The LIFE FoodPrint project:
A toolbox for the improvement of Food Industry environmental performance

Fotini Salta
SEVT

London, 23/1/2018

Hellenic Food & Drink Industry Figures

Turnover
€14,2 billion

Employment
30,8% of manufacturing sector

Value Added
3%
of Hellenic Gross Added value

Number of Companies
1.225

Exports
€4,1 billion

Consumption
20%
of household expenditure on food and drink products

EU FOOD AND DRINK INDUSTRY FIGURES

TURNOVER
€1,098 billion
Largest manufacturing sector in the EU

VALUE ADDED
1.7%
of EU gross value added[1]

CONSUMPTION
14%
of household expenditure on food and drink products

EMPLOYMENT
4.24 million people
Leading employer in the EU

NUMBER OF COMPANIES
289,000

R&D EXPENDITURE
€2.8 billion

SALES WITHIN THE SINGLE MARKET
90%
of food and drink turnover

SMEs[1]
48.3%
of food and drink turnover

62.1%
of food and drink employment

EXTERNAL TRADE
€102 billion
Exports

€71.9 billion
Imports

€30.1 billion
Trade balance

17.3%
EU share of global exports

[1] For definition, see page 24
Sources: Eurostat; JRC; UN COMTRADE

A few words for the Federation of Hellenic Food Industries SEVT

Represents the Greek Food & Drink Industry at national, European and international level.

Membership is made up of food and drink companies and sector associations.

The **mission** is to facilitate the development of an environment in which all food and drink companies, whatever their size, can meet the needs of consumers and society, while at the same time competing effectively for sustainable growth.

SEVT Priorities

- Competitiveness – Growth - Extroversion
- Research – Innovatio
- Safety & Quality
- Nutrition & Health
- Sustainable Developmen
- European Co-operation

Sustainability plays a key role in food and drink companies long-term competitiveness. SEVT is committed to support sustainable practices, to protect and promote natural resources, to work in partnership to develop uniform, science based methodologies to assess a food product environmental impact and to find the best ways to be communicated to the consumer.

The world challenges

Providing **Food and Nutrition Security** in a changing world is an urgent objective due to the increasingly interconnected challenges of **natural resource scarcity, climate change and population growth**, which affect European and food systems globally.

EC FOOD 2030:
Research and Innovation for Tomorrow's Nutrition and Food Systems

LIFE FOODPRINT Project

«Environmental sustainability as a business opportunity for the agrofood industry»

The co-operation model

4 companies
(JOTIS SA, BIOCHEM ARVANITIS SA, KONTZOGLOU BROS SA, AKTINA SA

2 Universities
(NTUA & AUA)

2 Federations
(SEVT & FEDERALIMENTARE Srv)

A partnership under a LIFE project

Identified a real need of the food industry and developed a solution for the sector

The co-operation model

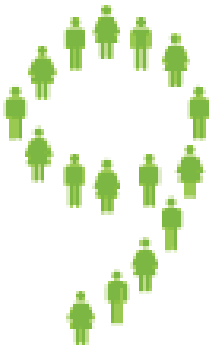
Roles

Universities: Solution developers

Companies: Provision of necessary data, test of solution, act as best practice for other companies

Federations: Dissemination of the results, raise of sectors awareness, development of proposals for the policy makers

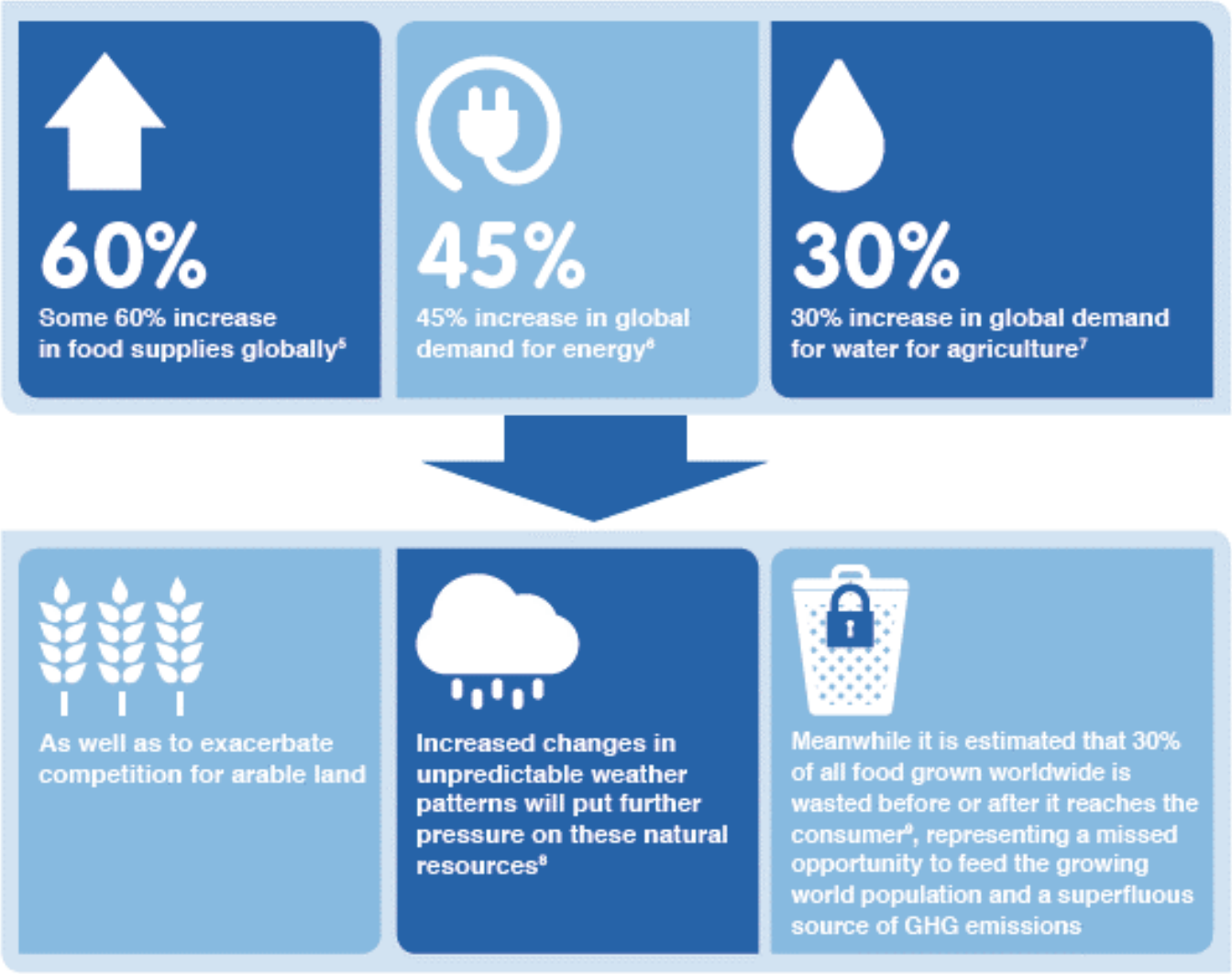
The problem:
The carbon footprint of the food industry



9 Billion

World population expected to reach 9 billion by 2050

Projected to require:

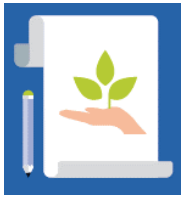


How to make sustainable the agrofood system?

Technology change

Optimization

Behavior change



Co-operation and mutual agreements

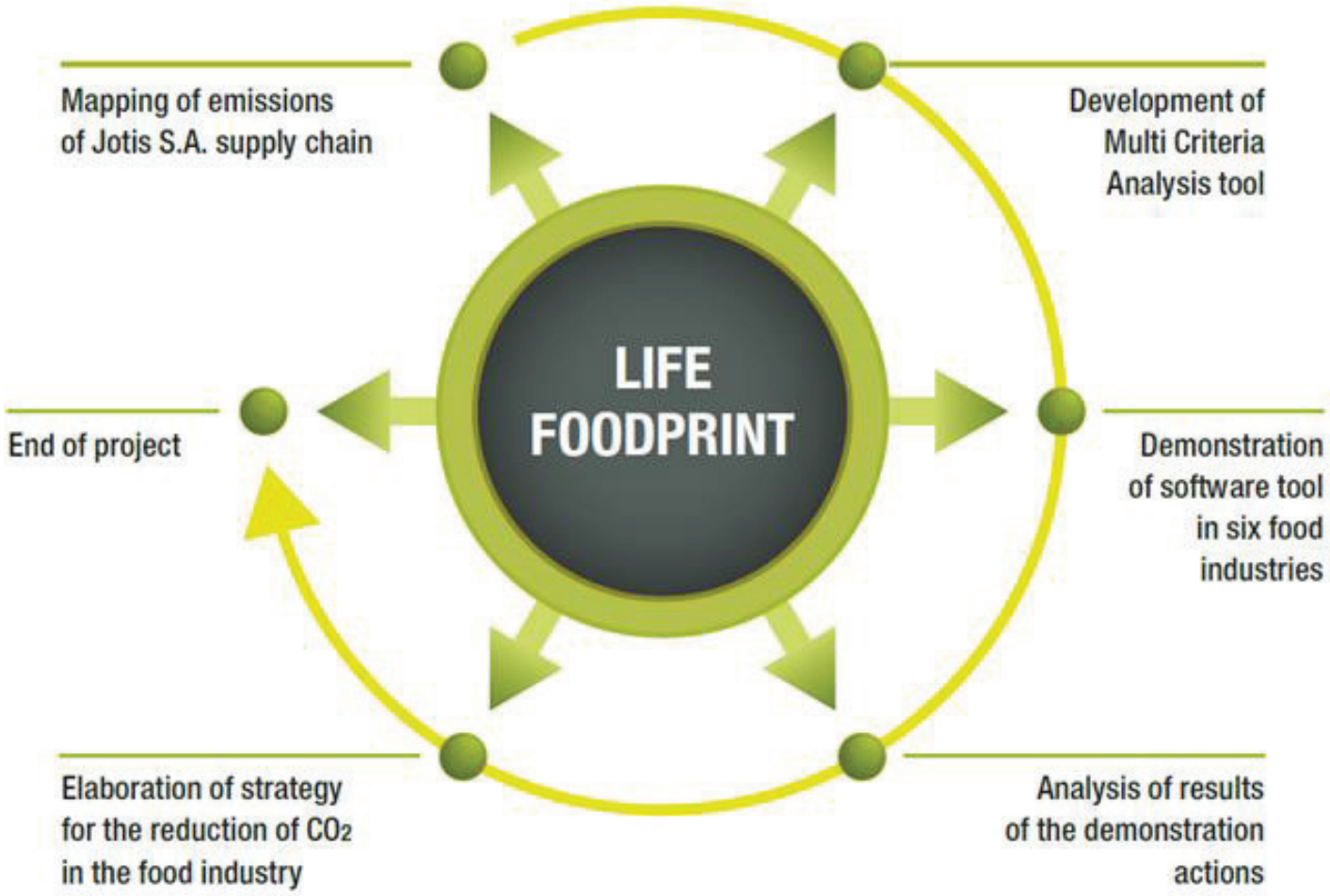
Changing the way we produce, distribute and utilize food.

Source: ''A Time to Act-Climate Action & The Food Drink Europe'', FOODDRINKEUROPE

Project aims

- Evaluation the carbon footprint (CF) of the food industry.
- Developing a robust software tool that will enable the reliable determination & evaluation of the CF.
- Performing a large scale demonstration of the developed CF tool in 6 food industries in Greece and Italy.
- Implementing actions in food industries in Greece and in Italy.
- Introduction of products that have effectively lowered the CF and successfully label them based on their CO_2 levels.
- Development of a national strategy in regard to the reduction of GHG emissions from food industries in Greece and Italy.

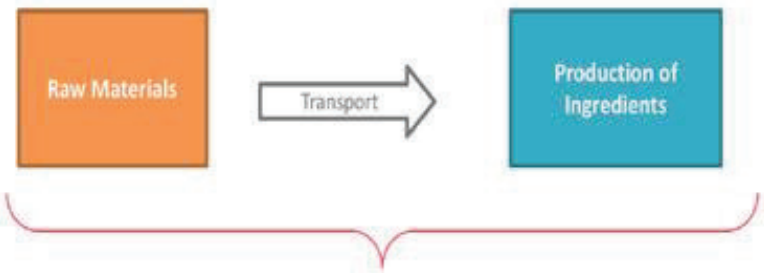
Project methodology



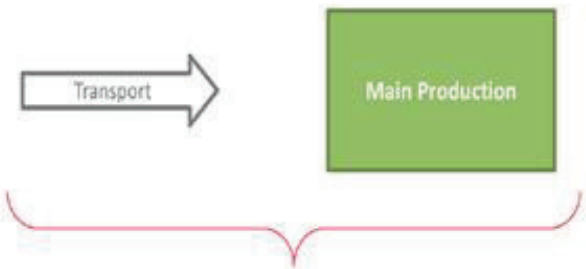
FOODPRINT Tool

A Carbon Footprint tool for the effective quantification of CO_2 equivalent emissions sources of food products

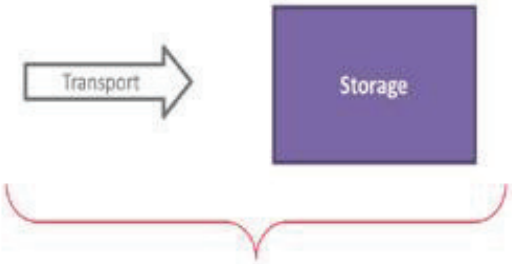
The tool quantifies the total CO_2 equivalent emissions of food products, taking into consideration all the processes involved with the manufacturing of the final product.



User can also enter data regarding the production of ingredients. Alternatively, can use default values sourced by extensive literature review.



The user focuses on the main production stage, that includes transportation of the ingredients to the factory.

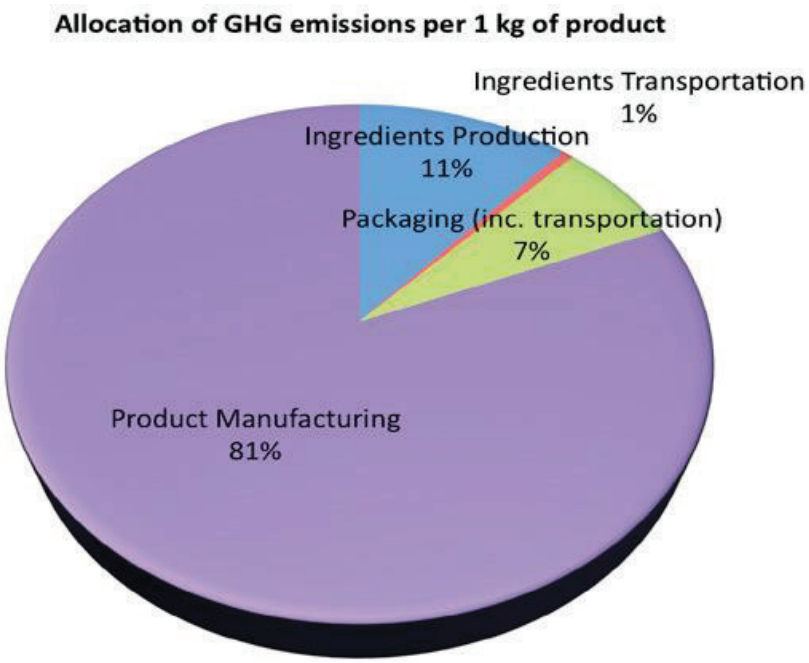


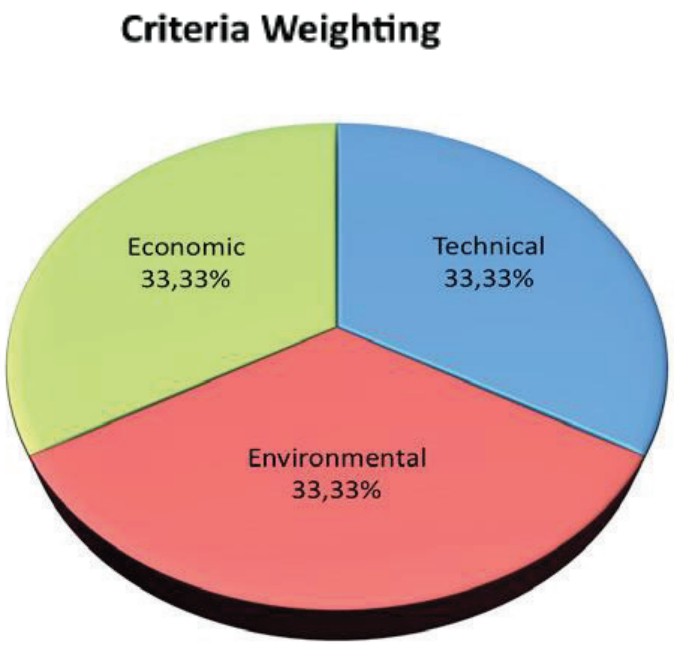
User can also enter data regarding the storage of products, in case it is outside the factory. Alternatively, can use default values.

FOODPRINT Tool

The Carbon Footprint of a food producing overall chain can be calculated

- by starting a new product from scratch, with all the information and data entered by the user
- by using some built-in case studies, which can be loaded and then modified according to the user specification.





FOODPRINT Tool

www.foodprint.gr

Characteristics

- Calculation of the Carbon Footprint
- Specific reduction measures that could be prioritized via a multi-criteria analysis (MCA) function
- Preferences between options by reference to a set of objectives that the decision making body has already identified
- Modular methodology allowing its implementation in any food product.
- Possibility to send the questionnaires to the main suppliers of the chain, facilitating data gathering.
- Uncertainty analyses

Features

- Free access
- Easy to use
- Menu bar
- Not necessary to install the program, making its use even simpler (Excel-based calculations)

A National Strategy for the reduction of CO_2

A national strategy was developed for the reduction of GHG emissions from the food industries which will contribute to the increase of the competiveness of the sector.

The strategy provides:

- Actions which lead to the reduction of the CO_2 emissions.
- Proposals for the awareness raising of the sector.
- Suggestions for the promotion of the innovation.
- Recommendations to policy makers.

The JOTIS case

Evaluation the carbon footprint

JOTIS was used as a case study to collect the necessary data to create a database on which the Software tool was based.

Energy audits were also performed:

- ATTIKI BEE CULTURING Co. ALEXANDROS PITTAS S.A
- E.J. PAPADOPOULOS S.A.
- ELAIS-UNILEVER HELLAS S.A
- G. KALLIMANIS S.A
- AKTINA SA
- NICOLI MOLINO S.P.A. and
- MAURI ITALY S.P.A..

The JOTIS case

Evaluation the carbon footprint

In collaboration with NTUA, energy audits were carried out in which:

- The production steps for each product were identified and mapped, while the input and output quantities of materials and energy were recorded.
- Meters were installed at the hot spots of the production lines with continuous data capture.

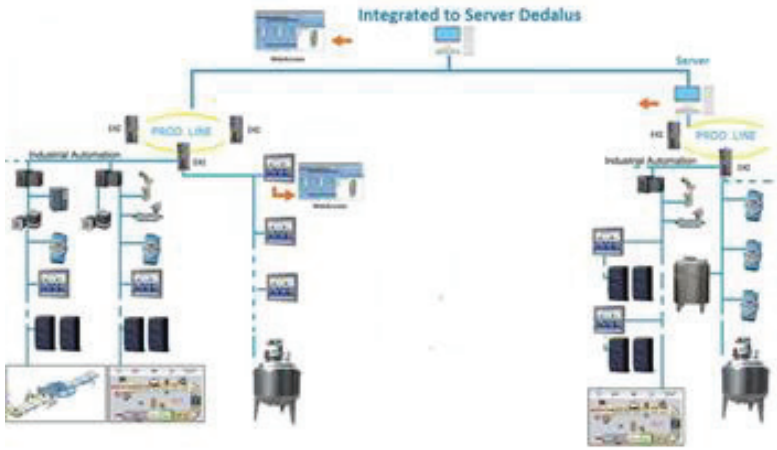
The collected data include:

- General Factory Information (Lighting, Heating, Air Conditioning, etc.).
- Mass and energy balances on production lines.

The JOTIS case

Implementation Actions

- Interventions in the baby food production line
- Interventions in the chocolate production line
- Interventions in all production lines
- Reassessment of product recipes and development of new ones without affecting product quality.

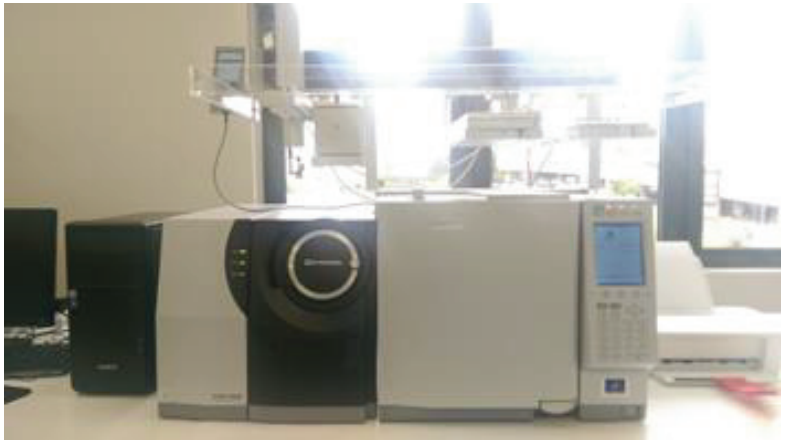


The JOTIS case

Implementation Actions

Use of biodegradable materials as packaging materials

- Due to the continuous rise in the environmental policy of YIOTIS S.A. and the increased interest to reduce the carbon footprint, new biodegradable packaging materials were introduction in order to replace the petroleum derived ones. Replacing conventional synthetic packaging with biodegradable polymers can decrease waste through biological recycling to the biosystem.
- In order to replace the petroleum packing materials the biodegradable were tested in terms of machinability, stability and migration analysis in order to reduce energy consumption and greenhouse gas emissions.
- In total, 5 different versions of biodegradable materials were examined.



The JOTIS case

Implementation Actions

- Adoption of an **energy strategy** aiming to reduce energy consumption and carbon footprint.
- **Experience and training** of the staff in energy management and data collection.
- Suggested **measures** and possibilities for JOTIS:
  - Conversions to existing equipment and new investments.
  - General Interventions in all production lines
  - Use of biodegradable materials as packaging materials
  - Reassessment of product recipes and development of new ones without affecting product quality.

The JOTIS case

The labeled products

The benefits for the Food Sector

- The tool helps companies to improve their environmental performance.
- The Hellenic Strategy for the reduction of the GHG emissions is the guide of the sector for the reduction of GHG.
- The participating companies affected deeply from the project and they have already re-oriented their environmental approach.
- The awareness of the food Industry on environmental issues is raising.
- The food industry - academic network was expanded with scientists of this research field as well.
- Specific research priorities for the reduction of GHG were identified.

Thank you for your attention