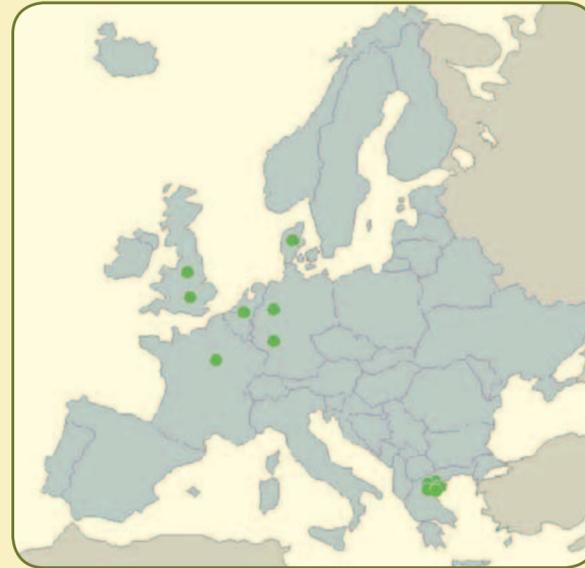


Project Consortium

Top scientists from European outstanding research “partnering organizations” as well as experts from European business associations are involved in the GREEN-AgriChains project; especially, twelve (12) partners from six (6) European countries.



Coordinator



Aristotle University of Thessaloniki
Greece

Partnering Universities/RTD Institutes



Industrial Stakeholders



Innovation Capacity Building
by Strengthening Expertise
and Research in the Design,
Planning and Operations of
Green Agrifood Supply Chains



An EU Research Project funded by the EC
within the 7th Framework Programme

GREEN-AgriChains

Seventh Framework Programme
(FP7-REGPOT-2012-2013-1)

Project Results

Project Information

Funding

The GREEN-AgriChains project has received funding from the European Community's Seventh Framework Programme (FP7-REGPOT-2012-2013-1) under Grant Agreement No. 316167

Time Frame

October 2012 – March 2016 (42 Months)

Website

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Communication

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Coordinator



ARISTOTLE UNIVERSITY OF THESSALONIKI, GREECE

DEPARTMENT OF MECHANICAL ENGINEERING

SCHOOL OF AGRICULTURE



LABORATORY OF QUANTITATIVE ANALYSIS,
LOGISTICS AND SUPPLY CHAIN MANAGEMENT



LABORATORY OF HEAT TRANSFER
AND ENVIRONMENTAL ENGINEERING



LABORATORY OF ALTERNATIVE ENERGY
RESOURCES IN AGRICULTURE

GREEN-AgriChains is a collaborative project, implemented by a consortium of 12 leading European institutions, bridging boundaries across the quadruple helix, namely, academia, industry, society, and policy-making bodies. Coordinated by the Aristotle University of Thessaloniki (A.U.Th.), the GREEN-AgriChains project aims towards establishing A.U.Th. as a prominent stakeholder of innovation in the areas of Green Supply Chain Management and Logistics, focused on the Agrifood sector.

The Project has adopted since its inception, a holistic and interdisciplinary methodological approach encompassing all aspects of the supply chain design and planning process that support green image, including sustainable and precision farming, reverse logistics, green supply chain management, green procurement and sourcing, waste management and packaging reuse, transportation, energy consumption efficiency, green marketing, green accounting, and corporate social responsibility (CSR).

The funding proposal was submitted on December 2011 and received an almost perfect evaluation for all its aspects from the Commission. The Project start date was October 1st, 2012 with a total duration of 36 months. Additionally, there is a provision for a 6-month ex-post evaluation of the Project in order for external experts, appointed by the Commission, to provide feedback to the project's team for the validation and sustainability of the Project. To that effect, the total Project duration has been extended to 42 months.

In the kick-off meeting on November 22nd, 2012, the GREEN-AgriChains' Project Coordinator set up a project management system consisting of: (i) Project Management Committee; (ii) Project Manager; (iii) Steering and Advisory Board; (iv) Quality Assurance & Control Committee, and related procedures. Being fully compliant as per the guidelines of the Grant Agreement, 11 postdoctorate experts covering the entire spectrum of green supply chain management for the Agrifood sector were recruited since January 2013.

Furthermore, to increase A.U.Th.'s research and training capacity, new state-of-the-art equipment & software were acquired early 2013, while the research team received extensive training on the capacities of these acquisitions. Further, intensified research activities were undertaken by the Project members as part of 46 secondments between A.U.Th. and the other partners. **The overall project has been met with absolute success as we have exceeded all targets that were initially set for the various KPIs, while working methodically and diligently towards ensuring the future sustainability of the Project.** Specifically, Green-AgriChains has produced more than **110 publications** in referred scientific journals, book chapters and conference proceedings, **one (1) Book** (published by Wiley; forthcoming summer 2015), and further led to **several new targeted research projects** (throughout the EU) as well as the drafting of **new research proposals** (under the Horizons 2020 platform). In addition, a plethora of press announcements, public presentations (in the EU, the U.S.A. and China) and five (5) information days formulate the nexus of dissemination activities and events that we employed to communicate the merits and accomplishments of the GREEN-AgriChains Project to the societal stakeholders.

In the long-term, it is envisioned the GREEN-AgriChains Project will act catalytically as the stepping-stone for establishing the foundations for a policy-relevant knowledge base throughout Southeastern Europe and the Mediterranean Basin while integrating and harmonizing with EU research networks in the Agrifood domain.

Prof. Eleftherios Iakovou

Project Coordinator

Chairman, Department of Mechanical Engineering
Director, Laboratory of Statistics and Quantitative Analysis Methods
Aristotle University of Thessaloniki

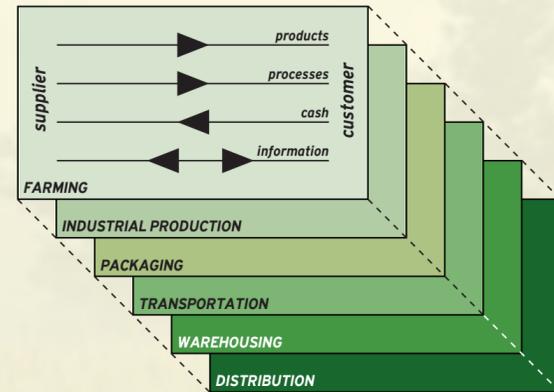
Green Agrifood Supply Chain Management

The agrifood sector is one of the most regulated and protected sectors worldwide, with major implications for sustainability such as the fulfilment of human needs, the support of employment and economic prosperity, the environmental impact, the tackling of poverty and the creation of new markets. Growing environmental, social as well as ethical concerns, and increased awareness of the impact of food production and consumption on the natural environment have led to increased pressures by consumer organizations, policy-makers, and environmental advocacy groups on agrifood companies to manage social and environmental issues across their supply chains (SCs). Intensified concerns also stem from the projected rise of 70% on the global food demand by 2050, thus highlighting the value of family farms and the development of local food SCs in both the developing and developed countries.

Agrifood Supply Chains

In general, an Agrifood Supply Chain (AFSC) is encompassing a set of operations in a “farm-to-the-fork” sequence including farming, processing/production, testing, packaging, warehousing, transportation, distribution, and marketing. These operational echelons have to be harmonized in order to support five flow types, namely:

- i. physical material and product flows,
- ii. financial flows,
- iii. information flows,
- iv. process flows, and
- v. energy and natural resources’ flows.



Unique Characteristics

AFSCs exhibit a set of unique characteristics that differentiate them from classical supply networks and raise an imperative need for customized managerial capabilities. AFSCs are characterized by:

1. the unique nature of their products as in most cases they deal with short life-cycle and perishable goods,
2. high product differentiation,
3. seasonality in harvesting and production operations,
4. variability of quality and quantity on farm inputs and processing yields,
5. specific requirements regarding transportation, storage conditions, quality and safety, and material recycling,
6. a need for complying to national/international legislation, regulations and directives regarding food safety and public health, as well as environmental issues (e.g. carbon and water footprints),
7. a need for specialized attributes, such as traceability and visibility,
8. a need for high efficiency and productivity of the expensive technical equipment, despite often lengthy production times,
9. increased complexity of operations; and
10. the presence of significant capacity constraints.

Sustainability Challenges

In order to develop competitive and sustainable AFSCs, there are few critical issues that have to be first recognized:

- i. greater challenges including economic crises, social exclusion, and climate change, with direct impact upon business activities,
- ii. consumers awareness of the manner in which the food is produced, processed and distributed,
- iii. continuous introduction of new environmental and food safety legislation from both European and international directives,
- iv. global trends, including rapid urbanization, growth and liberalization of domestic/global factors and markets, decrease of public sector funding, dominance of global SCs, changes in technology and weakness of regional rural populations to comply with the requirements posed by dominant enterprises.

GREEN-AgriChains Results Exploitation and Knowledge Dissemination

The GREEN-AgriChains project has contacted research in close cooperation with industrial practitioners and other stakeholders in Europe within the framework of a “co-learning” approach. Scientists, policy-makers and stakeholders from industries across the EU participated in the work to validate the utility of methods developed and explore the implications of the approach in relation to participation and transparent governance processes. A plethora of dissemination events have :

- allowed state-of-the-art knowledge and expertise exchange and mutual cooperation among researchers, industrial stakeholders and EU experts from collaborative institutions, harmonizing the needs of all stakeholders involved in the Agrifood Industry, particularly SMEs and policy-makers, regarding the implementation of sustainable SC management and logistics practice,
- motivated entrepreneurs, Government Authorities, NGOs and other policy-makers on the dissemination of GREEN-AgriChains’ outcomes and overall contribution at the socio-economic development of the region, ensuring sustainability in the agrifood sector.

Supply Chain Management

- Design of green supply chain networks.
- Optimization of supply chain operations.
- Green procurement and sourcing.
- Risk management.

Sustainable Farming

- Energy production through organic wastes.
- Energy saving systems in agricultural buildings.
- Innovative systems for harvest and tillage.
- Bio-fertilizers production.

Reverse Logistics

- New products designed for reuse.

Marketing

- Green marketing.
- Green accounting.

Environmental Management

- Waste management for energy production.
- Adaptive (to climate change & air quality status) management.
- Biomass supply chain management.

Corporate Social Responsibility (CSR)

- Key Performance Indicators for CSR.
- Carbon footprint management.
- Water footprint management.

GREEN-AgriChains Performance Indicators (KPIs)

1. Recruitment of 11 post-doctoral researchers (WP2)

1. Supply chain management (SCM) for added-value agrifood chains,
2. Energy saving in greenhouses and livestock buildings,
3. Sustainable supply chain, eco-design of products and waste treatment interventions,
4. Green logistics and SCM for substitute products,
5. Waste biomass-to-energy SCM and modeling for energy policy-making,
6. Energy production from organic wastes and waste management,
7. Marketing techniques and corporate social responsibility,
8. Climate change and air quality,
9. Information technology and traceability in agrifood supply chains,
10. Solid waste management,
11. Life Cycle Analysis on waste management sector.

2. Knowledge transfer through secondment visits to and from Partnering Organization (WP3)

During the GREEN-AgriChains project, 46 secondments have been implemented between the A.U.Th.’s research staff (along with the recruited experts) and the collaborative institutions. The secondments had an average duration of five days and had contributed essential know-how and experience.

Partnering Organization	No.	Partnering Organization	No.
• Brunel University	6	• International Hellenic University	6
• INSEAD	4	• Aarhus University	5
• Aarhus University	5	• Alexander Technological Educational Institute of Thessaloniki	4
• University of Sheffield	2	• Erasmus University Rotterdam	3
• Erasmus University Rotterdam	3	• EffizienzCluster	4
• Karlsruhe Institute of Technology	3	• Thessaloniki Innovation Zone	2
		• Organic Products Cluster	7

3. Enhancement of AUTH’s research infrastructure (WP4)

i. Software

- IBM ILOG LogicNet Plus XE including Carbon Footprint optimization features (LASC),
- SimaPro Software (LHTEE)

ii. Hardware

- Gas Chromatograph with thermal-conductivity and flame-ionization detectors (A.E.S.A),
- Chemical consumables for the Gas Chromatograph (A.E.S.A)



→ : GREEN-AgriChains Secondment

4. Workshops and seminars (WP5)

i. 5 Workshops:

- September 23-26, 2013 “Sustainable agricultural production”
- January 26-30, 2014 “Green supply chains in the Agrifood sector”
- June 1-5, 2014 “CSR issues in the Agrifood Supply Chain”
- November 16-19, 2014 “Sustainable agricultural production”
- May 27-30, 2015 “Green supply chains in the Agrifood sector”

ii. Conference Attendances

- 65 presentations in International and National Conferences

5. A Strategic Intellectual Property development plan (WP6)

6. Publication of Research Outcomes in Journals and Conference Proceedings (WP8)

i. Academic Publications:

- 30 in Scientific Journals and Book Chapters (targeted value: 10)
- 56 in Proceedings of International Conferences (targeted value: 25)
- 9 in Proceedings of National Conferences
- One Book: “Supply Chain Management for Sustainable Food Networks”. 2015 Wiley, Inc.

ii. 10 Research proposals

iii. Dissemination Events

- a. 5 Information Days in Thessaloniki
 - March 29, 2013
 - October 29, 2013
 - May 07, 2014
 - November 18, 2014
 - March 20, 2015
- b. One fully updated and operational web portal
- c. 45 participation in Dissemination Events
- d. 73 Press Announcements
- e. One Final Dissemination Event

iv. At least five spinoff research activities with EU and Greek industrial/research partners

- “Feasibility study on the establishment of dual vocational education and training in Greece in the transport and logistics sectors”, funded by Federal Institute for Vocational Education and Training, Germany.
- “Yield Forecasting for the Hellenic Canning Association”, funded by Hellenic Canning Association.
- “Warehousing strategic planning and best practices for inventory management”, funded by ZANAE S.A.
- “Supply Chain Sustainability Assessment” in BioAgros S.A.
- “Supply Chain Sustainability Assessment” in Green-Family.

