


Agrifood

Sector Report

1st Semester
2022

**The agrifood sector
in the face of higher inflation**



**The trend in prices,
crucial for the sector
in 2022**

**Modernising
irigation and efficient
water management**

**Spanish olive oil: the liquid
gold whose value needs to
be further enhanced**



SECTOR REPORT
Agrifood First Semester 2022

CaixaBank Research

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Summary

1st Semester **2022**



02 THE TREND IN PRICES, CRUCIAL FOR THE SECTOR IN 2022

The outlook for the Spanish economy as a whole, and for the agrifood sector in particular, is highly dependent on the trend in inflationary pressures, especially in the energy sector.



16 MAKING PROGRESS IN THE MODERNISATION OF IRRIGATION AND EFFICIENT WATER MANAGEMENT

This winter's drought has exacerbated one of the biggest challenges facing Spain's agrifood sector: improving how water resources are used given a more limited availability of water.



26 SPANISH OLIVE OIL: THE LIQUID GOLD THAT MUST BE DEVELOPED FURTHER

The olive oil industry must improve its orientation towards the end customer, enhance differentiation that adds value and preserve its leadership and international positioning.

«My father's house, grandfather's vineyard and great-grandfather's olive grove»

POPULAR SAYING

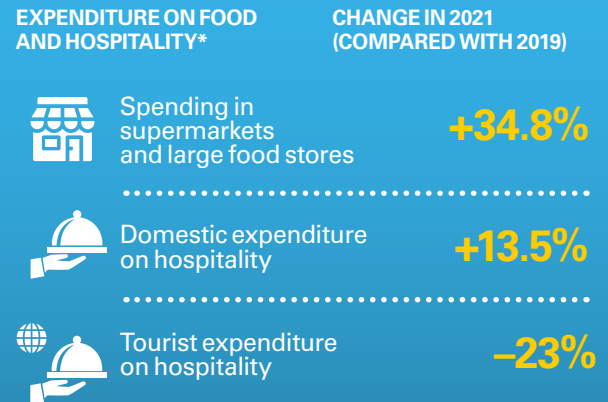


STARTING POINT AND OUTLOOK FOR THE AGRIFOOD SECTOR IN 2022

1 The trends in the agrifood industry were very positive before the outbreak of the war in Ukraine:



2 Household demand for food was getting back to normal as the health situation improved...

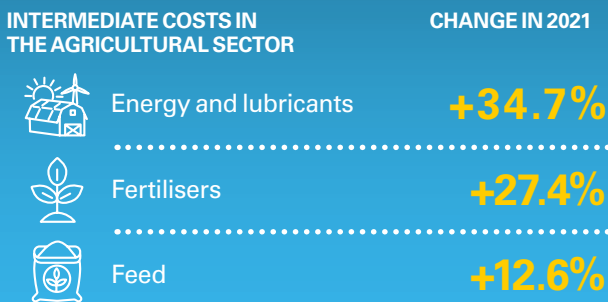


*Payments with Spanish and foreign cards via CaixaBank POS terminals.

3 ... and agrifood exports continued to drive growth.



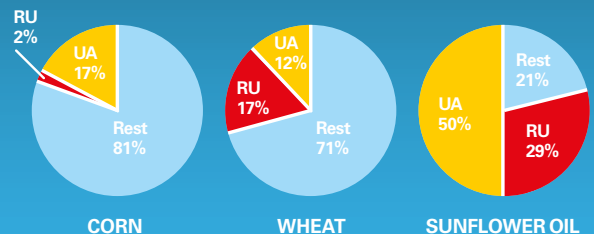
4 However, the agricultural sector began to suffer from rising production costs as early as 2021...



5 ... and the outlook for 2022 is upward because of the war.



6 The war will have a direct impact on the agrifood sector because Russia and Ukraine are major exporters of agricultural products worldwide...



7 ...and also due to the effects of higher transportation costs on exports.



Executive Summary

An uncertain outlook for a 2022 affected by inflationary pressures

The outbreak of war in Ukraine has overshadowed the positive outlook we were forecasting for the Spanish economy in 2022. While, at the end of last year, some factors had already appeared on the scene that hindered the economic recovery, such as the spread of the Omicron variant, disruptions in global supply chains and inflationary pressures, especially from energy prices, **the armed conflict in Ukraine has become the main focus of attention and the major conditioning factor for short-term economic developments**. It is still too early to gauge the scope and impact of the conflict on Spain's economy and its agrifood sector in particular but the principal channel of influence is undoubtedly the rise in energy costs.

In this case, the Spanish would say that it's «raining on wet ground»; in other words, it has merely added to the existing problems. In 2021, the agrifood sector's production capacity was under heavy pressure from rising production costs (energy, fertilisers and feed), an aspect linked to the more global bottlenecks and inflationary pressures mentioned above. The conflict in Ukraine represents another shock for the energy sector, with global value chains taking even longer to get back to normal.

The impact via the export channel will be limited, since the relative weight of the Russian market had already been drastically reduced since 2014 by the «Russian veto» on imports of European agricultural products (agrifood exports to Russia and Ukraine accounted for barely 0.4% and 0.3% of the total in 2021, respectively). However, the sector will be directly affected by the sharp rise in the price of certain inputs from the «breadbasket of Europe». In particular, 27% of sunflower oil imports and 62% of corn come from Ukraine, while Russia is a major supplier of mineral fertilisers. In addition, the war is pushing up the price of agricultural raw materials, which will also have a significant impact on the agrifood sector.

In the medium term, expectations are high regarding the Next Generation EU (NGEU) funds, which should provide a boost for investment in innovation and digital transformation, helping to consolidate the high

degree of international competitiveness enjoyed by Spain's agrifood sector. Proof of this is the **excellent figure for agrifood exports in 2021** which, with an increase of 11.2%, broke a new record and reached 59 billion euros.

In terms of demand, **food consumption patterns are expected to get back to normal**, both within and outside the home, as the health situation normalises. This is reflected in CaixaBank's internal data on card payments at point-of-sale (POS) terminals: Spanish spending in supermarkets remains high and domestic expenditure on hospitality is already above its pre-crisis level. However, there is some concern that persistently higher food prices will eventually erode consumer purchasing power and real consumption. On the other hand, we expect the recovery in international tourism to support foreign expenditure on hospitality, a segment that is still significantly below its pre-crisis level.

This winter's drought has highlighted one of the most important challenges facing the sector: improving **how water resources are used given their more limited availability**, an aspect we examine in detail in the second article of this *Report*. Climate change demands that a huge effort be made to adapt Spanish irrigation systems to the new circumstances and, in this respect, the NGEU funds invested will play a vital role in modernising irrigation, with the aim of promoting water savings and energy efficiency.

In the last article of this *Report* we look at the olive oil industry in depth, a sector with a deeply-rooted tradition in our country and of which we are a major global producer and exporter (**Spain produces 46% of the world's olive oil**). The industry should not belittle efforts to differentiate and enhance the value of a product that is increasingly in demand thanks to its quality and excellent properties.



Situation and outlook

Price developments, crucial for the agrifood sector in 2022

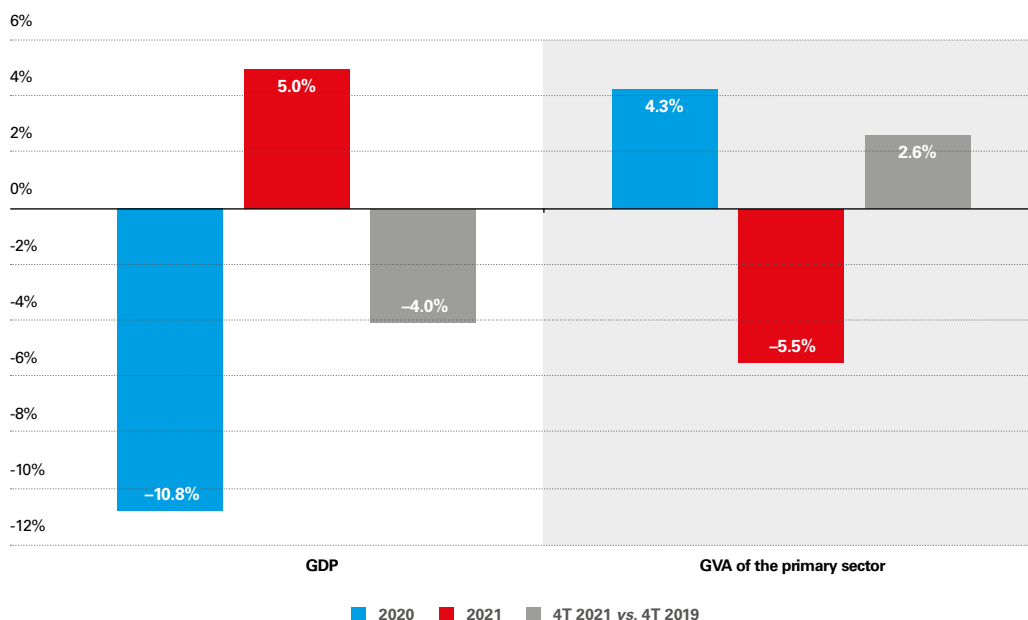
The outlook for the Spanish economy as a whole is highly dependent on the trends in inflationary pressures, especially those related to energy. The primary sector was already suffering from rising production costs and the war in Ukraine has merely aggravated the situation. The agrifood industry is performing more positively despite rising energy prices and, for the time being, does not seem to be too affected by the global supply shortage. Demand indicators suggest that food consumption patterns, both within and outside the home, are returning to normal, although there is some concern that persistent increases in food prices will eventually erode real consumption. The most positive figures come from the foreign sector: agrifood exports grew by a considerable 11% in 2021, a sign of the great international competitiveness enjoyed by Spain's agrifood sector.

Rising production costs undermine primary sector performance

Most of the statistics for 2021 have already been published, so now is a good time to take stock of last year. Starting with the primary sector, national accounting data show that gross value added (GVA) in real terms fell by 5.5% in 2021, after having recorded an advance of 4.4% in 2020, a trend contrary to that of the economy as a whole (GDP grew by 5.0% in 2021 after falling by 10.8% in 2020). However, the conclusions drawn from these data should not be overly pessimistic, as they represent a return to normality after an exceptional performance in 2020. If we compare the level of Q4 2021 to Q4 2019, the primary sector's GVA is 2.6% higher than its pre-crisis level and its contribution to the economy as a whole is similar to pre-pandemic levels (2.7% of GVA in 2021 compared to 3.4% in 2020 and 2.9% in 2019).

The primary sector has exceeded its pre-crisis levels despite the decline suffered in 2021

Change (%)



Note: Data in real terms.

Source: CaixaBank Research, based on data from the National Statistics Institute.

The ***Economic Accounts for Agriculture*** (Economic Accounts for Agriculture) published by Spain's Ministry for Agriculture, Fishing and Food (MAPA) allows for a more in-depth look at the different components that make up the agricultural sector's GVA.¹ According to these statistics, shown in the table below, agricultural production in 2021 grew by 7.8% in value terms, an increase that is exclusively due to higher prices since the quantity produced hardly altered (0.2%). Agricultural production essentially includes plant and animal production. In 2021, the value of **plant production** rose by 10.7% mainly because of higher prices for certain foodstuffs, such as olive oil, cereals and industrial plants. On the other hand, the value of **animal production** rose by 3.7% (especially sheep and goat meat, as well as beef and veal), as a result of both an increase in the quantity produced and also modest growth in prices.

¹The ***Economic Accounts for Agriculture*** cover the agricultural sector (National Economic Activity Classification Code or NACE 01) while Spain's Quarterly Accounts aggregate the groups NACE 01, 02 and 03 (NACE A: Agriculture, forestry and fishing).





Agricultural statistics

	Value 2020	Value 2021	Change in value (%)	Breakdown:	
				Quantity	Price
A.- AGRICULTURAL PRODUCTION	52,345	56,427	7.8	0.2	7.6
Plant production	30,400	33,644	10.7	-0.8	11.6
Animal production	20,178	20,915	3.7	1.6	2.0
Services and others	1,766	1,868	5.8	-	-
B.- INTERMEDIATE CONSUMPTION	23,774	26,774	12.6	0.4	12.2
Energy and lubricants	1,693	2,295	35.6	0.6	34.7
Fertilisers	1,763	2,059	16.8	-8.3	27.4
Feed	12,451	14,235	14.3	1.5	12.6
Rest	7,867	8,185	4.0	-	-
C = (A-B) GROSS VALUE ADDED	28,570	29,653	3.8	0.0	3.8

Notes: January 2022 estimate. The 2020 figure is an advance.

Source: CaixaBank Research, based on data from the *Cuentas Económicas de la Agricultura*, MAPA.

Production costs must be subtracted to calculate the value added of the agricultural sector. In 2021 these rose sharply (12.6%) due to higher energy (34.7%), fertiliser (27.4%) and feed (12.6%) prices. As a result, value added increased by 3.8% in nominal terms but growth was zero in real terms.

It is evident that the trend in production costs is having a big impact on the agricultural sector, even jeopardising the livelihood of farms in some cases. The difficulties encountered by farmers to pass on increases in production costs to their sale prices is a problem that is mostly due to the sector's own particular characteristics: the disparate nature the chain's operators, relatively rigid demand, seasonal markets and the fact that most of the products are perishable, among other factors. But it is also true that the current situation of rocketing production costs is aggravating this structural problem. In this respect, Spain's recent approval of its **Food Chain Law** (*Ley de la cadena alimentaria*), which establishes that each operator in the food chain must pay the operator immediately upstream a price equal to or higher than the cost of production, should help to alleviate this situation, although it is still too early to assess its effectiveness.

**The war in Ukraine
is affecting agricultural
production costs**



In any case, it should be remembered that these rising production and food costs are not only affecting the Spanish economy but represent a global phenomenon. According to the World Bank, agricultural prices rose by 23.5% in 2021, an increase that is probably linked to supply shortages, increases in input costs (especially coal, natural gas and fertilisers) and the strong demand for basic animal feed in China.² In 2022, the outbreak of the armed conflict in Ukraine has pushed up agricultural prices on international markets and their short-term trajectory is highly uncertain, conditional on input price developments and, in the longer term, on biofuel policies linked to efforts to decarbonise the global economy.³

As for production costs, in addition to the sharp rise in energy prices, fertiliser prices also grew by 80.5% in 2021 according to the World Bank (due to increased demand and shortages of certain chemical ingredients used in their production) and all the evidence suggests they will remain at these high levels in 2022 as a result of the conflict in Ukraine. Industry sources point out that the war could aggravate the lack of Russian ammonium nitrate in fertiliser plants and other mineral fertilisers. The rising cost of fertilisers worldwide is especially worrying for Spain as it is a net importer of this input.

② Among key food commodities, corn posted the largest increase (57% in 2021), followed by soya (43%); in contrast, rice prices fell by 8%. See «Commodity Markets Outlook», World Bank, October 2021, and *World Bank Commodity Price Data (The Pink Sheet)*.

③ According to the FAO food price index, food prices rose by 28% in 2021.

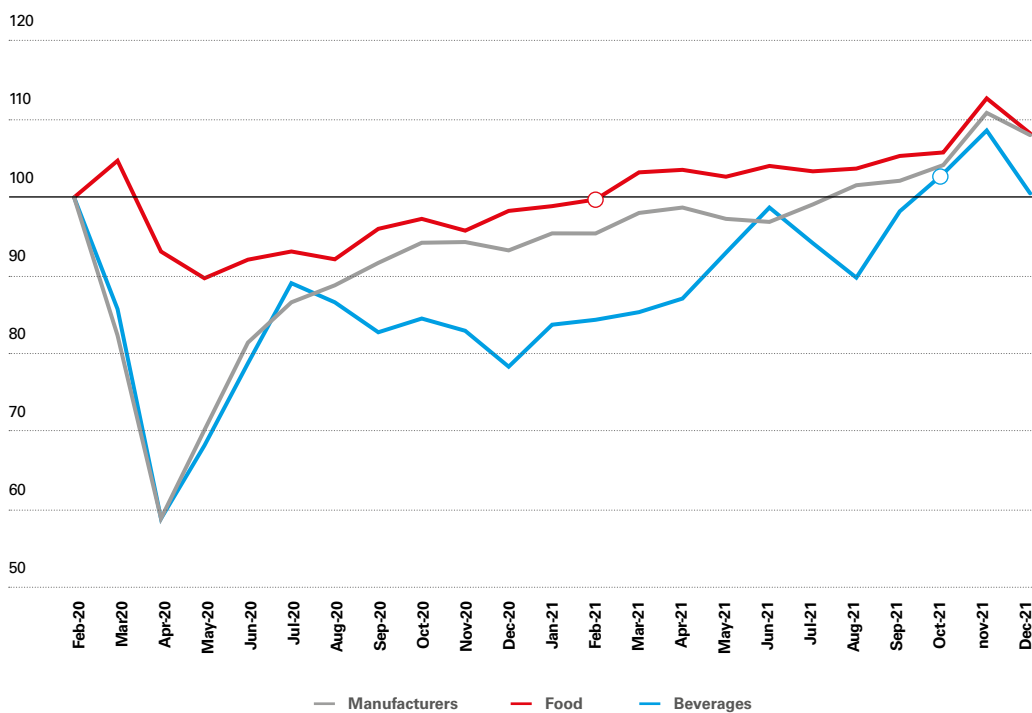


Trends are positive in the agrifood industry

The food industry improved its performance throughout 2021, up by 3.4% in industrial production (in real terms) and 8.4% in turnover (nominal value). Beverage manufacturing, which was more affected by the pandemic due to its greater dependence on the HORECA channel (hotels, restaurants and cafeterias), recovered particularly well in 2021 (12.3% growth in industrial production and 13.0% in turnover) and has now passed its pre-crisis level, in spite of the poor figures recorded in December 2021, as shown in the following chart.

Turnover index

Index (100 = February 2020)



Source: CaixaBank Research, based on data from the National Statistics Institute.

The agrifood industry has recovered from the shock of the pandemic and, for the time being, does not appear to be greatly affected by the global supply shortage

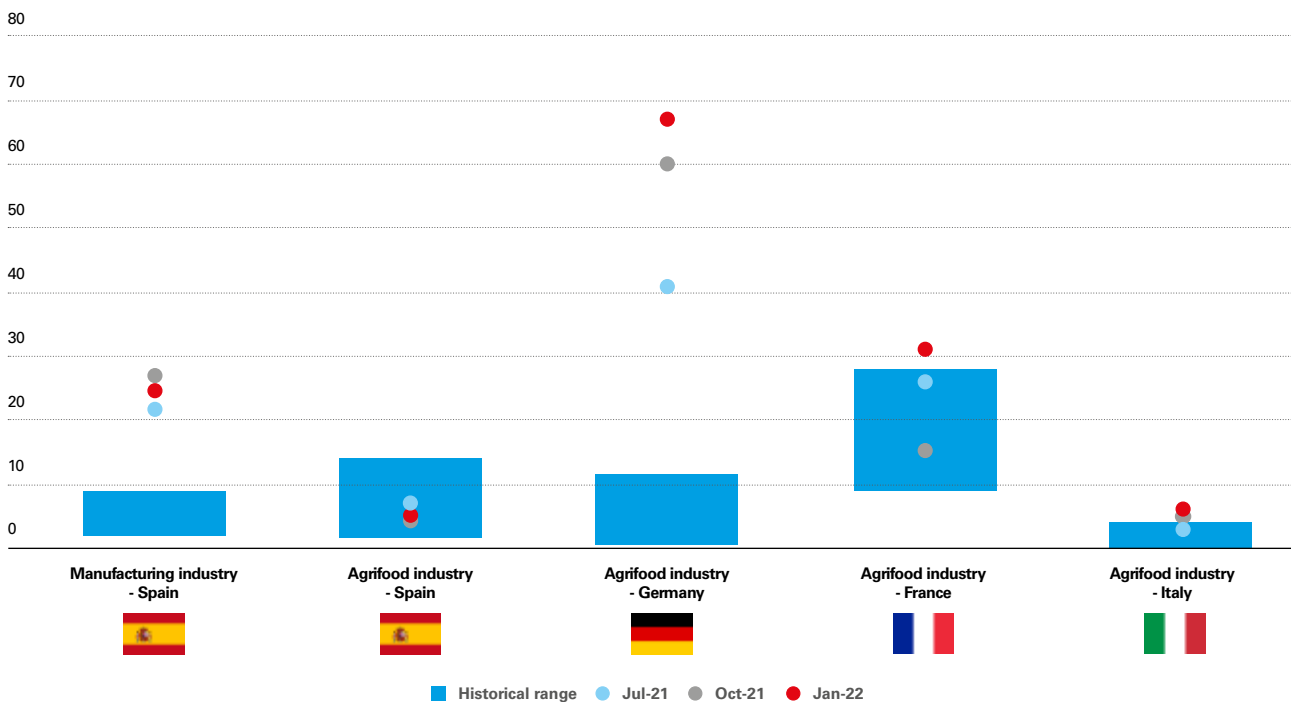
One issue that has caused much concern in the manufacturing industry in recent months are the supply shortages resulting from the disruptions observed in global value chains, tensions that could be exacerbated by the war in Ukraine.⁴ According to the European Commission's survey on factors limiting production capacity, in January 2022 25% of Spain's manufacturing companies mentioned that one factor limiting their production capacity was a shortage of materials and/or equipment, a much higher percentage than the historical range (see the chart below). In the food industry, however, only 5% of the companies reported suffering from this shortage of materials and/or equipment, a percentage within the historical range. Nevertheless, food companies in several European countries are experiencing supply problems, especially in Germany (67%) and France (31%), so this is an important factor to watch.

④ For more details see, for example, the article «Bottlenecks: from the causes to how long they will last» at MR12/2021.

Rising energy costs are the other main factor hurting the manufacturing industry. However, the impact is relatively limited in the case of the food sector thanks to its lower energy intensity compared to other industrial branches (energy represents 2.2% of intermediate costs in the food sector compared to 4.3% for manufacturing as a whole). An analysis of the sensitivity of the sector's economic performance to a 50% increase in gas, electricity and oil supply prices in Spain (assuming sale prices remain the same) shows that the sensitivity of the gross operating surplus of the food sector is clearly less than that of manufacturing as a whole, since in this hypothetical case it would fall by 8% compared to 16% for the entire manufacturing industry.

Percentage of companies for which the lack of material and/or equipment is a factor limiting their production

(%)



Notes: The blue bars show the usual historical range for the percentage of companies citing lack of material and/or equipment as a limiting factor for their production. The historical range is calculated using data between Q1 1995 and Q1 2021.

Source: CaixaBank Research, based on the European Commission survey.

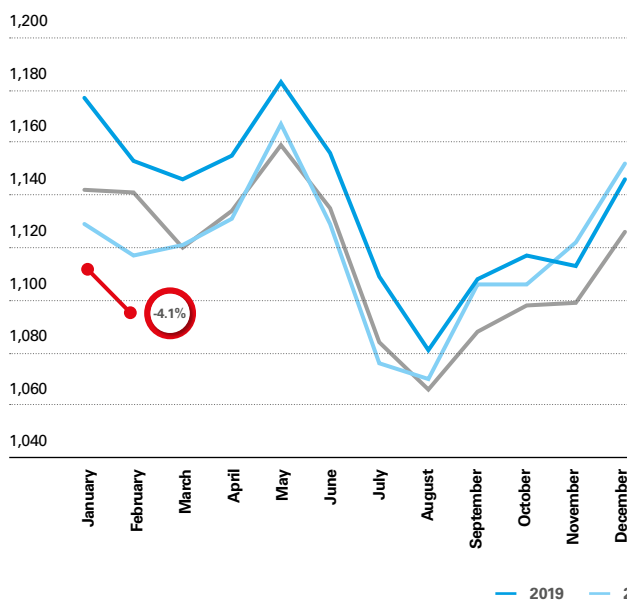


The labour market reflects the dynamics of activity in each industry: more favourable in the food industry and less so in the primary sector

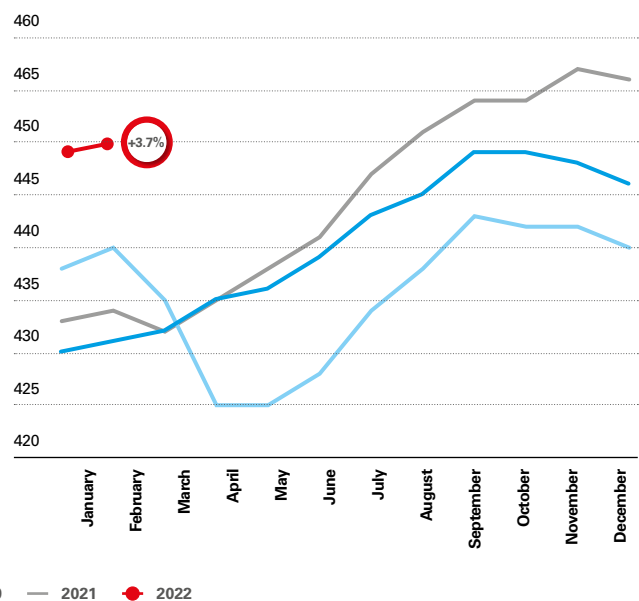
The labour market is also evolving favourably in the agrifood industry: the number of workers affiliated to Social Security rose by 3.7% year-on-year in February 2022, far exceeding the pre-crisis employment level thanks to the food industry's strong performance. In beverage manufacturing, on the other hand, in February 2022 employment was still 3.1% below its February 2020 figure.

The trend is less favourable for registered workers in the primary sector, in line with the greater difficulties faced by the sector. The number of registered workers fell by 4.1% year-on-year in February 2022 and is 2.1% below the employment level recorded in February 2020. From March onwards, new employment contracts in the primary sector will be affected by the application of the recently approved labour reforms, one of whose main objectives is to reduce the high degree of temporary employment in Spain's job market. The primary sector has a high rate of temporary employment (53%), intrinsic to the particular circumstances of agriculture and seasonal activities, so it will have to adapt to the new types of employment established by the reforms (discontinuous permanent contracts or temporary contracts only for foreseeable situations and of a short, restricted amount of time, for a total of 90 days).

Primary sector registered workers
(Thousands)



Food industry registered workers
(Thousands)



Source: CaixaBank Research, based on data from Spain's Ministry of Labour, Migration and Social Security (MITRAMISS).

Demand in the agrifood sector: what big data can tell us about food consumption patterns within and outside the home

To analyse the demand trends in the agrifood sector, we have calculated indicators of nominal expenditure on food and hospitality based on card transactions via CaixaBank POS terminals, which also enable us to differentiate between Spanish cards and those issued abroad in order to estimate the impact of international tourism on the HORECA channel.



The pattern of expenditure on food by Spanish households, within and outside the home, is almost back to normal. In 2022, the recovery in foreign expenditure should boost food consumption in the HORECA channel

Spending with Spanish cards in supermarkets and large grocery stores increased by a significant 36% in 2020 and fell by only 1.1% in 2021, remaining at a high level.⁵ This positive trend has continued so far in 2022 (+5.5% year-on-year in February). On the other hand, **Spanish card expenditure in restaurants** recovered strongly in 2021 and exceeded its 2019 level (+13.5%), thanks to the relaxation of restrictions, the boom in domestic tourism to the detriment of international travel and the release of pent-up demand.

⁵ These figures, in nominal terms, have also been affected by the replacement of cash with card payments.

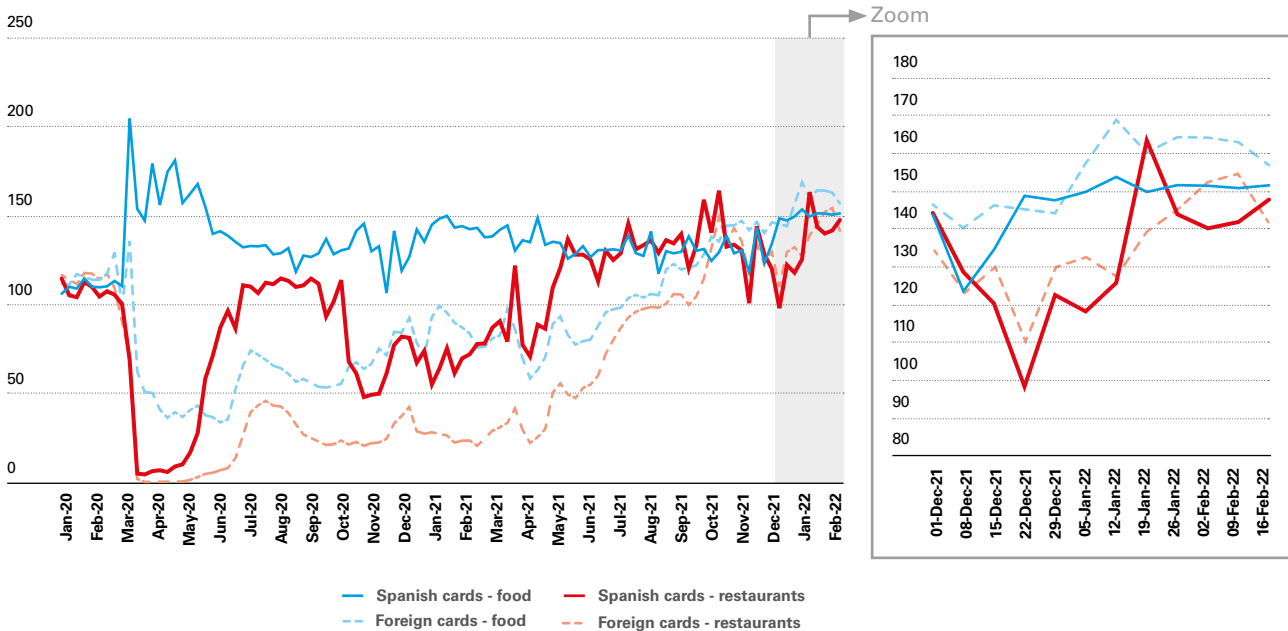
However, the recovery in **foreign card expenditure on hospitality** is still incomplete (-22.6% in 2021 compared to 2019). One positive note is that the latest wave of infections with the Omicron variant only had a modest effect on international tourism (about 2.95 million tourists arrived in Spain in December, 31.5% fewer than in December 2019, compared to a drop of 28.1% in November), and in January it was already showing signs of recovery, making us optimistic about the 2022 tourist season.⁶ However, the outbreak of war in Ukraine may cause a slowdown in tourism from European countries, the main issuers of tourists to Spain. In any case, the perception of Spain as a safe destination compared to other Mediterranean competitors could ultimately mitigate the impact.

⁶ Domestic and EU tourism, already picking up in 2021, will be joined by longer-haul tourism. See the article «An uncertain but promising year» at *Tourism Sector Report 1S 2022*.



Card expenditure on food and hospitality during the pandemic

Year-on-year change (%)



Source: CaixaBank Research, based on internal data from card payments made via CaixaBank POS terminals.

Real-time data therefore show a very positive trend in expenditure on food up to February. However, higher food prices paid by the end consumer reduce the purchasing power of shoppers and may eventually erode real consumption. In fact, according to the retail sales index produced by Spain’s National Statistics Institute, food sales rose by 0.9% year-on-year in December 2021 at current prices (nominal value) but fell by 2.5% at constant prices (in real terms). That same month, CPI figures already showed a big increase in the price of unprocessed food (6.5% year-on-year) and processed food (3.5%), so that foodstuffs contributed 1.2 points to the overall inflation figure of 6.5% at the end of last year. Inflationary pressures have merely increased since then and the outlook is not at all promising considering the latest energy shock and rising prices for agricultural products on international markets.

Spanish agrifood exports continue to break record

Spain is a major exporter of agrifood products: with a global share of 3.9%, it ranks fourth in the EU (behind the Netherlands, Germany and France) and seventh worldwide.⁷ During the pandemic, agrifood exports picked up their pace, growing by 4.0% in 2020 and 11.2% in 2021, to reach €59 billion. The agrifood sector therefore accounted for 18.6% of all Spanish goods exported in 2021, 1.1 points more than in 2019. Agrifood imports, on the other hand, fell in 2020 (-5.6%) and, despite picking up by 15.8% in 2021, the external trade surplus of agrifood goods stood at 1.5% of GDP (compared to 1.1% in 2019).

⁷ According to the World Trade Organization’s 2020 ranking for food exporting countries (latest year available).



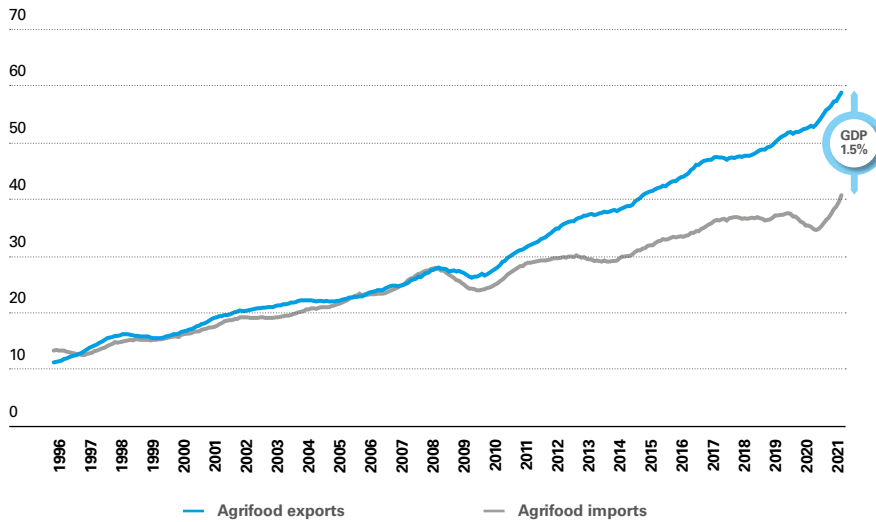
Agrifood exports are an engine of growth for Spain's foreign sector, generating a foreign surplus of 1.5% of GDP

Practically all products with a significant weight increased their exports in 2021, with particularly positive growth in olive oil exports (16.5%), to which we dedicate an article in this *Sector Report*, as well as wine (10.0%). Also noteworthy is the good performance by molluscs (48%) and fish (26.0%), products which had declined significantly in 2020. There are two notable exceptions to this optimistic trend: citrus fruits (-2.4%), whose sales in European destinations are being affected by strong imports of South African citrus fruits, and pork (-2.6%), whose exports have slowed significantly over the year, decreasing by 19% in Q4 2021 after strong growth in 2020 (27.8%), following the extraordinary rise in demand from China as a result of their domestic production being severely affected by African swine fever. In 2021, Spain's pork exports to China decreased significantly (-20.2%), a decline that could only be partly offset by the rise in pork exports to other destinations (11.6%). Looking to the future, high dependence on the Chinese market (the destination for 40% of pork exports) is a vulnerable point for the sector, should China's pig herds and its domestic production capacity recover.



Agrifood trade surplus

Billion euros



Source: CaixaBank Research, based on data from DataComex.

Exports in 2021

	Million euros	Change (%)
Swine meat	5,501	-2.6%
Citrus fruits	3,578	-2.4%
Olive oil	3,276	16.5%
Wine	2,943	10.0%
Total	59,007	11.2%

Trade relations with Russia and Ukraine in agrifood products

Trade relations with Russia had already fallen considerably since 2014 due to the «Russian veto» on the import of European agricultural products, so that in 2021 only 0.4% of Spanish agrifood exports went to Russia (compared to 2.2% in 2012). Exports of agrifood products to Ukraine are also insignificant (0.3% of the total) (see the table below).

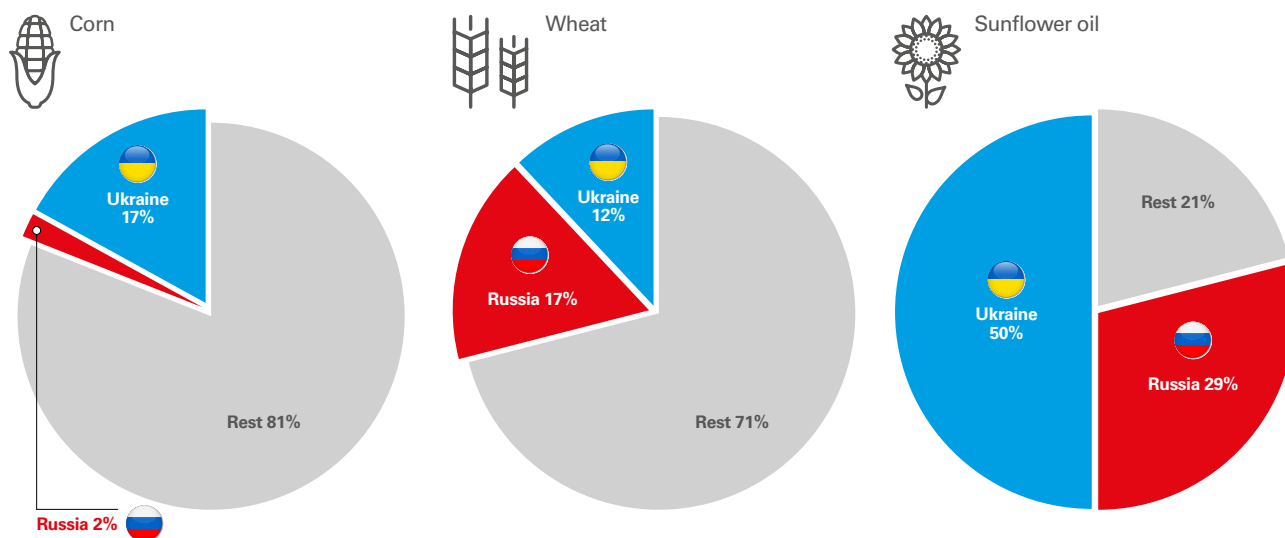
Foreign trade with Russia and Ukraine (2021)

Million euros

TARIC		Total			With Russia			With Ukraine			With Russia		With Ukraine	
		Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Exports	Imports
01	Agriculture, livestock and game	19,591	12,757	6,834	46	63	-17	31	559	-528	0.2%	0.5%	0.2%	4.4%
1001	Wheat and meslin	114	1,001	-886	0	18	-18	0	23	-23	0.0%	1.8%	0.0%	2.3%
1005	Corn	74	1,860	-1,786	1	8	-6	0	510	-510	1.7%	0.4%	0.6%	27.4%
02	Forestry and logging	208	111	97	0	0	0	0	0	0	0.0%	0.1%	0.0%	0.4%
03	Fishing and aquaculture	838	1,678	-839	0	1	-1	0	0	0	0.0%	0.1%	0.0%	0.0%
10	Food industry	33,503	23,103	10,401	170	136	35	120	467	-347	0.5%	0.6%	0.4%	2.0%
1512	Sunflower, safflower and cottonseed oil	279	681	-402	0	0	0	0	422	-422	0.0%	0.0%	0.1%	62.0%
11	Beverage manufacturing	4,699	1,786	2,913	26	1	26	21	0	21	0.6%	0.0%	0.4%	0.0%
12	Tobacco industry	167	1,493	-1,326	1	0	0	0	0	0	0.4%	0.0%	0.3%	0.0%
TOTAL AGRICULTURAL FOOD SECTOR		59,007	40,928	18,080	243	200	43	172	1,026	-854	0.4%	0.5%	0.3%	2.5%
TOTAL GOODS		316,609	342,787	-26,178	2,213	6,034	-3,820	682	1,548	-866	0.7%	1.8%	0.2%	0.5%

Source: CaixaBank Research, based on Spanish Customs data.

Share of Russian and Ukrainian agricultural exports in global markets



Source: CaixaBank Research, based on data from Renitiv.

However, **the war in Ukraine will directly affect the agrifood sector because** Russia and Ukraine are major exporters of agricultural products worldwide (see the relative shares in the chart above). In particular, Spain is highly **dependent on imports of cereals** (flour and animal feed), **sunflower oil** (used in the agrifood industry, for example, in canned food and in the production of all types of processed foods) and **mineral fertilisers**. Specifically, 29.7% of the corn, 19.3% of the rye, 4.8% of the barley, 63% of the sunflower oil and 8.6% of the mineral fertilisers imported in 2021 came from this region.





The following table⁸ shows the relative weight of imports of these products compared with the estimated domestic demand. Most notable is the **high dependence on sunflower oil from Ukraine**, as domestic production is relatively low and the likelihood of it being substituted by other producers is low, since Ukraine and Russia account for almost 80% of the world's sunflower oil exports. The alternative would be to use alternative vegetable fats such as soya, palm or rapeseed oil, whose prices are rising on international markets, or olive oil, of which Spain is the world's leading producer.

⁸ Domestic production figures are only available for 2019, so we have also used 2019 DataComex data.

Dependence on imports from Russia and Ukraine for agrifood sector inputs (2019)

	Sunflower oil	Wheat	Corn	Rye	Barley	Mineral fertilisers
(tonnes)						
Domestic production (Spain)	251,647	5,798,695	4,184,459	251,324	7,399,966	1,464,800
Total imports from Spain	598,051	5,303,425	10,034,378	117,894	1,231,261	3,473,203
Total exports from Spain	237,274	513,922	151,445	19,845	176,316	2,264,861
Estimated domestic demand (P+I-E)	612,424	10,588,199	14,067,392	349,372	8,454,911	2,673,142
Imports from Russia and Ukraine	429,550	605,186	4,070,504	0	344,417	316,767
Imp. Russia and Ukraine (% total imp.)	71.8%	11.4%	40.6%	0.0%	28.0%	9.1%
Dependency ratio*	70.1%	5.7%	28.9%	0.0%	4.1%	11.8%

Note: (*) The dependency ratio is calculated as the ratio of imports from Russia and Ukraine out of the total estimated domestic demand.
Source: CaixaBank Research, based on data from MAPA and DataComex.

In **cereals**, the greatest dependence is on **corn**, which could affect the production of animal feed and milling products (flours and derivatives). In this case, there is the possibility of sourcing from other alternative producers (Argentina, USA or Canada).⁹ In any case, the price of cereals on international markets is rising sharply as a result of the conflict and this will make the bill more expensive.

⁹ Spain has asked the EU to relax import requirements for cereals, especially corn, in terms of phytosanitary residues and genetically modified organisms.

Finally, Spain's agrifood sector is also **highly dependent on imports of mineral fertilisers from Russia**. Further increases in fertiliser prices are in addition to an upward trend in production costs that already severely affected the agricultural sector in 2021.

Given the high degree of uncertainty, it is still too early to assess the extent to which the agrifood sector will be affected by all these factors and the measures that will be taken to mitigate the impact. The impact will be greater or smaller depending on how long the conflict lasts, its geographical scope and the sanctions and counter-sanctions imposed.



The NGEU funds: the importance of sustainability for Spain's agrifood sector

The excellent performance recorded by exports demonstrates the high level of foreign competitiveness enjoyed by Spain's agrifood sector. One issue of concern in this context of high inflationary pressures is that the inflation differential with respect to other major producers could harm competitiveness. Likewise, in the medium term one of the sector's challenges for exports to continue driving growth will be to promote greater sustainability in production processes in order to mitigate the environmental impact of this activity. In this respect, the NGEU funds, channelled through component 3 of the Recovery, Transformation and Resilience Plan (PRTR) and the agrifood PERTE, will help to boost investment in innovation and digital transformation, supporting **the transition to a sustainable, competitive and resilient food system.**

Component 3 of the PRTR, focusing on the environmental and digital transformation of the agrifood and fisheries system, provides for an investment of 1,512.8 million euros (1,051 million euros under the Recovery and Resilience Mechanism). The plan is based on four fundamental pillars, including improved efficiency in irrigation to achieve a better use of water resources, an area to which we dedicate the second article of this *Sector Report*. The plan also includes the promotion of sustainability and competitiveness in agriculture and livestock farming, a strategy to digitalise the agrifood sector and the rural environment, and the modernisation of the fishing sector.

On the other hand, the **agrifood PERTE**, approved on 8 February 2022 and endowed with 1,002.91 million euros up to 2023, is aimed at transforming the agrifood chain towards greater competitiveness, sustainability, traceability and food safety. It consists of three key areas: (i) a specific support package for the agrifood industry (400 million euros), (ii) specific measures to support digital adaptation and extend this to all agents in the value chain (454.35 million euros), and (iii) specific measures to support innovation and research in order to achieve a competitive agrifood sector at all levels (148.56 million euros).

⑩ See «How the agrifood sector is becoming more sustainable» in the *AgriFood Sector Report 2021*.



Irrigation and climate change

The use of water in agriculture: making progress in modernising irrigation and efficient water management

This winter's drought has highlighted one of the most important challenges facing Spain's agrifood sector: improving how water resources are used given the prospect of their availability becoming more limited. Climate change demands that huge efforts be made to adapt Spain's irrigation system to the new circumstances and, in this respect, the investments made possible by the Next Generation EU (NGEU) funds will be a huge support. The main objective of these funds is to modernise irrigation systems and improve their governance, promoting water savings and energy efficiency through more efficient irrigation systems, self-consumption electricity generated from renewable energy sources, and the use of non-conventional water sources such as reclaimed waste water or desalinated water.

Water scarcity, a challenge for the world's agriculture

Water is a crucial resource for agriculture. **Globally, 72% of all freshwater extracted is used by the agricultural sector.** Of the remainder, 12% is used by industry and to produce energy, while 16% is used directly for human consumption. The FAO estimates that, by 2050, agriculture will have to produce almost 50% more food, fibre and biofuel than in 2012 to meet global demand,¹¹ a goal that will be difficult to achieve without increasing the area devoted to irrigation considering the higher yields produced: non-irrigated agriculture produces 60% of the world's food and occupies 80% of cultivated land, while irrigated agriculture produces 40% on 20% of the land.

Water is an essential commodity for agriculture. Climate change is making water a scarcer and more unpredictable resource

¹¹ The FAO predicts an increase in demand for biofuel driven by the more limited use of fossil fuels, as well as an increase in food consumption in the face of a growing world population, increased urbanisation and a shift from a primarily starch-based diet to a growing demand for more water-intensive meat and dairy products as incomes rise in many countries. See the SOLAW Report «The State of Land and Water Resources for Food and Agriculture», FAO (2021).

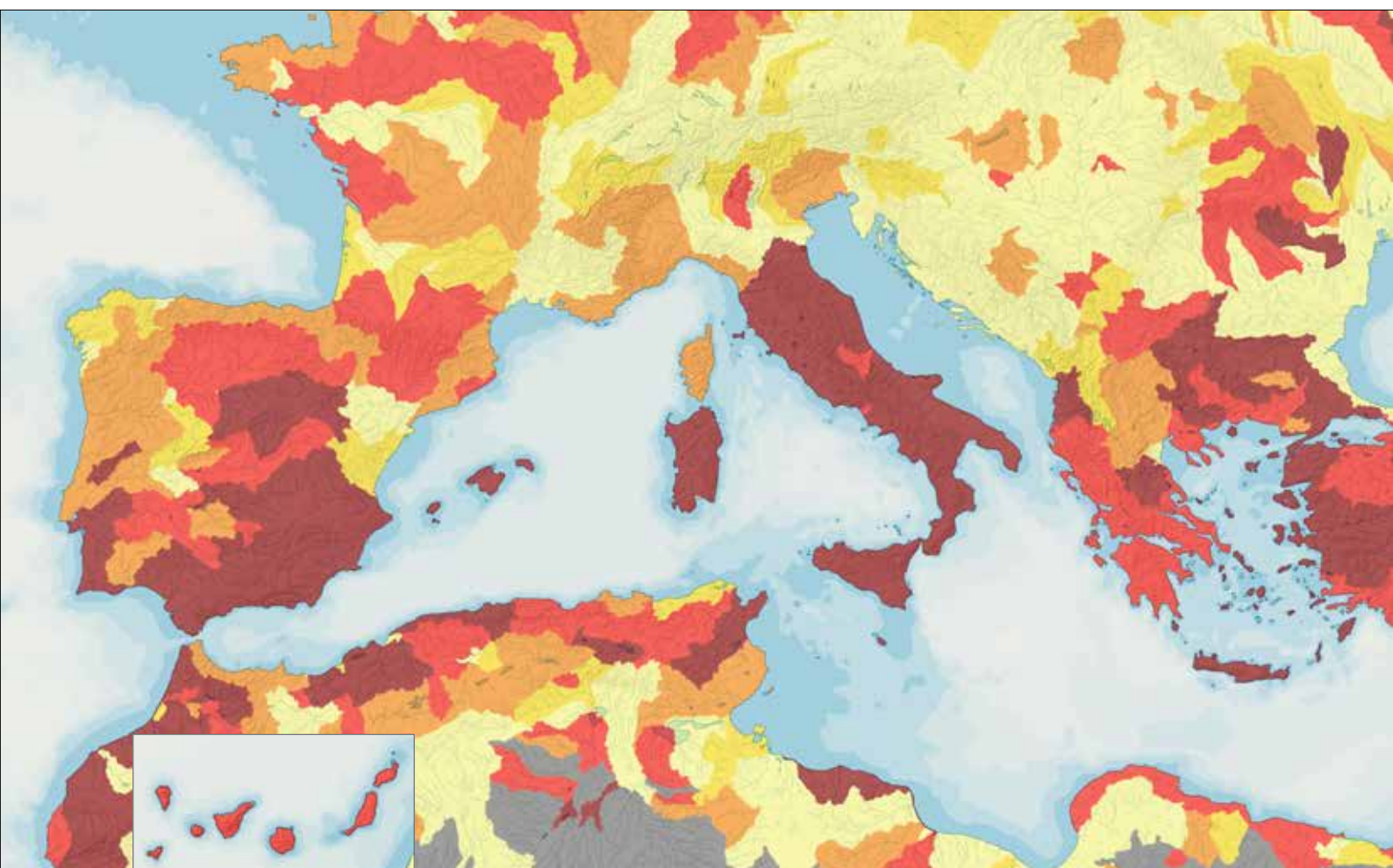
More intensive agricultural practices are putting more stress on freshwater resources, further exacerbated by the consequences of climate change. In many regions of the world, including some in Spain (see the map below), **the resource is subject to high levels of water stress**.¹² Furthermore, water stress levels are likely to increase in those areas that are currently under most stress as the effects of climate change intensify. In Spain, an overall larger reduction in water resources is expected in the south of the mainland and on the islands.¹³

Integrated water management must make the achievement of environmental targets compatible with socio-economic goals

¹² Water stress is deemed to be «high» when, on average, more than 40% of the available water supply is extracted each year and when the demand for water is greater than the amount available during a certain period of time. Spain is one of 44 countries with «high» levels of water stress (World Resources Institute, 2019).

¹³ See «Evaluación del impacto del cambio climático en los recursos hídricos y sequías en España», CEDEX, 2017.

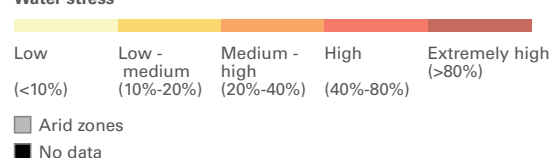
Water stress



Notes: Water stress measures the relationship between the total water extracted and available renewable surface and groundwater supplies. The water extracted include domestic, industrial, irrigation and livestock uses, both for consumption and not.

Source: Water Risk Atlas.

Water stress





This serious situation makes it essential to have a system of integrated planning and management of water resources that guarantees supply in sufficient quantity and quality, based on criteria of sustainability, adaptation to climate change and in line with the principles of the circular economy. Likewise, water management must promote compliance with the environmental targets set by the EU in the **European Green Deal** and the **Water Framework Directive**, as well as achieving the targets set by the United Nations 2030 Agenda in **Sustainable Development Goal 6** (SDG6, Ensure availability and sustainable management of water and sanitation for all).

The importance of irrigation in Spain

In Spain, **the agricultural sector accounts for 82.1% of water use** (households use 12.8% and the remaining 5.1% is used for other economic activities).¹⁴ In fact, irrigation is a fundamental part of our agrifood system: the irrigated area in Spain accounted for 22.9% of the cultivated area in 2021 (7.8% of the total geographical area) but its production contributes slightly more than 50% of the final plant production. Without any doubt, irrigation is the fundamental pillar on which the production and export potential of the fruit and vegetable sector rests. In fact, Spain is the leading exporter of fruit and vegetables in the EU and one of the top three exporters in the world, along with China and the US, a prominent position that has given it the name of «the vegetable garden of Europe».

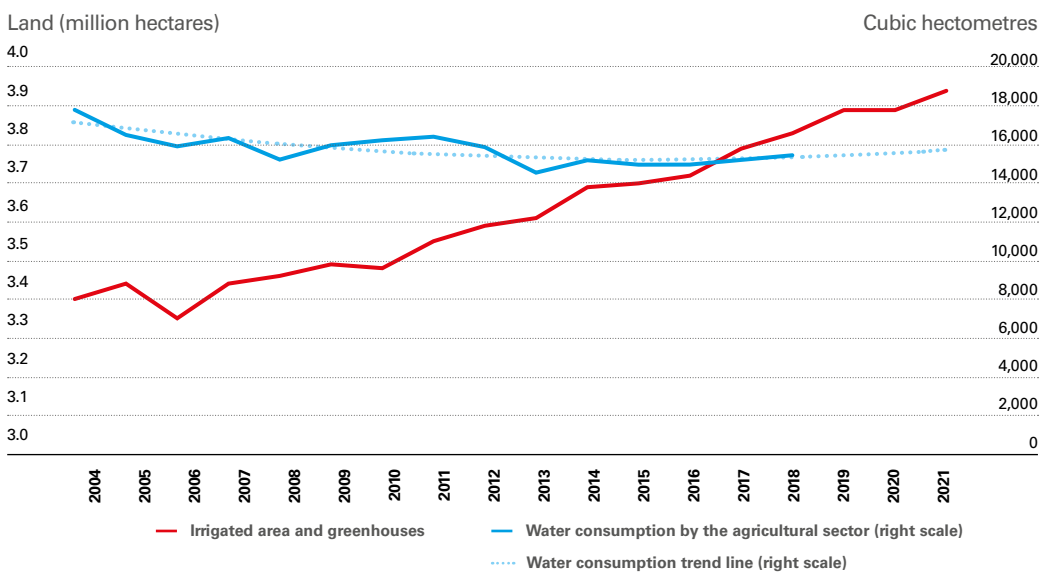
Irrigation has undergone a continuous process of modernisation that is leading to the progressive expansion of efficient irrigation techniques

¹⁴ Data from the satellite water account (INE) for 2010, latest available data. Most of the water used by the agricultural sector is for irrigation. Water consumption by livestock is low. However, of great importance is the effect that the production and management of livestock waste can have on bodies of water.

The charts below show the considerable increase in irrigated land in Spain between 2004 and 2021, up by more than half a million hectares to 3.9 million hectares at present.¹⁵ During this period, however, water consumption by the agricultural sector has remained fairly stable (or has even tended to decrease slightly) thanks to a significant effort to modernise irrigation systems. In fact, over the years the area irrigated by localised (drip) systems, a much more efficient technique with a very low demand for water, has increased to the detriment of the gravity system, which consumes much more. Sprinkler systems, a method more typical of herbaceous crops, have also been implemented over the years.

¹⁵ This increase in irrigation has been accompanied by the development of hydraulic infrastructures such as reservoirs and water transfers, which are essential for the transport and control of water.

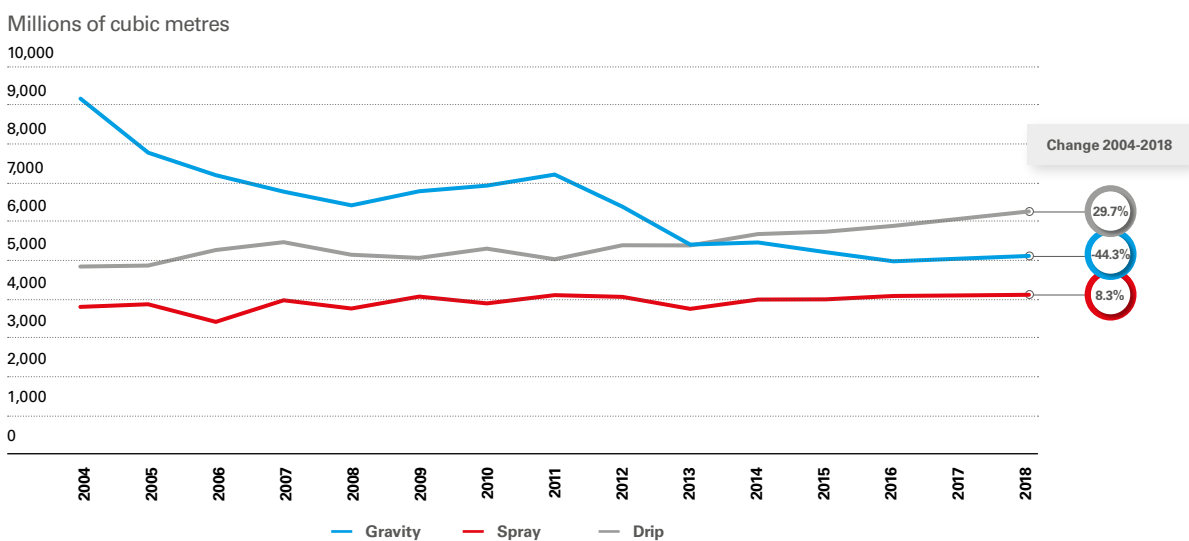
The amount of irrigated land has increased considerably but the volume of water used has remained relatively stable...



Source: CaixaBank Research, based on data from the National Statistics Institute (EUASA) and MAPA (ESYRCE).

... thanks to the modernisation of irrigation

Breakdown of water used by farms by irrigation technique



Source: CaixaBank Research, based on data from the National Statistics Institute (EUASA).



This expansion of more efficient irrigation techniques reflects a coherence with the irrigation policies developed in recent years aimed at achieving sustainable, efficient agriculture. However, as already mentioned, the modernisation of irrigation has not been accompanied by aggregate savings in water as there is often a simultaneous intensification of crops, achieving a higher yield per m³ of water used but, on the other hand, the amount of irrigated water returned to bodies of water is reduced.¹⁶

¹⁶ Irrigated water returned represents all water flows coming from irrigation and returning to rivers, groundwater, etc.

By **crop type**, the largest areas being irrigated in 2021¹⁷ were: grain cereals, which accounted for 24.1% of the total irrigated area, followed by olive groves (22.6%), non-citrus fruit trees (10.6%) and vines (10.3%). These three types of crops are the ones that have seen the greatest growth in irrigated area between 2004 and 2021, olive groves particularly, adding almost 400,000 hectares. On the other hand, if the irrigated area is analysed in the total of each of the crop groups, it can be observed that irrigation is the majority in some of them, such as citrus and vegetables (93.7% and 88.4%, respectively).

¹⁷ Data from «Encuesta sobre Superficies y Rendimientos de Cultivos» (ESYRCE, 2021) and «Análisis de los regadíos españoles, año 2020», both published by MAPA.

The **irrigation technique** used depends largely on the type of crop. Gravity irrigation is mainly used for cereals and forage crops, accounting for 45.0% and 53.4% of their respective irrigated crop areas. Sprinkler irrigation is mainly used for tubers (77.9%) and other herbaceous crops such as legumes, industrial plants and cereals. Finally, localised (drip) irrigation is the most common system for woody crops such as olive groves, vines and fruit trees, both citrus and non-citrus. The drip irrigation system is also important for vegetables (52.2%), including the area of land covered by greenhouses.

Breakdown of irrigated area by crop type and irrigation technique

CROP GROUPS	Hectares cultivated in 2021			Change in irrigated area between 2004 and 2021 (Thousand hectares)	Irrigated area		Irrigation technique (% of irrigated area for each crop)		
	Non-irrigated	Irrigated	Total hectares under cultivation		As % of total irrigated area	As % of crop area	Gravity	Spraying and self-propelled	Drip
Grain cereals	5,237,921	932,963	6,170,885	6	24.1	15.1	45.0	52.1	3.0
Olives	1,894,893	875,531	2,770,424	396	22.6	31.6	4.8	0.3	94.9
Non-citrus fruit trees	851,381	409,381	1,260,762	147	10.6	32.5	2.0	1.4	96.6
Vines	560,205	397,652	957,857	129	10.3	41.5	14.3	1.2	84.5
Citrus fruit trees	20,247	287,096	307,343	-15	7.4	93.4	15.6	0.1	84.3
Forage	720,427	252,737	973,164	-16	6.5	26.0	53.4	46.3	0.3
Vegetables and flowers	29,437	224,965	254,402	-6	5.8	88.4	23.9	53.3	22.8
Industrial	706,101	212,644	918,745	-7	5.5	23.1	12.1	35.7	52.2
Tubers	10,716	37,344	48,060	-19	1.0	77.7	9.5	77.9	12.6
Grain legumes	299,876	14,083	313,959	-18	0.4	4.5	15.6	83.0	1.5
Other (fallow land, nurseries, home gardens, etc.)	2,877,134	244,577	3,121,711	3	6.3	7.8	49.9	17.3	34.3
Cultivated area	13,024,520	3,877,901	16,902,421	600	100.0	22.9	23.6	23.1	53.7
Geographical area	46,661,641	3,935,926	50,597,566	536		7.8			

Notes: The area for greenhouses is included in irrigated and drip irrigation techniques. Surface area data for 2021 and irrigation techniques for 2020.


















Source: CaixaBank Research, based on data from MAPA (ESYRCE, 2020 and 2021).

Notable regional differences in irrigation

The extent of irrigation, crop specialisation and irrigation techniques show a remarkable geographical diversity (see the table below). For example, in the northern regions, abundant rainfall makes irrigation unnecessary in many cases while the plateau, which is more water-deficient, has a moderate share of irrigation. The Community of Valencia and the Region of Murcia are the autonomous regions with the highest percentage of irrigated agricultural land (around 40%). As is widely known, they specialise in the production of fruit and vegetables, which tend to use drip irrigation techniques.

Andalusia is the second region with the highest percentage of irrigation as a proportion of its geographical area (12.9%), with a significant presence of drip-irrigated olive groves. In Castile and Leon, cereal production is dominated by sprinkler and self-propelled irrigation, while vines predominate in Castilla-La Mancha (51% of the region's irrigated area is devoted to this crop) with drip irrigation. Gravity irrigation is mainly found in the irrigated lands of the Ebro basin (Catalonia, Aragon and Navarre) for herbaceous crops.

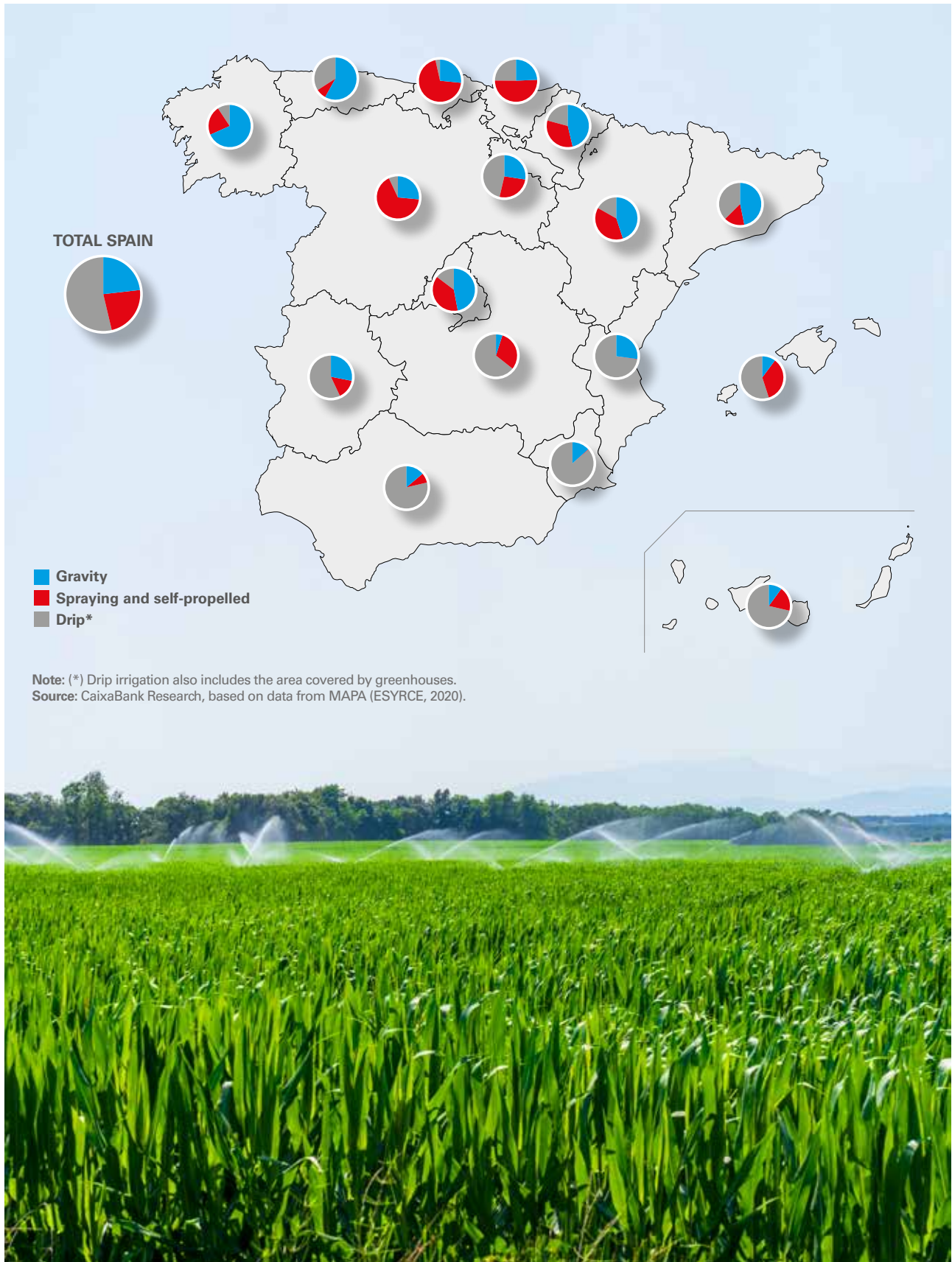
Irrigated land in the autonomous regions and main irrigated crops

AUTONOMOUS REGION	Irrigated land (as % of geographic area)	Irrigated land (as % of cultivated area)	Crops with the largest irrigated area in each region
 Murcia	16.2	39.2	Lemons, peaches, melons.
 Andalusia	12.9	31.8	Olives, cotton, oranges.
 Community of Valencia	12.5	45.8	Oranges, mandarins, grapes.
 La Rioja	10.1	29.9	Grapes, wheat, barley.
 Navarre	9.8	31.3	Corn, wheat, vines.
 Aragon	8.9	23.5	Barley, alfalfa, corn.
 Catalonia	8.6	33.1	Corn, barley, olives.
 Castilla-La Mancha	7.3	15.8	Grapes, olives, barley.
 Extremadura	7.0	27.6	Olives, corn, grapes.
 Castile and Leon	5.3	13.3	Corn, wheat, barley.
 Balearic Islands	4.3	13.4	Grapes, fodder, olives.
 Canary Islands	3.4	58.0	Bananas, grapes, avocados.
 Madrid	2.8	10.6	Corn, barley, alfalfa.
 Galicia	1.0	4.7	Potatoes, grapes, corn.
 Basque Country	0.9	7.8	Vines, wheat, barley.
 Asturias	0.2	2.6	Dried beans, apples, tomatoes.
 Cantabria	0.2	6.5	Potatoes, corn, alfalfa.
NATIONAL TOTAL	7.8	22.9	Olives, grapes, corn.

Source: CaixaBank Research, based on data from MAPA (ESYRCE, 2021).
























Irrigation techniques in the autonomous regions



Irrigated crop yields are naturally higher than non-irrigated yields, with notable differences across different crop types and regions. Note that regional differences in yield can be considerable for certain crops, even between plots located in close proximity because yield can be affected by many other factors in addition to irrigation (plot orientation, environmental factors, fertilisers, etc.). For illustrative purposes, the following table shows the average irrigated and non-irrigated crop yields, measured as the number of kilograms produced per hectare for three crops that are representative and widespread in Spain: grapes for processing (wine), olives for milling (olive oil) and soft wheat.

Non-irrigated and irrigated yields of three representative crops

CA	 VINES (GRAPES FOR PROCESSING)			 OLIVES (FOR MILLING)			 SOFT WHEAT		
	Non-irrigated (kg/ha)	Irrigated (kg/ha)	Yield irrigated non-irrigated land	Non-irrigated (kg/ha)	Irrigated (kg/ha)	Rendiment regadiu/secà	Non-irrigated (kg/ha)	Irrigated (kg/ha)	Yield irrigated non-irrigated land
 Andalusia	6,329	5,258	0.8	3,485	5,589	1,6	3,079	3,965	1.3
 Aragon	5,065	6,546	1.3	835	4,204	5,0	3,666	5,934	1.6
 Asturias	-	-	-	-	-	-	-	-	-
 Balearic Islands	2,175	3,551	1.6	1,641	2,914	1,8	2,313	4,773	2.1
 Community of Valencia	5,794	7,222	1.2	1,784	2,909	1,6	2,601	4,667	1.8
 Canary Islands	4,536	7,457	1.6	-	-	-	-	-	-
 Cantabria	-	-	-	-	-	-	-	-	-
 Castile and Leon	4,264	7,285	1.7	1,966		0,0	4,509	5,828	1.3
 Castilla-La Mancha	6,158	11,028	1.8	1,511	4,090	2,7	2,594	5,151	2.0
 Catalonia	6,531	8,222	1.3	878	1,972	2,2	4,533	5,947	1.3
 Extremadura	3,334	6,060	1.8	830	5,877	7,1	2,625	3,132	1.2
 Galicia	6,350	11,271	1.8	-	-		3,104	-	-
 La Rioja	7,233	7,879	1.1	3,012	5,216	1,7	5,711	5,225	0.9
 Madrid	4,685	2,507	0.5	1,014		0,0	3,555	3,854	1.1
 Navarre	7,395	7,834	1.1	6,136	15,588	2,5	5,559	6,416	1.2
 Basque Country	-	-	-	1,242	1,224	1,0	6,114	-	-
 Murcia	1,684	4,342	2.6	1,598	4,121	2,6	2,559	-	-
 SPAIN	5,604	9,486	1.7	2,432	5,332	2,2	4,033	5,573	1.4

Source: CaixaBank Research, based on data from MAPA (ESYRCE, 2020).

Irrigated crop yields are higher than non-irrigated yields, with notable differences across different crop types and regions



The NGEU funds: a fresh impetus for modernising irrigation

The **Plan to improve efficiency and sustainability in irrigation** (investment 1 of Component 3 of the Recovery, Transformation and Resilience Plan, PRTR) establishes an investment of 563 million euros to modernise over 100,000 hectares of existing irrigated land.¹⁸ In 2021, around 260 million euros of this item had already been allocated, corresponding to the first phase of the irrigation modernisation programme implemented by the public corporation for agricultural infrastructure (Seiasa). The Plan prioritises those actions with a high impact on environmental sustainability or with an important innovative component, such as the incorporation of technologies and digital tools in irrigation communities to achieve more efficient irrigation.¹⁹ As for actions with a high environmental impact, priority is given to irrigation modernisation actions that include the generation of self-consumption of electricity from renewable energy sources; for instance by using water conduits to generate electricity, or actions that use non-conventional water sources such as reclaimed waste water or desalinated water.²⁰

¹⁸ This amount rises to 704 million euros when the expected contributions from irrigation communities are included.

¹⁹ The Agroclimatic Information System for Irrigation (SiAR) provides information on the water demands of irrigated crops, helping to optimise the use of water resources.

²⁰ See «Fomento de la reutilización de las aguas residuales - Informe complementario», MITECO, 2020.

NGEU funds prioritise irrigation modernisation schemes with greater environmental impact and incorporating the use of new technologies



Modernising irrigation should help to comply with the EU Water Framework Directive as it contributes to the protection of surface water by reducing its extraction for irrigation. It can also help to meet the objectives of the Nitrates Directive²¹ and those of reducing soil contamination from phytosanitary products, since the implementation of sprinkler and drip irrigation systems enables fertilisers and phytosanitary products in the irrigation water to be added the dose strictly necessary and at the time the crop needs them. The use of reclaimed water, which already contains nutrients, would also help to reduce the amount of fertilisers used. All this would be in line with the EU policies that form part of the European Green Pact, such as the Farm to Fork strategy and the European strategy on adaptation to climate change.

The PRTR also has significant measures to encourage reforms, along with the investment plan. The government proposes to establish a **National Irrigation Board**, a Spain-wide governance mechanism that will enable all representatives of public authorities and affected sectors to promote and facilitate cooperation, consultation and the sharing of information on all aspects related to irrigation. An **Irrigation Sustainability Observatory** will also be set up to provide objective data on the economic, social and environmental impact of irrigation on the territory.²²

In short, irrigation is essential for agricultural production, key to food security and a fundamental pillar of rural development. Its modernisation is crucial in order to achieve a competitive, profitable and water-efficient agricultural industry. Looking to the future, climate change scenarios for Spain predict that less water will be available (available water resources will decrease between 12% and 40% before the end of the century, depending on the region) and a more irregular distribution of rainfall, making it essential to continue improving the efficiency and sustainability of irrigation.

²¹ In December 2021, the European Commission decided to refer Spain to the CJEU for failing to take sufficient measures in relation to nitrate pollution from agricultural sources. Return flows from irrigation are considered to be the largest diffuse (non-point) contributors to surface and groundwater contamination.

²² On 9 March 2022, the Ministry of Agriculture, Fisheries and Food launched a public consultation on the draft royal decree to set up the board and observatory for irrigation.



THE OLIVE OIL INDUSTRY IN SPAIN

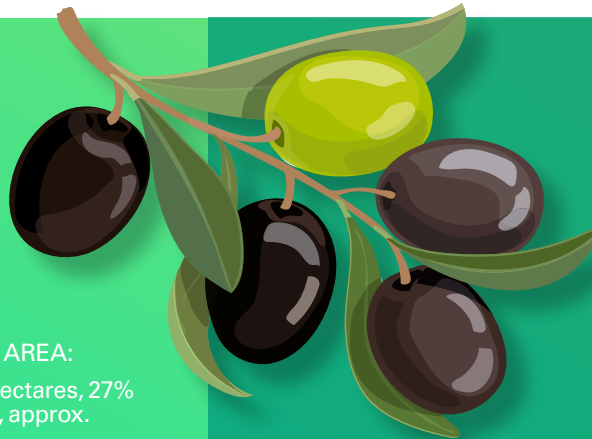
A key economic, environmental, cultural and gastronomic role



GLOBAL LEADERSHIP

IN OLIVE GROVE AREA:

- **2.77** million hectares, 27% of the world total, approx.
- **16%** of Spain's total crop area
- **93%** of this area is used for oil



IN PRODUCTION:

- **1.39** million tonnes, 46.1% of the world's total. 2020-2021 campaign

IN EXPORTS:

- **1.06** million tonnes / **3.2** billion euros



IN ORGANIC OLIVE OIL PRODUCTION

- **223,000** hectares of olive trees, approx. / **218,000** for oil, approx.
- **326,000** tonnes / **322,200** for oil 2020 data



Trade surplus of

2,8 billion €
(0.23% of GDP)



FRAGMENTED BUSINESS FABRIC AND HIGH GEOGRAPHIC CONCENTRATION

- **382,617** olive farms with a very small average size
- **1,830** olive mill, **1,656** bottling plants (almost **90%** associated with oil mills), **63** olive residue plants and **26** refineries
- **32 PDOs** (protected designations of origin) and **2 PGI**s (protected geographical indications) for extra virgin olive oils throughout the country
- **Andalusia** accounts for 60% of the area and 80% of production (almost half in Jaen), followed by Castilla-La Mancha (9.5% of production) and Extremadura (3.2%)

BACK TO NORMAL AFTER THE BIG IMPACT OF COVID-19



50% of domestic sales are in supermarkets/self-service stores.

In the wake of the pandemic, in 2020



Household consumption soared **+15.6%** (by volume)



Exports slowed down **+4.4%** (volume)

In 2021

domestic consumption returned to pre-crisis levels.

Exports fell by 5.3% in volume terms but increased by 16.5% in value thanks to prices picking up, given the lower production in Spain's main competing countries



WEAKNESSES AND STRENGTHS



Low average export prices, although in recent years destinations with higher prices have gained share.



Limited exploitation of added value: majority bulk sales.



High geographic diversification of exports.

The olive oil industry

Spanish olive oil: the liquid gold that must be developed further

The olive oil industry is a deeply-rooted, traditional sector in Spain, is one of the most important in the country's agricultural sector and plays a fundamental role from an economic, environmental, cultural and gastronomic point of view. In addition to being a source of income and employment in many rural areas, it also contributes towards territorial and social cohesion and the fight against depopulation, soil erosion and climate change. The industry is made up of small companies, which hinders economies of scale and the capacity for innovation. Its main asset is the great potential offered by global markets for a product that is increasingly in demand thanks to its quality and properties. To take advantage of this competitive advantage, the industry must improve its focus on the end customer, enhance differentiation that adds value and defend its leadership and brand positioning in international markets.

The role played by the olive oil industry in Spain

With nearly 340 million olive trees, Spain is the world leader in terms of surface area, production, marketing and export of olive products, both olives and, especially, olive oil. Consequently, more than 90% of the cultivated land and olive production is aimed at the production of oil. 23% of the total production of olive oil is organic, a product that is increasingly in demand and falls within the framework of sustainable agriculture practices.

The olive oil industry is typically fragmented, a handicap that hinders its competitiveness and the bargaining power of producers

The olive oil industry is a highly fragmented sector, with a large number of participants throughout the different stages of the value chain.²³ First, there are more than **380,000 farms** with a very small average size (7 hectares): 52% have less than 5 hectares and only 16.5% have more than 20 hectares; ²⁴ almost 87% of the farms, with 76% of the area, are non-irrigated.

²³ MAPA (2021): *Estudio de la cadena de valor del aceite de oliva virgen extra en España. Campañas 2018-2019 y 2019-2020.*

²⁴ National Statistics Office (2020): *Encuesta sobre la estructura de las explotaciones agrícolas, 2016*; and MAPA (2020): *Ficha Sectorial por Orientación Técnico Económica (OTE), Olivar* (data from 2017).

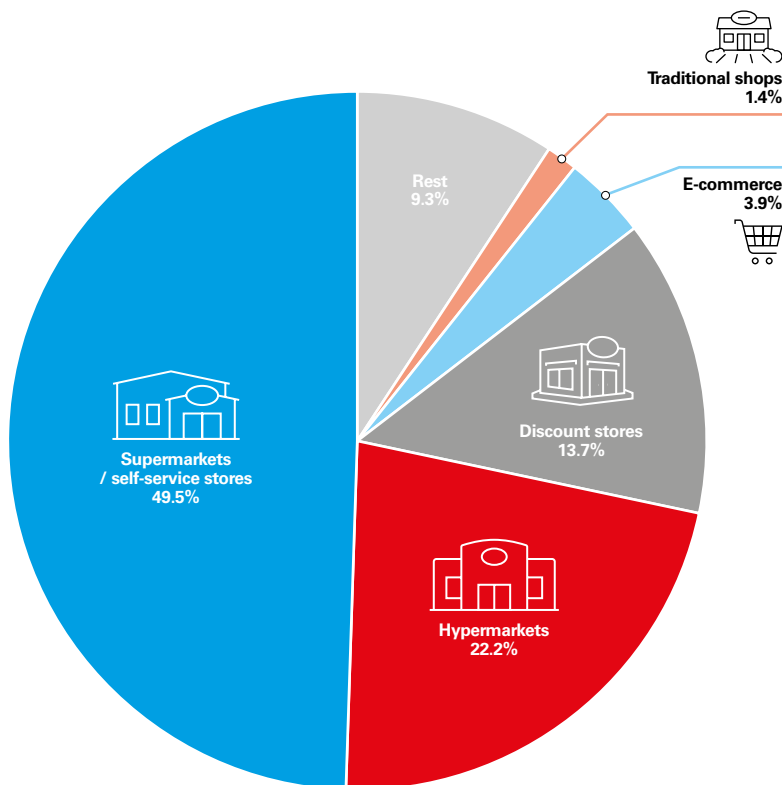


More than 3,5000 different players are involved in the industrial process of producing olive oil, including mills, bottling plants, olive residue mills/extraction plants and refineries.²⁵ There is also a wide variety of industries linked to the sector: on the one hand, those that provide fertilisers and phytosanitary products, machinery, equipment, facilities, etc.; on the other hand, those that use olive oils as input, whether in the food sector itself or in the pharmaceutical and cosmetics sector.

The cooperative model of business is widespread,²⁶ especially in the early stages of oil processing: cooperatives account for about 50% of the mills, which produce almost 70% of the olive oil in Spain, and about 40% of the bottling plants, which tend to be small and play only a limited role in the market, in contrast to the large trading companies.

As for **distribution**, in terms of the companies responsible for selling oil, supermarkets and other self-service stores account for almost half the sales, followed, at a great distance, by hypermarkets and discount stores.

Olive oil sales by distribution channel



Note: Cumulative volume for 12 months up to November 2021.
Source: CaixaBank Research, based on data from MAPA.

²⁵ MAPA (2021): *Informe mensual de la situación de mercado del sector del aceite de oliva. Campaña 2020-2021.*

²⁶ 35% of the cooperatives in Spain's agrifood sector are involved in producing olive oil, this being the second most important production within the cooperative sector in terms of direct turnover, with 15% of the total in 2019. OSCAE (2020): *El cooperativismo agroalimentario español. Informe socioeconómico 2019. Cooperativas Agroalimentarias de España.*

Oil consumption got back to normal in 2021 after an extraordinary previous year

As a consequence of the restrictions imposed to contain the pandemic, in 2020 households increased their consumption of olive oil (the most commonly consumed oil in Spanish families)²⁷ by an extraordinary 15.6% to nearly 214 million litres, the highest figure in four years. The increase in value was much lower, up 3.2% to almost €541 million, due to the sharp decline in the average price, down 10.8% to €2.53/litre, the lowest since 2012. By distribution channel, within a context of almost generalised growth but with the exception of traditional shops, e-commerce stands out in particular, posting extraordinary growth of 67.6%, reaching 4.2% of the total.

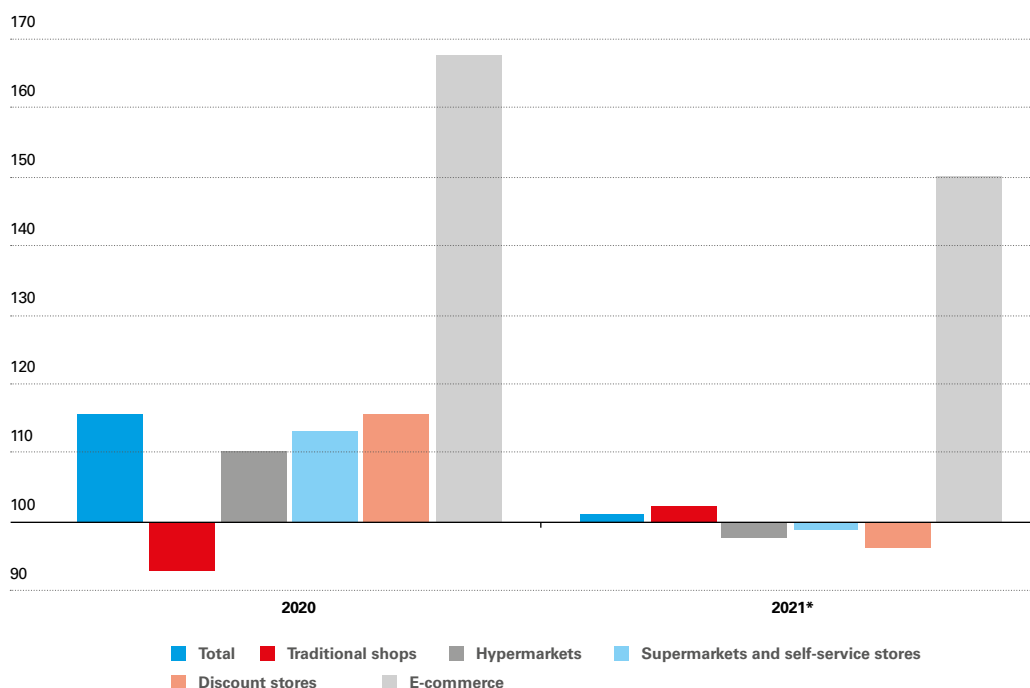
²⁷ MAPA (2021): *Informe anual de consumo alimentario 2020*. MAPA no longer publishes consumption figures for the HORECA channel and only refers to oil used as dressing outside the home, which in 2020 plummeted by 41.8%.

Olive oil is the most commonly consumed by households, with 35% of the total volume, and its demand is characterised by a high price sensitivity

Throughout 2021, as a result of the shorter time spent at home, the reopening of the HORECA channel and decrease in pantry purchases, a change in trend was observed in oil consumption, posting a 12.7% year-on-year decline (accumulated data for 12 months up to November). However, the sharp rise in the average price (+10.1%) cushioned this decline in value terms (-3.9%).

Olive oil consumption by distribution channel

Index (100 = 2019)



Notes: Data by volume. (*) Cumulative data for 12 months up to November, except e-commerce (up to September).
Source: CaixaBank Research, based on data from MAPA.



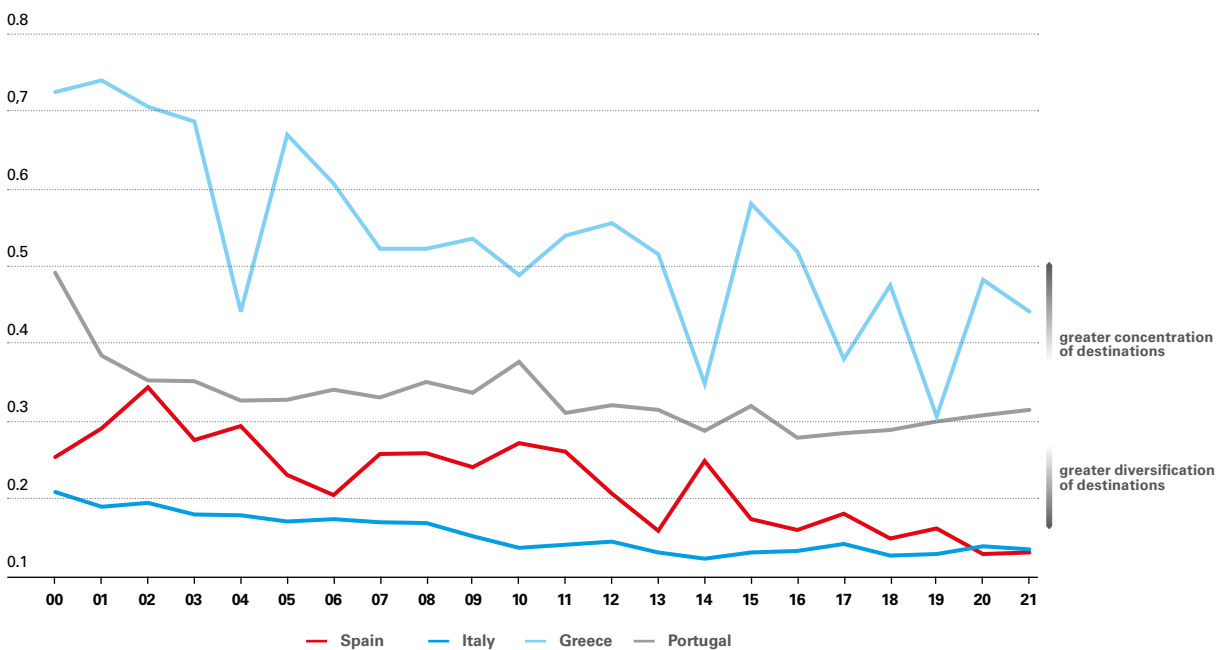
The normalisation of oil sales in 2021 could be seen across almost all the channels except for traditional shops, where sales grew by 10.2%, exceeding their pre-pandemic level. In the case of online purchases, and despite the decline in 2021, sales are now well above their 2019 level and continue to enjoy a market share of close to 4.0%. On the other hand, sales via the main channels (hypermarkets, supermarkets, self-service and discount stores) are somewhat below their pre-crisis levels.

Absolute leader in the international olive oil trade

Spain's olive oil industry is strongly export-oriented: almost 80% of the oil produced is destined for foreign markets (more than one million tonnes in the 2020-2021 season), ranking third among the country's agrifood exports behind pork and citrus fruits. Olive oil is sold to more than 160 countries, although 81% of the volume is concentrated in the top 10, with Italy as the main buyer (28.2% of the total). Our EU partners receive 57% of the total although their share has decreased significantly (16 points since 2010), a sign of the diversification of destinations in recent years. As can be seen in the following chart, Spain has a large degree of geographical diversification in its exports, which is greater than that of our main rivals and has increased in recent years.

Notable geographical diversification of olive oil exports

Herfindahl Index (*)



Notes: Data by volume. (*) The sum of the squares of the market shares of export destinations as a percentage of 1.
Source: CaixaBank Research, based on data from DataComex and Eurostat.



Spain has a powerful and geographically diversified olive oil export industry, albeit with a problem of low prices

Spain is the world's leading exporter of olive oil, both in terms of volume and value but while, in the first case, it practically triples the exports of Italy, the second country in the ranking, the gap in terms of value is considerably smaller. The explanation lies in the average prices, which are much higher in the Italian case: €4.42 per kg for the 2015-2021 average, compared to €3.22 per kg for Spanish oil.

This lower average export price compared to our competitors is closely related to the large share of bulk exports, around two thirds of the total,²⁸ which are mainly destined for EU countries,²⁹ especially Italy which packages and resells the oil under its own brands. This is one of the industry's main problems: the loss of added value and brand positioning because it lacks an adequate marketing strategy, something that its competitors know how to take advantage of (with Italy being a case in point).

²⁸ 2019-2020 campaign. Caja Rural de Jaén (2021): *Informe Anual de Coyuntura del Sector Oleícola*.

²⁹ According to data from the last campaign (MAPA), the average price of oil sold to our EU partners is 16% lower than that sold outside the EU.

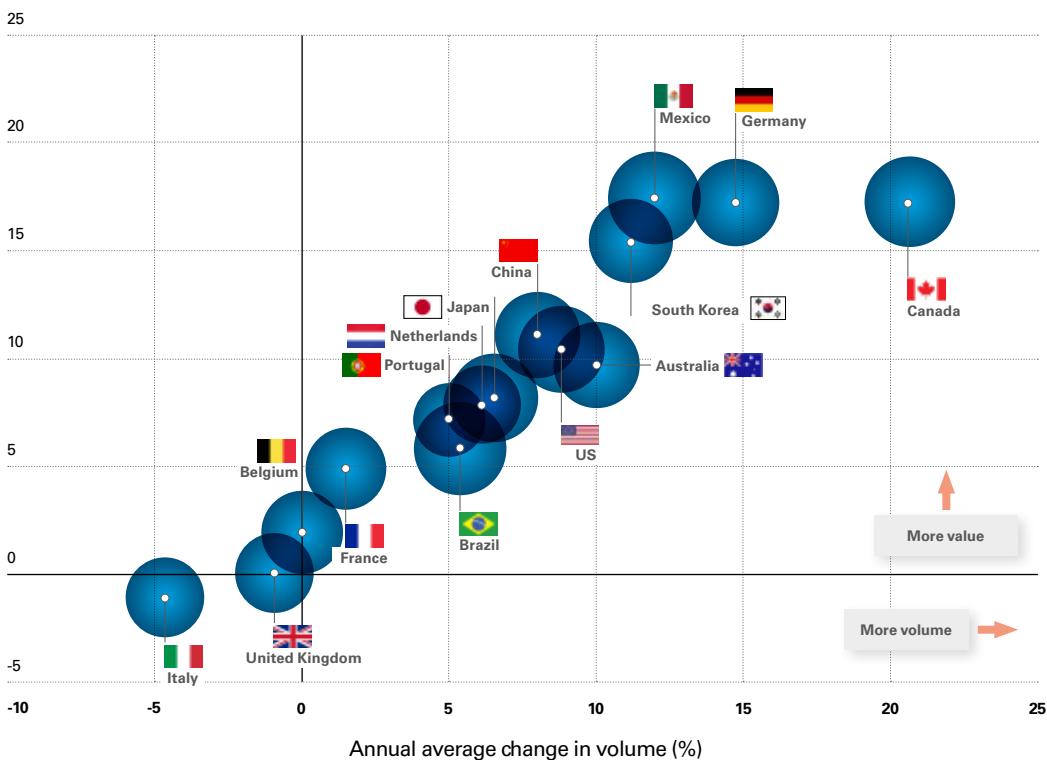


However, in recent years the industry has improved its positioning in international markets. As can be seen in the following chart, some of the countries that pay a higher price (Germany, Australia, US and Mexico) have increased their relative weight in total exports, both in terms of value and volume. Other countries (below the top 10 but also paying above-average prices) where the penetration of Spanish oil is increasing are South Korea, Canada and Russia. In the case of Portugal (the second destination by volume within the EU and the third worldwide), exports reached record levels although the average price is the lowest of the main destinations. On the other hand, France, the United Kingdom³⁰ and, above all, Italy, all paying lower prices, are losing ground.

³⁰ In this case, the slump in exports last year (-39.0%) may have been partly caused by sales brought forward in 2020 due to fears of a no-deal Brexit.

Olive oil exports to the top 10 destinations

Annual average change in value (%)



Notes: The size of the bubbles indicates the average price of exported olive oil. Averages from 2015 to 2021.

Source: CaixaBank Research, based on data from DataComex.

Foreign sales of olive oil were affected by the pandemic but have recovered remarkably well in value terms thanks to the price increase in 2021. Specifically, exports recorded a 5.1% drop in value in 2020, resulting in a series of three consecutive years of declines (-23.5% cumulative). However, in terms of volume, sales slowed significantly in 2020 but still posted growth of 4.4%. Foreign sales were affected not only by the adjustment in demand in the midst of the pandemic but also by the tariffs imposed in October 2019 by the US,³¹ the second largest export destination. In this respect, the agreement reached with the EU in June 2021 to suspend tariffs for at least five years was excellent news for the industry.³² In fact, 2021 saw olive oil exports to the US pick up sharply (10.0%). Taking all destinations into account, in 2021 exports rebounded by 16.5% in value terms (up 10.6% compared to 2019). This occurred in a context of lower production in the main competing countries,³³ so that prices recovered after three years of a downward trend (in volume terms, olive oil exports fell by 5.3% in 2021).

³¹ These tariffs, set at 25%, affected 113 categories of Spanish products, accounting for 53.1% of all products exported to the US. According to the Spanish Association of the Olive Oil Export Industry and Trade (Asoliva), in the year and a half these tariffs were in force, Spain stopped exporting 80,000 tonnes of oil and lost around 1.2 billion euros.

³² The average tariffs of 35% applied to black table olives were maintained, although a resolution of this conflict seems to be imminent, following acceptance by the US of a WTO report that concluded these tariffs are contrary to WTO rules.

³³ The combined production of Italy, Greece, Tunisia, Turkey, Morocco and Portugal in the 2020-2021 season decreased by 27%. Alimarket (2022): *Informe 2022 del sector de Aceite de Oliva en España*.





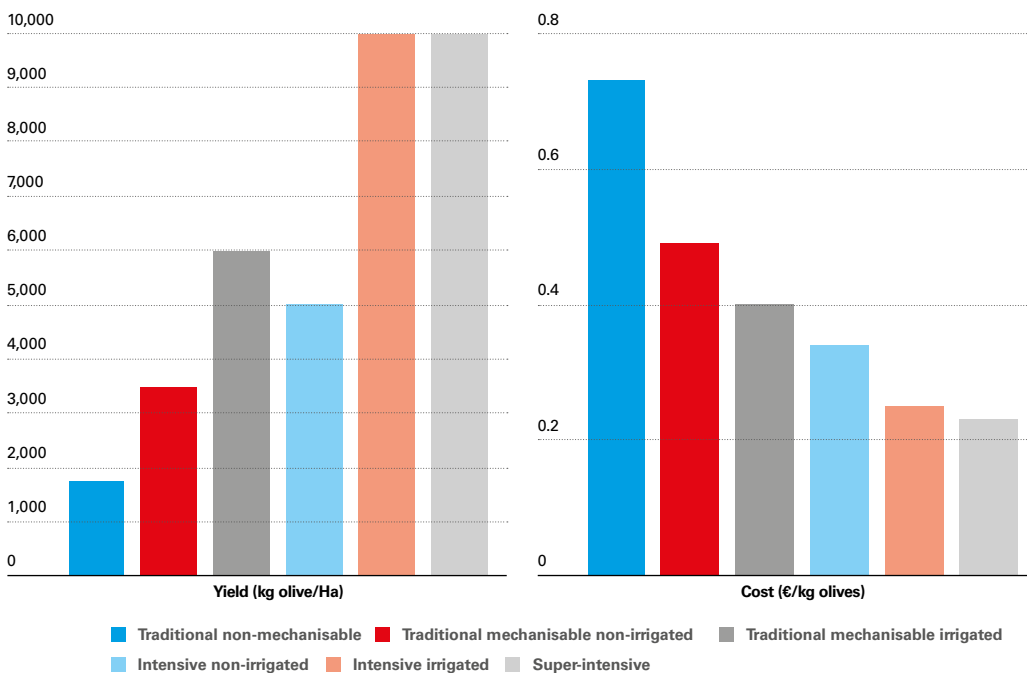
Cost problems are getting worse

The olive oil industry is facing some intrinsic problems that are putting a strain on its costs and hindering its profitability and competitive capacity. First, beyond the logical impact of weather conditions (for example, the drought between late 2021 and early 2022 has pushed down the production forecast for the 2021-2022 season), the **variability of olive harvests**³⁴ influences (i) operating costs, especially in traditional non-mechanisable farms, which account for 22% of the total and have lower yields and higher costs,³⁵ and (ii) extraction costs, especially in cooperative mills, due to less flexibility to adjust their activity and workforces. This, in turn, leads to high volatility in product prices.

³⁴ There is the phenomenon of alternate harvests, the causes of which are not well known. This means that an abundant harvest tends to be followed by a year in which yields are smaller.

³⁵ The high cost of traditional non-mechanisable farms makes them unprofitable, even with CAP subsidies. However, public authorities and business organisations are working to defend traditional olive groves as they help to combat climate change, soil erosion and to maintain biodiversity.

Yield and costs by type of operation



Notes: The difference between mechanisable and non-mechanisable is due to the slope of the land: above 20%, the use of machinery is not possible. Traditional olive groves have a planting density of between 70 and 120 olive trees per hectare, below the intensive rate (more than 200) and super-intensive rate (between 1,000 and 2,000).

Source: CaixaBank Research, based on data from MAPA.

To cushion these fluctuations, last year the government approved a new regulation³⁶ that will allow product to be withdrawn in those seasons with excess production. The industry is also looking to harvest earlier to regulate supply and cushion the impact of the dry season, as the olive trees recover better. In addition, earlier olive harvesting generates higher quality olive oil, which in turn generates higher prices.

³⁶ Royal Decree 84/2021 of 9 February, establishing the basic rules for the application of Article 167a of Regulation (EU) No. 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products.

Another handicap for the industry's profitability is the dual nature of the cultivation system, with low-yield traditional farms versus intensive and super-intensive farms. Almost half the olive groves in Spain are traditional and mechanisable, whereas only 3% are super-intensive: in the first case, the yield per hectare is between 40% and 65% lower while the cost of production can be twice as high.³⁷ Although still in a minority, in recent years there has been a notable increase in the number of hectares of super-intensive (and intensive) olive farming, a system that facilitates mechanisation. In short, crop intensification and mechanisation go hand in hand and make it possible to increase production, reduce costs and obtain higher quality oils.

³⁷ MAPA (2021): *Estudio de la cadena de valor del aceite de oliva virgen extra en España. Campañas 2018-2019 y 2019-2020*, and MAPA (2020): *Encuesta sobre superficies y rendimientos de cultivos (ESYRCE). Análisis de las plantaciones de olivar en España, 2019*.

In addition to the usual problems facing the olive industry, such as droughts and harvest variability, costs are also increasing

In addition to the aforementioned problems, in recent months there has been an increase logistic and production costs (diesel, fertilisers, packaging, water, etc.) and bottlenecks in global supply chains, affecting not only the olive industry but the entire agricultural sector. The conflict in Ukraine represents another shock for the energy sector, with global value chains taking even longer to get back to normal. The risk is that these tensions may damage the profitability of farms and producers and end up being passed on to final prices, in a sector with very narrow margins, with the consequent impact on its competitiveness and consumption. The rising cost of sea freight due to the shortage of containers is another distorting factor that could slow down the performance of exports to emerging destinations such as Asia or the United States.





A commitment to quality and added value

It has been shown that Spain's olive oil industry has an enormous production capacity but it must go a step further and become more market-oriented. To this end, the attributes of our olive oil must be promoted, which are a source of differentiation, give added value to the product and, very importantly, fulfil consumer demands.

Spain must look for differentiating features that add value to its olive oil

One of the hallmarks of our olive oil is quality and Spain has decided to lead the world in terms of quality requirements. In 2021, a standard³⁸ was approved that includes a series of requirements regarding traceability, processing and packaging, which will enhance the reputation of Spanish olive oil in the world and offer maximum transparency and guarantees to the consumer. As part of this standard, MAPA has had a computerised system in operation since October 2021 in which bulk oil movements and internal movements between mills, refineries and extraction plants must be recorded.

³⁸ Royal Decree 760/2021, of 31 August, approving the quality standard for olive and olive residue oils.

In recent years, especially with the outbreak of the pandemic, concern for health and environmental care has grown. In turn, this has boosted the consumption of foods considered to be healthy, olive oil being one of them, as well as a commitment to organic products and biodiversity. Spain is the world's leading producer of organic olive oil, a strength that should be highlighted.



Main indicators for the agrifood sector

Annual change, unless otherwise specified

	Average 2000-2007	Average 2008-2014	Average 2015-2019	2020	2021	2022	Date of latest data
Economic activity indicators							
Total GDP of the economy	3.7	-1.0	2.8	-10.8	5.0		Q4 2021
GVA primary sector	1.4	0.6	2.1	4.3	-5.5		Q4 2021
GVA agrifood industry	3.6	-2.8	0.8	-	-		2018
Agrarian income (current prices)	3.0	2.1	3.6	1.4	2.3		2021
Industrial production index: manufacturing industry	1.4	-4.8	2.4	-10.3	2.3		Jan-22
Industrial production index: food	1.7	0.0	1.2	-4.8	5.9		Jan-22
Industrial production index: beverages	2.3	-1.7	0.4	-9.0	6.3		Jan-22
Turnover index: manufacturing industry	5.5	-3.1	3.0	-12.0	16.0		Dec-21
Turnover index: food	4.1	1.1	2.8	-2.0	8.4		Dec-21
Turnover index: beverages	4.6	-1.2	2.1	-16.2	13.0		Dec-21
Demand indicators							
Retail sales index: whole economy	2.8	-4.0	2.3	-6.0	3.1		Dec-21
Retail sales index: food	1.5	-2.1	1.1	0.3	-0.8		Dec-21
Expenditure on food	2.6	-2.1	0.4	4.6	-		2020
Share of expenditure on food (%)	14.7	15.1	15.1	17.9	-		2020
Labour market							
Total registered workers, whole economy	3.5	-2.1	3.1	-2.1	2.5	4.5	Feb-22
Registered workers, primary sector	-1.4	-0.6	0.4	-1.6	-0.3	-4.1	Feb-22
Registered workers, agrifood industry	-	-0.8	2.9	-1.0	2.0	3.7	Feb-22
Total employees, whole economy	4.3	-2.4	2.7	-2.9	3.0		Q4 2021
Employees, primary sector	-1.5	-2.3	1.6	-4.0	4.9		Q4 2021
Employees, agrifood industry	-	-1.0	1.5	0.0	-2.7		Q4 2021
Foreign sector							
Agrifood exports	6.3	6.0	5.6	4.0	11.2		Dec-21
Primary sector exports	4.7	5.1	5.3	3.5	8.8		Dec-21
Agrifood industry exports	7.3	6.6	5.7	4.2	12.6		Dec-21
Agrifood imports	6.7	2.0	4.5	-5.6	15.8		Dec-21
Primary sector imports	5.2	2.2	4.5	-3.8	15.8		Dec-21
Agrifood industry imports	7.6	1.8	4.5	-6.5	15.9		Dec-21
Agrifood balance of trade (% of GDP)	0.1	0.4	1.0	1.6	1.5		Q4 2021
Primary sector balance (% of GDP)	0.2	0.2	0.4	0.6	0.5		Q4 2021
Agrifood industry balance (% of GDP)	-0.1	0.2	0.6	1.0	1.0		Q4 2021
Financing							
Outstanding balance of credit to the primary sector	9.9	-5.0	3.9	4.0	1.9		Q3 2021
NPL rate, primary sector (%)	1.3	7.4	7.8	5.5	5.3		Q3 2021
Outstanding balance of credit to the agrifood industry	10.4	-1.8	4.4	2.9	-2.2		Q3 2021
NPL rate, agrifood industry (%)	1.6	7.1	6.0	4.2	4.0		Q3 2021

Note: Demand indicators are at constant prices.

Source: CaixaBank Research, based on data from the National Statistics Institute, DataComex, Social Security and Bank of Spain.



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