

BARILLA CENTER FOR FOOD & NUTRITION



FOOD, PEOPLE AND PLANET CHALLENGES



Barilla
Center
FOR FOOD
& NUTRITION



**5TH INTERNATIONAL FORUM
ON FOOD AND NUTRITION**

The BCFN Vision

The BCFN is an **independent center** for **multidisciplinary thinking and proposal** with the aim of providing multiple outputs and contributions with high scientific contents and become over time a valuable tool for **Institutions**, for **Scientific Community**, for **Media** and for **People**, a privileged **meeting point** for anyone taking care of food, the environment, the sustainable growth and the implications on people's and society's life, at national and international level.



THE BURNING ISSUES FOR OUR PLANET

• CLIMATE CHANGE

- 8-20% reduction in *cultivated surface area* by 2050
- 5-25% reduction in *production level* by 2050

• AGRICULTURAL PRODUCTIVITY

- *Productivity growth slowed*

• POPULATION GROWTH

- 7 billion in 2011
- 9 billion in 2050

• WATER MANAGEMENT

- *less water/more needs*
- *70% of the world water consumption linked with agriculture*

• URBANIZATION

Total population in urban areas (%) in 2030:

- *Africa: 55%*
- *Asia: 66%*
- *South America: 74 %*

• DIETARY HABITS

- *increase in meat consumption ⇒ pressure on grains production*



THE CURRENT PARADOXES ON FOOD AND NUTRITION

DIE OF HUNGER OR OBESITY?

Today, worldwide, for every malnourished person, there are two who are obese or overweight.

1

TODAY
IN THE
WORLD

UNDERNOURISHED PEOPLE
868
million

OBESE OR OVERWEIGHT PEOPLE
1.5
billion



FOR EVERY UNDERNOURISHED
PERSON, THERE ARE TWO WHO
ARE OBESE OR OVERWEIGHT



DEATHS
EVERY YEAR
WORLDWIDE FROM:



LACK
OF FOOD
36
million



TOO MUCH
FOOD
29
million

FEED PEOPLE, ANIMALS, OR CARS?

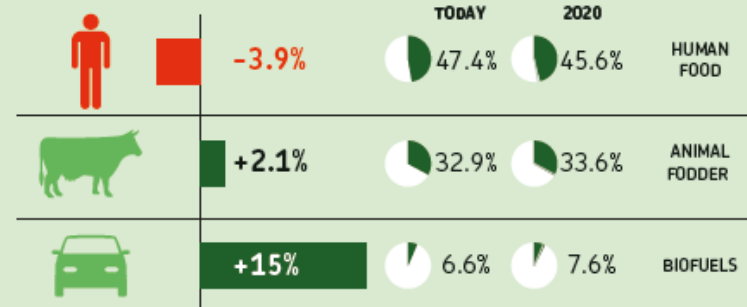
One-third of all food production worldwide is destined for feeding livestock. In addition, a growing share of agricultural land is used for the production of biofuel. As a result, we are choosing to feed automobiles instead of people.

* allocation of the use of grains as a percentage between animal food, human food, and the production of biofuel

GRAIN PRODUCTION IN THE WORLD AND ITS USE*



POPULATION



FEED WASTE OR FEED THE HUNGRY?

Every year worldwide, 1.3 billion tons of perfectly edible food are wasted, while 868 million people suffer from hunger.

1/3 OF GLOBAL
FOOD PRODUCTION

=

1.3 OF FOOD ARE WASTED
billion tons

ENDS UP
IN THE GARBAGE
EACH YEAR



4 TIMES
WHAT IT WOULD TAKE
TO FEED THE 868 MILLION
PEOPLE WHO ARE HUNGRY



THE PLANET'S BALANCE IS NEGATIVE

Today, what is consumed is greater than what we are able to regenerate. For our current lifestyle, we will need 1.5 planets, and in 40 years we will need 3

TODAY



1.5
planets



2050



3
planets

THE 4 MACRO AREAS



FOOD FOR ALL

Food security

*

raw materials markets,
distribution process, etc.



FOOD FOR HEALTH

Food and health

*

diseases, prevention, life styles,
food safety, etc.



FOOD FOR SUSTAINABLE GROWTH

Sustainable growth

*

water management, climate
change, etc.



FOOD FOR CULTURE

The role and meaning of food in
various cultures, religions,
communities



The BCFN Advisory Board



Barbara Buchner
Director of Climate Policy
Initiative on Venice



Ellen Gustafson
Founder and Executive Director of the
30 Project; Co-Founder of FEED
Projects and the FEED Foundation



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"Federico II"



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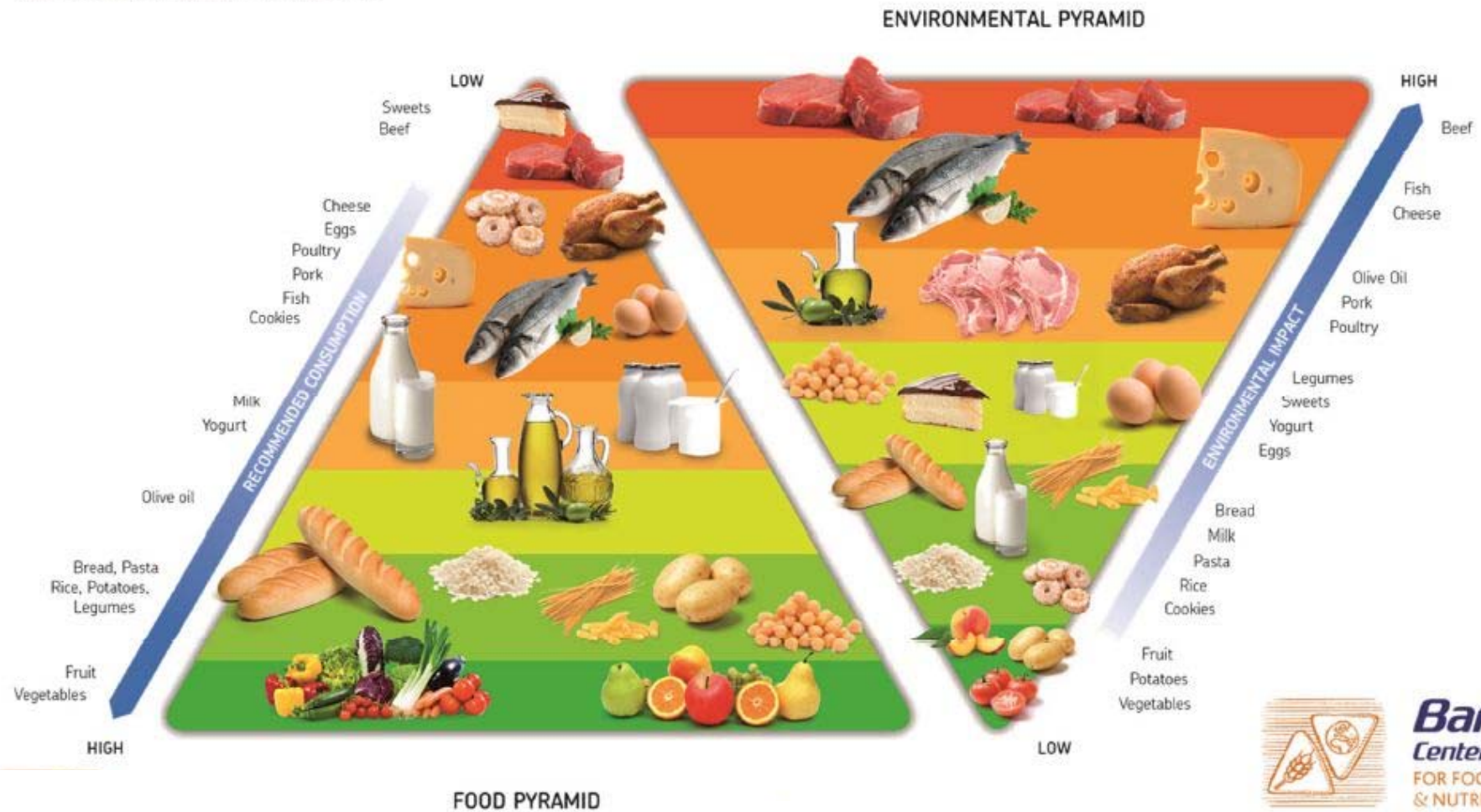


Claude Fischler
Director of Centre National de la
Recherche Scientifique (CNRS) and
Director of Centre Edgar Morin de Paris



WHAT IS GOOD FOR YOU IS GOOD FOR THE PLANET

THE DOUBLE PYRAMID FOR ADULTS



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Life Cycle Assessment



Footprints



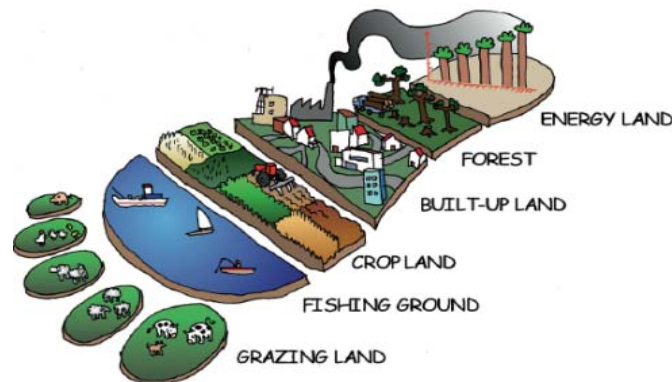
Carbon Footprint

gCO₂-eq per kg or Litre of food



Water Footprint

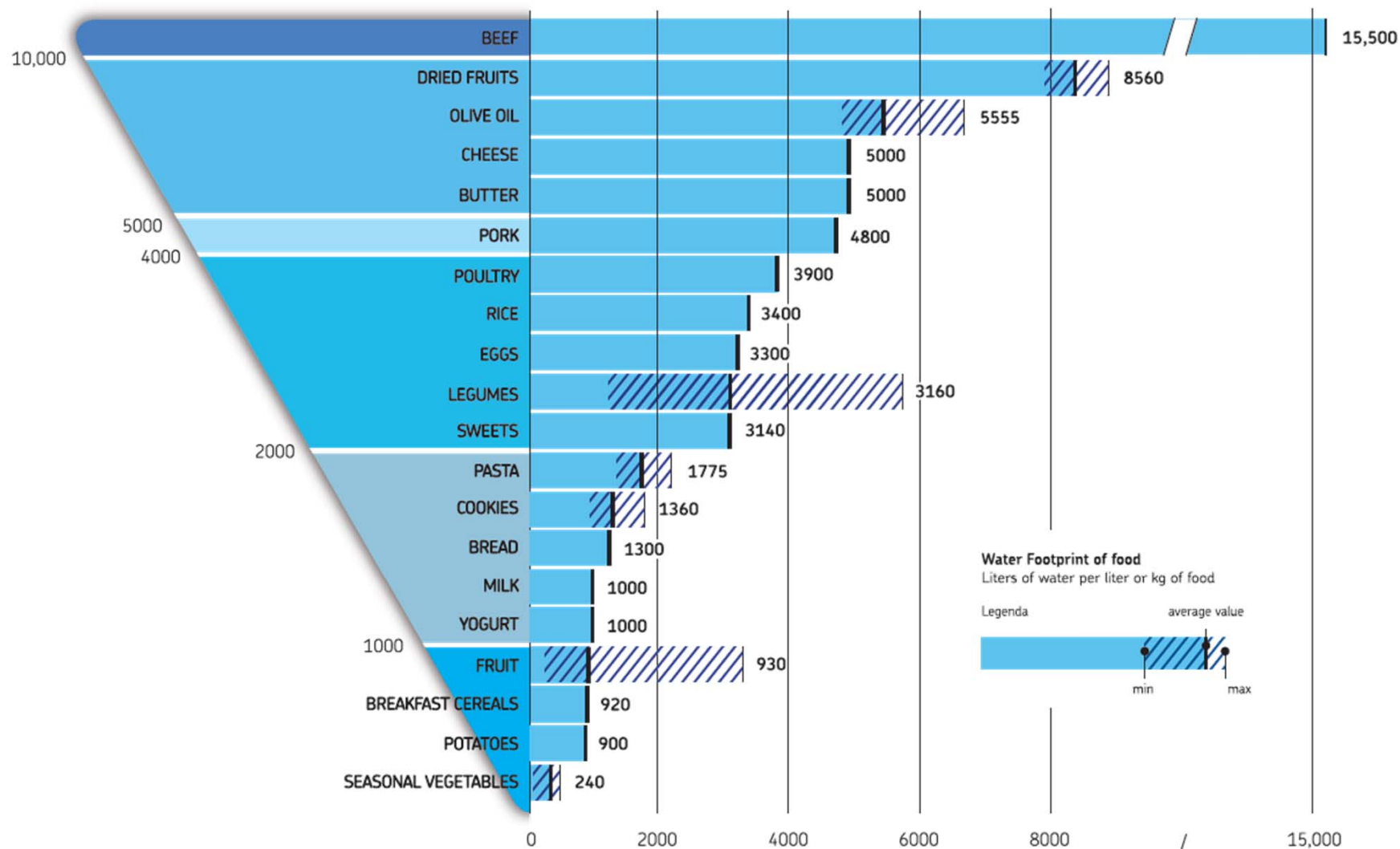
Litre per kg or Litre of food



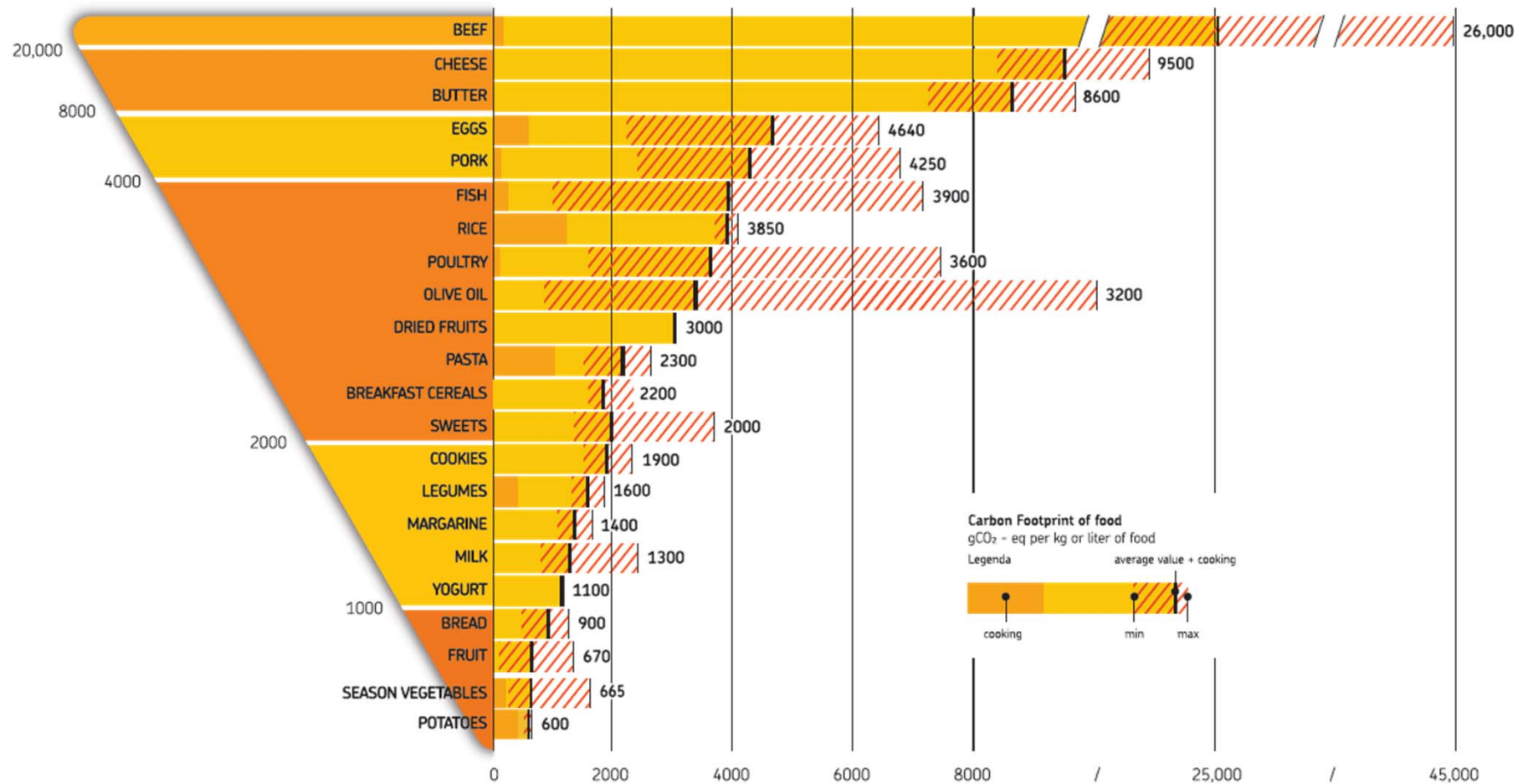
Ecological Footprint

Global m² per kg or Litre of food

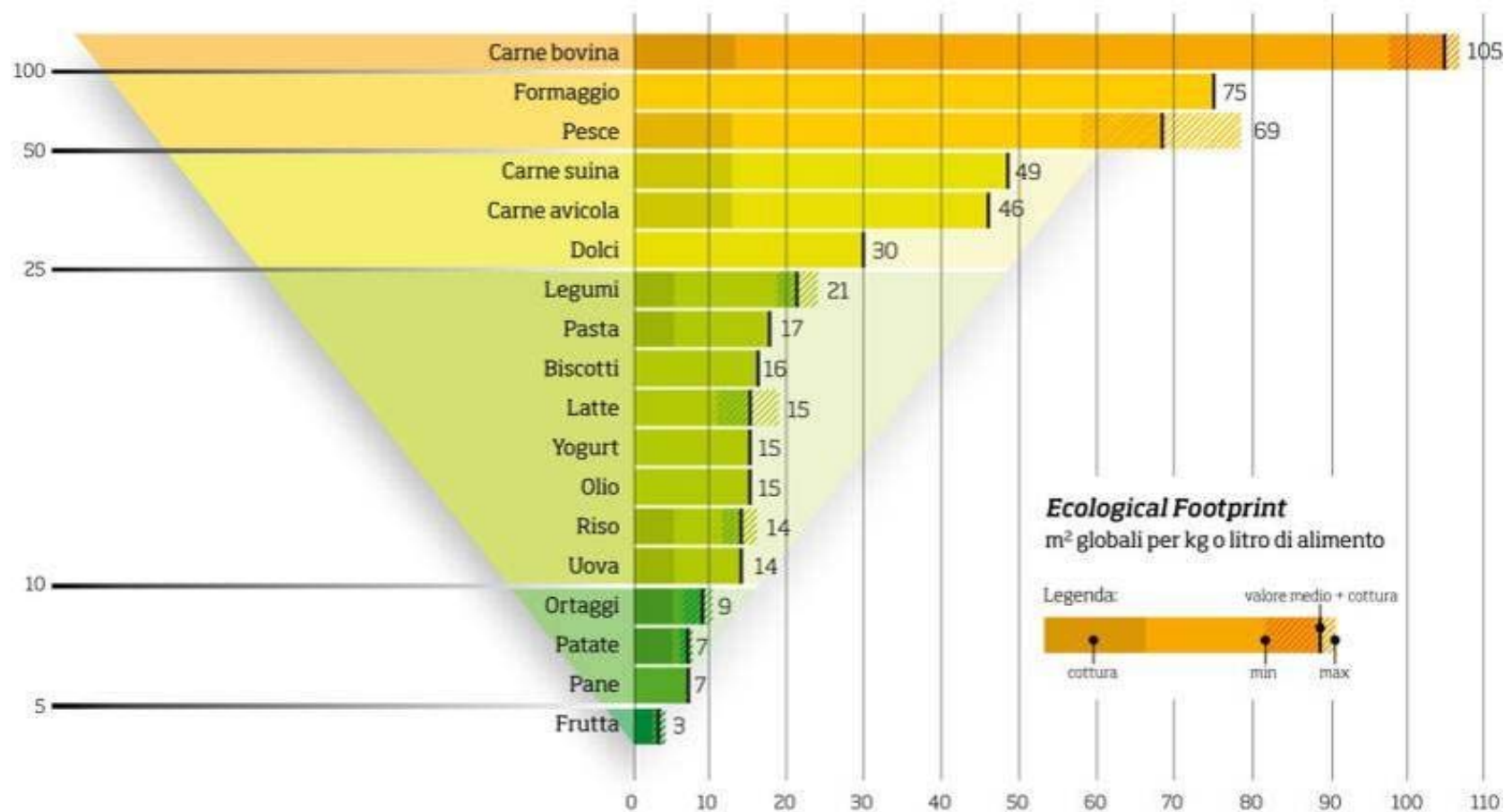
Water Footprint



Carbon Footprint

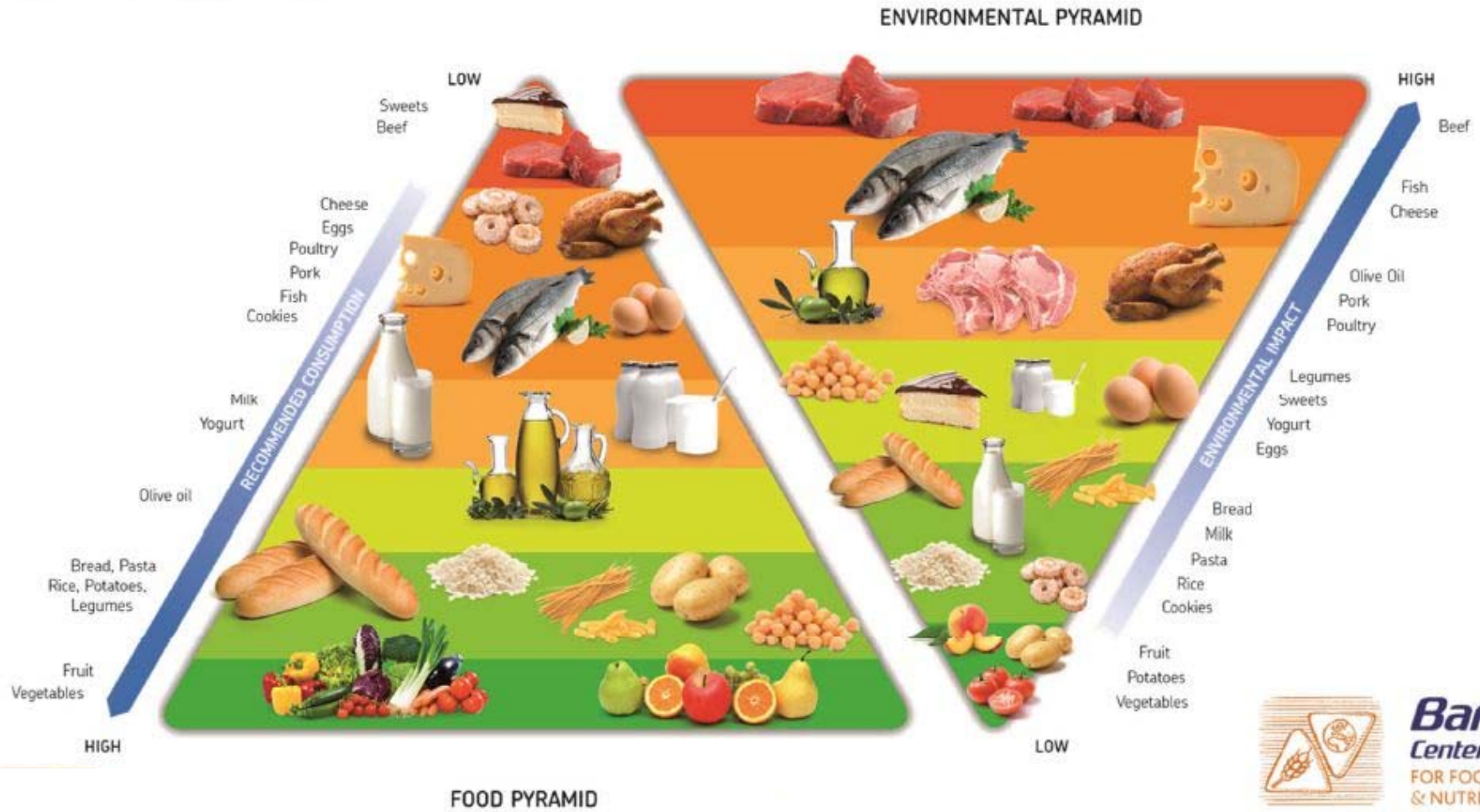


Ecological Footprint

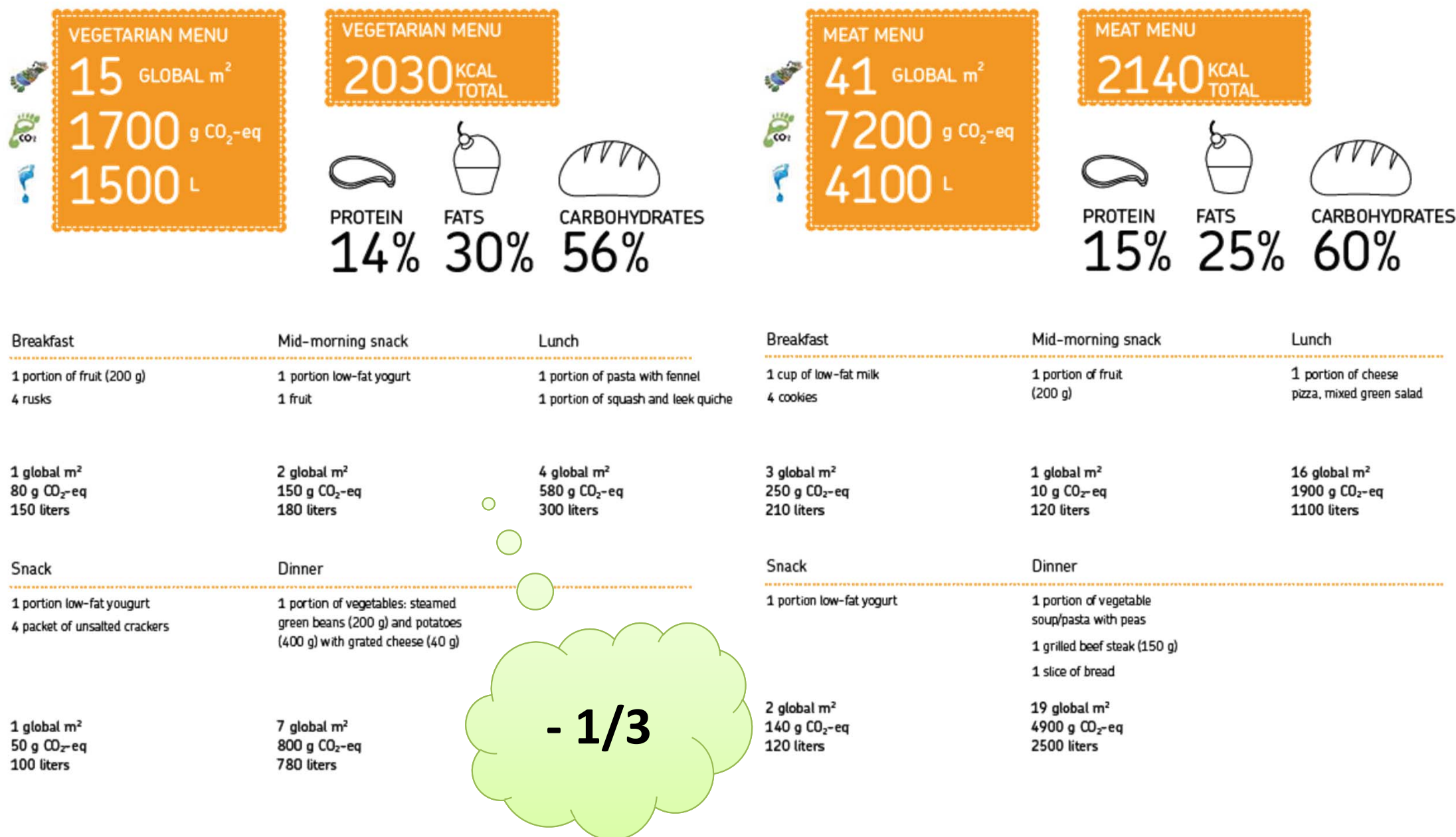


THE BCFN FLAGSHIP CONCEPT: WHAT IS GOOD FOR YOU IS GOOD FOR THE PLANET

THE DOUBLE PYRAMID FOR ADULTS



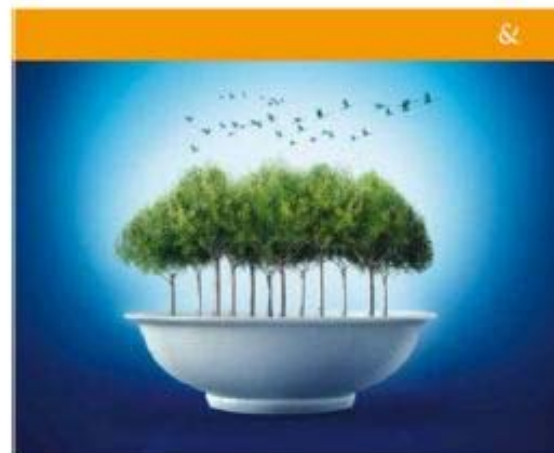
Environmental impact of different dietary habit



THE BCFN FLAGSHIP CONCEPT

BCFN proposes the **Double Nutrition Pyramids** as a simple means of communicating the fact that foods highly recommended by the **Nutritional Guidelines** in terms of **greater consumption** tend to yield **least environmental impact**.

Studies show that the **Mediterranean diet** yields positive effects on both **health** and the **environment**.



Double Pyramid:
healthy food for people,
sustainable food for the planet

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people, environment, culture, economy

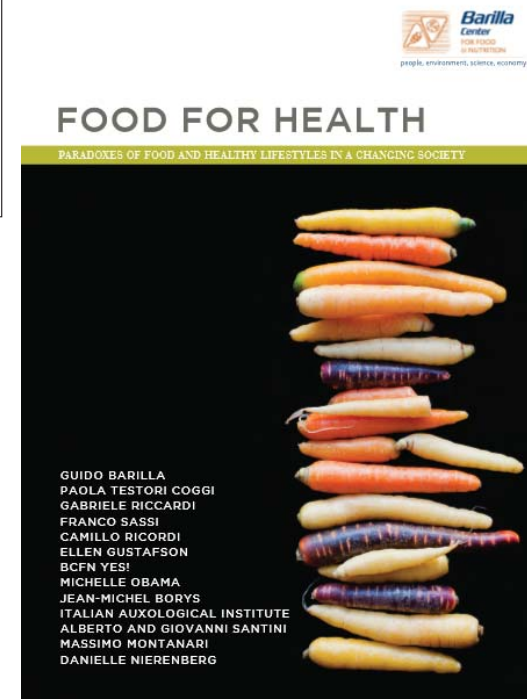


2011 Double Pyramid:
Healthy food for people,
sustainable for the planet

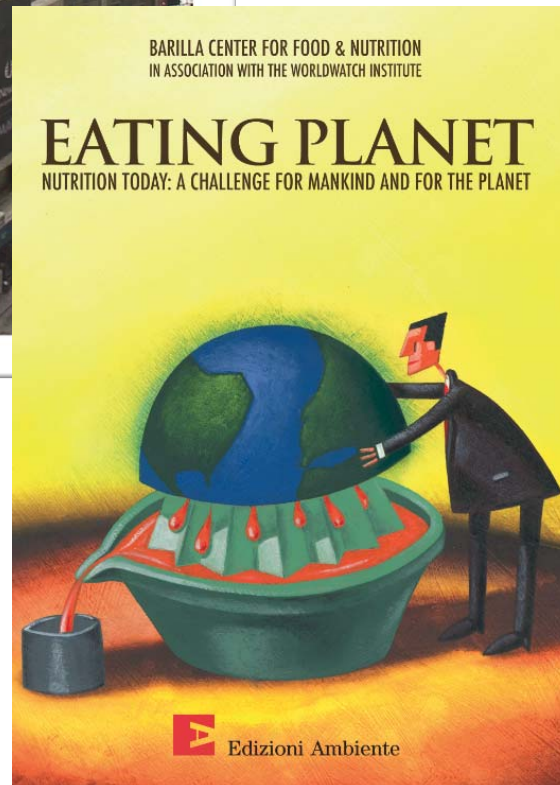
Barilla
Center
FOR FOOD
& NUTRITION
people, environment, culture, economy



BCFN PUBLICATIONS FROM 2009



THE FIRST BCFN BOOK : EATING PLANET



The **Barilla Center for Food & Nutrition** in collaboration with the WorldWatch Institute provides the public with a completely original analysis of current trends and future prospects for food and nutrition. The contributors to the volume include Nobel Prize winners, scientists, internationally-recognized experts and politicians.



STAKEHOLDERS ENGAGEMENT

INSTITUTIONS



EXPERTS



SOCIETY



INTERNATIONAL FORUM ON FOOD & NUTRITION

INSTITUTIONS

EXPERTS

SOCIETY



Since the first edition, the International Forum hosted more than **300** speakers from all over the world - among them **Nobel Prize winners**, **international organizations**, **academics**, **scientists**, **experts**, **companies** and **food industry operators** - and reached an audience of more than **30.000** people live and via streaming.



BCFN YES! YOUNG EARTH SOLUTIONS

CALL TO ACTION TO YOUNG TALENTS FROM ALL OVER THE WORLD ON FOOD AND SUSTAINABILITY



Barilla Center
FOR FOOD & NUTRITION
YOUNG EARTH SOLUTIONS

[PROJECT](#) [FINALISTS](#) [BEST ON THE WEB](#) [ENDORSEMENTS](#) [It](#) [En](#) [Fr](#)

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BCFN YOUNG EARTH SOLUTIONS (YES!)

The "Manna from our roof" idea by FEDERICA MARRA won the first edition of BCFN YES! and received an award at the **4th International Forum on Food and Nutrition**. We invite you to watch the video presentations of **2012's ten finalist ideas**.
BCFN YES! 2013 COMING SOON!

[WATCH THE VIDEOS](#)

[THE WINNING IDEA >](#)



SOWING

DEVELOP YOUR IDEA


Develop your project on "**Food and Sustainability**: how to reduce our environmental impact, ensuring health and food accessibility for all".



GROWING

LET YOUR IDEA GROW

Grow your project and nurture it, starting off from one or more of the various research areas proposed.



HARVESTING

COMPETE WITH YOUR IDEA

Present your project at the 4th International Forum on Food & Nutrition. You will have the opportunity to take part in a study project with experts from BCFN.

[VOTA!](#) [Mi piace](#) 25 NAZIONE:  SVEZIA

USING FOOD-SYSTEMS THINKING TO IDENTIFY INNOVATIONS THAT CONNECT LOCAL PRODUCTION-CONSUMPTION FOR HEALTHY COMMUNITIES, PEOPLE, AND ENVIRONMENT

Across United States communities are taking action to 'localize'...

[VOTA!](#) [Mi piace](#) 95 NAZIONE:  FRANCIA

THE DEVELOPMENT OF A MODEL LINKING BIODIVERSITY, FOOD CONSUMPTION AND NUTRIENT INTAKE

[VOTE!](#) [Mi piace](#) 7 COUNTRY:  USA

FARMING FEEDS

[VOTE!](#) [Mi piace](#) 4 COUNTRY:  USA

HOORFOOD: IT'S TIME TO EAT WELL!

In Sustainable Diets and Biodiversity (2012), FAO nutrition expert Barbara Burlingame warns that despite the recent successes of agriculture, "food systems, and diets, are not sustainable" and "a shift toward more sustainable diets would trigger upstream effects on the food production (e.g. diversification), processing chain and food consumption (FAO and Biodiversity International 2012)." While information about sustainable diets is easily accessible in the United States it can be difficult to make sense of it all, with conflicting claims in advertisement and media, and what seems to be a situation of information overload.

PAG 1 2



BEHTASH BAHADOR
25 years old
Bridgewater State University
Other Members: Linnea Kennison

[f SHARE THE IDEA](#) [DOWNLOAD THE IDEA >](#)

 **FOOD AND SUSTAINABILITY: HOW TO REDUCE OUR ENVIRONMENTAL
IMPACT, GUARANTEEING HEALTH AND ACCESS TO FOOD FOR ALL**

5TH INTERNATIONAL FORUM ON FOOD AND NUTRITION



Barilla Environmental Product Declaration (EPD)



**Environmental
Product
Declaration
of durum wheat
semolina dried
Pasta in paperboard
box (brand Barilla)**



CPC code
2371 — Uncooked
pasta, not stuffed or
otherwise prepared
PCR 2010: 01 version 1.1
2010-06-18

Approval date
10/03/2011
Valid 3 years

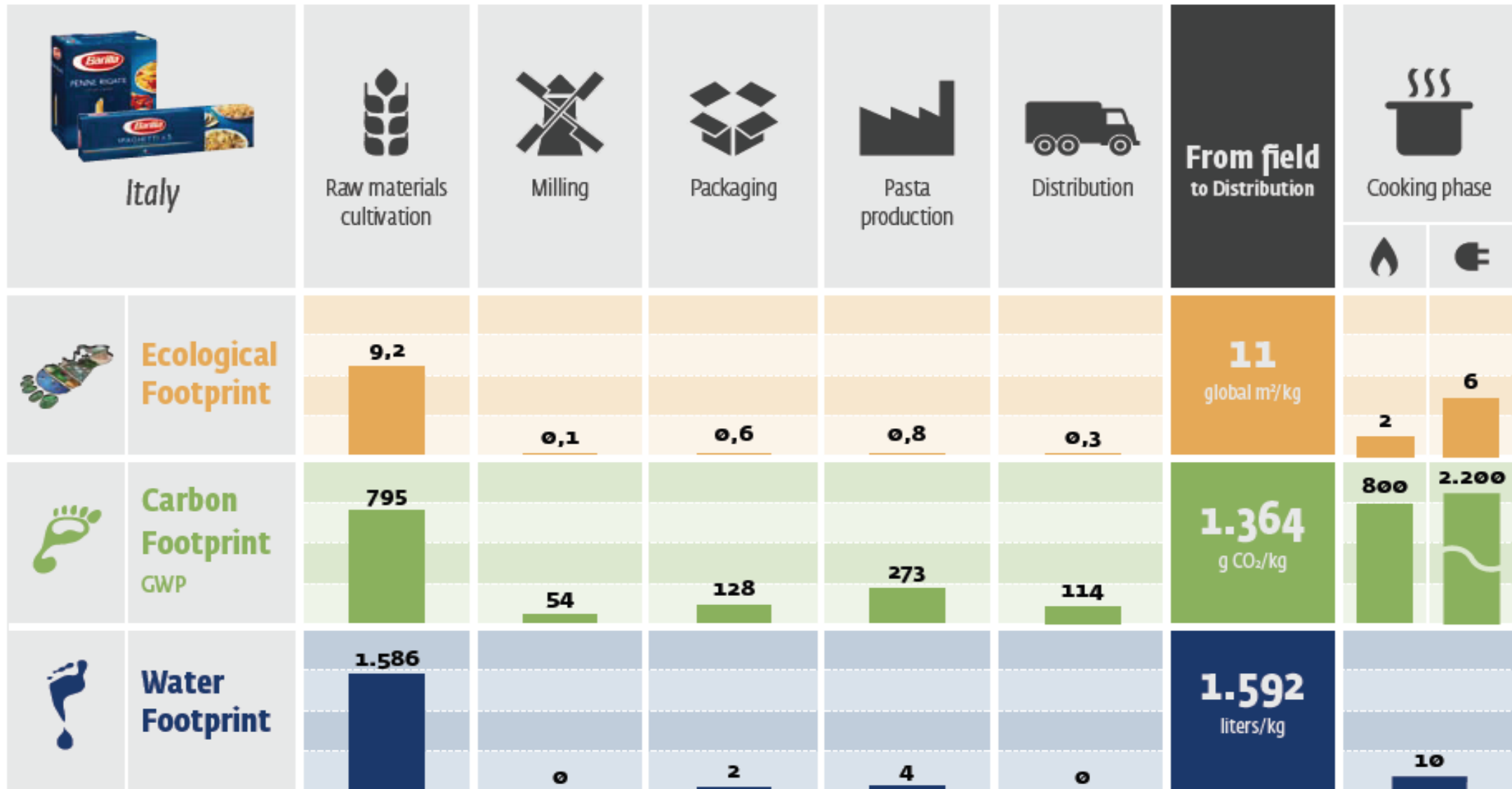
Revision
2

Registration number
S-P-00217

The first EPD Process
System certified in
the food field

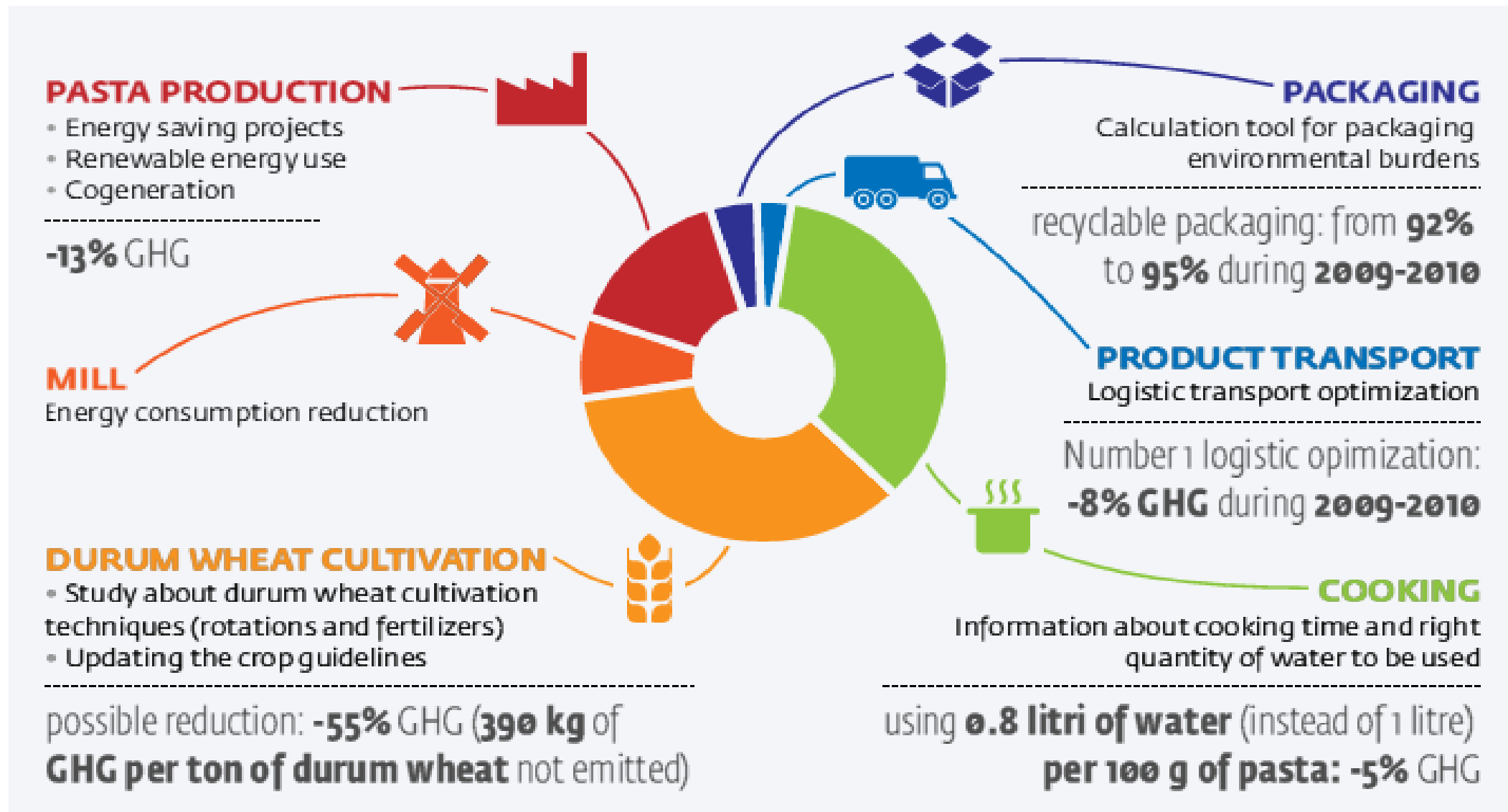
1. **Quick, Simple and Reliable** analysis
2. **Verified and Certified** Results

Durum wheat pasta Lifecycle Assessment (LCA)



Supply Chain Actions driven by LCA : Pasta example

FROM LCA TO ENVIRONMENTAL ACTIONS



operational excellence

paris conference

Environmental Burdens of Barilla Products

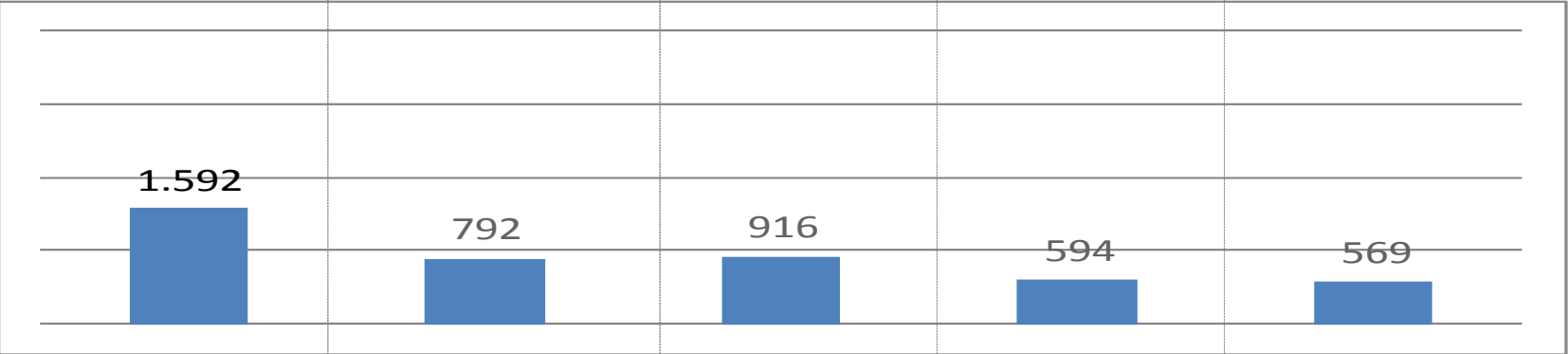
Ecological footprint

Global m² - kg or Litre of food



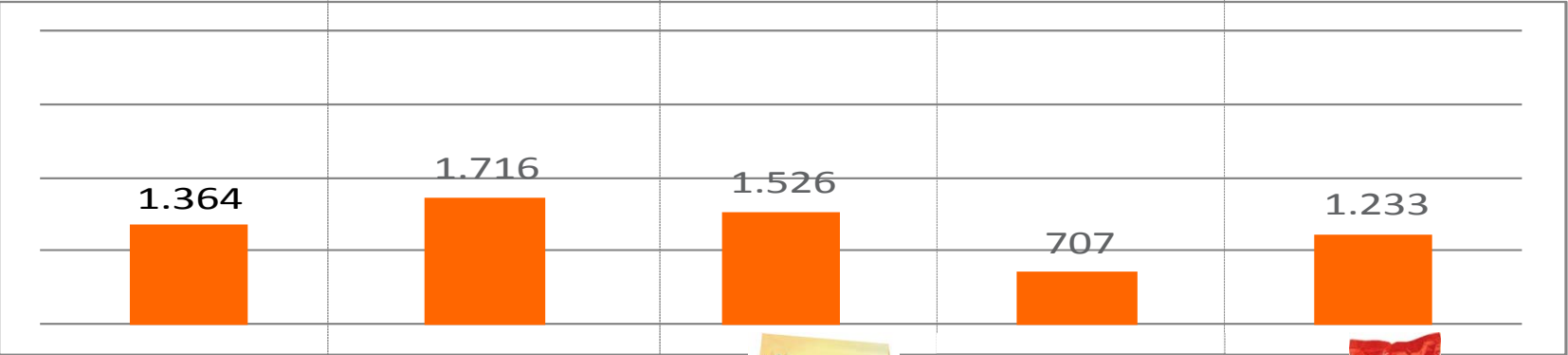
Water footprint

Litre - kg or Litre of food



Carbon footprint

gCO2-eq - kg or Litre of food





Environment · Reducing our Ecological Footprint

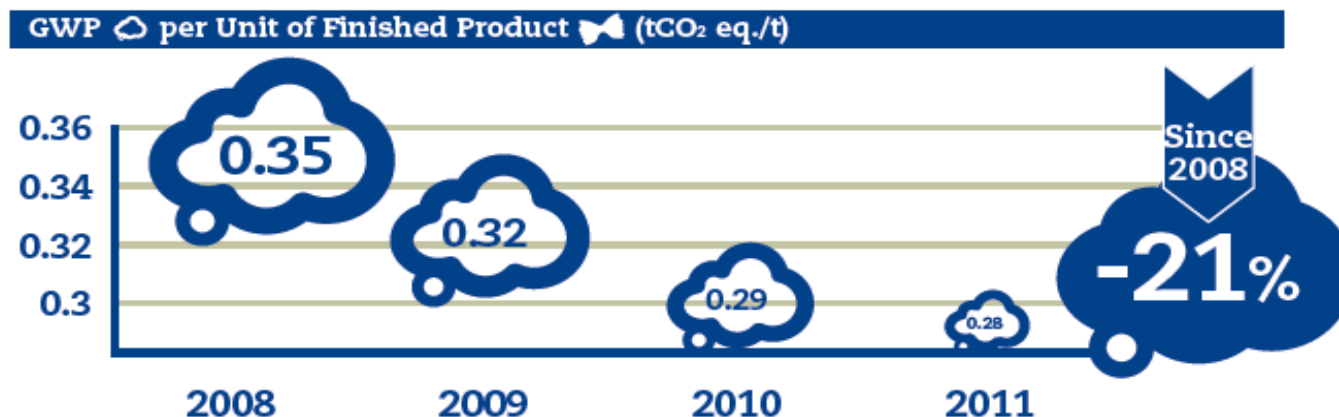
EPD Certified



EPD in progress 2012



Manufacturing Balanced Scorecard: Planet KPI's



Energy Consumption per Unit of Finished Product ⚡ (GJ/t)



Energy Consumption in Absolute Terms (million GJ) and % Contribution of Electric ⚡ and Thermal 🔥 Power

Total Water Consumption per Unit of Finished Product 🍷 (m³/t)





Sustainable Durum Wheat Cultivation & Aureo Project

AIM OF THE PROJECT ABOUT DURUM WHEAT PROJECT



- 1) **Identify** in the different area **sustainable alternative cropping systems** for the cultivation of durum wheat;
- 2) **Analyze** and evaluate the characteristics of cropping systems identified;
- 3) **Validate** the alternative cropping systems with **in-field experimentations**
- 4) Integrate the Barilla's Cultivation Disciplinary (**Decalogue**)



INDICATORS USED

- **CARBON FOOTPRINT:** it represents the total amount of greenhouse gases (GHG) produced to directly and indirectly support human activities, usually expressed in equivalent tons of CO₂ with the relative indicator, commonly called “global warming potential”.
- **WATER FOOTPRINT:** it measures the water consumption of a system in terms of water volumes consumed because of the processes, the irrigation, the natural evaporation by plants and/or that polluted, per unit of time.
- **ECOLOGICAL FOOTPRINT:** is a measure of how much biologically productive land and water an individual, population or activity requires to produce all the resources it consumes and to absorb the waste it generates using prevailing technology and resource management practices. It is measured in global hectares (gha).
- **ECONOMICS INDICATORS:** represented by the direct costs of cultivation (cultivation operations + technical tools), the gross marketable production (GPS), updated to the price lists of 17 November 2009, and the gross income (GI), i.e. the difference between direct costs of cultivation and GPS. (In the GPS are not considered coupled and uncoupled aid)
- **NITROGEN INDEX:** measurement of nitrogen availability determined by the previous crop residue, by the contribution of chemical fertilizers and the time required to biologically degrade the organic substance of the preceding crop;
- **DON INDEX:** this index expresses the cultivation safety aspects related to the possibility of reducing pathology occurrence due to the deoxynivalenol mycotoxin (DON).

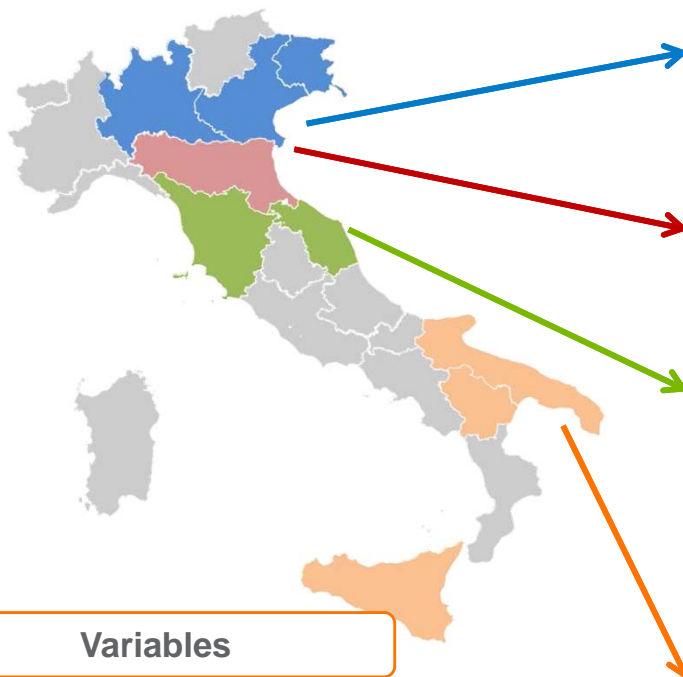


Durum wheat cultivation

30

CROP SYSTEM ANALYSIS

Crop System analysed



Lombardia, Veneto and Friuli (PLV)	Cultivation
Maize	Maize (3 years) – Durum wheat
Diversified	Soybean – Durum wheat – Millet - Maize
Emilia Romagna (RER)	Cultivation
Cereals	Maize – Durum wheat – Millet - Wheat
Industrial	Soybean – Durum wheat- Maize – Wheat
Horticultural	Tomato – Durum wheat - Maize – Wheat
Marche and Toscana	Cultivation
Cereals	Durum wheat (3 years) – Millet
Proteic	Proteic pea (2 years) - Durum wheat (2 years)
Alfa alfa	Alfa alfa (3 years) – Durum wheat
Industrial	Rapeseed – Durum wheat – Sunflower – Durum wheat
Puglia, Basilicata and Sicilia	Cultivation
One crop	Durum wheat (4 years)
Fodder	Durum wheat (2 years) – Oat and vetch (2 years)
Horticultural	Tomato – Durum wheat - Tomato – Durum wheat
Check pea	Chick pea (2 years) – Durum wheat (2 years)

Variables

- Crop system: species used within the crop rotations
- Agricultural “in-field” activities
- Fertilizers use
- Regional climatic situation

System Boundaries



INDICATORS USED

- **CARBON FOOTPRINT:** it represents the total amount of greenhouse gases (GHG) produced to directly and indirectly support human activities, usually expressed in equivalent tons of CO₂ with the relative indicator, commonly called “global warming potential”.
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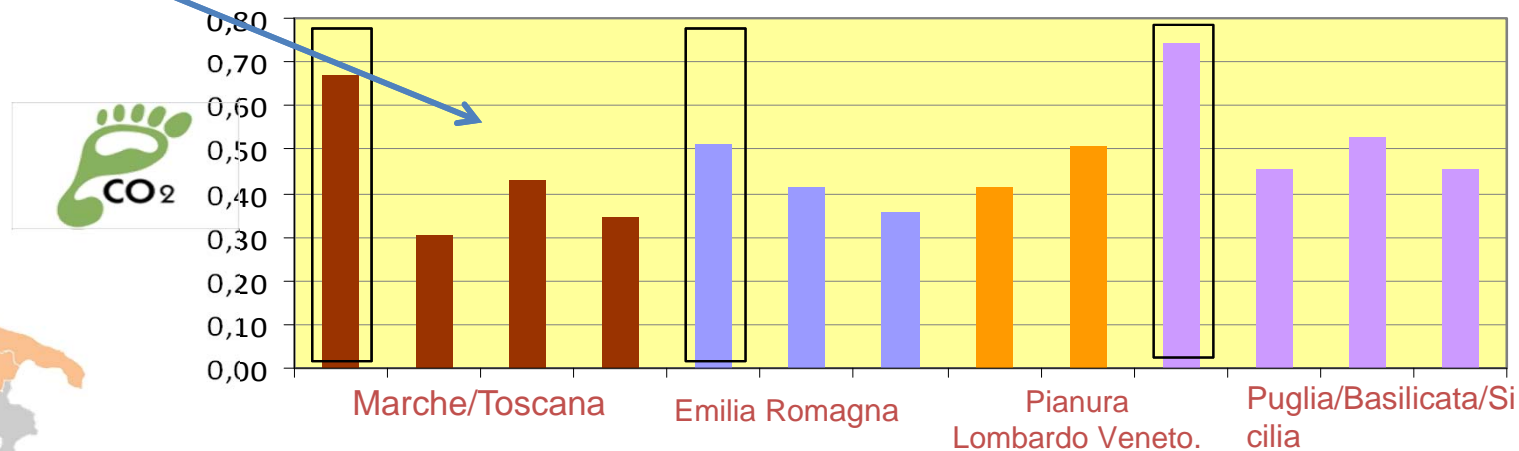


Sustainable Durum wheat cultivation

- 390 kg Co2 / t

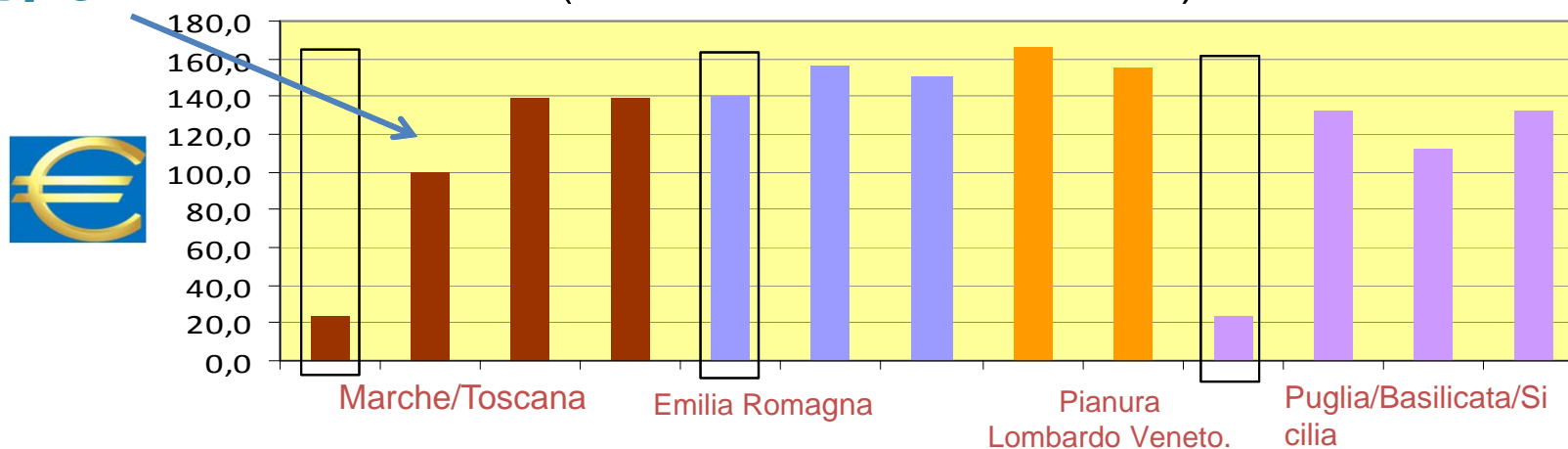


Carbon Footprint (t Co2 / t durum wheat semolina)



> 100 €/t

Net Income (€/t durum wheat semolina)



Durum wheat cultivation

Second Part of the Project

“Durum wheat: Cropping System Sustainability in Italy 2011-2012”

The second part of the project consists in in-field experimentation, comparing sustainable and traditional cropping systems. Some farms have been identified for the in-field testing

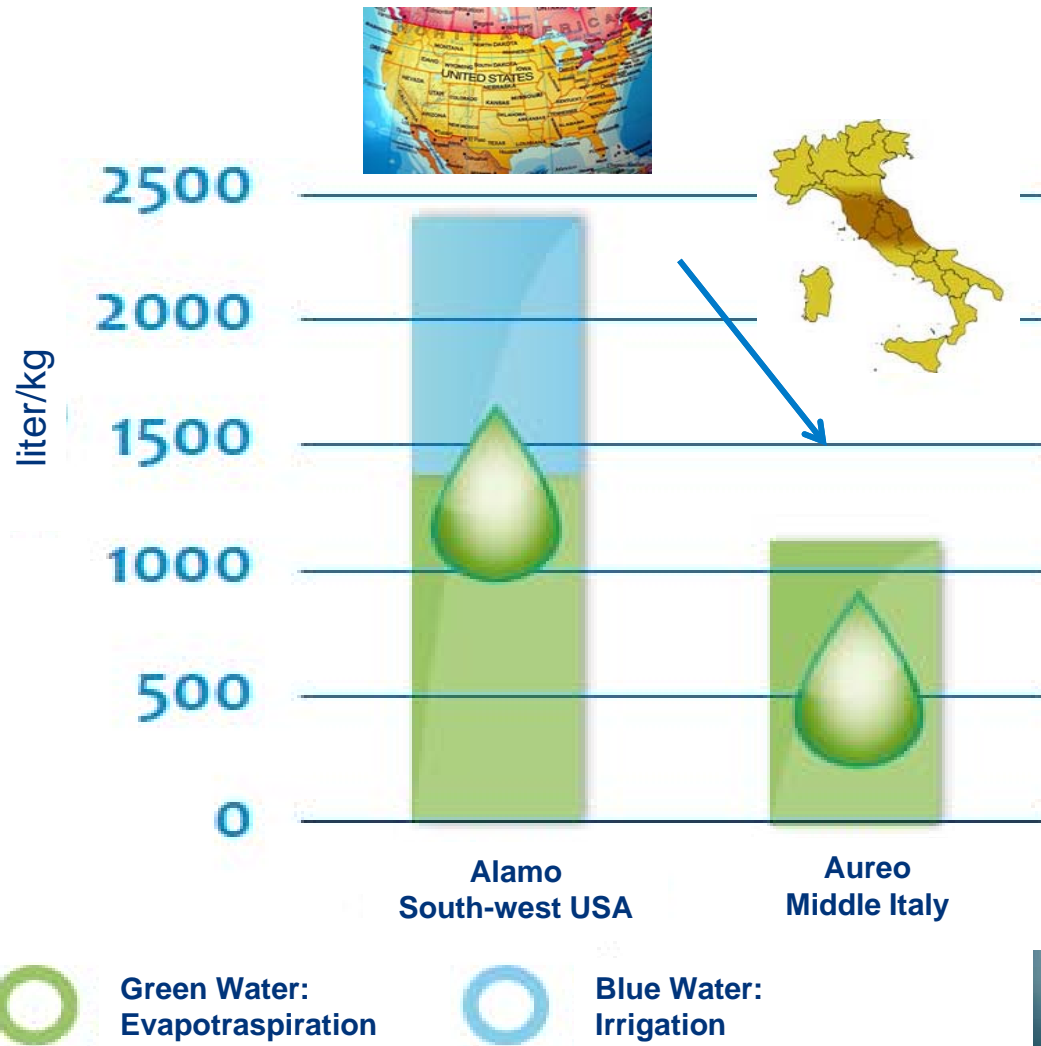


Italian Farmers Handbook



Adopting **old-well known** (but not still applied)
agricultural practice
is **good for farmers, soil & environment !**





Action:

Sourcing of **40.000 t** of durum wheat from South Italy cultivation with proper field rotation than from US

- 38 million of m³ (Blue Water)

-1.000 t of CO₂ eq (due transports)



Barilla Packaging Waste Labeling system

Paper



Metal



Glass



Plastic



Not YET recyclable!



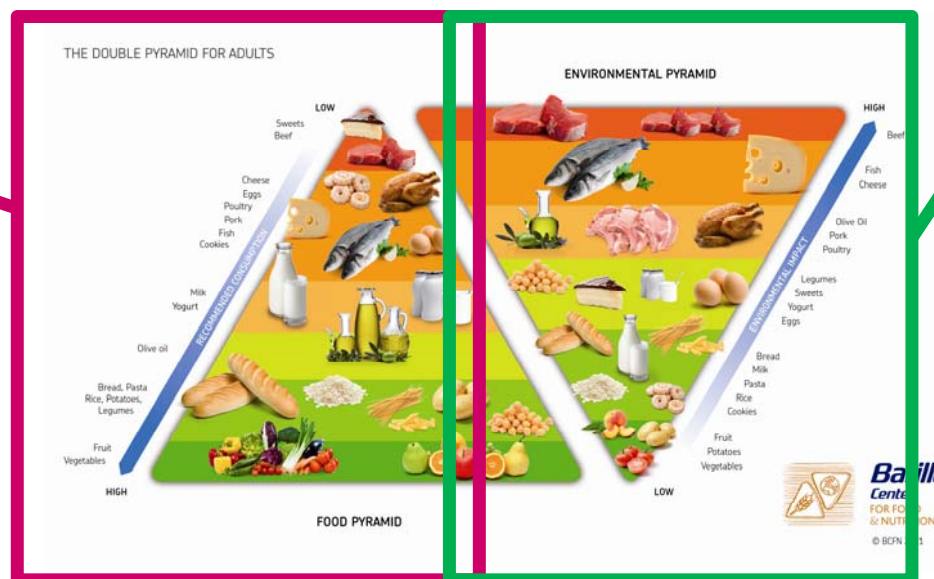


BUONO PER TE

Riformulazione basata
sui principi della Doppia
Piramide: 103 prodotti
riformulati dal 2009.

Un'offerta più ampia: 56
nuovi prodotti lanciati dal
2009 in linea con Doppia
Piramide.

Promozione della Dieta
Mediterranea attraverso
eventi e informazione delle
Persone.



Riduzione del nostro
Impatto Ambientale:

- 19% emissioni totali di CO₂ rispetto al 2008 (produzione +1%).
- 19% consumi di acqua per prodotto finito rispetto al 2008.
- 4% consumi di energia rispetto al 2008.

BUONO PER IL PIANETA

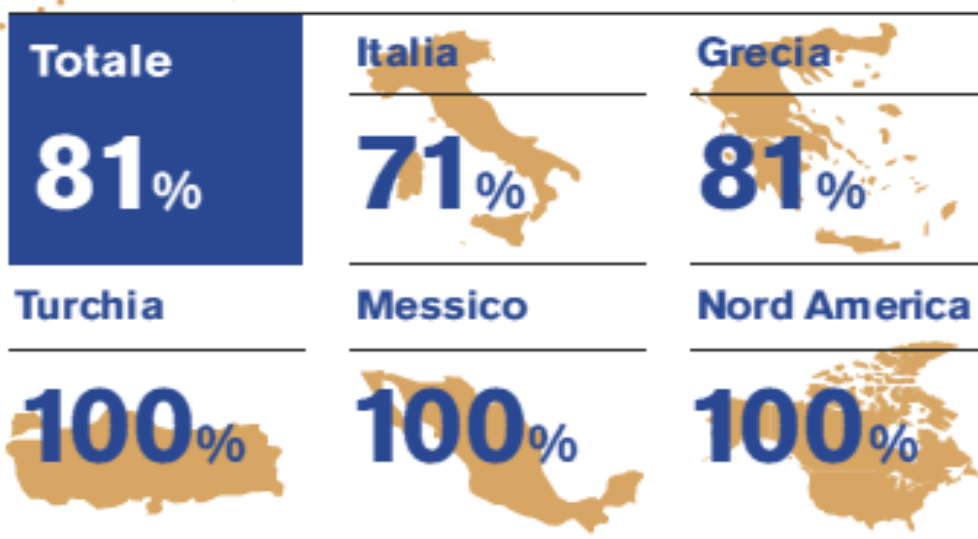
Materie Prime Locali e Accordi con i Fornitori



50% di grano proveniente da filiera integrata.

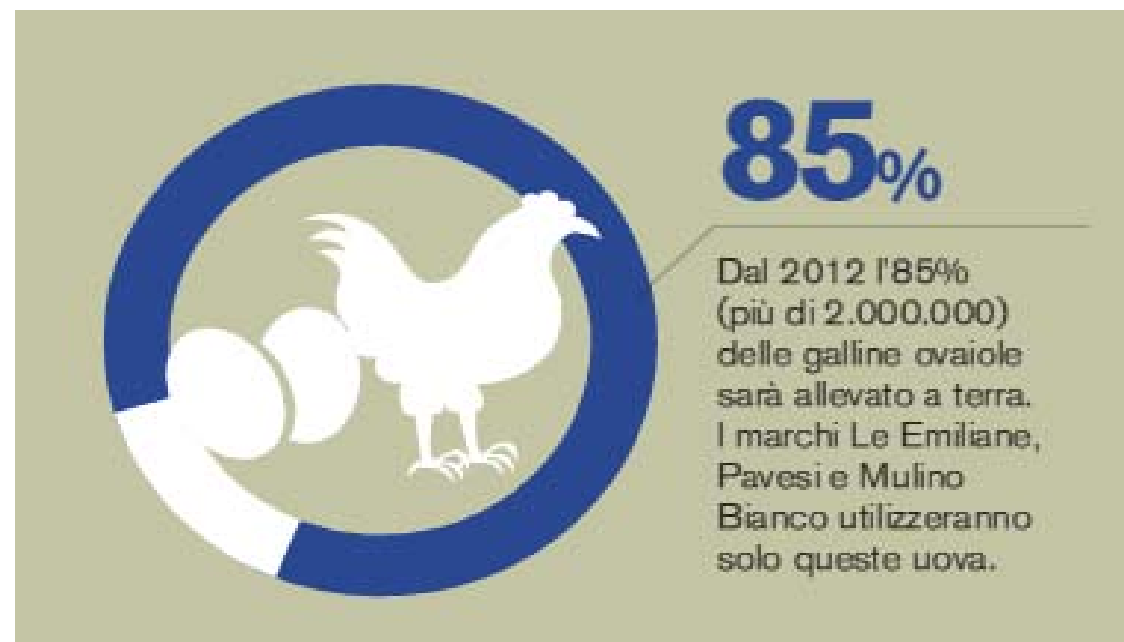
81% «grano locale» (coltivato nello stesso paese dove la pasta è prodotta).

% di grano duro coltivato localmente 2011



Data 2011

GOOD FOR YOU GOOD FOR THE PLANET



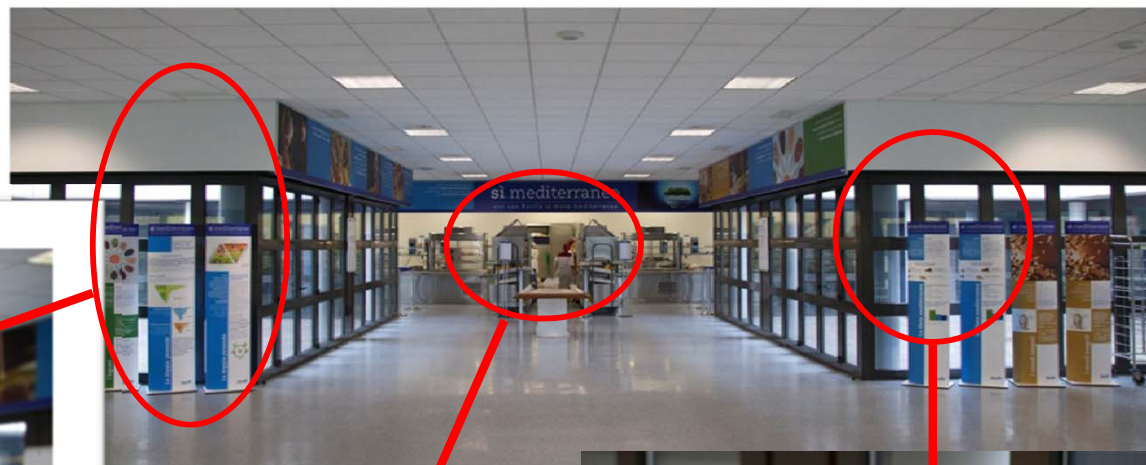
100%

Il 100% dei fornitori di cacao aderiscono al World Cocoa Foundation.

Doppia Piramide: alcune applicazioni

La Doppia Piramide per le Persone Barilla

Progetto Sì.Mediterraneo : come
“funziona” la mensa Barilla...
TOTEM e MENU



sì.mediterraneo vivi con Barilla la dieta mediterranea Ristorante Stabilimento 3-8 ottobre 2011			
		Percorso Doppia Piramide*	Piatto vegetariano
	PRIMI PIATTI	SECONDI PIATTI	CONTORNI
LUNEDÌ	<ul style="list-style-type: none"> 600 Kcal Risotto al radicchio rosso 470 Kcal Sedani alla zingara 441 Kcal Pasta integrale alla zingara 465 Kcal Pasta al burro o pomodoro 332 Kcal Riso al burro 434 Kcal Zuppa d'orzo con fagioli 	<ul style="list-style-type: none"> 560 Kcal Bistecca ai ferri 333 Kcal Tacchino alla palermitana 381 Kcal Smeriglio al forno 	<ul style="list-style-type: none"> Insalata di farro alla genovese Verdure lessate Insalata verde/mista Legumi lessati
	<ul style="list-style-type: none"> 439 Kcal Penne integrali ai capperi e olive 569 Kcal Penne alla marinara 465 Kcal Pasta al burro o pomodoro 332 Kcal Riso al burro 257 Kcal Minestrone di verdure 	<ul style="list-style-type: none"> 560 Kcal Bistecca ai ferri 367 Kcal Frittata alle verdure 384 Kcal Scaloppa al marsala 	<ul style="list-style-type: none"> Insalata d'orzo e zucchini Verdure lessate Insalata verde/mista Legumi lessati
MARTEDÌ			

