



## **Fruit and vegetable research under Horizon Europe: An opportunity to tackle global food challenges**

The European fruit and vegetable sector is faced with global challenges including the need for increased competitiveness along the chain and value added to the products, the transformation towards a sustainable production, supply chain and consumption, the mitigation of the effects of climate change, the implication of changing lifestyles on human health and well-being, an increased ambition for food safety and security, and for reduction of food loss and waste. The horticultural sector faces the risk of being unable to adequately respond to these real and upcoming challenges, if the appropriate innovation and research needs and priorities are not identified.

However, the fruit and vegetable industry can play an important task in tackling these global challenges, for example in the field of climate action and environment preservation. It can help to reach the UN Sustainable Development Goals, in particular zero hunger, good health and well-being, responsible consumption and production, and climate action.

Research in the fruit and vegetable sector would enhance a competitive Europe: The fruit and vegetable sector involves about 1.4 million farm holdings, with a total chain turnover of about 150 billion euro. In order to further support all the actors along the chain and to increase the competitiveness of the sector, additional research and innovation efforts are needed in Horizon Europe along all the segments of the complete supply chain to reach the goals of responsible consumption and production, sustainability, and increased competitiveness and value. **Horizon Europe should stimulate the increased uptake of new technologies to meet competitiveness challenges.**

Research in the fruit and vegetable sector would enhance a fair Europe: The fruit and vegetable sector proactively helps to build a fair Europe for all its citizens by promoting an attractive, inclusive and affordable diet that increases human health and well-being by delivering unique nutritional value conferring protection from cardiovascular disease, obesity and cancer. Securing a steady supply of fresh and safe fruit and vegetables adapted to the EU consumer's needs is essential to face the food challenges that lie ahead in terms of projected demographic growth, climate change, and sustainability. **Horizon Europe should enhance the affordability of necessary innovations, which should lead to a fair income for the producers, many of which are small family farmers in the horticultural sector.**

Research in the fruit and vegetable sector would enhance a sustainable Europe: The European fruit and vegetable industry is one of the most sustainable sectors of the EU agro-industry in terms of land use as it produces around 21% of the value of the total EU agricultural production with less than 3% of total land use. Furthermore, the sector invests heavily in finding alternatives to pesticides that are harmful to health and environment and increasing the sustainability of production systems. **However, increased research and innovation is needed in Horizon Europe to meet the goals set for good health and well-being, responsible production, adapted to the effects of climate change.**

Research in the fruit and vegetable sector would enhance an influential Europe: The choice of topics that will be funded under Horizon Europe highlights a message to the world. Through targeted research in the fruit and vegetable sector, **Horizon Europe can highlight its ambitions for the value and quality of fresh produce, high standards of food safety, increased food security, and a sustainable future for humans and the planet in a competitive agro-food sector.**

Therefore, it is of the utmost importance that the fruit and vegetable sector is adequately highlighted and funded in order to be able to respond to those imminent challenges to our production and consumption patterns. On the following pages, the consortium explains their research priority outline for the fruit and vegetable sector, which should lead to a research programme that can efficiently tackle the challenges.

***AREFLH** is a European Assembly of fruit, vegetable and horticulture regions (Assemblée des Régions Européennes Fruitière, Légumières et Horticoles). As an assembly of 25 regions, AREFLH represents more than 40 % of the fruit and vegetable European production and producer's main organizations. <http://areflh.org>*

***EUFRIN** is an organization of university departments and research institutes that specialize in research, development, and extension on temperate fruit crops and which are based within countries of the European Union, Switzerland, and Eastern Europe. EUFRIN currently represents 22 countries. <http://eufrin.org>*

***EUVRIN** is an informal, voluntary organization of research institutes or research institutes departments that specialize in research, development, and extension on vegetable production, which are based within a number of countries of the European Union. It was set up and held its first meeting in Brussels on February 1, 2016. The current number of research institutes stands to 50 (Membership of and Participants in EUVRIN). <http://euvrin.eu/>*

***FRESHFEL EUROPE** is the European Fresh Produce Association, representing the interests of the fresh fruit and vegetables supply chain in Europe and beyond. Freshfel Europe currently has over 200 members, including companies, organizations and associations, ranging from producers to retail operators. [www.freshfel.org](http://www.freshfel.org)*



## The fruit and vegetable sector in Europe.

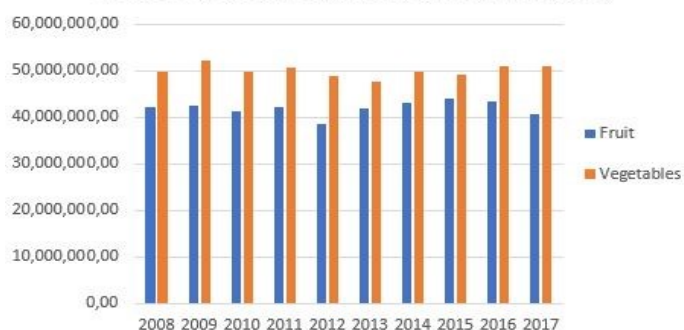
The European fruit and vegetable industry is a fundamental sector in the EU, as its production accounts for close to **21% of the value** of the total EU agricultural output, by using only **3% of the EU's cultivated area!** About **1.4 million farm holdings** are involved in fruit and vegetable growing, with a total chain **turnover of about €150 billion.**<sup>1</sup>

However, the importance of the fruit and vegetable sector is so much more than just economic. The sector also contributes to:

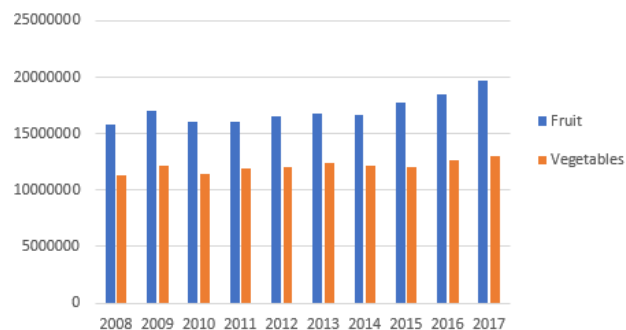
- Regional diversification
- Sustainable agriculture and use of resources
- Supply of critical raw materials for the food industry
- A healthy diet for European citizens



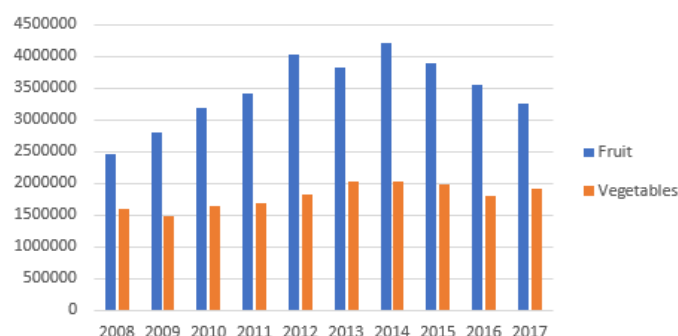
Total EU fruit and vegetable production (in T)



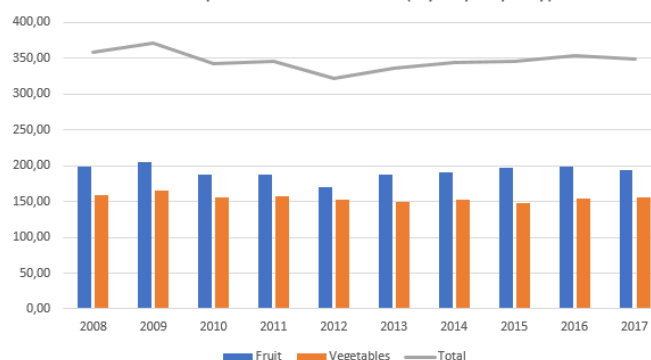
Intra-EU trade in fruit and vegetables (in T)



Extra-EU trade in fruit and vegetables (in T)



Consumption trend 2008-2017 (G / Capita / Day)



<sup>1</sup> A.R.E.F.L.H., EUFRIN, EUVRIN & Freshfel Europe: [Strategic Innovation and Research Agenda \(SIRA\)](#)



## Fruit and vegetables in Horizon Europe.

Research and innovation challenges change over time, but overall, the sector remains fragile. This is due to erratic **climatic events** and changing climate conditions, leading to **pest and disease** outbreaks, and changes in **productivity** of certain cultivars. All of this impacts the food security. Research and innovation is also needed to foster the potential of digitisation, to secure the fruit and vegetable food system, and to increase its competitiveness through increased focus on sustainability and reduced food waste. Certain fruit and vegetable research and innovation needs can be directly linked to some of the Horizon Europe missions and partnerships proposed:

### Missions

1. Soil health and sustainable food systems
2. Adapting to climate change, including societal transformation
3. Healthy oceans, seas, coastal and inland water

### Partnerships

1. Sustainable, inclusive and circular bio-based solutions
2. Advancing key digital and enabling technologies
3. Global health

#### Increasing digitisation

- More sustainability due to improved decision-making
- Increased efficiency
- Increased traceability
- Increased connection within the supply chain

#### Increasing health

- New cultivar development to match taste of consumers
- New processing technologies
- Smarter communication strategies to increase consumption

#### Increasing sustainable production methods

- Should include both field and glasshouse crops
- Focussing on circular economy approach
- Minimal environmental impact

Ultimately, the goal is to deliver a more competitive, qualitative product within a well-functioning supply chain and with reduced food waste, to stimulate the consumption of fruit and vegetables. This is a **win-win-win approach**: good for the environment, good for the body, good for the competitiveness of the sector



## Sector specific challenges for the fruit and vegetable industry.

### Context of business operation

Quantity/Quality/Yield/Competitiveness      Cropping systems      Environmental performance  
Consumer and market responsiveness      Outdoor vs. indoor crops      Resource use efficiency      Short term vs. long term crops

### Drivers

Politics  
Economics  
Social issues

Food and natural resources  
Climate, energy and mobility  
Health

Digital and industry  
Consumer demand

### Themes & Issues

Genetic resources/varieties  
Cropping systems, crop management & crop protection  
Automation, innovative technology, digitisation, robotization

Defossilisation/renewables  
Soil  
Water & fertiliser

With increased investment in Research and Innovation for the fruit and vegetable industry, we hope to achieve the 2030 visions as laid out in the SIRA:

#### ECONOMIC VISION

By 2030, all the components of the European fruit and vegetable chain will have increased competitiveness by intensive use of novel, eco-innovative, and highly digitalised technologies. These will secure greater profitability by means of increased labour efficiency, improved quality and productivity, innovative products and increased consumption of fruit and vegetables for the benefit of the health and well-being of citizens.

#### ENVIRONMENTAL VISION

By 2030, innovative European fruit and vegetable production systems will contribute to the preservation of the environment and the biodiversity through adaption of an array of eco-innovative technologies which will deliver better products and reduce wastage under threats from climate change and limited natural resources.

#### INNOVATION VISION

By 2030, barriers for innovation adoption will be overcome and this will deliver wealth for key stakeholders in the European fruit and vegetable supply chain. The European fruit and vegetable research and innovation network will be strengthened and will facilitate the exchange and implementation of knowledge at the regional, national, and transnational level.

The needs for fruit and vegetables need to remain in focus, with high value for the consumers and specific problems connected with perennial crops and fresh produce. We emphasise and alert the European institutions of the critical needs of the fruit and vegetable sector, because, whilst it is well-organised across national borders, it is diverse and includes a complex mixture of mostly small, specialised actors. The sector is relatively fragile, as it does not have the same investment capacity or visibility compared to larger multi-national food actors.