

Sustainability in the food chain

London, 29-30 November 2007



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Environmental management in the agro-food system

Dr. Stefano Canese

ENEA-BAS BIOTECAGRO
canese@casaccia.enea.it



Italian National Agency for New Technologies,
Energy and the Environment



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BRIMET Project

Integrated methodologies and systems for the valorization of fruit and vegetables of Southern Italy

Partners:

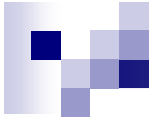
- ENEA
- University of Basilicata
- Assofruit (private company)
- Campoverde Policoro (private company)
- Troyli (private company)

Funding:

Italian Ministry of University and Research

General objective:

To favour the valorization and development of fruit and vegetables sector in productive areas of Southern Italy, by means of interventions all over the food chain



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Work-Packages

WP1 - Innovation and optimization of culture systems

WP2 - Innovation and optimization of processing

WP3 - Innovation and optimization of conditioning and packaging

Activity: Innovative models for the management of soil fertility, fertilizers, and water availability, able to reduce environmental impact in the culture of actinidia, peach, apricot, strawberry and scarola salad.



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Soil fertility management

- to increase chemical and biological fertility of soil by adding exogenous (compost) and endogenous (pruning residues, mowing of grasses) organic matter
- to reduce the quantity of distributed chemical fertilizers by applying a program of distribution based on the calculation of removals carried out during the previous year

Water availability management

- to reduce water consumption by distributing water according an hydrologic balance based on the evapo-transpirometric method



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Results

- reduction of chemical fertilizers distributed

actinidia	- 77% N
peach	- 52% N
scarola salad	- 63 % N
	- 89 % P
	- 34 % K

- CO₂ fixed in soil

actinidia	+ 28,33 t/ha
peach	+ 27,79 t/ha
apricot	+ 33,00 t/ha

- reduction of water distributed

peach	- 1.670 m ³ /ha
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Innovations carried out, have improved quantity and quality of productions (competitiveness)



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GESAMB Project

Promotion of EMAS in agro-food Small Medium Enterprises of Southern Italy

Executory subject:

ENEA in collaboration with 20 Small Medium Enterprises

Funding:

Italian Ministry of University and Research

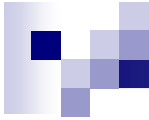
General objective:

To favour the diffusion of new instruments of environmental management in agro-food Small Medium Enterprises of Southern Italy



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Agro-food SMEs and environmental management, why?

In Italy agro-food sector → € 105 Mld
2nd in manufacturing sector

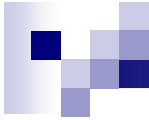
In Italy > 99% SMEs

Agro-food industry environmental sensitiveness

**Strong perception of environment/product quality relationship
in agro-food sector**

**Consumers motivated to purchase foods conform to
environmentally-friendly production criteria and ethical
principles**

**Environmental management systems can be implemented in
very small organizations also**



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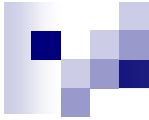
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Work-Packages

- WP1** - Information and training about environmental quality
- WP2** - Pilot case-studies carried out together with SMEs of dairy, fish products and agro-industrial sectors;
- WP3** - Diffusion of project results through GESAMB website

<http://gesamb.casaccia.enea.it/>



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Environmental Management System (EMS)

Pool of co-ordinate elements (organizational structure, planning activities, responsibilities, practices, procedures, processes and resources) carried out by an organization to reach the objective of an effective environmental management

Environmental review



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Environmental Management System

Continual improvement
of environmental
performance

Environmental policy

Planning

Environmental aspects
Legal and other requirements
Objectives and targets
EM programme(s)

Management review

Implementation and operation

Structure and responsibility
Training, awareness and competence
Communication
EMS documentation
Document control
Operational control
Emergency preparedness and response

Checking and corrective action

Monitoring and
measurement
Nonconformance, corrective
and preventive action
Records
EMS audit

Environmental statement

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Main operative phases carried out together with SMEs

- **Environmental review**
- **Analysis and verification of legal compliance**
- **Editing of environmental policy, objectives, targets and programmes**
- **Advice in implementing Environmental Management Systems (EMS) in conformity with ISO 14001 standard**
- **Editing of environmental management manual and of all documents related**
- **Internal audit**



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Main difficulties

Lack of skilled and dedicated staff (external consultants)

Little involvement of top management

Top management renewal or products change

Productive stop because of legal troubles

Nonconformities with environmental law requirements (safety, authorizations, permissions, ...)



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Environmental review

Initial comprehensive analysis of the environmental issues, impact and performances related to activities of an organization

Tool to establish the starting point of a productive site/organization with regard to environmental aspects connected with its activities



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Main Direct environmental aspects to be considered in environmental review

- a) emissions to air**
- b) releases to water**
- c) avoidance, recycling, reuse, transportation and disposal of solid and other waste, particularly hazardous waste**
- d) use and contamination of land**
- e) use of natural resources and raw materials (including energy)**
- f) local issues (noise, vibration, odour, dust, visual appearance, etc.)**
- g) transport issues (both for goods and services and employees)**
- h) risks of environmental accidents and impacts arising or likely to arise, as consequences of incidents, accidents and potential emergency situations**
- i) effects on biodiversity**



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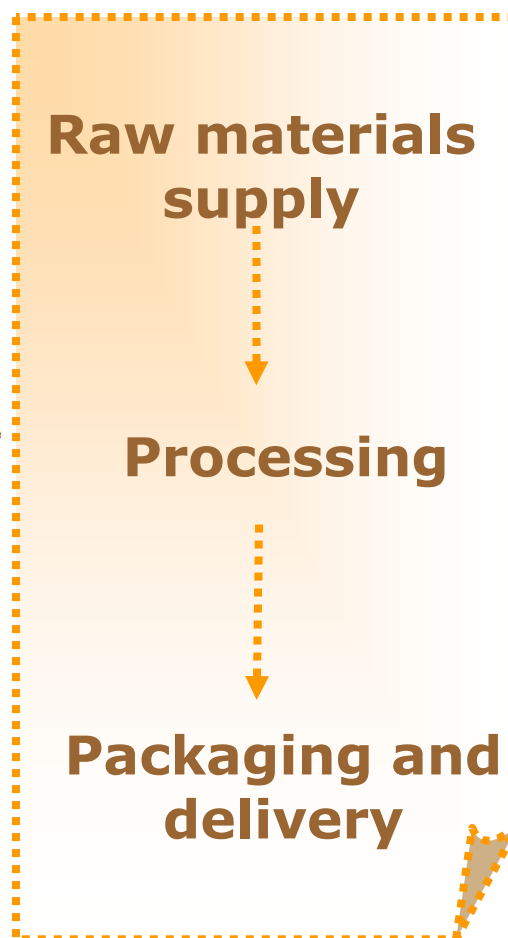
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DAIRY PRODUCTS

INPUT

- Raw materials and processing aids
- **ENERGY RESOURCE**
- **WATER RESOURCE**
- Hazardous chemicals



OUTPUT

- **BY-PRODUCTS**, end products, waste
- Emissions to air
- **RELEASES TO WATER**
- Noise
- Impact on road traffic



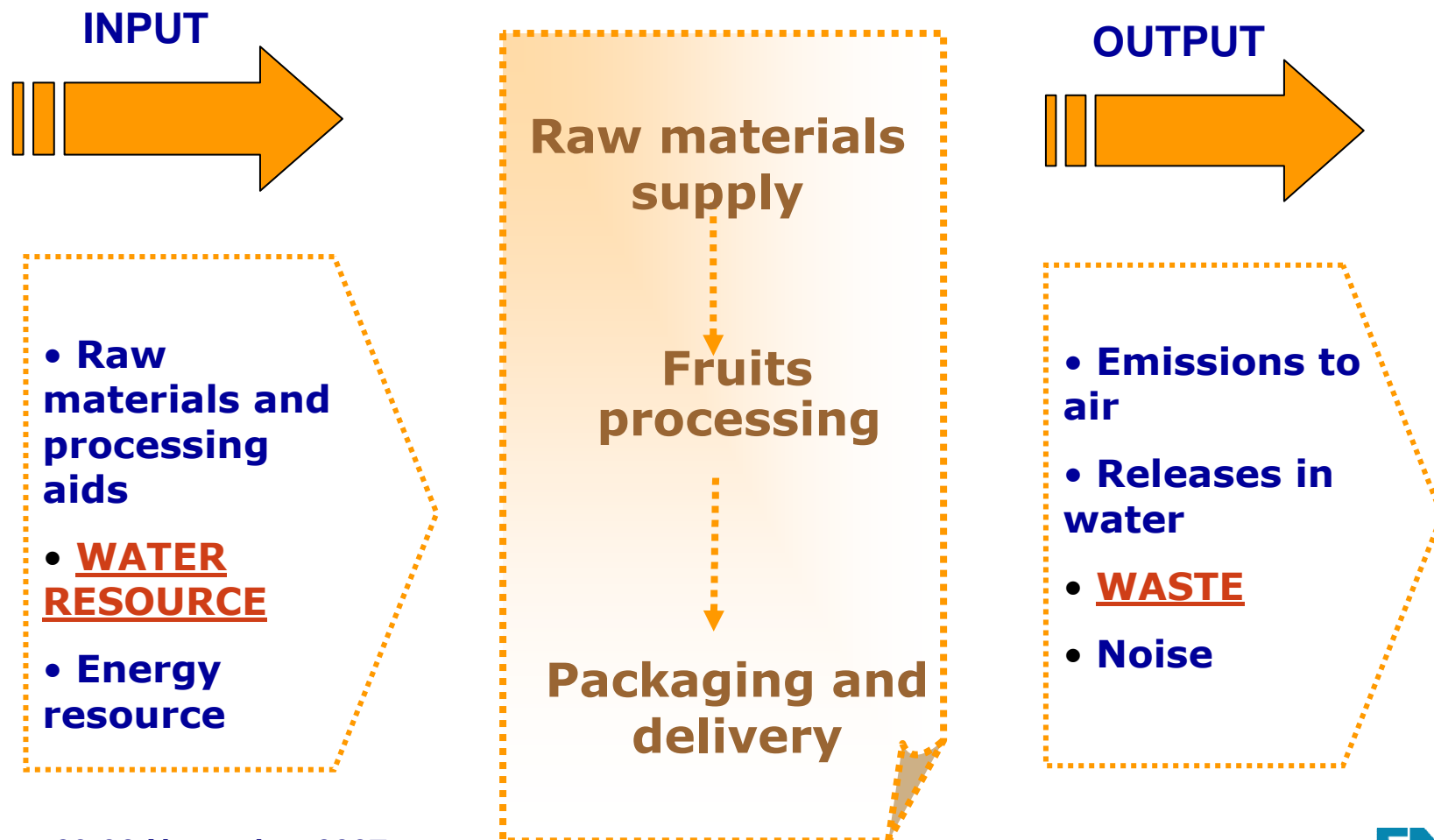
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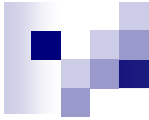
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AGRO-INDUSTRY Citrus Fruits



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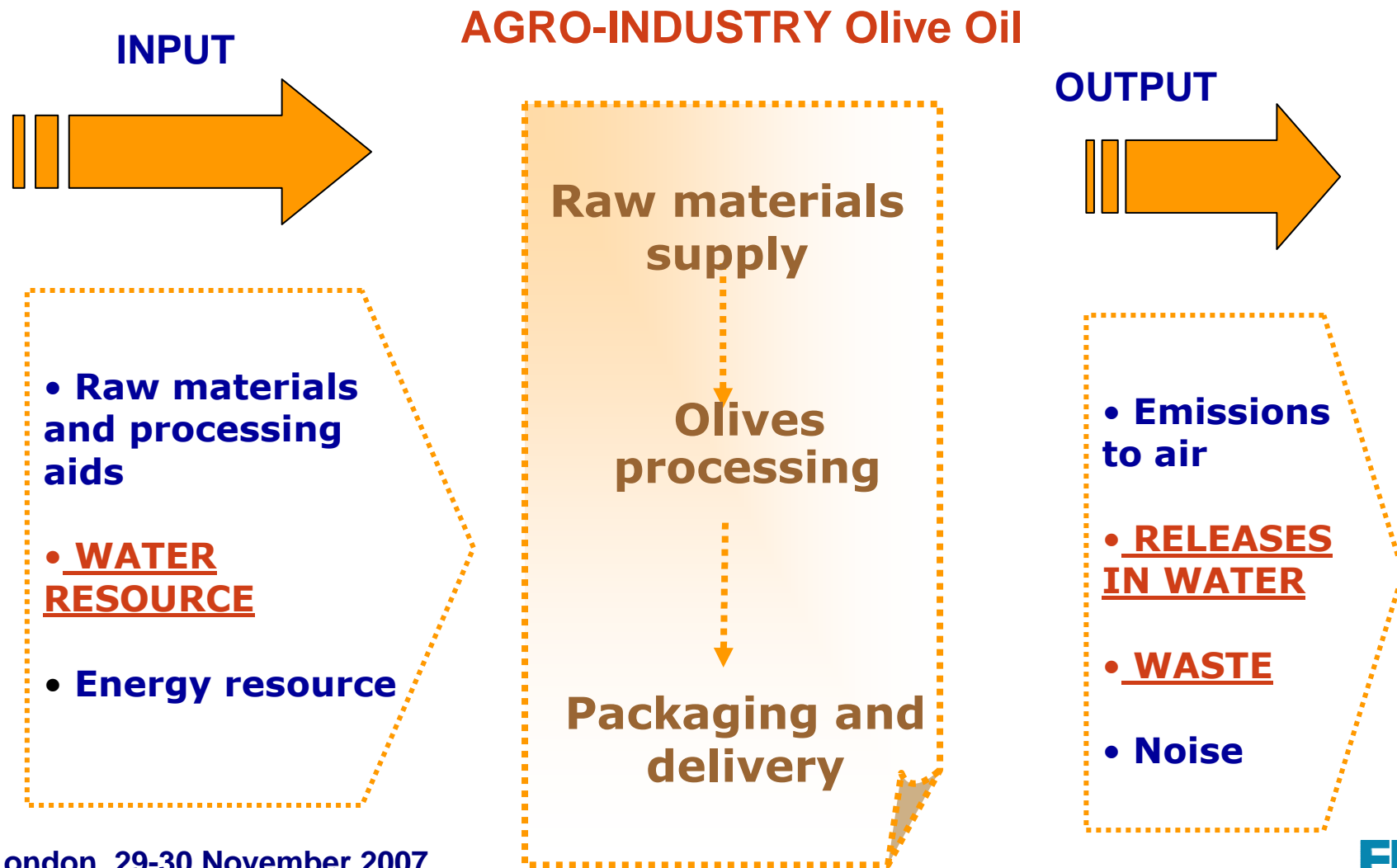


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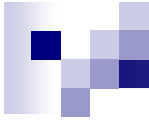
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**Thank You
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