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# International Scientific Symposium

3 November 2010

FAO Headquarters - Rome

***SUSTAINABILITY & DIVERSITY***

***ALONG THE FOOD CHAIN***



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DG Federalimentare

Italian Federation of F&D Industry

Chairman Research & Science Group

CIAA (Confederation of F&D Industries of the EU)



# THE EU FOOD & DRINK INDUSTRY IN FIGURES

Turnover  
**€965 billion**  
(+3.2% compared to 2007)  
Largest manufacturing sector in the EU (12.9%)



Employment  
**4.4 million people**  
(+0.8% compared to 2007)  
Leading employer in the EU (13.5%)

Number of companies  
**310,000<sup>1</sup>**  
Fragmented industry  
of which over  
**99% are SMEs<sup>2</sup>**  
the latter accounting for  
**48.7%**  
of food and drink turnover and  
**63.0%**  
of employment in the sector

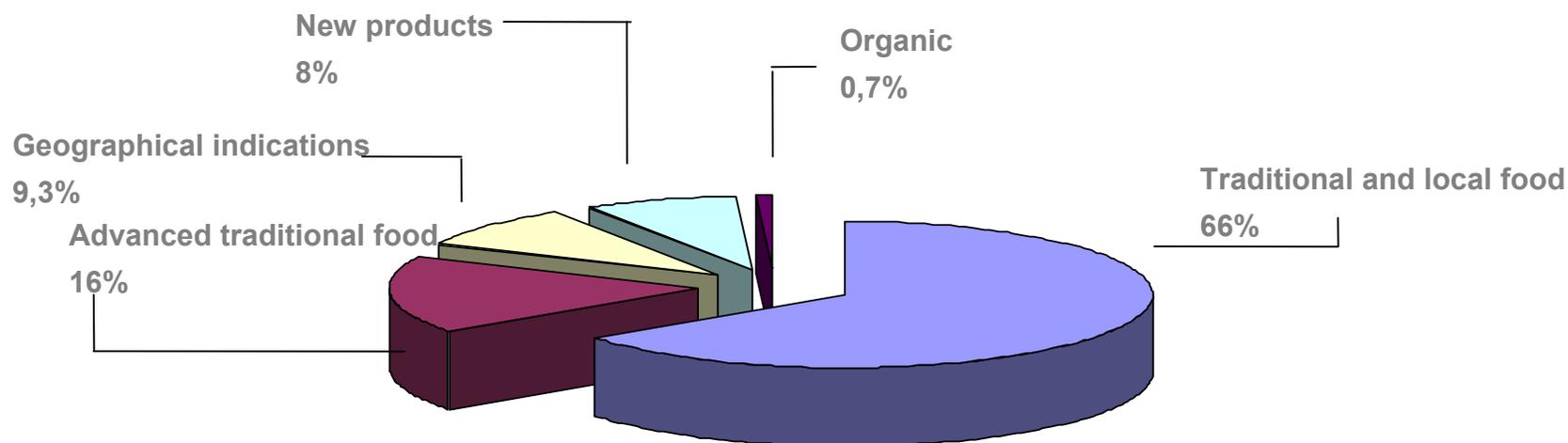


# THE ITALIAN FOOD & DRINK INDUSTRY (DATA 2010)

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- A leading manufacturing sector in Italy (**TURNOVER € 120 BILLION**): along with agriculture, induced activity and distribution, the Food & Drink Industry is the central element of the first economic sector of the Country.
  - **EXPORTS** almost € **20 BILLION**. Industry is generally recognized as the ambassador of Made in Italy in the world considering that almost 80% of the Italian agro-food export is represented by high quality industry brands.
  - **32.300 COMPANIES** with more than **400.000 EMPLOYEES**.
  - **6.400 COMPANIES > 9 EMPLOYEES**.
  - **2.600 COMPANIES > 19 EMPLOYEES**.
  - Industry buys and processes **70%** of the national **AGRICULTURAL RAW MATERIALS**.

## THE ITALIAN FOOD & DRINK INDUSTRY – TURNOVER BY PRODUCT

TRADITIONAL AND LOCAL FOOD	79,2 MLD €	66%
ADVANCED TRADITIONAL FOOD	19,2 MLD €	16%
TYPICAL QUALITY PRODUCTS (PDO, PGI, WINE...)	11,2 MLD €	9,3%(of which 3 MLD € of EXPORT)
NEW PRODUCTS (novel, functional, healthy, ready to eat, etc...)	9,6 MLD €	8%
ORGANIC	0,8 MLD €	0,7%
TOTAL	120 MLD €	100%(of which 20 MLD € of EXPORT)



Source: Data by Federalimentare

Rome, 3 November 2010

## A HIGHLY DIVERSE AND FRAGMENTED SECTOR

- The F&D industry is characterised by a very high diversity of different products and production processes.
- Europe's traditions related to food are an expression of its cultural diversity and represent a clear asset on which the sector can build.
- The traditional food products still represent more than 2/3 of the EU F&D Industry total turnover (640 billion €).
- If you put in a lane all the traditional products in Europe, you will see more or less 40.000 different listing articles for 10.000 km.
- Also the listing articles of one supermarket increased from 250 food products in the 70s to 2.100 in average in 2010.





# BIODIVERSITY AS A KEY FACTOR OF SUSTAINABLE DEVELOPMENT

- The word " BIODIVERSITY " is a contracted version of "biological diversity".
- BIODIVERSITY is the degree of variation of life forms within a given ecosystem, biome, or an entire planet. Biodiversity is one measure of the health of ecosystems. Life on Earth today consists of many millions of distinct biological species.
- UN declared the year 2010 as the International Year of Biodiversity.
- The gradual reduction of biodiversity will have negative ecological, cultural and economic impacts.





## Nocciola (Hazelnut) Piemonte

- The Nocciola Piemonte P.G.I. is particularly appreciated by the confectionery industry for its qualitative parameters:

- - spheroidal form of the seed, excellent taste and aroma after the toasting
- elevated peeling, good conservation

For these reasons the Nocciola Piemonte is universally recognized like the best one in the world.

- "Nocciola Piemonte, stands out from other Italian and foreign varieties because of its high oil content (approx.70%). It has the capacity to be a valuable food, satisfying not only the demand for taste but also the requirements of consumers who are increasingly more aware of the nutritional and health aspects



## Pane di Genzano

- This bread (P.G.I.) is baked in the small city of Genzano, located south of Rome.
- It is baked in a brick oven until it acquires a golden crust.
- The bread is made with a mix of whole wheat pastry flour and all purpose flour. The bread is perfect toasted, with salads or cheese.



## Cinta Senese

- The presence of Cinta Senese, a native swine breed in Tuscany, since the 14 C is demonstrated unmistakably in several old paintings, including the 14 C fresco called "Effetti del Buongoverno" and painted by Ambrogio Lorenzetti in the Palazzo Comunale of Siena.
- Cinta Senese is the only Tuscan native swine breed to survive extinction. The snout is long and the animal has black hair and a white band, from which its name is derived. The pigs grow free in the forests eating grass and acorns. The very low fat fraction is not separate from the lean fraction, and it provides flavour and taste.
- In the 1980s, due to the changes in agricultural system, the breed suffered a severe numerical reduction. Today there are about 200 swine in 80 herds. Most of the herds have been started for breeding less than 10 years ago, often as a hobby or in combination with agrotourism, but increasingly for production of lard, salami, prosciutto etc.



## Asiago

- Asiago is an Italian cheese that can assume different textures, according to its aging, from smooth of the fresh Asiago (Asiago Pressato) to a crumbly texture of the aged cheese (Asiago d'allevato) of which the flavour is reminiscent of Parmesan. The aged cheese is often grated in salads, soups, pastas, and sauces while the fresh Asiago is sliced to prepare panini or sandwiches; it can also be melted on a variety of dishes, including bagels.
- As Asiago has a protected designation of origin the only "official" Asiago is produced in the alpine area of the town of Asiago, province of Vicenza, in the Veneto region. Nowadays it is also produced in the Alpine region of the Province of Trento, which has become part of the P.D.O. area for Asiago production. Most Asiago, however, is made elsewhere using techniques and cultures that produce a cheese of the same or similar flavour.



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## Riso Vialone Nano Veronese

- Since 1996, products bearing the prestigious European mark I.G.P. (Protected Denomination of Origin), have included Nano Vialone Veronese Rice, a masterpiece of Italian rice-growing, the roots of which are pushed deep into the limpid karst spring waters which furrow and flood the fertile lands of the Veronese. This excellent rice is the product of a land, culture and typical Italian tradition for living and eating well.
- The genuineness of variety, the methods used for cultivation, processing and presenting this rice to the consumer are controlled by the Consorzio per la Tutela del Riso Vialone Nano Veronese (Consortium for the Protection of Vialone Nano Veronese Rice), which groups together producers that comply with production specifications approved and registered by the European Union.



## Sabina Olive Oil (P.D.O.)

- Fruit of a thousand year old tradition, our olive oil is a completely natural product, obtained from olive trees of the Carboncella and Frantoio varieties, harvested by hand in the Nerola area and milled using the traditional cold-press method.
- Its golden-yellow colour, with hints of green, its unmistakable aroma of olives, and its light taste, make this an indispensable part of the Mediterranean diet.



# THE LIFE CYCLE OF FOOD AND DRINK PRODUCTS



**ENVIRONMENTAL SUSTAINABILITY**  
 in the  
 Food Chain  
 requires  
**INTEGRATED**  
 involvement  
 of **ALL LIFE-CYCLE**  
 stages  
 and players.

Source: CIAA, Managing Environmental Sustainability in the European Food & Drink Industries - 2nd edition (2008)

Rome, 3 November 2010

# THE LIFE CYCLE OF FOOD AND DRINK PRODUCTS



Source: CIAA, Managing Environmental Sustainability in the European Food & Drink Industries - 2nd edition (2008)

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## AGRICULTURE: THE STARTING POINT OF F&D SUSTAINABLE POLICIES

*Agriculture accounts for an important part of the environmental impacts but farming systems can also contribute in preserving the natural environment where raw materials are grown.*

**FARMING ACTIVITIES** impacts on natural resources:

- ✓ agriculture is a main user of **WATER** worldwide (**70%** of global, **37%** of EU water consumption);
- ✓ agriculture contributes **9%** of total EU **GHG EMISSIONS** and **50%** of GHG emissions in the food chain.

**F&D INDUSTRY IS SUPPORTING SUSTAINABLE AGRICULTURAL PRACTICES** with an approach embracing the **3 PILLARS** of sustainability (environmental, economical and social):

- 1. Ensuring safe primary food supplies (ABP)**
- 2. Preserving natural environment**
- 3. Improving competitiveness of farming systems and socio-economic conditions of local communities**



# F&D INDUSTRY SUSTAINABILITY: KEY AREAS

## RESOURCE EFFICIENCY

Besides the production of its core products, the objective of F&D Industry is to use 100% of materials components arising from the processes (Eu F&D Industry by-products are about 300mil/ton per year) by exploiting all useful applications of agricultural crops (animal feeds, fertilizers, bio-fuels, pharmaceuticals, cosmetics).

## REDUCING WATER CONSUMPTION

In the food chain, water performs 3 fundamental functions as agricultural input, ingredient and crucial element of manufacturing processes essential in granting strict hygiene standards. F&D Industry is strongly committed in reducing water consumption by developing efficient water technologies, spreading best practices and optimizing process water reuse.

## PACKAGING

Packaging is essential in guaranteeing product quality and food safety and plays a crucial role in preventing food waste. In the EU, packaging represents around 5% of total waste, 17% of municipal waste by weight and 30% by volume. F&D Industry, as major user of packaging responsible for about 2/3 of total EU related waste by weight, is strongly committed in reducing environmental impact of packaging by adopting measures for source reduction and by contributing in national schemes for reuse, recycle and recover of packaging waste.

## CASE STUDY - Caobisco - Cocoa Sector

- The cocoa trade, comprising growers, processors and chocolate manufacturers, worked together in a number of comprehensive programmes, aimed at “taking science into the field”.
- Several programmes were geared at improving production efficiency and labour standards. Other initiatives promoted reforestation of degraded tropical lands in a sustainable and environmentally responsible way. Educational programmes focused on building farmers’ environmental experience and productivity through “Farmer Field Schools”.
- Finally, several projects were promoted via the International Cocoa Organisation and involve both the cocoa producing countries and the cocoa consuming countries. These programmes were aimed at ensuring the sustainable growth and supply of cocoa, and enhancing the long-term competitiveness and economic prospects of the cocoa sector.



Source: CIAA / Caobisco - Association of the Chocolate, Biscuit and Confectionery Industries of the EU.

## CASE STUDY - EU Sugar Industry

- The EU sugar industry processes some 110 million tonnes of beet every year, producing 17 million tonnes of sugar. However, sugar represents only about 16% of fresh sugar beet weight, and a considerable number of other products are produced, all of which meet legislation, specifications and quality controls.
- The leading non-sugar product is beet pulp, an excellent and long-recognised cattle feed product which is highly appreciated by farmers for its pure plant origin and high energy value. Beet pulp originates from cleaned, sliced sugar beet (known as “cossettes”) when the sugar is dissolved with warm water. The annual production of beet pulp in the EU amounts to around 8 million tonnes of pressed pulp and 5.5 million tonnes of dried pulp.



Source: CIAA

Rome, 3 November 2010

## CASE STUDY – Water efficiency

### Example: Brewery Industry

Continuous technological improvements are also made in SMEs, as it is the case in the brewing sector:

- In the past, water used for cooling flasks (after pasteurisation) was drained to the purification installation. Now, a cooling tower has been installed, which cools the water and allows recuperation. Water usage in the pasteurisation unit has decreased from 5.5 m<sup>3</sup>/hour to 3.5 m<sup>3</sup>/hour, corresponding to a water saving of 20% of total usage.
- By closing the water tap on the bottle washer a little more, the water usage of this device was reduced from 44m<sup>3</sup>/day to 35 m<sup>3</sup>/day, without loss of efficiency. Water savings of 5% of total usage were achieved.

Source: CMA

## Energy recovery from plastics

- In 2007, 30.3% (i.e. 7.0 million tonnes) of the post-consumer plastics waste was recovered as energy in the EU-25 + Norway and Switzerland.
- An important part of plastics recovery is from packaging applications and municipal incinerators which remain the most common form of energy recovery.



Source : Plastics Europe

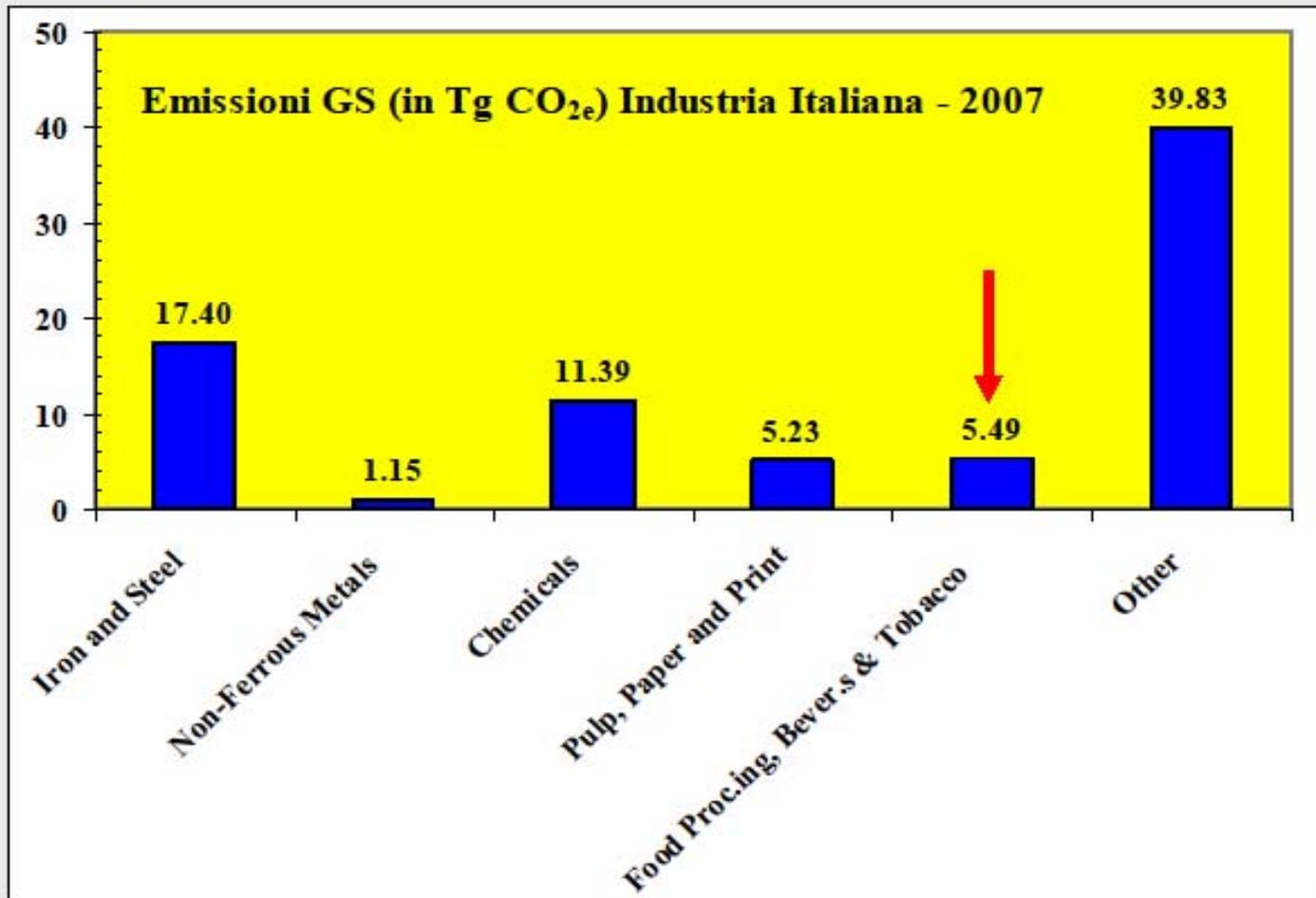
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# CLIMATE CHANGE: EU COMMITMENT FOLLOWING KYOTO

## EU TARGETS BY 2020:

1. Reducing GHG emissions by 20%
2. Improving energy efficiency by 20%
3. Raising the share of renewable energy sources by 20% and the share of bio-fuels in transport by 10%

# ITALIAN F&D INDUSTRY GREENHOUSE GAS EMISSIONS



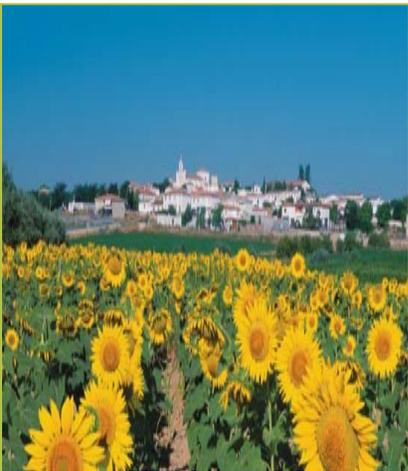
# CLIMATE CHANGE: THE SCENARIO

- F&D production processes are featured by **RELATIVELY LOW ENERGY INTENSITY** (highly differentiated among various sub-sectors). Nevertheless, transition to low carbon economy will have strong impacts on F&D Industry, which is largely exposed to global warming also considering the effects on agriculture, desertification, availability of clean water and crops.
- According to IEA (International Energy Agency), in the OECD, Industry accounts for about 8% of industrial energy use and Food, Drink and Tobacco sectors account for 1,5%. In the period 1990-2005, the economic value of F&D Industry's production output has grown by more than 51% in the EU-15 and today amounts to more than 730 billions € per year, in respect of a growth in CO<sub>2</sub> emissions limited to 13% in the same period (*source EEA*)



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# THE CHALLENGE: EU F&D INDUSTRY'S SUSTAINABLE ENERGY ROADMAP



*Improving energy efficiency implies a multiple approach:*

- 1.** On the side of demand, implementation of energy efficiency measures requires the spreading of sector best practices on energy management, as well as the participation in national energy schemes, involving the greatest number of SMEs.
- 2.** On a supply side, an option is represented by switching from oil and solid fuels to natural gas, renewable energy and biomass through the exploitation of internal sources (i.e. bio-gas from by-products and waste).

## TRANSPORT & DISTRIBUTION

- **FOOD TRANSPORT SUSTAINABILITY** critically depends on an integrated approach, based on environmental life-cycle thinking and the consideration of all social and economic implications of transport.
- Food and drink manufacturers pursue a range of initiatives to optimize **TRANSPORT EFFICIENCY & SUSTAINABILITY**, such as inter-modality, lowering impacts of individual modes, investing in new technologies and cooperating with key supply chain partners.
- Greater cooperation across the supply chain, bringing together **FOOD MANUFACTURERS, LOGISTIC PROVIDERS, RETAILERS & CONSUMERS**, has the potential to achieve important further improvements in **TRANSPORT & DISTRIBUTION SUSTAINABILITY**.



Source: CIAA, Managing Environmental Sustainability in the European Food & Drink Industries - 2nd edition (2008)

# CONSUMERS

*Consumers are responsible for significant environmental impacts:*

- 1) **DIRECTLY**, in the way they transport, store and prepare foods (**ENERGY EFFICIENCY**), create waste and dispose of it (**WASTE MANAGEMENT**)
- 2) **INDIRECTLY**, as they influence upstream supply chain through their purchasing decision

*Sustainable F&D products consumption requires:*

- ✓ improvement of consumers' shopping decisions and household planning to prevent food waste;
- ✓ use of improved energy efficiency food related appliances;
- ✓ improved consumers' contribution to the successful functioning of national recycle and recovery schemes.



# ETP FOOD FOR LIFE

## 3 Key Thrusts



**Improve health, well-being and longevity**



**Build consumer trust in the food chain**



**Sustainable and ethical production**



**ETP Food for Life  
IAP - Key Thrust 3:  
SUSTAINABLE & ETHICAL PRODUCTION**



**Main Challenges:**

- **Analysis of sustainability of food products (lack of science-based methodology)**
- **Food system efficiency and effectiveness: improvement potentials for technical and managerial solutions in each step of the food chain**

**Scope:**

- **Identify, promote and provide support for the implementation of sustainable food production systems.**
- **Develop synergetic solutions between environmental protection, social fairness and economic growth.**
- **Serve consumer needs for sustainable and affordable food.**

# ETP Food for Life IAP - Key Thrust 3: SUSTAINABLE & ETHICAL PRODUCTION



## *What needs to be done?*

- Develop better understanding of how to assess sustainability of the food chain and consumption patterns;
- Improve technical and managerial solutions;
- Enhance communication to consumers and stakeholders regarding sustainable options.

## *Expected RESULT:*

*Reduced use of resources, increased efficiency and better governance*



## CHAIRMANSHIP



## CO-CHAIRMANSHIP



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA



ENTE PER LE NUOVE TECNOLOGIE, L'ENERGIA E L'AMBIENTE

### **KEY – THRUST 1 IMPROVING HEALTH WELLBEING & LONGEVITY**

#### **INSTITUTIONS**

**MIRROR  
GROUP**

**INRAN – GRANAROLO – UNILEVER  
ERIDANIA FATTORIE PETRINI, GENTILINI,  
UNIV. DEL SANNIO, UNIV. ROMA1, CON.BIO**

**COMMUNICATION  
TRAINING  
TECHNOLOGY  
TRANSFER  
(TECNOALIMENTI,  
NEXEN, EURIS,  
AGRICONSULTING)**

**KEY – THRUST 2  
CONSUMER TRUST IN  
THE FOOD CHAIN  
UNIBO – BARILLA – FERRERO**

**KEY – THRUST 3  
SUSTAINABLE & ETHICAL  
PRODUCTION  
ENEA – SAPLO PERONI –  
INALCA CREMONINI**

**MORE THAN 300 STAKEHOLDERS: AGRICULTURE, INDUSTRY (SMEs), RETAIL,  
CONSUMERS**

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# ITP Food for Life

## IAP - Key Thrust 3:

### PILLAR SUSTAINABLE FOOD PRODUCTION



- UNDERSTANDING OF THE SUSTAINABILITY OF FOOD PRODUCTION AND SUPPLY IN ITALY WITH EXTENDED LCA.
- RESEARCH ON ALTERNATIVE SCENARIOS OF FUTURE ITALIAN AGRO-FOOD PRODUCTION, PAYING ATTENTION TO RETAIL AND CONSUMERS.
- DEVELOPING SUSTAINABLE PROCESSING, PACKAGING AND DISTRIBUTION, WITH ENVIRONMENTAL PERFORMANCES.
- DEVELOPING AND IMPLEMENTING SUSTAINABLE PRIMARY FOOD PRODUCTION, WITH RATIONAL USE OF NATURAL RESOURCES.
- STABILISING MARKETS AND SUPPORTING FOOD CHAIN DYNAMICS THROUGH THE GENERATION AND PRESERVATION OF TRUST.
- RECYCLING AND VALORIZATION OF FOOD INDUSTRY SURPLUS, BY-PRODUCTS AND WASTES.
- SUPPORTING SMEs COMPETITIVENESS THROUGH INTEGRATION.
- PARTECIPATION OF SMEs IN COMPLEX FOOD CHAIN INFRASTRUCTURES.

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**THANKS FOR THE KIND ATTENTION**

