The European market potential for frozen vegetables

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Globally, Europe represents one of the largest markets for frozen vegetables. This market is primarily driven by busy lifestyles and a growing desire for healthy food that is affordable, tasty and easy to cook. Frozen vegetables are a cost-effective option that can be used in various ways. Frozen berries are widely used to make smoothies, while frozen kale is used for kale crisps. Rising consumer incomes and changing dietary patterns are also propelling market growth. European consumers are shifting from consumption of animal-source foods to vegetable alternatives, driving growth in the frozen vegetable market. For vegetable suppliers, major opportunities exist in countries such as Germany, France, Belgium, Italy and the Netherlands. There is an awareness that frozen vegetables are healthier (in terms of vitamins and nutrients) than vegetables bought fresh and then refrigerated. This fact is now being publicly emphasised and is increasing demand for frozen vegetables among the younger generation.

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1. Product description

Frozen vegetables are fresh vegetables that are frozen using appropriate technologies. The vegetables used need to be of good quality and meet certain specifications to enable longer preservation. The freezing process itself involves various steps. Vegetables are sorted, washed, peeled and grated or cut, depending on the type of product. Some vegetables are blanched by boiling them in hot water for a few seconds to stop enzyme activity and maintain colour before shock freezing. The entire process from field to a manufacturer's deep-freeze warehouse usually takes 3-5 hours. The majority of frozen vegetables can maintain their high quality for 12-18 months when stored at -18 °C or lower.

Common freezing methods:

- Vegetable are frozen in a narrow blast tunnel through which ultra-cooled air is blown;
- Vegetables are passed along metal plates and cooled by a refrigerated liquid (such as chilled ammonia).

Frozen vegetables are traded in the following forms:

- Separate pieces frozen by fluidisation using Individual Quick Frozen (IQF) technology;
- Separate pieces stuck together in a frozen state, such as frozen peas;
- Chopped and cut into dice or strips, such as carrots or beans;
- Florets, such as IQF cauliflower or IQF broccoli;

- Syrup or puree frozen into cubes or paste, such as spinach, cauliflower or mashed potato.

Most frozen vegetables are traded without any added ingredients. Some ready-to-cook products such as pre-grilled frozen vegetables contain seasonings such as salt, sugar and aromatic herbs (refer to the EU regulations on approved levels of additives).

Wherever this study refers to frozen vegetables, this include the range of products specified in Table 1, unless otherwise stated.

Table 1: Frozen vegetable product group

HS Code	Description
071010	Vegetables: potatoes, uncooked or cooked by steaming or boiling in water, frozen
071021	Vegetables, leguminous: peas, shelled or unshelled, uncooked or cooked by steaming or boiling in water, frozen
071022	Vegetables, leguminous: beans, shelled or unshelled, uncooked or cooked by steaming or boiling in water, frozen
071029	Vegetables, leguminous: other than peas and beans, shelled or unshelled, uncooked or cooked by steaming or boiling in water, frozen
071030	Vegetables: spinach, New Zealand spinach and orache spinach (garden spinach), uncooked or cooked by steaming or boiling in water, frozen
071040	Frozen sweetcorn
071080	Vegetables uncooked or cooked by steaming or boiling in water, frozen
07108010	Frozen olives (uncooked or cooked)
07108051	Frozen sweet pepper (uncooked or cooked)
07108059	Frozen vegetables of genus *Capsicum* or *Pimenta* (uncooked or cooked)
07108061	Frozen mushrooms of the genus *Agaricus* (uncooked or cooked)
07108069	Other frozen mushrooms (uncooked or cooked)
07108070	Frozen tomatoes (uncooked or cooked)

07108080	Frozen artichokes (uncooked or cooked)
07108085	Frozen asparagus (uncooked or cooked)
07108095	Other frozen vegetables (uncooked or cooked)
071090	Vegetable mixture
20049010:	Frozen sweetcorn prepared or preserved through means other than vinegar or acetic acid
20049030	Frozen sauerkraut, capers and olives, prepared or preserved through means other than vinegar or acetic acid
20049091	Frozen cooked onions
20049098	Other frozen vegetables and mixtures of vegetables, prepared or preserved through means other than vinegar or acetic acid

Figure 1: Frozen vegetables

Source: Pixabay

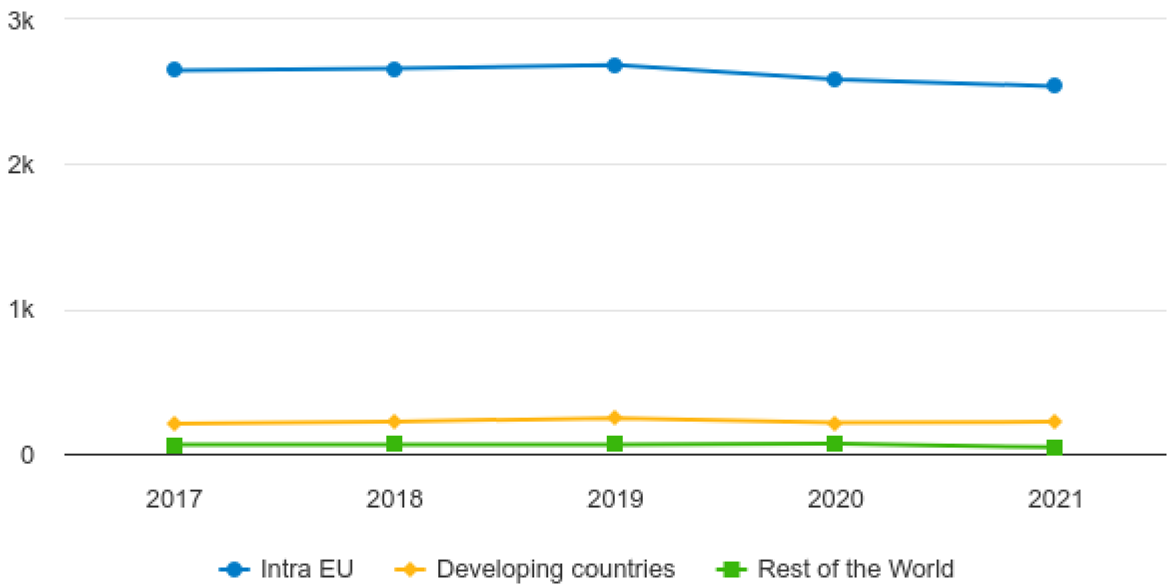
2. What makes Europe an interesting market for frozen vegetables?

Europe has the largest demand worldwide for frozen vegetables, with a value of 38% of the market in 2021, followed by North America. In 2021, frozen vegetable imports to Europe amounted to €3 billion in value and 2.8 million tonnes aggregated by volume. In the past five years, the value of European imports increased 1.7%, though volumes decreased 0.6%, indicating an increase in import prices.

Internal European imports account for 91% of the total import volume, while just 9% of imports come from developing countries. Europe is the largest producer of frozen vegetables globally, which explains why internal trade makes up such a large share of total imports. European imports from developing countries decreased by 1.1% in volume over the last five years, reaching 2,537,929 tonnes in 2021. Germany has the highest market share, with 20% in European imports, followed by France (18%) and Belgium (14%).

Figure 2: European imports of frozen vegetables, by origin

in tonnes



Eurostat

Tip:

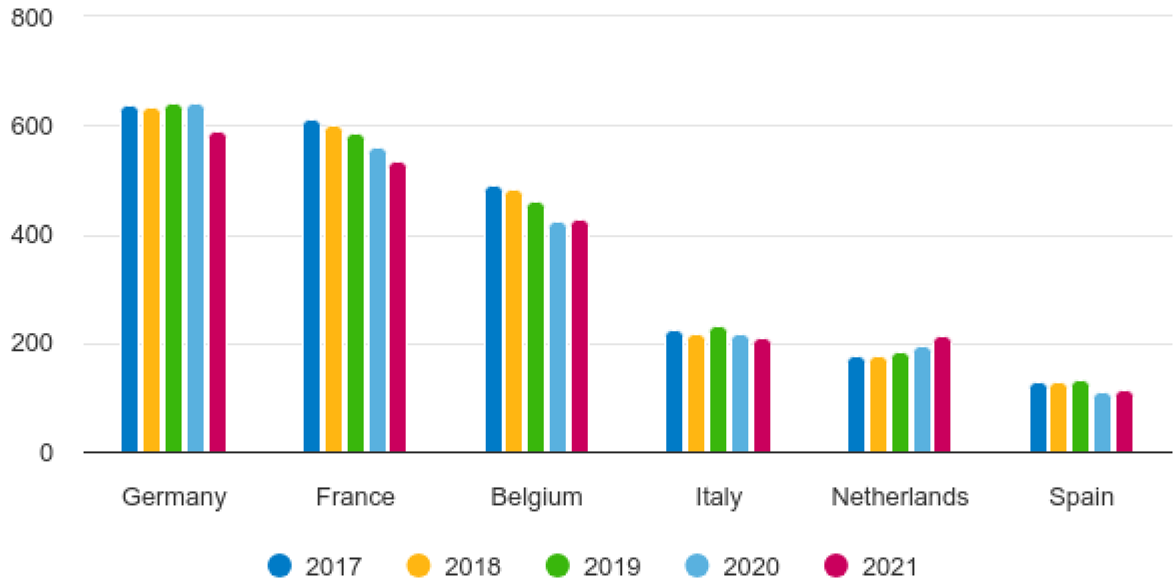
For information about the European market for processed fruits and vegetables, see the website of PROFEL, the European Association of Fruit and Vegetable Processing Industries.

3. Which European countries offer the most opportunities for frozen vegetables?

As Europe’s main importers of frozen vegetables, Germany and France are interesting focus markets. Belgium, although the largest producer and exporter, does not produce all types of vegetables domestically and commonly sources some frozen vegetables from other countries. Other top European markets include Italy, the Netherlands, Spain and Sweden.

Figure 3: Main European importers of frozen vegetables

in tonnes



Eurostat and ITC Trade Map

Germany: leader in the frozen vegetable market

Germany is the world’s third-largest importer of frozen vegetables (after the United States and Japan) and the largest in Europe. German frozen vegetable imports had a total value of €598 million, or 20% of the European market, in 2021. The volume of German imports decreased by 2.1% annually between 2017 and 2021, to 588,294 tonnes. However, their value increased by 1.2% per year during the same period, due to growth in import prices by an average of 4% in 2018 and 2019, 1% in 2020 and 5% in 2021.

In 2021, Germany imported 90% of its frozen vegetables from other European countries and 10% from developing countries. Belgium is the leading supplier to Germany, with a 43% share, followed by Poland (16%), the Netherlands (13%) and Spain (10%).

Among non-European countries, China is the leading supplier of frozen vegetables to Germany, despite the increase in import prices. Turkey, Ecuador and Serbia are the other main suppliers.

In 2021, Germany was the second-largest importer of mixed vegetables after the US and the third-largest importer of beans, with the majority of these imports coming from Belgium. Globally, Germany is the third-largest importer of frozen spinach, which is also sourced from Belgium.

Germany also exports frozen vegetables. It is the sixth-largest exporter in Europe and twelfth-largest in the world, with exports mainly going to the Netherlands (21%), Austria (17%), Belgium (10%), Italy (9%) and Poland (8%).

German frozen vegetable consumption is being driven by changing lifestyles among younger generations, convenience, growing preference for vegan and organic diets and demand for seasonal vegetables throughout the year. In 2022, research by ProVeg showed that 51% of Germans have reduced their meat intake. According to the Vegan Society, Germany and Austria have the highest number of vegans, after the UK. Around 30% of Germans have adopted a flexitarian diet (a primarily vegetarian diet, with occasional consumption of meat or fish).

Edeka Group, Schwarz Group, Rewe Group, Aldi Group and Otto Franck Import are the top retail suppliers of frozen vegetables in the German market. They jointly account for almost 60% of the local market share. Private label brands also operate in the German market. Some well-known ones are Gut & Günstig, Edeka, Iglo, Rewe Beste Wahl, ja!, Frosta, Rewe Bio and CROP'S. Retailers such as Edeka and Ardo Copack have introduced premium product lines to boost sales.

Tips:

- Visit the German Waren-Verein trade association website and German company directory Wer Liefert Was to find frozen vegetables traders.
- Stay up to date on developments in the German frozen vegetable market using the dti Publikationen application developed by the German Frozen Food Institute (in German only).

France: another promising frozen vegetable market in Europe

France is the second-largest importer of frozen vegetables in Europe and fourth-largest in the world. By value, its imports came to €547 million in 2021, accounting for nearly 18% of total EU imports. However, the volume of French imports fell by 3.2% between 2017 and 2021, to 536,341 tonnes, representing a 1.2% decline in value over this period. A growing preference for seasonal foods is expected to boost frozen vegetable sales across the country.

Belgium is the leading direct supplier to France, followed by Spain, Poland and the Netherlands. Among non-European countries, China is the leading supplier, followed by Turkey and Egypt.

According to data from the French Sector Association of Processed and Frozen Vegetables (UNILET), consumption of frozen vegetables is high in France. In 2020, 83% of French households consumed frozen vegetables at home. Almost 57% of domestic vegetables harvested were frozen. While purchases by consumers declined in 2021 relative to 2020 (by 6% in volume and 5% in value), both the volume and value of purchases grew 4% compared to 2019. In 2021, total sales of frozen vegetables came to €735 million, with an average price of €2.63/kg. Demand was highest for peas, spinach, courgette and broccoli, followed by vegetable mixes. There was a marked increase in frozen vegetable buyers buying for distributor brands (private labels).

Consumption of frozen organic vegetables increased by 3% in volume in 2021 and 6% in value relative to 2019. The organic segment represents 6% of the market in volume and 9% in value.

Nutri-Score labelling is used in France to indicate the nutritional value of products (including frozen vegetables). Leading frozen vegetable brands include Bonduelle, Picard, Findus, d'Aucy and Paysan Breton.

Tips:

- Consult UNILET's member directory to learn more about French frozen vegetables companies.
- Find French frozen food importers via Europages.

Belgium: leading European exporter of frozen vegetables

Belgium is the largest producing, exporting and re-exporting country for frozen vegetables in Europe. It accounted for 45% of total European exports in 2020. Germany, France, UK, the Netherlands and Italy are the main export destinations for frozen vegetables from Belgium.

In 2021, Belgium was the third-largest importing country in Europe, with a share of 14%, after Germany and France. Over the past five years, Belgian imports of frozen vegetables decreased by an average of 0.5% in value and 3.3% in volume per year, to €421 million and 428,478 tonnes, respectively, in 2021.

Belgian production of frozen vegetables is concentrated in the regions of East Flanders and West Flanders and focuses mainly on carrots, beans, spinach, peas, cauliflower and Brussels sprouts. Belgian companies do not source all of their vegetables domestically, and frozen vegetables that are not produced in Belgium are sourced from other countries.

France is the leading supplier of frozen vegetables to Belgium, followed by Spain, Portugal and the Netherlands. Not all frozen vegetable imports are consumed within Belgium, where domestic consumption is low. A portion is packed and re-exported to other European destinations. Among non-European countries, China is the leading supplier to Belgium. Others are Egypt (mainly frozen artichokes) and Balkan countries (Serbia, Croatia and North Macedonia, all with frozen sweet peppers as the leading export product).

Belgium is the largest importer of sweetcorn in Europe, with France and Hungary providing more than 50% of these volumes. It is also the third-largest importer of frozen peas, after Italy and Germany.

Leading manufacturers, retailers and distributors of frozen vegetables that sell under their own brands include ARDO, Greenyard, Flanders Best and Dujardin Foods. Private labels are the leading frozen vegetable brands, such as those of leading retailer Delhaize (Delhaize and 365), while Iglo is the leading premium brand. Key trends driving Belgium frozen vegetable consumption are health and convenience. Almost all leading frozen vegetable products have Nutri-Score labels.

Tip:

> To learn more about the Belgian frozen vegetable sector, see the website of the Flemish Centre for Agricultural and Food Marketing (in Dutch only).

The Netherlands: highest increase in frozen vegetable imports among all European countries

The Netherlands is the fourth-largest importer of frozen vegetables in Europe (fourth-largest importer of mixed vegetables and fifth-largest importer of beans worldwide). Between 2017 and 2021, Dutch imports increased at a steady pace of 6% in value and 4.8% in volume per year. In 2021, imports reached 214,373 tonnes and €248 million. In terms of volume, Belgium is the largest supplier, followed by Germany and Spain. Major suppliers from non-European countries are China, Turkey and Egypt. Interestingly, Turkey is gaining a sizeable market share with the supply of frozen tomatoes.

The Netherlands was the third-largest supplier of frozen vegetables in Europe in 2021, after Belgium and Spain, with 264,412 tonnes in export volumes. Sales are dominated by private labels, with Albert Heijn as the leading retail chain. Leading independent brands are Bonduelle and Iglo. Mondial Foods, one of the leading Dutch export and trading companies, has worldwide coverage in the frozen vegetable trade.

Tip:

> See the list of IQF frozen vegetable manufacturers, processors and suppliers in the Netherlands on Frozen Goods.

Italy: fifth-largest importer of frozen vegetables

Italy is the fifth-largest importer in Europe. In 2021, its total aggregated imports were 210,839 tonnes. The majority was for internal consumption and export volumes are low. Between 2017 and 2021, imports decreased at an annual rate of 1.4% in volume while increasing by 0.4% in value per year. Intra-European imports of frozen peas accounted for the largest share in 2021, followed by frozen mushrooms. Among non-European countries, China is the leading supplier, followed by Egypt and Turkey. Italy is the largest European importer of frozen mushrooms.

Some leading names in the Italian frozen food retail and manufacturing sectors are Orogel, Surmont, Carnevale, Emilia Foods (selling under their private label), Alifoods and Asiago Foods (private labels).

Spain: sixth-largest importer of frozen vegetables

Spain is the sixth-largest importer in Europe. In 2021, total aggregated imports were 115,105 tonnes. Imports decreased at an annual rate of 2.7% in volume and 2.1% in value between 2017 and 2021. Spain is the fourth-largest importer of frozen mushrooms in Europe and accounts for 10% of all frozen mushrooms imports in Europe. It also accounts for 9% of frozen beans, 5% of frozen sweetcorn and 6% of frozen sweet pepper imports in Europe. Among non-European countries, China is the leading supplier, followed by Peru and Egypt.

#Leading names in the Spanish frozen food industry are Frigodar S.A.R.L (a Spanish-Moroccan company), Hongos de Zamora S.L. (Honza brand, famous for frozen mushrooms) and La Senda Frozen Foods, S.L.

4. Which trends offer opportunities or pose threats on the European frozen vegetable market?

Increasing demand for foods that are convenient and fast to prepare as well as for vegan and vegetarian options are driving demand for frozen vegetables in Europe. Frozen vegetables are promoted as nutritionally richer than fresh vegetables that are refrigerated. Greater demand for organic food, coupled with an increasing preference for seasonal vegetables, is also creating growth in the European frozen vegetable industry.

Convenience and ease of preparation

Many European frozen food companies are developing time-saving frozen food solutions specifically for consumers with busy lifestyles. In Europe, Germany is leading the way in frozen innovations, followed by the United Kingdom, Italy and Spain. These solutions include different ethnic mixes, ready-to-eat frozen vegetable dishes and frozen vegetable alternatives to meat. European consumers are open to different options including grilled, pre-fried and pre-cooked frozen vegetables. The food service industry is also adapting to the trend for convenience. For example, many restaurants, fast food chains and hotels are open to frozen herbs that have a much longer shelf life than fresh herbs.

Health awareness among younger generations

Growing awareness among Europeans about a healthy lifestyle is increasing demand for healthy food and beverage products. According to the INC, a recent survey by IRI International found that two-thirds (70%) of people across Europe buy healthy foods, and that 60% believe eating more fruit and vegetables will make them healthier. Recently, several high-profile incidents have also raised questions about food safety at retail chains, making people increasingly mindful of food quality. Demand for ‘free from’, ‘organic’ and ‘vegetarian’ products is rising. Penetration levels of each category are already significant, with organic and vegetarian food accounting for 53% and 39%, respectively, of all consumer food purchases.

Environmental awareness

Recent years have also seen growing awareness about the environment and animal protection. In many parts of Europe, meat consumption has declined significantly, creating opportunities for innovation in vegetable products. Per capita consumption of meat is expected to fall from 69.3 kg in 2018 to 68.6 kg in 2030, according to the European Union Agricultural Outlook 2018–30 report. Vegan meat substitutes (made from vegetables and soy) include frozen burgers (with a high bean content as an alternative to animal protein). Frozen chickpea products (such as hummus and falafel), frozen vegetable snacks (root vegetable chips), cauliflower florets as a rice substitute and ready meals with vegetable mixtures (such as curry dishes, vegetable and grain combinations and cauliflower crust pizzas) are leading the market.

COVID-19 pandemic

COVID-19 transformed the purchasing behaviour of European consumers. The start of the pandemic saw panic buying and stockpiling of groceries with a long shelf life. Food purchases also increased 15%, while frozen vegetables purchases increased 31% in France and some other European countries. During the lockdowns in Europe, restaurant closures led to a shift in meal preferences and increased consumer demand for frozen fruit and vegetables.

Innovations to compete with private labels

Private label players are becoming increasingly innovative as brands seek to differentiate and add value. They are exploring new processing methods, new product varieties and fun features such as unusual product shapes and packaging designs. For example, Bonduelle introduced steamed vegetables as a new processing method, while Frosta introduced emotive marketing with a heart-shaped frozen spinach range to enhance brand affinity and make cooking more enjoyable.

Tip:

> See the websites of European trade shows and exhibitions to find out about the latest trends. The most important trade fairs for frozen vegetables in Europe are SIAL (France, even years in October), Anuga (Germany, odd years in October) and BioFach (Germany, organic products, yearly in February).

This study was carried out on behalf of CBI by M-Brain.