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people, environment, science, economy

The Food Pyramid and the Environmental Pyramid

Andrea Poli

We are aware that **correct nutrition** is essential to health.

Development and modernization have made available to an increasing number of people a **varied and abundant supply of foods.**

Our genes, however, maintains the “efficient” attitude (**thrifty genotype**) selected by evolution.

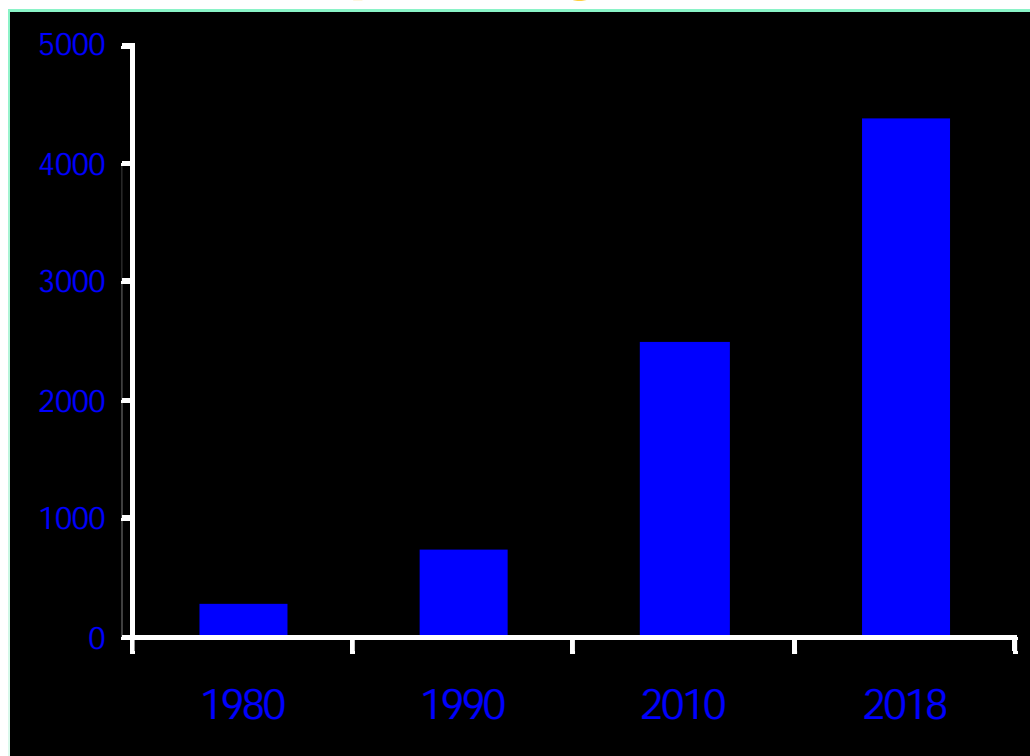
Without a proper cultural foundation or clear nutritional guidelines that can be applied and easily followed on a daily basis, **individual, especially in the West, risk following unbalanced –if not actually incorrect- eating habits.**



The rapid increase of obesity, cardiovascular diseases, diabetes and cancer are now the biggest problem for public health in our society, and it also has enormous socio-economic impact

Health spending in the USA

The longer life expectancy increases the possibility that risk factors became pathologies



First: investment in prevention

The health spending does not guarantee a healthy life expectancy (in the absence of chronic degenerative diseases)

It is estimated that 1€ of investment in prevention could save 3€ for less expenditure on disease treatment (estimated forecast)



NUTRITION and **LIFESTYLE**
are the two factors that can have
more influence not only
on **longevity**, but also
on **quality of life**.

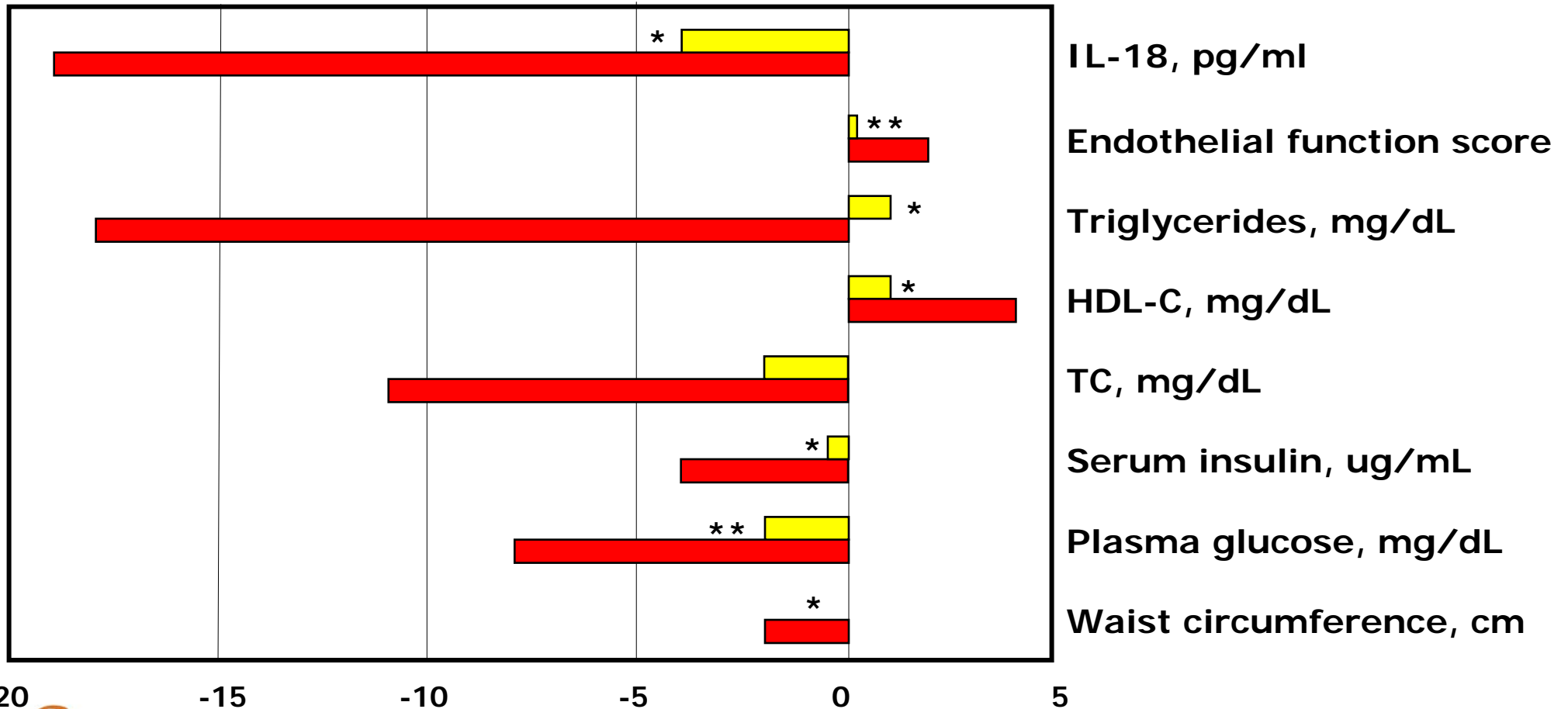



Protective aspects of the Mediterranean Diet

- ◆ Low intake of saturated fat and cholesterol
- ◆ Very low intake of trans fatty acids
- ◆ High intake of monounsaturated fatty acids (olive oil)
- ◆ High intake of omega-3 (fish)
- ◆ High intake of complex carbohydrates, largely low-GI
- ◆ High intake of folate (vegetables)
- ◆ High dietary fiber and whole grains
- ◆ High intake of antioxidants, of various kinds (fruits and vegetables)
- ◆ Alcohol consumption in moderate amounts (wine)



Changes after 2 years of intervention and control diet, in patients with metabolic syndrome



 *: $p \leq 0.01$
 **: $p \leq 0.001$

■ Intervention diet ■ Control diet

Esposito K. et al, JAMA 2004

Conclusions

**After 2 years of follow-up,
only 40 patients (-55%)
in the intervention group still had features
of the MS compared with
78 patients (-13%)
in the control group ($p < 0.001$).**



Convergence of guidelines for healthy eating and lifestyle

SANA ALIMENTAZIONE E STILE DI VITA

1
30 MINUTI DI
ATTIVITÀ
FISICA AL
GIORNO

2
EVITARE
SITUAZIONI
DI SOVRAP-
PESO
ED OBESITÀ

3
EVITARE
L'ECCESSI-
VO CONSU-
MO DI
ALCOLICI

4
NON
FUMARE

5
ADOTTARE
UNA DIETA
EQUILIBRA-
TA

6
AUMENTARE
IL CONSUMO
DI FRUTTA E
VERDURA

7
PREFERIRE I
CARBOIDRATI
COMPLESSI E
AUMENTARE
IL CONSUMO
DI CEREALI
INTEGRALI

8
AUMENTARE
IL CONSUMO
DI LEGUMI

9
CONSUMA-
RE 2-3
PORZIONI
DI PESCE A
SETTIMANA

10
PREFERIRE
CONDIMENTI
DI ORIGINE
VEGETALE

11
LIMITARE IL
CONSUMO DI
CIBI AD
ELEVATO
CONTENUTO
DI GRASSI

12
LIMITARE IL
CONSUMO DI
CIBO FRITTO

13
LIMITARE IL
CONSUMO DI
CARNE E
POLLAME
A 3-4 PORZIONI
ALLA
SETTIMANA

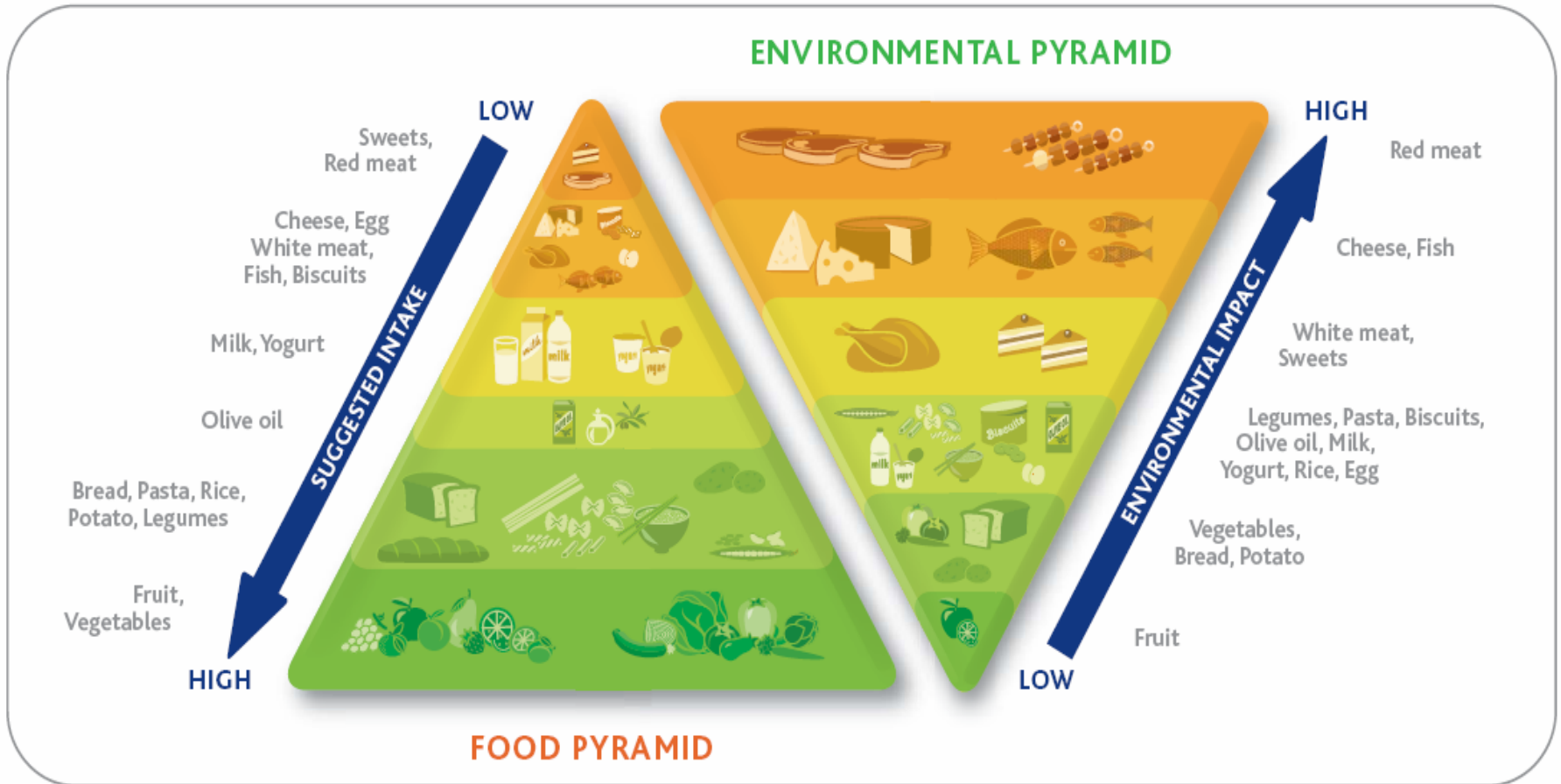
14
LIMITARE IL
CONSUMO
AGGIUNTI-
VO DI SALE

15
LIMITARE IL
CONSUMO DI
CIBI/BEVAN-
DE AD ALTO
CONTENUTO
DI ZUCCHERI

16
EVITARE
L'UTILIZZO
QUOTIDIANO
DI
INTEGRATORI
ALIMENTARI

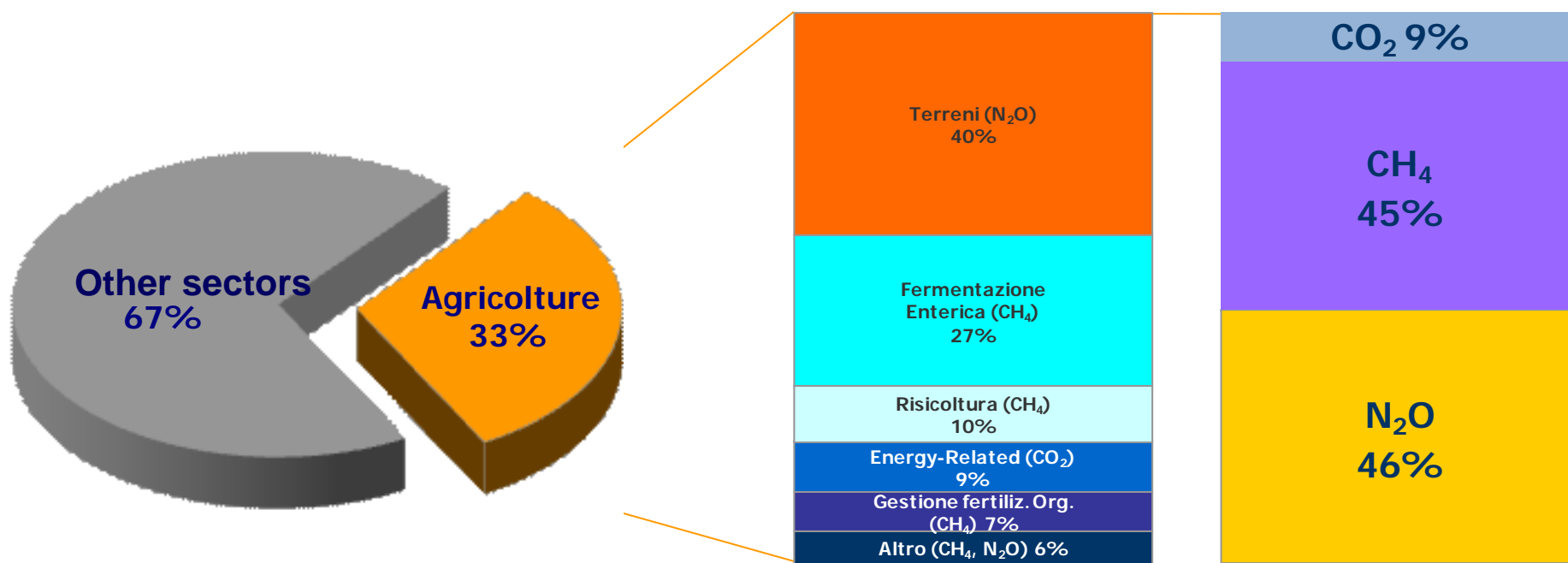


Today BCFN proposed the Food Pyramid combined with the Environmental Pyramid



The main greenhouse gases from agriculture

- **Agriculture is responsible for 33% of the total annual emissions of the greenhouse gases in the world**



By The European House-Ambrosetti



The Double Pyramid scientific paper

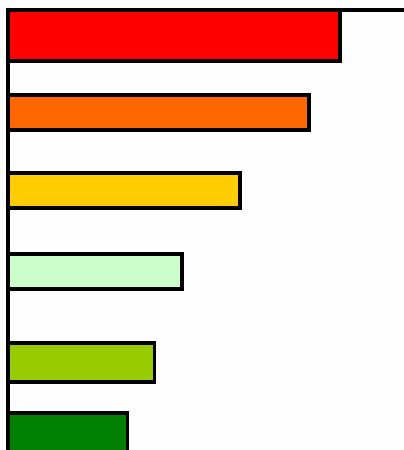
- **The BCFN has produced a scientific paper that analyzes the food environmental impacts. The environmental indicators that have been selected are not only greenhouse gas emissions (carbon footprint) but also:**
 - *Water Consumption (Water Footprint)*
 - *Ecological Footprint (Ecological Footprint)*



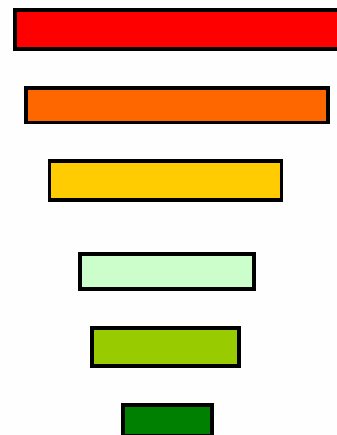
The construction of Enviromental Pyramid

- The Enviromental Pyramid was constructed on the basis of the environmental impact associated to each food. The result is an upside –down Pyramid graduated in terms of enviromental impact: on the top there are foods with higher impact, while in the bottom are those with minor impact

Impatto sull'ambiente

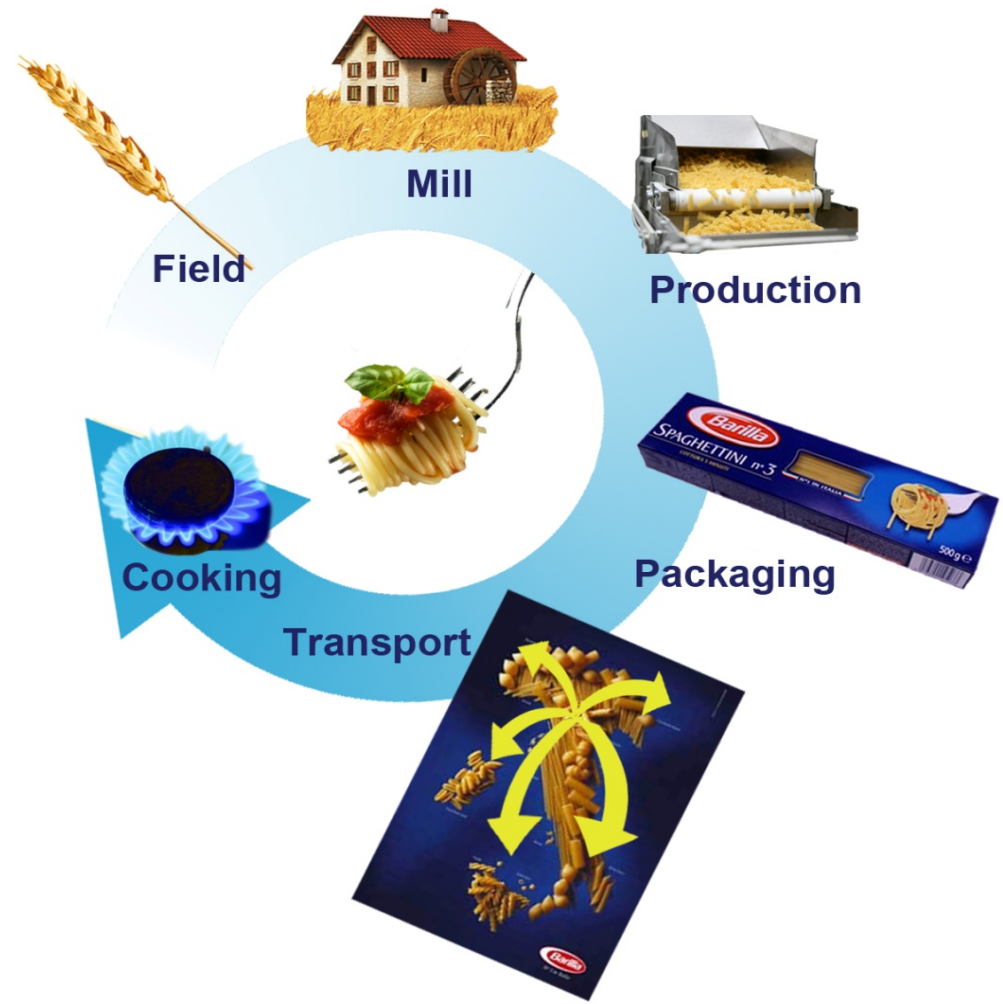


Piramide alimentare - ambientale



The methodology – *Life Cycle Assessment*

- The environmental impact associated with each food was estimated on the basis of the **Life Cycle Assessment (LCA)** an objective method for evaluating energy and environmental impact for a given process. This evaluation includes analyses of the entire supply chain
- The LCA approach is more innovative than the traditional criteria of analysis. **It assesses all stages of a production process**, evaluating the connections between every phase.



Environmental indicators



The **Carbon Footprint** is an indicator representing Greenhouse gas emission (GHG – GreenHouse Gas) generated by the human activities throughout the life Cycle. It is represented in terms of tonnes of equivalent CO₂



PAS 2050:2008



International
Organization for
Standardization

ISO 14064:2006



The **Water Footprint** measures water use in terms of volume of evaporated and/or pollution water for the entire supply chain per time unit throughout the life cycle
(www.waterfootprint.org)

Water Footprint
NETW^{OR}K



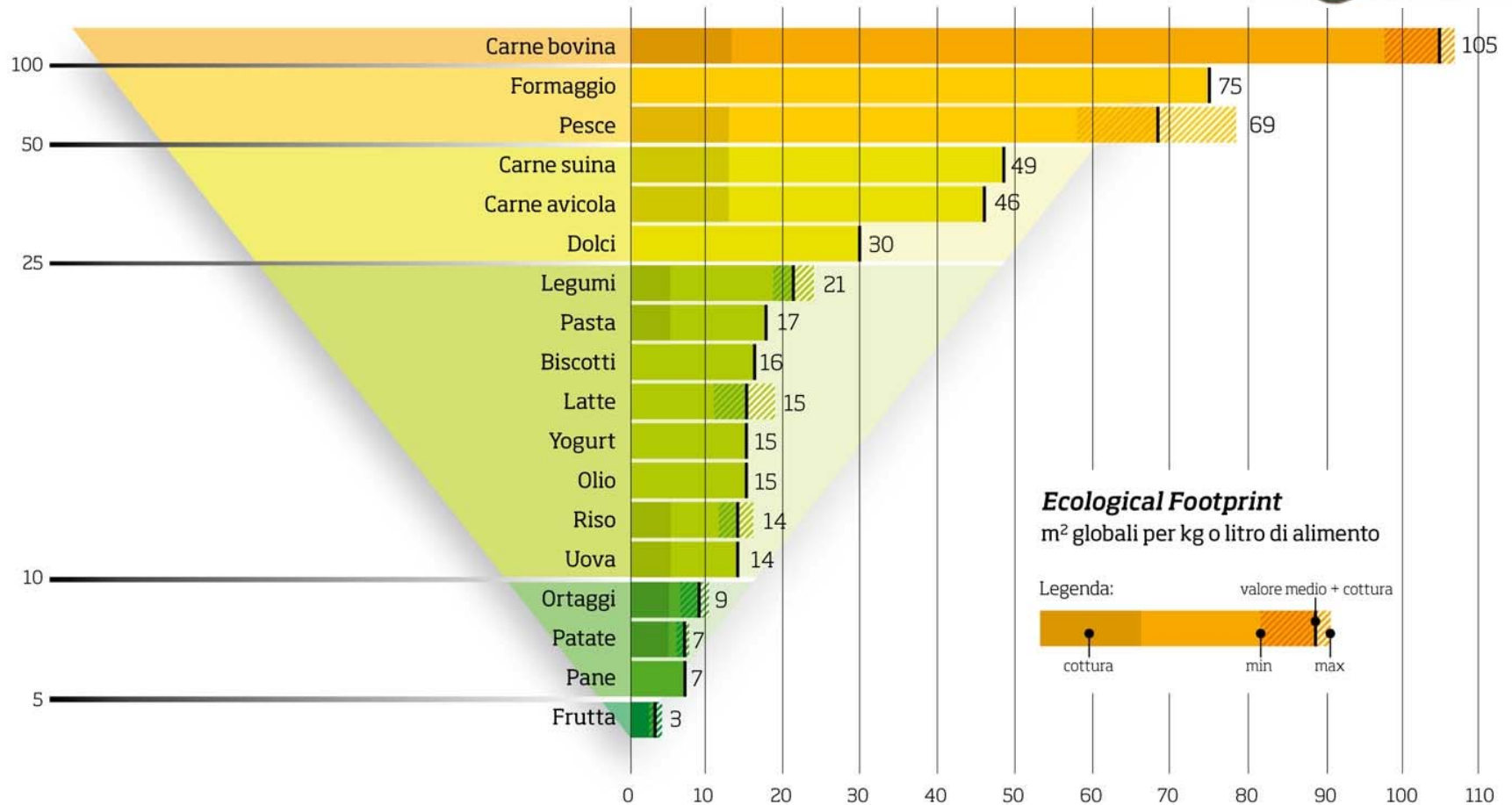
The **Ecological Footprint** measures the quantity of biologically productive land and water required to both provide the resources consumed and absorb the waste produced by population or by a single human activity.



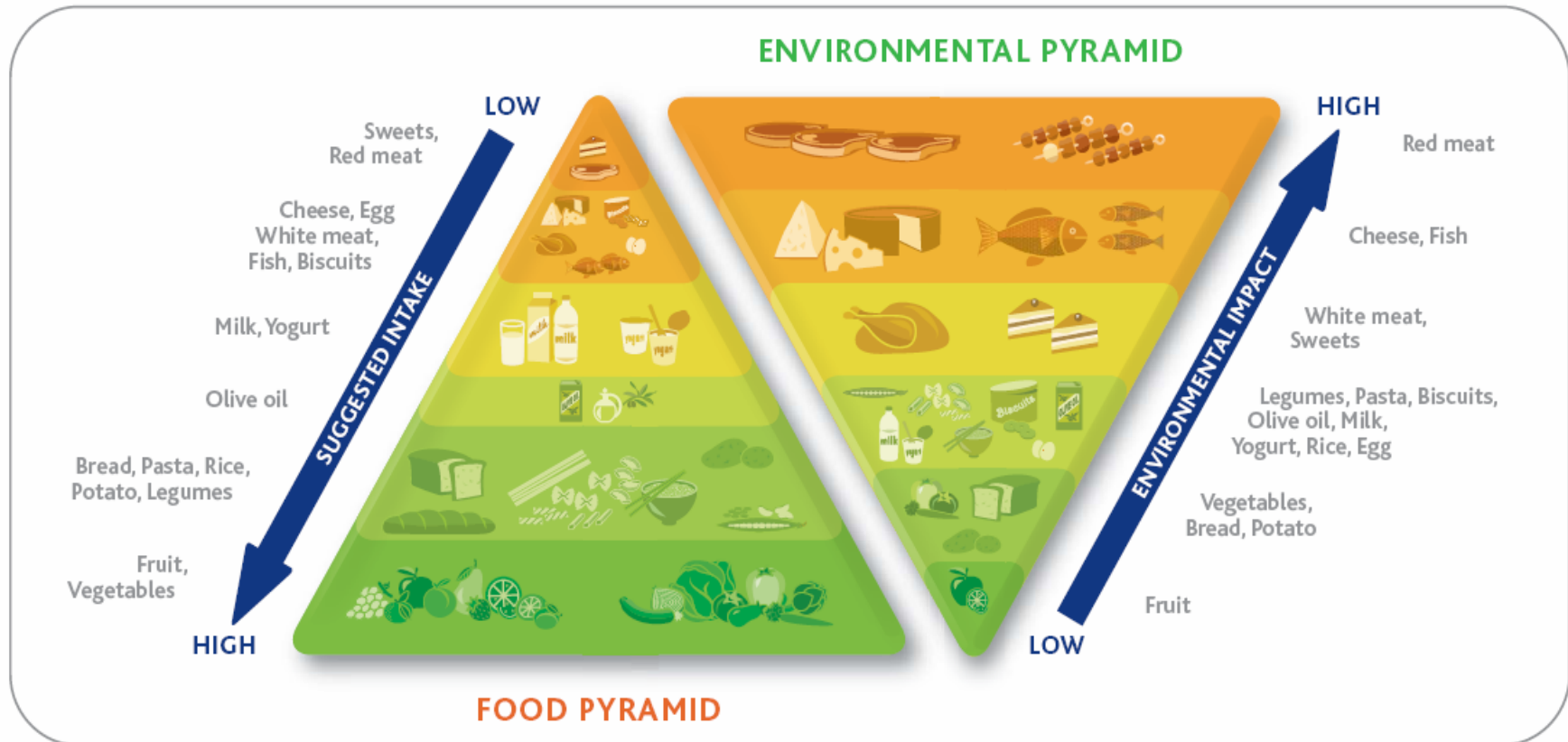
Global Footprint Network
Advancing the Science of Sustainability



Enviromental Pyramid: Ecological Footprint



Double Pyramid proposed by BCFN



- With the **Double Pyramid** the BCFN communicates in a concise and effective manner that those foods with higher recommended consumption levels are also those **with lower environmental impact**
- The **Mediterranean Diet** is the model with highest consistency with the **Nutritional guidelines** and it has **positive effects on Environment**

