



Ecomondo

Capitale Naturale
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High Quality Sustainable Durum Wheat

Luca F. Ruini

HSE & Energy Director

Barilla
The Italian Food Company. Since 1877.

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

Durum wheat pasta Lifecycle Assessment (LCA)



ITALY
(for local consumption)


raw material
production


milling


packaging


pasta
production


distribution


from field
to distribution


cooking phase




**ECOLOGICAL
FOOTPRINT**

7,1

0,1

0,8

0,5

0,1

8,6
m² global/kg

1,9

4,3



**CARBON
FOOTPRINT**
GWP

557

51

100

199

40

947
g CO₂ eq/kg

760

1.600



**WATER
FOOTPRINT**

1379

<1

78

2

<1

1.459
liters/kg

10

17

Sustainable Durum Wheat Cultivation

AIM OF THE PROJECT ABOUT DURUM WHEAT PROJECT

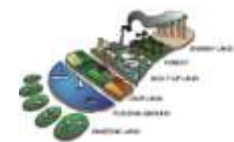
- 1) **Identify** in the different area **sustainable alternative cropping systems** for the cultivation of durum wheat;
- 2) **Analyze** and evaluate the characteristics of cropping systems identified;
- 3) **Validate** the alternative cropping systems with **in-field experimentations**
- 4) Integrate the Barilla's Cultivation Disciplinary (**Decalogue**)
- 5) Use a web based Farmers **Decision Supporting System (DSS)**



Durum wheat cultivation

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



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

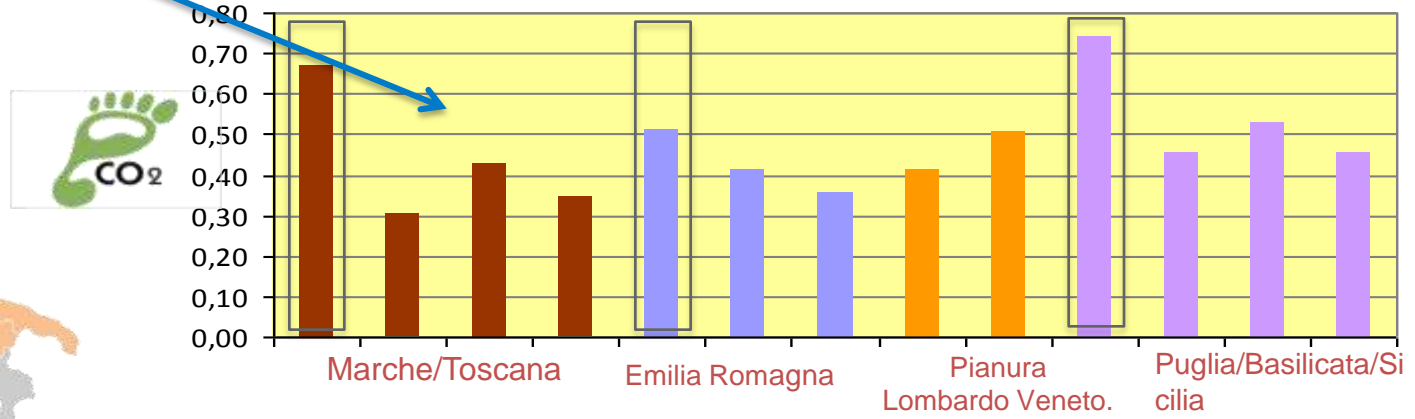


Sustainable Durum wheat cultivation

- 390 kg Co2 / t

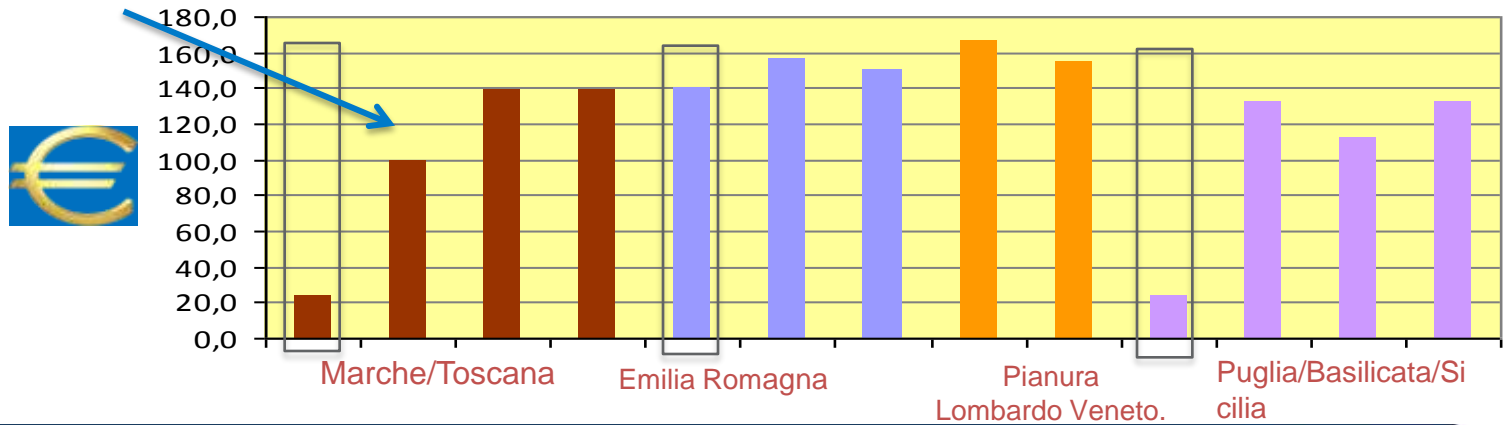


Carbon Footprint (t Co2 / t durum wheat semolina)

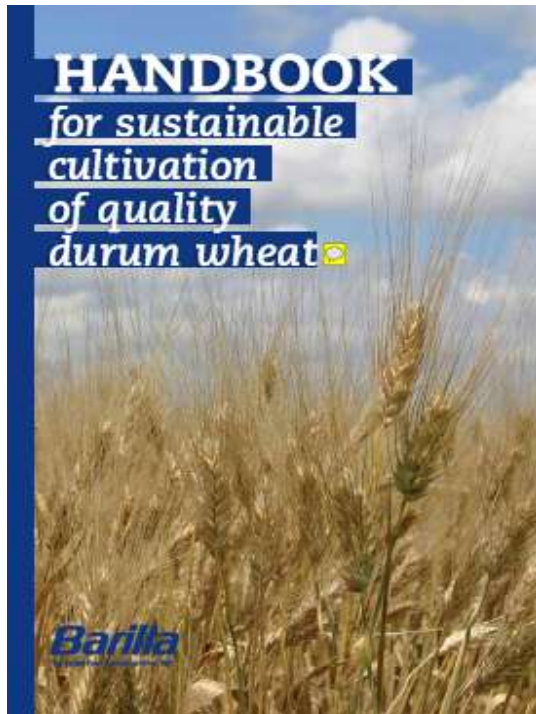


> 100 € / t

Net Income (€ / t durum wheat semolina)



Italian Farmers Handbook



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

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.

Now we are in the go-live phase

2011-12: In-field testing with >25 farmers

2013-14: Go-live year: >80.000 t 16.000 ha





luca.ruini@barilla.com