INTESA SANPAOLO

FEDERCHIMICA
ASSOBIOTEC
Associazione nazionale per lo sviluppo delle biotecnologie

SPRING
Sustainable Processes and Resources for Innovation and National Growth

Bioeconomy in Europe

6° Report

Research Department

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Executive Summary

The pandemic caused by the SARS-COV2 virus has made it more evident that the models of economic development need to be rethought with a greater focus on sustainability and respect for the environment. A major role is played by the Bioeconomy, a system that uses biological resources from land and sea and waste materials as inputs for food, industrial manufacturing and energy: its strong links to the land, its ability to create multidisciplinary value chains integrated within local areas and to return key nutrients to the soil, thanks to its circular nature, make it one of the pillars of the Green New Deal launched by the European Union.

Against this background, the measurement and analysis of the value chains created by the Bioeconomy are essential prerequisites for well-targeted economic policy choices that take into account the changes that are taking place.

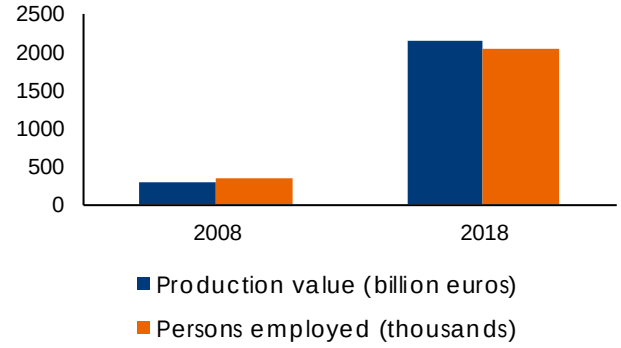
The intention behind the Report on the Bioeconomy in Europe is to continue to monitor activities linked to the Bioeconomy, by keeping in mind its systemic and value-chain-based nature, the importance of lockdown phases at the end of the cycle, the contribution made by technological innovation and the crucial role that can be played by public stakeholders, especially in local contexts. After presenting the latest estimates of the key figures for the Bioeconomy **(Chapter 1)** and of innovative start-ups **(Chapter 2)** , the Report focuses on the agrifood value chain, one of the pillars of the Bioeconomy, that generates more than half of the production value and of employment, and plays a key role in the protection of biodiversity, in land conservation and in the diffusion of cultural identity, beyond its primary function of safeguarding nutrition and health. It is a value chain that is becoming increasingly integrated at the international level, as the analysis of global value chain data shows **(Chapter 3)**, but which retains strong national and regional peculiarities, both in Italy and in Europe, due to its historical tradition and production practices **(Chapter 4).** The sustainability of the agrifood value chain is closely tied to both production and consumption models, as well as to the reduction and efficient use of waste **(Chapter 5).**

This edition of the Report considers the range of production activities of the Bioeconomy, already defined in the previous issue, which includes, within the production chain, both upstream sectors - such as agriculture, forestry and fisheries, wood and paper industry, chemical and rubber and plastic industries - as well as downstream sectors, such as food, clothing, furniture and pharmaceuticals. By applying a systemic approach, the definition also encompasses bioenergy and biofuels and, in line with what was proposed in previous editions, activities related to the water cycle and to the organically compatible component of the waste cycle, also given the crucial role of circularity for the Bioeconomy.

The estimates for the Bioeconomy in Italy have been updated to 2018, in terms of both prodution value and number of people employed, by applying the same methodology of the previous edition **(Chapter 1)**. Estimates are also included for the main European countries: **Germany, France, Spain, United Kingdom** and also, for the first time, **Poland**. The results confirm that the Bioeconomy is an extremely interlinked and diverse world, characterized by strong connections between sectors and with a significant impact on the economy both in Italy and in other European countries.

In 2018, the activities related to the Bioeconomy in Italy (including waste management and recovery, and the water cycle) **generated an output of around 345 billion euros and employed more than two million people**. In 2018, the Bioeconomy accounted for 10.2% of the total economy in Italy in terms of production and 8.1% in terms of employment; these percentages are in line with those for 2017.

Fig. 1 - The Bioeconomy in Italy: production value (billion euros) and employment (thousands person employed)



Source: Intesa Sanpaolo calculations based on Eurostat and JRC data

Fig. 2 - The Bioeconomy in Italy: % weight on total economy

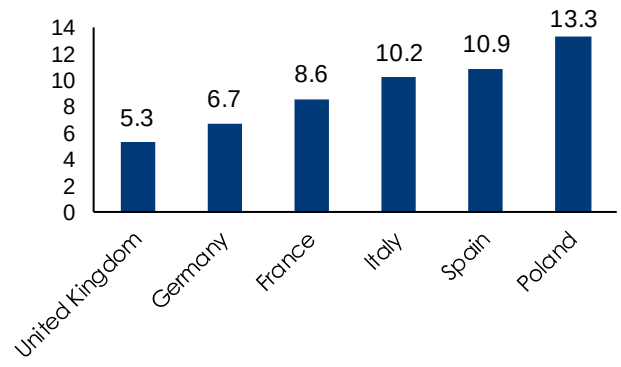
Source: Intesa Sanpaolo calculations based on Eurostat and JRC data

Based on our estimates, the value **of Bioeconomy production in 2018 grew by more than 7 billion euros with respect to 2017** (+2.2%), thanks to the positive contribution of the majority of the sectors considered and in particular of those linked **to the agrifood chain**. There was a positive trend in terms of employment too, with an increase of 1% in persons employed, which reflects the general improvement in the labour market.

Long-term analysis shows that Bioeconomy production has increased in value over the last 11 years, both in absolute terms and as a percentage of the total output of the Italian economy: from 8.8% in 2008 to 10.2% in 2018. Three sectors in particular have gained increasing importance for the growth of the Bioeconomy as a whole in recent years: the food and beverage industry, the water cycle and waste management services.

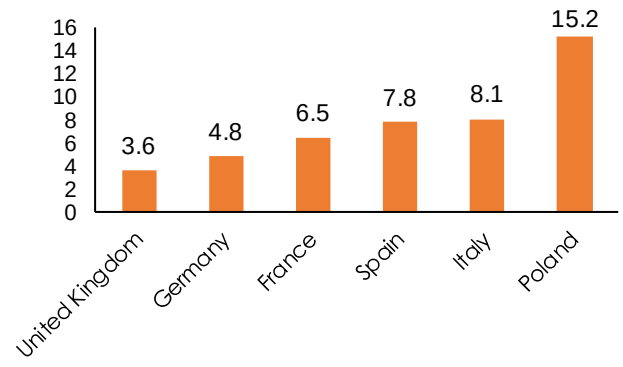
A comparison at European level shows that Italy ranks third in terms of production value, after Germany (414 billion euros) and France (359 billion euros) and followed by Spain (237 billion euros), the United Kingdom (223 billion euros), and finally Poland (133 billion euros). Italy also ranks third in terms of the number of persons employed in the Bioeconomy, with just over 2 million employed, behind Poland, which employs 2.5 million people (mainly in the agricultural sector) and Germany (2.1 million persons employed). France is in fourth position (1.8 million employed), followed by Spain (1.6 million employed) and the United Kingdom (1.2 million employed).

Fig. 3 – The weight of Bioeconomy on total production in the main European countries in 2018 (%)



Source: Intesa Sanpaolo -calculations based on Eurostat data

Fig. 4 - The weight of Bioeconomy on total employment in the main European countries in 2018 (%)

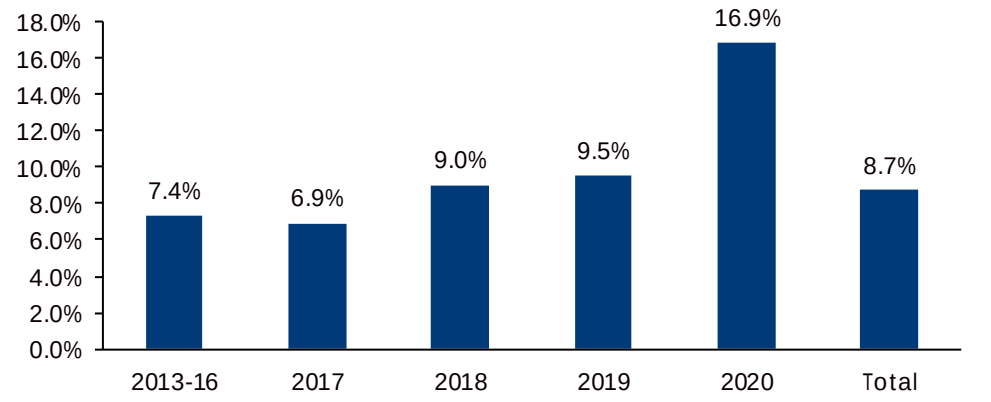


Source: Intesa Sanpaolo calculations based on Eurostat data

In relative terms, Bioeconomy is of great importance to the national economy in Poland, given the role that the agricultural value chain plays in the Polish economy. **Italy is in the third place, with the Bioeconomy accounting for 10.2% of domestic output, after Poland (13.3%), Spain (10.9%) and ahead of France (8.6%), Germany (6.7%) and the United Kingdom (5.3%).** In terms of the impact of the Bioeconomy on total employment, Italy ranks second (8.1%), after Poland (15.2%), and ahead of Spain (7.8%). The impact of the Bioeconomy in terms of employment is lower in France (6.5%), Germany (4.8%) and the United Kingdom (3.6%).

The growth of Bioeconomy is also reflected in the creation of innovative new companies: **the updated estimates of innovative start-ups, based on the Italian Business Register of Innovative Start-ups, ascribe 8.7% of registered companies at the end of February 2020 to the Bioeconomy, with continuous growth reaching a share close to 17% in the first two months of 2020 (Chapter 2).** Most of the 941 Bioeconomy start-ups are involved in research and development and consultancy, a sector which alone accounts for more than 50% of all sectors, with 496 innovative start-ups. This is followed by the food and beverage sector, with 119 companies, and by agriculture (with 81 innovative start-ups, equivalent to 8.6%), confirming the key role played by the agrifood value chain in the Bioeconomy world. In terms of weight on the total innovative start-ups, apart from the agrifood value chain which is entirely organically based, the incidence is higher in the wood, paper and furniture sector and in the world of water, energy and waste, with 79 innovative start-ups accounting for almost half of the total (they accounted for 36% at the end of 2017). Bioeconomy start-ups operating in the **Research and development and consulting account for 20.7% of total innovative start-ups, up from 16.5% registered in 2017, confirming the innovative and ground-breaking nature of many of the stakeholders in the Bioeconomy.** Bioeconomy innovative start-ups are diffused in every Italian region, with the exception of Valle d'Aosta, with a significant presence in **Lombardia**, with 238 companies (about a quarter of the total), followed by **Veneto** (with about 100 Bioeconomy start-ups) and **Campania** (87 start-ups). In terms of impact on the total number of innovative start-ups, however, there is significant specialization in other regions, starting with **Umbria**, where the 26 innovative Bioeconomy start-ups account for 14% of the total innovative players included in the Business Registry. Also worthy of mention are **Marche** (12.4%), **Sicilia** (12.1%) and **Calabria** (11,5%). The impact of the Bioeconomy in Veneto (11.3%) and Friuli -Venezia Giulia (10,4%) is also well above the average.

Fig. 5 – Bioeconomy innovative start-ups (% share of the total innovative start-ups by year of registration)

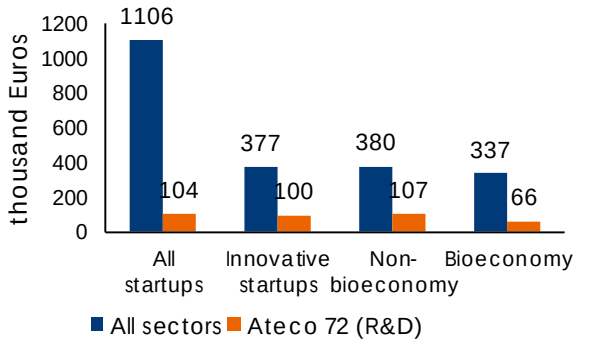


Source: Intesa Sanpaolo calculations based on Chamber of Commerce data

In addition to the survey update, the Report presents an initial attempt to analyse the performance, limited to 2018 balance sheets, of innovative Bioeconomy start-ups as compared with other innovative start-ups, and with a sample of companies born after 2013. Although limited

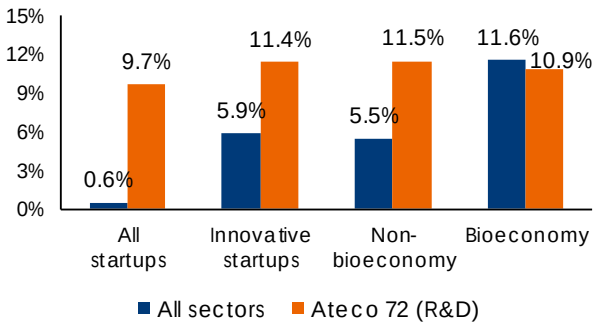
by the small number of observations and by the challenge of interpreting financial statements for a single year, the analysis delivers some interesting findings. **Given the prevalence of R&D activities, Bioeconomy innovative start-ups tend to be small compared to other innovative start-ups but are highly innovative, with innovation proxied by the share of intangibles on total assets or by the presence of patents and trademarks**. With respect to profit margins, the number of start-ups showing a loss is greater among innovative Bioeconomy startups than among all innovative start-ups: however, between those generating a profit, Bioeconomy start-ups do not seem to experience greater difficulties than innovative start-ups operating in other sectors.

Fig. 6 – Average size of start-ups in Italy - median values (thousand euros)



N.B.: Total: Sample of more than 220 thousand companies born after 2013; Innovative: sample of 5,555 innovative start-ups registered with the Chamber of Commerce, of which 5,183 are not part of the Bioeconomy and 372 relate to Bioeconomy sectors. Economic activities classification (Codice Ateco) 72 relating to research and development activities
Source: Intesa Sanpaolo Integrated Database

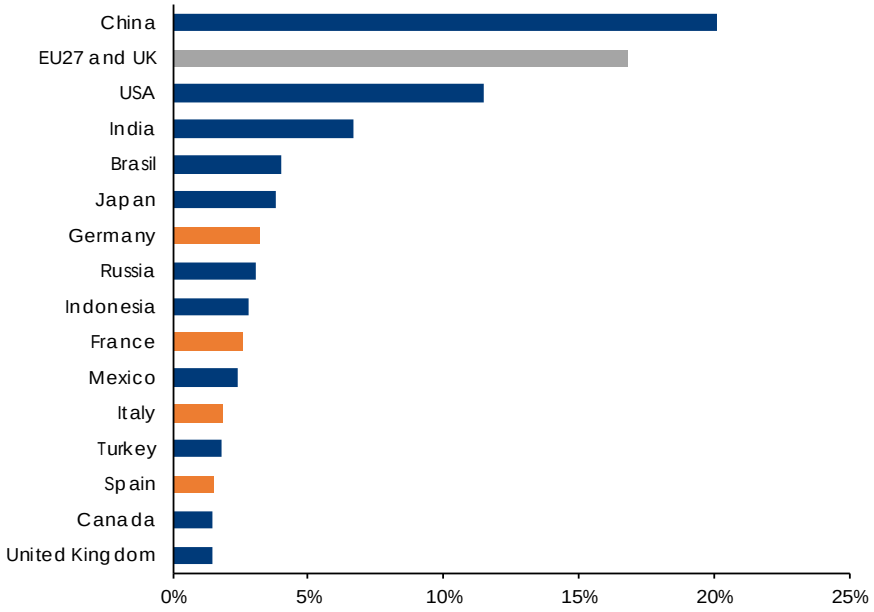
Fig. 7 - Start-ups with at least one patent or trademark (%)



N.B.: Total: Sample of more than 220 thousand companies born after 2013; Innovative: sample of 5,555 innovative start-ups registered with the Chamber of Commerce, of which 5,183 are not part of the Bioeconomy and 372 relate to Bioeconomy sectors. Economic activities classification (Codice Ateco) 72 relating to research and development activities
Source: Intesa Sanpaolo Integrated Database

As indicated, this edition of the Report is dedicated to the **agrifood value chain**, which is one of the drivers for the Bioeconomy and a key element in the transition to a more sustainable economy.

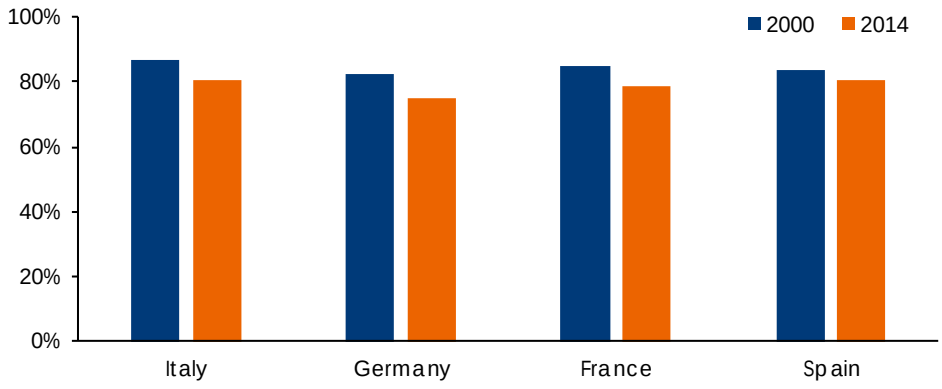
Fig. 8 - Global Value Chain income from the global agrifood value chain (15 leading countries)



Source: Intesa Sanpaolo calculations based on the World Input Output Database (WIOD), Release 2016

Despite its strong domestic nature, **the agrifood value chain (Chapter 3)** has also been affected by globalization in recent years, with increasing trade in intermediate inputs between countries and sectors. In light of this, production data for individual countries and sectors only provide a partial picture of the reality. Not everything that is produced within a given area (or a single country) is in fact the result of domestic value added; consideration must be given to the contribution of the third countries involved in the production chain by providing inputs. The competitiveness of a country is likewise played out through the value added that is included in the production chains of other world players. To gain a better understanding of the synergies between countries and the sectoral interconnections that form the backbone of the agrifood value chain, we analysed the information contained in the **World Input-Output Database (WIOD, Release 2016) to obtain a snapshot of global value chains around the world**. **China ranks first in the global agrifood value chain**, with a 20% share of Global Value Chain income (the Global Value Chain Income or GVC income is a synthetic indicator of the positioning of countries in global value chains), thanks to its global significance in terms of scale of production, with a high domestic contribution to the Chinese production chain (93.7%) and a relevant contribution to the agrifood production of its partner countries. In the top five places for competitiveness in agrifood there are the United States (with a GVC income of 11.5%), India (6.7%), Brazil (4%) and Japan (3.8%). **However, the countries of the European Union as a whole achieve a competitiveness index (16.8%) that puts them in second place behind China. Focusing on the food and beverage sector alone, the European Union total Global Value Chain income is 20.4%, exceeding that of China (18.9%).** In this sector, Western manufacturing powers are, indeed, able to take a greater lead, both as producers of final consumption goods (domestic or foreign markets), and as subcontractors involved in the production chains of other countries. Behind the competitiveness of European value chains there is not only the question of scale in terms of the overall value of production, but also the strong productive integration between the countries in the area.

Fig. 9 - Domestic contribution to the European agrifood value chains



Source: Intesa Sanpaolo calculations based on the World Input Output Database (WIOD), Release 2016

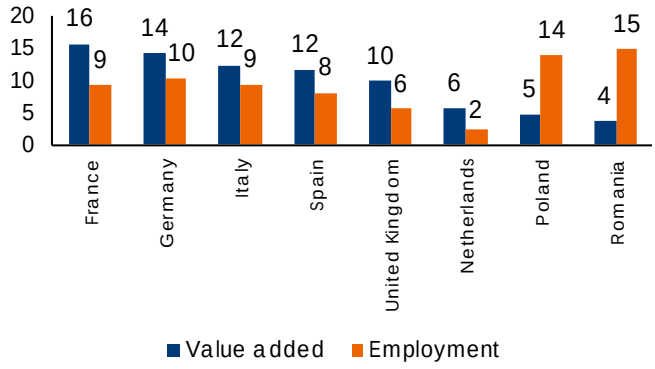
The **integration of European value chains** is a phenomenon that has intensified over time. The creation of a free trade area and the subsequent adoption of a single currency have accelerated this, allowing EU Member States to specialize in production and/or processing with greater comparative advantage, outsourcing other processes, or simply exploiting the expertise available within the area. There is in fact a strong value added contribution to the agrifood value chain by other players within the European Union: other EU countries account for 13.3% of agrifood production in Germany, 10.9% in France, 9.8% in Italy and 9.2% in Spain. These trends are visible in all sub-sectors into which European agrifood value chains can be broken down, but are all the more evident in the food and beverage segment.

However, each country retains certain individual features in terms of the structure of the value chain. Domestic inputs continue to be particularly high in Italy, with a **diversified production base and strong local supply relationships**. On the other hand, the German value chain is much more fragmented, with a significant proportion of intermediate input coming from Eastern European countries, as well as from the more mature countries of the Union.

Italy, accounting for 12% of the total European **agrifood sector** in terms of value added and 9% in terms of employment, ranks among the firsts in Europe **(Chapter 4). Italian agrifood production is characterized, firstly, by a greater specialization in high value-added products, and, secondly (given the same production levels), by higher quality products.**

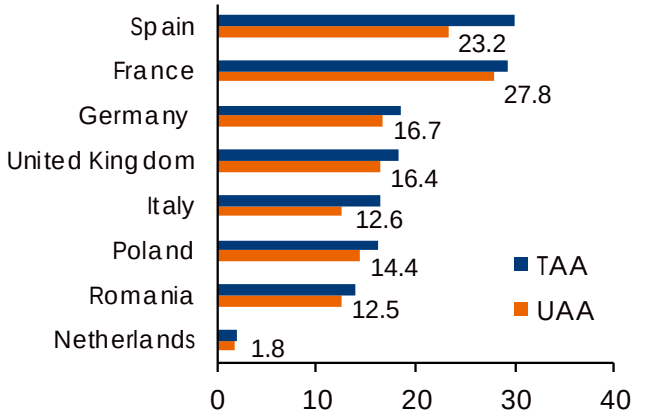
The **Italian agricultural sector** has a **highly fragmented** productive structure (the average farm size is about 11 hectares in Italy, compared to more than 60 hectares in France and Germany) and a smaller utilised agricultural area (12.6 million hectares of utilised agricultural area in Italy, while France and Spain have areas for agricultural use at their disposal that are twice as large). The Italian agricultural system is based on **a wide variety of productions** (in most European countries, more than half of the total agricultural area is devoted to crops, while in Italy this percentage is just over 40%), which is reflected in **greater value added** (as evidenced by the importance of viticulture). Italy is also characterized by **greater biodiversity** (guaranteed by the large amount of land dedicated to woodland) and a **high proportion of land devoted to organic farming,** where Italy is among the European leaders with almost 2 million hectares of land fully converted and under conversion to organic farming, an increase that is slightly lower than in France and Spain but with a percentage (15.2%) of utilised agricultural area that is much higher.

Fig. 10 - Value added and employment for the agrifood sector in the main European countries (%; 2017)



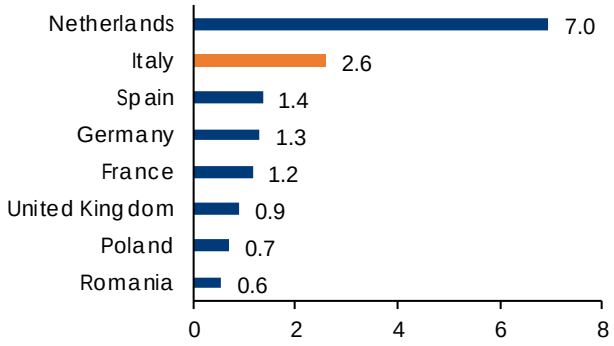
N.B.: For the UK: Value added data for 2016 Source: Intesa Sanpaolo calculations based on Eurostat data

Fig. 11 - Total agricultural area and utilised agricultural area in the main European countries (millions of hectares, 2016)



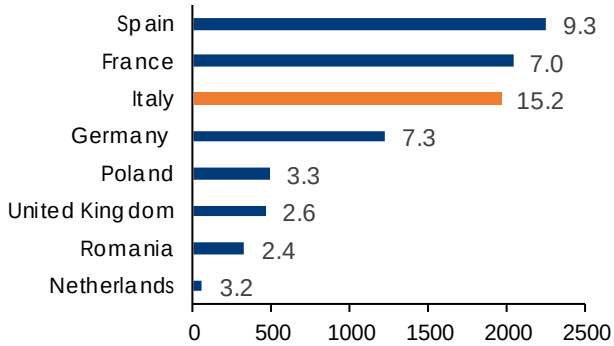
Source: Intesa Sanpaolo calculations based on Eurostat data

Fig. 12 - Value added per utilised agricultural area (thousand euros per hectare, 2016)



Source: Intesa Sanpaolo calculations based on Eurostat data

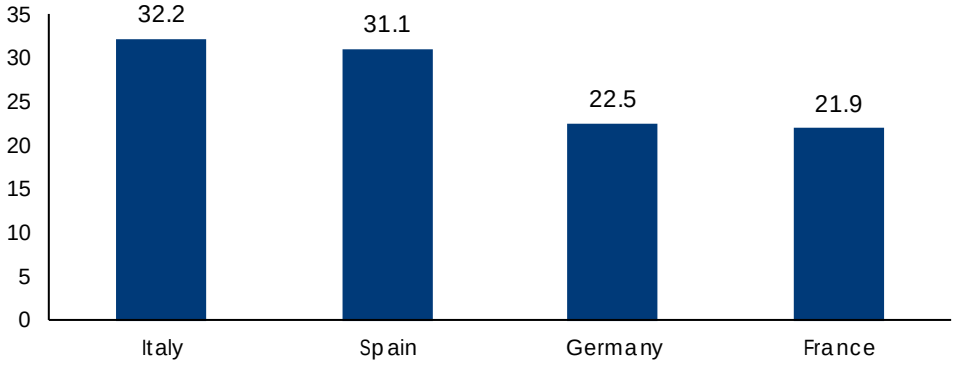
Fig. 13 - Utilised agricultural area converted to organic farming (thousand hectares, 2018; under label % of the total agricultural area used excluding kitchen gardens)



Source: Intesa Sanpaolo calculations based on Eurostat data

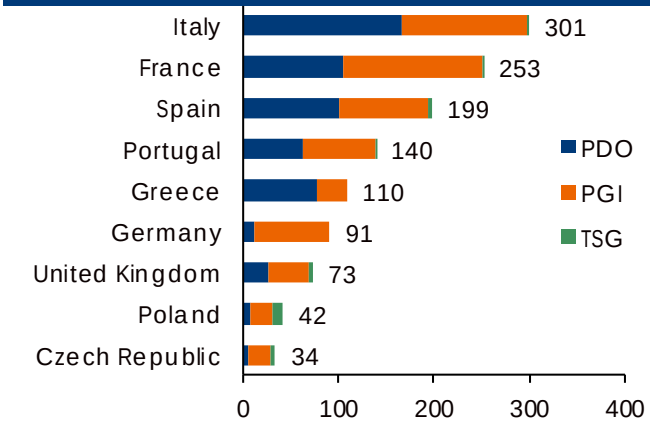
The **processing phase of the Italian food and beverage industry** - typically involving companies that are smaller, on average, than their European counterparts, in addition to a small number of highly competitive medium and large operators - is characterized by a high level of product diversification (the highest in Europe), which is the result of the widespread presence of niche markets reflecting the wealth of the country's wine and gastronomic tradition. **Italy is the leading country in Europe for the number of protected designation of origin (PDO) and protected geographical indication (PGI) productions**, both in terms of food (which also includes traditional agricultural specialities) and the beverage industry, with a total of 862 products. In recent years, there has been a sharp increase **in the propensity to export**: at global level, **Italy is the sixth largest exporter in the sector**, with a market share (calculated in current dollars) of 3.9% in 2018, a level that has remained substantially stable since 2008 as opposed to the erosion of market share experienced by other European players. The focus on the quality of "Made in Italy" food is confirmed by the analysis of world market shares for high-price products: **Italy stands tall, as the third largest exporter in the world for the high-quality food range with a market share of 5.8% (after the United States and the Netherlands).**

Fig. 14 - Level of diversification of the food and beverage industry (2017)



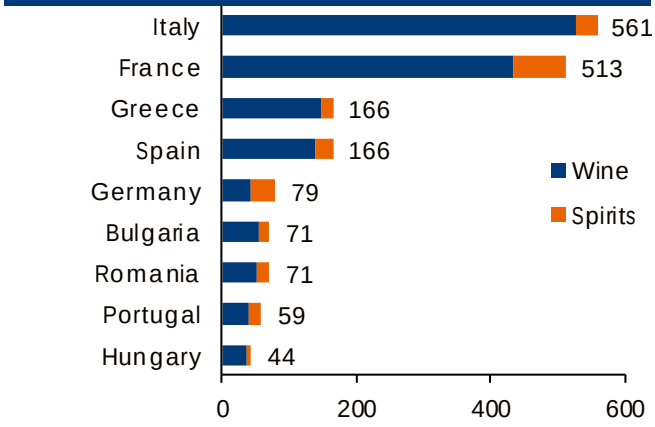
N.B.: The level of diversification is measured in the opposite way to the standardized Herfindahl index of sales per subsector. Source: Intesa Sanpaolo calculations based on Eurostat data

Fig. 15 - PDO and PGI production for the agrifood in the main European countries (2020)



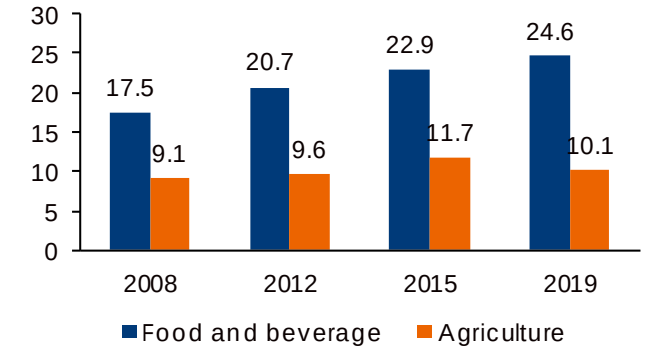
Source: Intesa Sanpaolo calculations based on BACI data

Fig. 16 - PDO and PGI production in the beverage sector in the main European countries (2020)



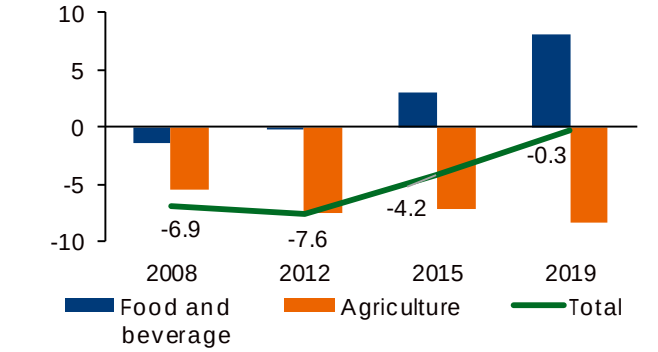
Source: Intesa Sanpaolo calculations based on Ismea-Qualivita data

Fig. 17 - Exports as a share of total production for the agrifood sector in Italy



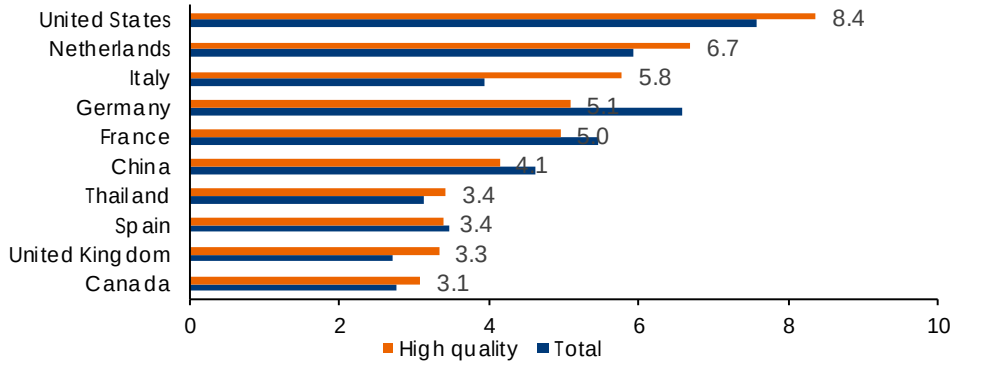
Source: Intesa Sanpaolo – Prometeia "Analysis of Industrial Sectors", May 2020

Fig. 18 - Trade balance for the agrifood sector in Italy (billion euros)



Source: Intesa Sanpaolo – Prometeia "Analysis of Industrial Sectors", May 2020

Fig. 19 - % market share of the leading food chains by quality (current dollars; 2018)

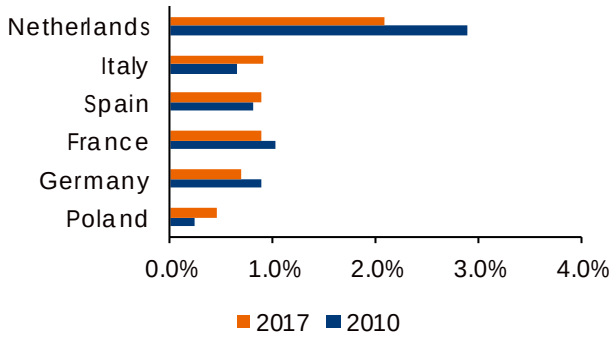


Source: Intesa Sanpaolo calculations based on BACI data

Italian food and drink plays an important role in the European landscape, also in terms of **innovative capacity**: despite their small business size, Italian companies, based on Eurostat data, spent around 1% of their value added on research and development in 2017, up significantly from 0.6% in 2010, putting Italy above France and Germany but below the Netherlands. According to the last European innovation survey for 2016, Italy also ranks second after the Dutch

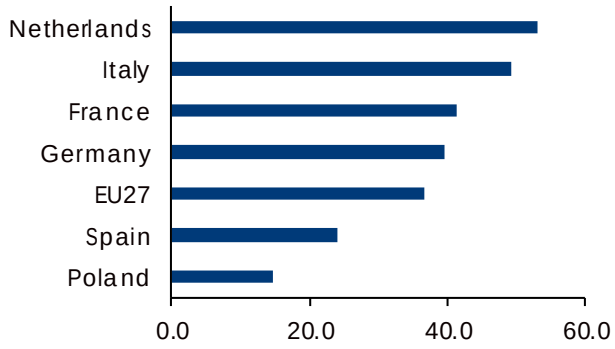
among the big European players in terms of the number of food and beverage companies that have introduced product and process innovations.

Fig. 20 - Expenditure on research and development as a proportion of value added (% in current euros)



Source: Intesa Sanpaolo calculations based on Eurostat data

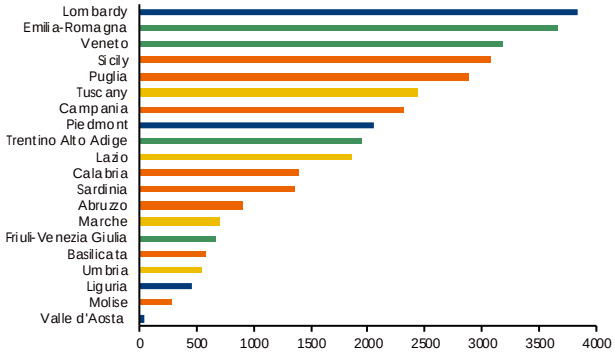
Fig. 21 - Food, beverage and tobacco companies that have introduced product and process innovations (%; 2016)



Source: Intesa Sanpaolo calculations based on Eurostat data

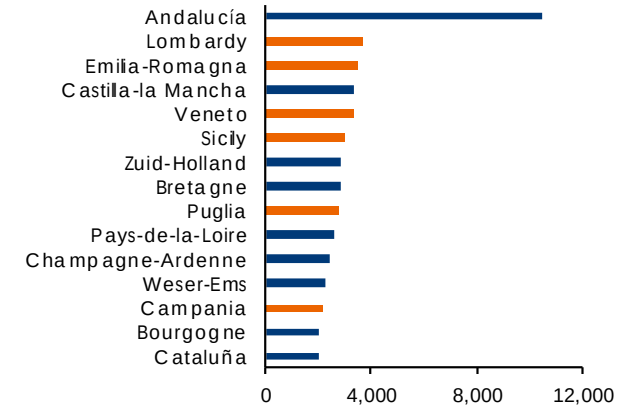
The richness and variety of Italian agrifood production is a-result? of the diverse and distinctive territorial features and local traditions. **In agriculture, forestry and fisheries, six of the top fifteen European regions in terms of value added are Italian: -Lombardia, Emilia-Romagna, Veneto, -Sicilia, Puglia and Campania** (as compared with three Spanish regions, four French, one Dutch and one German). Some regions in the South also lead the way in terms of the area cultivated organically: the most "organic" regions in Italy are -Sicilia, Calabria and Puglia, where 47% of the land and 53% of the companies have been converted to organic production.

Fig. 22 - Value added of the agriculture, forestry and fisheries sectors in the Italian regions (millions of euros, current prices - 2018)



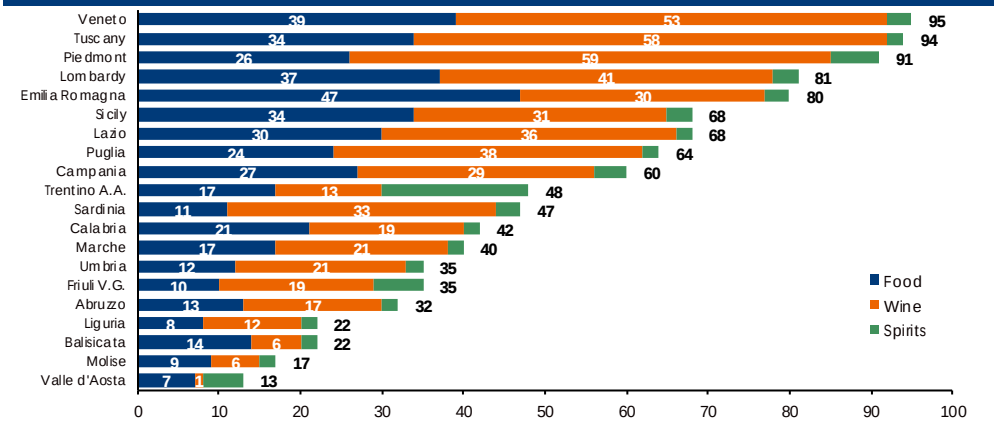
N.B.: The regions of the South are in orange, the Central regions are in yellow, the regions of the North East are in green and the regions of the North West are in blue.
Source: Intesa Sanpaolo calculations based on ISTAT data

Fig. 23 - Value added of the agriculture, forestry and fisheries sectors in the leading 15 European regions (millions of euros, current prices - 2017)



Source: Intesa Sanpaolo calculations based on Eurostat data

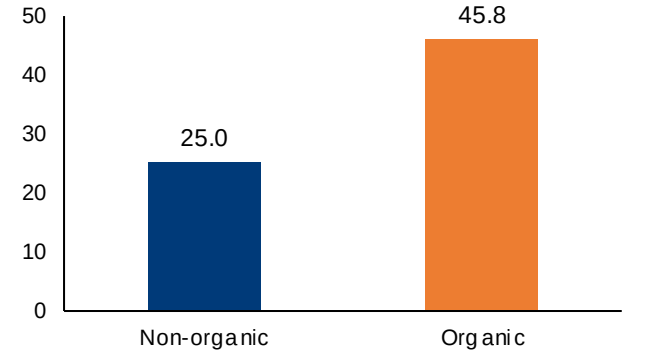
Fig. 24 - PDO and PGI production for the agriculture, food and beverage sector in the Italian regions (2020)



Source: Ismea-Qualivita

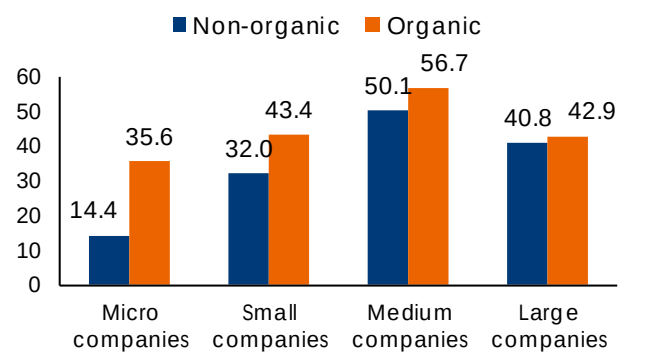
In addition to the environmental and health benefits, organic certification has allowed companies to achieve better results in terms of both sales growth and profitability: an analysis based on a sample of more than 9,300 Italian agrifood companies shows that companies with organic certification saw their sales grow by 46% between 2008 and 2018, almost double the +25% for companies without certification.

Fig. 25 - Change in sales for 2008-2018 for Italian agrifood companies (%, median)



N.B.: Sample of 9,386 companies with sales of at least 150,000 euros in 2016
Source: Intesa Sanpaolo Integrated Database

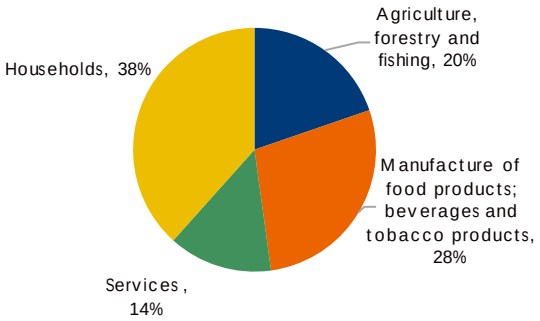
Fig. 26 - Change in sales for 2008-2018 for Italian agrifood companies by company size (%, median)



N.B.: Sample of 9,386 companies with sales of at least 150,000 euros in 2016
Source: Intesa Sanpaolo Integrated Database

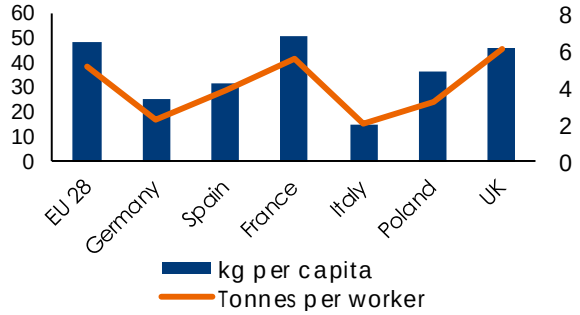
Each phase of the agrifood value chain produces waste of different kinds and in varying quantities (Chapter 5). Overall, at the European level, the waste produced by the agrifood value chain amounts to 87 million tonnes, or 171 kg per capita. The sector with the greatest impact is households (33 million tonnes, or 38% of the total and 65 kg per capita), followed by industrial processing (24 million tonnes, or 28% of the total and 48 kg per capita) and the agricultural sector (17 million tonnes, 20% of the total value chain and 34 kg per capita).

Fig. 27 - Impact of the various phases of the agrifood value chain on the total animal and vegetable waste (2016)



Source: Intesa Sanpaolo calculations based on Eurostat data

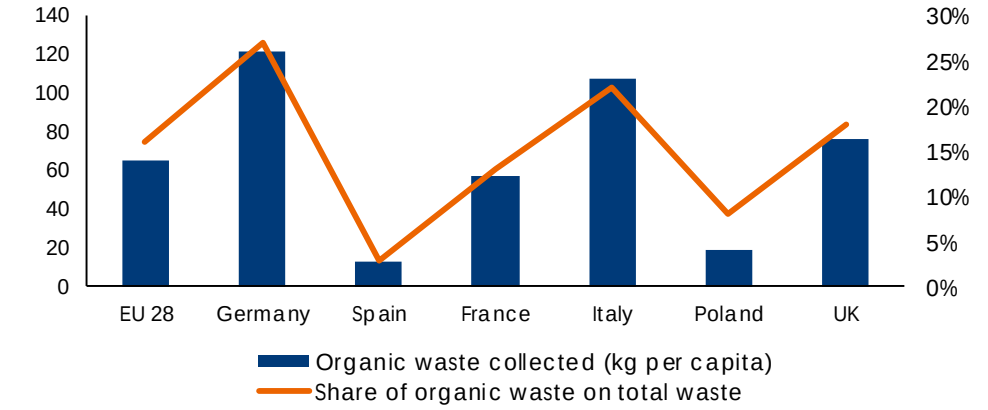
Fig. 28 - Agrifood waste produced by the food, beverage and tobacco industries (2016)



Source: Intesa Sanpaolo calculations based on Eurostat data

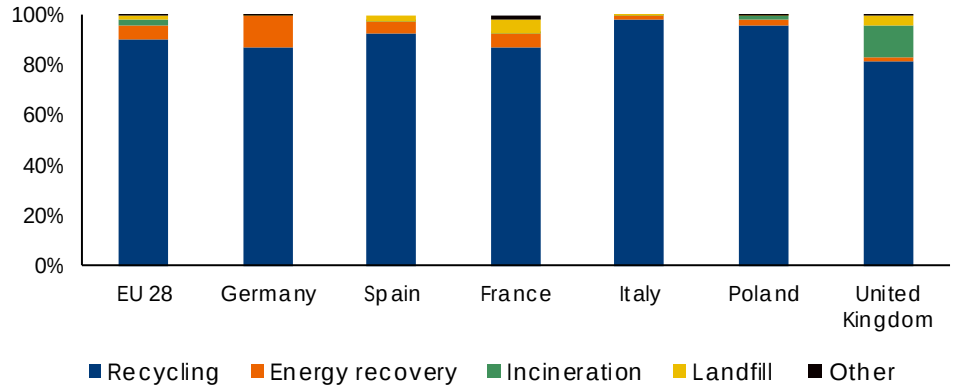
With regard to household waste, organic waste collection depends on the spread and comprehensiveness of the recycling systems, and in particular the adoption of separate collection of wet waste**. In Europe, the household sector produces an average of 65 kg per capita of organic waste. Germany and Italy have the highest figures,** with 121 and 107 kg per capita respectively.

Fig. 29 - Separate collection of organic waste (2016)



Source: Intesa Sanpaolo calculations based on Eurostat data

Fig. 30 - Methods for treating animal and vegetable waste (2016)



Source: Intesa Sanpaolo calculations based on Eurostat data

Waste from industrial processing amounts to 48 kg per inhabitant and 5.1 tonnes per worker at European level. In Italy, both these indicators are less than half the EU average (15 kg per capita and 2 tonnes per worker, respectively).

The majority of animal and plant waste is recycled: 90% of waste treated at European level is recycled and only 6% is turned into energy, about 2% is incinerated without energy recovery and another 2% is disposed of in landfill.

Most organic waste is **recycled in the form of compost**. The 2019 European Fertilizer Regulation is an important and significant step in terms of the possibility of using compost from organic waste in agriculture. In recent years, however, the **production of biogas** through anaerobic digestion processes, which although minor in scale, is processing increasing amounts of organic waste.

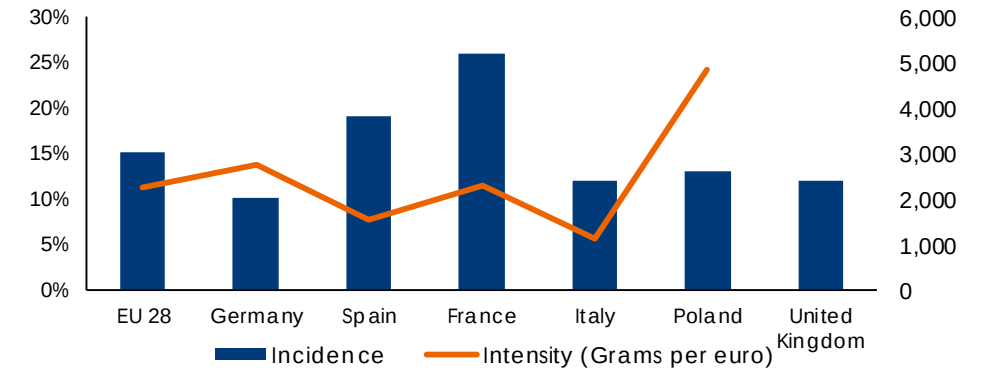
The sustainability of the agrifood value chain is closely tied to both the production and consumption models, as well as the reduction and more efficient use of waste. The downstream phases of the value chain (distribution and consumption) generate the greatest waste in advanced economies, and prevention and reduction practices need to be implemented in line with the Food Recovery Hierarchy.

Prevention of food waste is an integral part of the European Commission's new circular economy package. Furthermore, it is stated in the recent Communication of March 2020 that "the Commission will propose a target on food waste reduction, as a key action under the forthcoming EU Farm-to-Fork Strategy, which will address comprehensively the food value chain". Italy was the first country in Europe to pass a law against food waste. Law 166/2016 (the "Gadda Act") introduces a series of measures aimed at incentivising the productive system, institutions and citizens to adopt different production and consumption practices.

The issue of agrifood waste along the value chain is of even greater importance if consideration is given to the environmental damage caused by **unnecessary and avoidable CO2 emissions and water consumption**.

Agricultural production, industrial processing, transport and food consumption have major impacts on greenhouse gas emissions. **Agriculture is now one of the main sources of emissions.** The relationship between production, food consumption and the environment is bidirectional in that it works in both directions. **At the European level, the total emissions from agriculture, forestry and fisheries in 2018 amounted to 527 million tonnes of CO2 equivalent, that is to say 15% of total emissions**. Italy is the only country of those analysed to show both a lower incidence and a lower intensity than the European average. This result is linked not only to a lower level of high-impact production, such as that relating to industrial livestock, but also to the wider spread of organic crops in the country. Overall, at European level, the food industry produced 64 million tonnes or 1.8% of total emissions, and the impact of Italian industrial processing is in line with the European average in terms of both scale and intensity.

Fig. 31 - Total emissions for the agriculture, forestry and fisheries sector as a proportion of total emissions and intensity (2018)



Source: Intesa Sanpaolo calculations based on Eurostat data

The agricultural sector is a major user of water for both irrigation and livestock purposes: irrigation practices depend on weather conditions, types of crops grown and crop practices, while the need for water and the related livestock consumption vary between different animal species and are also influenced by environmental and management factors.

Italy ranks among the countries with the highest propension towards irrigation, with an irrigated agricultural area of 20.2% of the total. The average volume of water used to irrigate one hectare of land in 2018 was almost 5,000 cubic meters, with obvious variability depending on the type of cultivation practised. **The closure of the circle and the adoption of policies aimed at prevention, purification, reuse and recycling, specific to the circular economy, represent an important step towards mitigating water stress**. The agricultural sector will have an important role to play in the reuse of water, although it is still very limited at present.

Europe's competitiveness and sustainability cannot be separated from a gradual but radical change in production and consumption processes. The agrifood value chain can make a significant contribution: soil fertility, preservation of biodiversity and protection of the ecosystem are central to achieving a sustainable value chain. But, at the same time, action is needed to reduce and create surplus value from waste, applying a circular approach based on reutilization. Organic waste is, indeed, an important source of biomass, but for it to be used, it must be collected on a selective basis and subjected to the appropriate treatment. The provision of treatment plants and the legislative and regulatory framework are crucial to ensuring sustainable closure of the circle. Italy has developed good practices and innovative experiences, and in some territories has virtuously optimised selective collection, recycling and reuse of organic components with a circular economy approach.

The financial system will continue to make a significant contribution in this regard: the Bioeconomy is one of the focal areas for the regulations recently introduced by the European Commission on Sustainable Finance, which **contain specific guidance on the priority to be given to the use of organically based polymers, efficient management of resources in agriculture, of the water cycle and of biomass**.

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Important Information

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