp>

EFSA - <http://www.efsa.europa.eu/en/press/news/130110>

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