What requirements must processed fruit and vegetables comply with to be allowed on the European market?

Last updated: 22 February 2021

All foods sold in Europe must be safe for consumption. The purposes of the various requirements range from the approval of additives to the banning of harmful contaminants. Information labels on food packaging are also strongly controlled. What’s more, private requests are becoming equally important as mandatory requirements. Exporters need to monitor the market requirements frequently, because in 2019 alone there have been changes for nearly 80 different pesticide residues.

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1. What are mandatory requirements?

Apart from customs procedures, almost all mandatory requirements related to importing processed fruit and vegetables (and food in general) are related to food safety. The General Food Law is the legislative framework regulation for food safety in Europe. The General Food Law specified establishment of the European Food Safety Authority (EFSA). EFSA is responsible for the development of specific food safety legislation and the creation of a framework for official food controls.

This law is based on the “Farm to Fork” approach. This means that all food must be traceable throughout the entire supply chain, and that includes exporters from developing countries. To achieve this, all food business operators need to implement the Hazard Analysis of Critical Control Points (HACCP) system in their daily operations.

Several different aspects of the most important food safety requirements are described below.

Official border control for food imported to the European Union

You should be aware that repeated non-compliance with the European food legislation by a particular country may lead to stricter import conditions or even suspension of imports from that country. Those stricter conditions usually include a health certificate and an analytical test report for a certain percentage of the shipments from specified countries. Products from countries that have shown repeated non-compliance are put on a list included in the Annex of the Regulation on increased level of official controls on imports.

Nevertheless, only a small number of the products imported and marketed in Europe is subject to official (physical) controls, since the first responsibility for their safety lies with the commercial operators such as importers. Importers will therefore conduct most of the checks required to assure a product is safe, and may also demand certification and other proof of quality and safety. The frequency of controls for certain processed fruit and vegetables included in the latest issue of the EU border control regulation is presented in table 1:

Table 1: Official controls for processed fruit and vegetables and edible nuts (as of May 2020)
<table>
<thead>
<tr>
<th>Product</th>
<th>Country</th>
<th>Contaminant</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apricot kernels</td>
<td>Turkey</td>
<td>Cyanide</td>
<td>50</td>
</tr>
<tr>
<td>Brazil nuts in shell</td>
<td>Brazil</td>
<td>Aflatoxins</td>
<td>10</td>
</tr>
<tr>
<td>Dried apricots</td>
<td>Uzbekistan</td>
<td>Sulphites</td>
<td>50</td>
</tr>
<tr>
<td>Dried figs and dried fig paste</td>
<td>Turkey</td>
<td>Aflatoxins</td>
<td>20</td>
</tr>
<tr>
<td>Dried goji berries</td>
<td>China</td>
<td>Pesticide residues</td>
<td>20</td>
</tr>
<tr>
<td>Dried grapes</td>
<td>Turkey</td>
<td>Ochratoxin A</td>
<td>10</td>
</tr>
<tr>
<td>Dried mandarins</td>
<td>Turkey</td>
<td>Pesticide residues</td>
<td>5</td>
</tr>
<tr>
<td>Dried oranges</td>
<td>Turkey</td>
<td>Pesticide residues</td>
<td>5</td>
</tr>
<tr>
<td>Dried grapes</td>
<td>Turkey</td>
<td>Ochratoxin A</td>
<td>10</td>
</tr>
<tr>
<td>Frozen beans</td>
<td>Cambodia</td>
<td>Pesticide residues</td>
<td>50</td>
</tr>
<tr>
<td>Frozen okra</td>
<td>India</td>
<td>Pesticide residues</td>
<td>10</td>
</tr>
<tr>
<td>Frozen or dried curry leaves</td>
<td>India</td>
<td>Pesticide residues</td>
<td>50</td>
</tr>
<tr>
<td>Frozen paprika</td>
<td>Egypt, Uganda, Pakistan</td>
<td>Pesticide residues</td>
<td>20</td>
</tr>
<tr>
<td>Frozen paprika</td>
<td>Thailand, Turkey, India</td>
<td>Pesticide residues</td>
<td>10</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>Bolivia, Madagascar, Sudan, Senegal, Ghana, Gambia</td>
<td>Aflatoxins</td>
<td>50</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>China, Egypt</td>
<td>Aflatoxins</td>
<td>20</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>United States, India</td>
<td>Aflatoxins</td>
<td>10</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>Argentina</td>
<td>Aflatoxins</td>
<td>5</td>
</tr>
<tr>
<td>Hazelnuts</td>
<td>Georgia</td>
<td>Aflatoxins</td>
<td>50</td>
</tr>
<tr>
<td>Hazelnuts and hazelnuts paste</td>
<td>Azerbaijan</td>
<td>Aflatoxins</td>
<td>20</td>
</tr>
<tr>
<td>Food Product</td>
<td>Country</td>
<td>Contaminant</td>
<td>Level</td>
</tr>
<tr>
<td>--------------------------------------</td>
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</tr>
<tr>
<td>Hazelnuts and hazelnuts paste</td>
<td>Turkey</td>
<td>Aflatoxins</td>
<td>5</td>
</tr>
<tr>
<td>Pickled and preserved turnips</td>
<td>Lebanon</td>
<td>Rhodamine B</td>
<td>50</td>
</tr>
<tr>
<td>Pickled and preserved turnips</td>
<td>Syria</td>
<td>Rhodamine B</td>
<td>50</td>
</tr>
<tr>
<td>Pistachios</td>
<td>United States</td>
<td>Aflatoxins</td>
<td>10</td>
</tr>
<tr>
<td>Pistachios and pistachio paste</td>
<td>Iran, Turkey</td>
<td>Aflatoxins</td>
<td>50</td>
</tr>
</tbody>
</table>

Apart from border controls, official food controls include regular inspections that can be carried out at all stages from import to retail sales. In case of non-compliance with the European food legislation, individual cases are reported through the Rapid Alert System for Food and Feeds (RASFF), which is freely accessible to the general public.

During 2019, the RASFF reported 4,118 non-compliances found by official inspections, of which 1,499 were classified as border rejections. In the processed fruit and vegetables category, most problems were related to the import of edible nuts (mainly mycotoxins), followed by fruit and vegetable products (mainly pesticide residues). However, it is estimated that the number on non-compliances is much larger, since results of many controls conducted by private companies are not recorded by RASFF.

**Tips:**

- Stay up to date with the Official Controls Regulation on the European Commission website. The list is updated regularly. Even if your country is not on the list, be aware of the most common contaminations for your product and implement all possible preventive measures.
- Search in the RASFF database to see examples of withdrawals from the market and the reasons behind these withdrawals.
- Subscribe for the EFSA newsletter (free of charge) to receive news about European food safety developments.
- Implement an HACCP system into your daily practice. Even if HACCP is not an obligation in your country, you must comply with the European food safety regulations.

**Control of contaminants**

Food contaminants are unwanted and harmful substances in food that can cause consumer illness. These substances may be present in food as a result of the various stages of its production, packaging, transport or holding, or they may come from the external environment. The European Union has taken strict and extensive measures to minimise contaminants in food. The European Commission Regulation sets maximum levels for certain contaminants in food products. This regulation is frequently updated and apart from the limits set for general foodstuffs there are a number of specific contaminant limits for specific products.
The most common requirements regarding contaminants in processed fruit and vegetables are related to microbiological contaminants, mycotoxins and pesticide residues.

**Contamination by foreign bodies**

Insects form an important contamination issue for dried fruit imported to the European market. Insects may be found dead in the packaging, but some type of insects can develop inside the fruit and continue to grow during storage. In order to prevent contamination with insects, suppliers from developing countries should implement preventive measures such as fumigation and temperature treatments. When using fumigation, only apply officially approved fumigants. For example, methyl bromide as a fumigant is banned in the European Union.

Other types of contamination with foreign bodies include earth, stones, glass or metal parts (for example from agricultural machinery and tools). Usage of optical, metal and similar detectors is recommended to prevent this type of contamination. However, physical sorting and eye-hand control is always recommended, even if detectors are installed.

**Reducing the risk of microbiological contaminants**

The main reasons for border rejections for imported processed fruit and vegetables are related to microbiological contamination. The most common types of microbiological contaminants in processed fruit and vegetables are salmonella, Escherichia Coli, listeria and viruses such as norovirus and Hepatitis A viruses. The European regulation on microbiological criteria for foodstuff sets limits for pathogenic micro-organisms, their toxins and metabolites. Table 2 lists the limits for most common pathogens.

<table>
<thead>
<tr>
<th>Pathogen/Toxin</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salmonella</td>
<td>Absent</td>
</tr>
<tr>
<td>E.Coli</td>
<td>Absent</td>
</tr>
<tr>
<td>Listeria monocytogenes</td>
<td>Absent in infant food and in foods that cannot support the growth of L. monocytogenes (for example frozen fruit and vegetables and pickled products with a pH value below pH ≤4.4); 100 cfu/g for other products</td>
</tr>
<tr>
<td>Yeast and Mold</td>
<td>10 cfu/g</td>
</tr>
<tr>
<td>Total Aerobic Colony Count</td>
<td>10 cfu/g for canned products</td>
</tr>
</tbody>
</table>

The World Health Organisation (WHO) estimates that norovirus is the most common cause of foodborne illness in Europe with close to 15 million cases each year, causing more than 400 deaths. Also, there are 100,000 cases of hepatitis A infection in the European region each year, causing 200 deaths. During 2019, the RASFF reported 399 notifications related to microbiological contaminants. Most issues reported on imported food are about Salmonella findings. Within the processed fruit and vegetables sector, salmonella mostly occurred in edible nuts.

In the fruit and vegetable processing sector, the source of microbiological contamination can be dirty water
used for irrigation or for cleaning and processing operations. Also, dirty hands and infected pickers and handlers can transmit bacteria or viruses to products. There were even cases in which the source of infection was a fruit-transporting vehicle that had also been used for transporting animals. As such, it is important for suppliers from developing countries to teach their employees to implement good hygienic practices and to use clean and disinfected vehicles and packaging for transport.

The standard procedure before exporting processed fruit and vegetables to Europe includes laboratory testing for the presence of pathogenic microorganisms. Many of those tests can be performed quickly but some require time, such as the tests for hepatitis A or norovirus. Be sure to use only accredited laboratories when performing microbiological tests. Testing for norovirus, Hepatitis A, parasites and toxins may only be available at national or international reference laboratories.

**Tips:**

Follow the most recent trends on food safety testing developments. More quick tests on site, and the increased automation and computerisation of food safety testing methods can help you a lot in your production process. Read the news on the webpage of European Food Safety authority (EFSA) to be updated on the latest food safety developments.

Follow the Codes of Hygienic Practice published by Codex Alimentarius to prevent microbiological contamination. Specific codes of Hygienic Practice are available for a wide range of processed fruit and vegetables, such as canned, frozen, dried products and edible nuts.

Read the guidelines for produce washing and minimising the risk of microbial contamination of berries on the webpage of European Association of Fruit and Vegetables Processors.

Transport fruit and vegetables from farmers to the processing facility in clean vehicles.

Regularly check the water you use for cleaning and processing fruit and vegetables. Infected water is one of the most common sources of microbiological contamination.

**Mycotoxins control**

Mycotoxins are toxic substances produced by fungi commonly known as moulds. These toxins are very stable and can survive severe processes such as heat treatment. The most common mycotoxin contaminations in the processed fruit and vegetables sector are aflatoxins, ochratoxin A and patulin.

Aflatoxins are the most common mycotoxins found in edible nuts, especially in groundnuts, pistachios and hazelnuts. They are also frequently found in dried figs. Limits have been set for aflatoxins in most edible nuts and dried fruit. Ochratoxin A is a mycotoxin most commonly found in dried fruits, especially grapes, but also in grape juice. Ochratoxin A is not easy to prevent as its appearance is connected to climatic conditions.

During 2019, the RASFF reported 409 notifications related to aflatoxins in imported edible nuts and dried fruit. More than 50% of those notifications are related to import of peanuts from Argentina (68 cases), the United States (48 cases), China (33 cases) and Egypt (33 cases). The maximum level of aflatoxins for nuts and dried fruit intended for direct human consumption must be below 2 μg/kg for aflatoxin B1 and below 4 μg/kg for the total aflatoxins content (B1, B2, G1 and G2).

Patulin is especially associated with a range of mouldy fruits and vegetables. In particular rotting apples and figs. For different types of fruit juices limits between 10 and 50 μg/kg apply. However, patulin is not a very common reason for border rejections, probably because the industry itself is monitoring it sufficiently.
During 2019 and 2020, EFSA launched a public consultation on the Draft Scientific Opinion, about the public health risks of the presence of ochratoxin in food. New studies suggest that ochratoxin A may be genotoxic and carcinogenic. If new studies on toxicity of ochratoxin A validate these results, EFSA may reduce the current limits. However, more scientific data is necessary. The latest results show that the highest concentration is not found in processed fruit and vegetables but in plant extract formulas, flavourings, essences and chili pepper.

Control of mycotoxins is best achieved by good post-harvesting practices, such as timely harvest or proper drying after harvest. Appropriate moisture and temperature conditions during storage and transport, and the timely detection and removal of contaminated material from the food supply chain are also important control measures. For example, colour sorting is often used to remove mouldy nuts from bulk shipments.

Tips:
Understand better growing, drying, processing and storage practices and discuss them with your suppliers. For instance, refer to the Codex Alimentarius codes of practice for prevention and reduction of aflatoxin contaminations in tree nuts, peanuts and dried figs. Also look at the FAO guidance for prevention of aflatoxin in pistachios.

For information on safe storage and transport of processed fruit and vegetables and edible nuts go to the Transport Information Service website.

Limited use of pesticides
The European Union has set maximum residue levels (MRLs) for pesticides in and on food products. If your product contains illegal pesticides or higher amounts of pesticides than allowed, it can be withdrawn from the European market. The general public is very concerned about pesticide residues. Both government organisations and non-governmental organisations frequently conduct samples and tests, which often leads to public blaming and shaming of the industry if residues are found.

The European Union regularly publishes a list of approved pesticides that are authorised for use in the European Union. This list is frequently updated. There were 80 changes in this list during 2019. The European Union Directive on Maximum Residue Levels of Pesticides defines MRLs and should be checked frequently. During 2020 (as by November) there were also more than 30 changes in MRLs. One of the most important changes is the level of Chlorpyrifos, which is set to 0.01ppm from November 2020.

Note that in organic products the use of most pesticides is not allowed, but in practice very low levels of residues are permitted in the product. This is only the case if you can prove that this is the result of cross contamination and not illegal use. However, the applicable limit is often 10 to 100 times lower than the limit for conventional products, which generally stands at 0.01 ppm.

Control of chlorate
One of the most recent changes, is the level of chlorate. It is set to 0.05 mg/kg for most fruit and vegetables (including frozen), 0.3 for dates and figs, 0.7 to table olives and 0.1 to edible nuts. Legislation on chlorate levels entered into force in June 2020. Chlorate is no longer approved as a pesticide, but it can come in contact with food by the use of chlorinated water during processing. Another source may be the use of chlorinated detergents used for cleaning of facilities and processing equipment.

In its scientific opinion on the presence of chlorate in food, EFSA found that current chlorate levels in drinking water and in foods were too high and could negatively impact iodine uptake, especially among infants and children. Therefore, processed fruit and vegetable suppliers must control the use of water and detergents in
their production facilities. This includes water used for washing, sorting, rehydration of dried fruit, glazing of frozen products, dilution of concentrated juices and purees, and for salty, sour and sweet solutions in canned products.

Tips:

Use the European Union pesticides database to find the MRLs that are relevant for your products. Select your product or the pesticide you use, and the database shows the list of the MRLs associated with it.

To be prepared for potential new changes in the MRLs, read the Ongoing Reviews of MRLs in the European Union.

A good way to reduce pesticide amounts is to apply Integrated Pest Management (IPM). IPM is an agricultural pest control strategy that uses natural control practices in addition to chemical spraying. For more information about Integrated Pest Management see the FAO website.

Work closely with farmers to have full control of the use of pesticides in your raw materials. Engage with plant protection experts who can regularly guide and advise farmers on the sustainable use of pesticides. For example with a subscription to a professional weather services, or with the use of agricultural weather stations, it is possible to forecast the appearance of potential pests and plant illnesses and to limit the use of pesticides.

Check with your buyers if they have additional requirements on MRLs and pesticide use.

Limited amount of heavy metals

Heavy metals can occur as residues in food because of their presence in the environment, as a result of human activities such as farming, industry or car exhausts, or from contamination during food processing and storage. The European Union regulation on food contaminants sets restrictions for lead (fruit, fruit juices, various kinds of vegetables), cadmium (fruit and vegetables), mercury (food supplements) and tin (canned food and beverages).

In the processed fruit and vegetables sector, a high lead or cadmium presence can be found in frozen fruit and vegetables, but also in colours used on glass packaging materials. Higher concentrations of tin used to be found in canned fruit and vegetables as a result of dissolution of the tin coating or tinplate. However, since tin cans now generally have a different coating on the inside, there are not many recent alerts of tin found in canned products.

During 2020, the European Commission launched a review process for the maximum allowed levels of lead and cadmium. New limits for some products may be set in 2021. The most significant changes are expected to apply to infant food such as baby purees and drinks.

Tips:

Work closely with the growers of the products you are sourcing. Make sure they invest in good agricultural practices; this will give you control of the supply chain.

Check the sampling and analysis guidelines on the European Commission page for food contaminants.
Other contaminants that must be controlled in processed fruit and vegetables

There are several other contaminants which are commonly controlled via physical and laboratory tests. Those include:

**Irradiation**

Irradiation is a way to combat microbiological contamination but its use is limited by European Union legislation for processed fruit and vegetables and edible nuts. European radiation protection legislation and radioactive contamination legislation define maximum permitted levels of radioactive contamination in food. Irradiation tests are commonly request by European buyers for many food products.

For some products, such as wild-collected dried mushrooms, this control is even more frequently. Wild-collected mushrooms easily absorb radiation, so buyers in Europe regularly ask for radioactivity contamination tests for imported mushrooms.

**Glycidyl esters**

Glycerol-based products are contaminants found in vegetable oils and in smaller quantities in some processed food, such as dried preparations for soups, breakfast cereal products, snacks and potato products. In 2018, the European Union published new maximum levels for glycidyl esters in foods for special medical purposes and/or intended for infants and young children.

**Polycyclic aromatic hydrocarbons**

A specific problem related to production of banana chips is the occurrence of benzo(a)pyrene and polycyclic aromatic hydrocarbons (PAH). Those toxic organic compounds may be formed during the frying of banana slices in coconut oil. The European contaminants regulation set an amendment for the maximum levels of polycyclic aromatic hydrocarbons specifically for banana chips since 2015.

**Acrylamide**

Acrylamide is a contaminant which may be formed in foods during cooking, frying, baking or roasting at temperatures of 120 °C or higher. In November 2019, the European Commission published its recommendation on the monitoring of the presence of acrylamide in certain foods including roasted nuts, dried fruits and table olives. Data collected through monitoring has to be submitted to EFSA by 1 October of each year.

**Specific plant toxins**

Some toxins may be naturally present in fruit or vegetable parts, or in weeds that can contaminate products in the field. The most important plant toxins for processed fruit and vegetables include tropane, pyrrolizidine alkaloids and cyanide.

The presence of tropane alkaloids is controlled for unprocessed whole, ground, milled, cracked or chopped apricot kernels placed on the market for the final consumer. Raw apricot kernels contain the naturally occurring substance amygdalin – a cyanogenic glycoside which results in the release of cyanide during digestion of the kernels in the human gut. Raw, unprocessed apricot kernels, both bitter and sweet varieties, should not be sold for human consumption unless cyanide levels are compliant with the ML of 20 mg/kg that is set in legislation.

Contaminants such as tropane and pyrrolizidine alkaloids can be transmitted to fruit and vegetables from certain weeds. Common examples of toxic weeds are ragwort (Jacobaea vulgaris), Datura stramonium, Black nightshade (Solanum nigrum) and Potato berries. In order to prevent this contamination, it is recommended that you follow the principles of integrated pest management (IPM), such as safe planting distance from potential risk areas and the physical removal of weeds while they are in the early development stage.
**Nitrates**

Nitrate levels are controlled in frozen spinach.

**Tips:**

Invest in metal detectors to prevent possible metal pieces contaminating your food products. Aside from consumer protection, metal detectors will help you prevent damage to your processing machinery.

Follow the Codex Alimentarius *Code of Practice for the Reduction of Glycidyl Esters* in food made with refined oils.

Follow the Codex Alimentarius *Code of Practice for the Reduction of Contamination of Food with Polycyclic Aromatic Hydrocarbons* (PAH) for Smoking and Direct Drying Processes in food made with refined oils.

Regularly control nitrate levels in soil and spinach during the production process and especially before harvest.

**Product composition requests**

Buyers and European authorities can reject products if they have undeclared, unauthorised or excessive levels of food improvement ingredients. There is specific legislation for *additives* (like preservatives, colours, thickeners), *flavourings* and *enzymes* that list what E numbers and substances are allowed. If you want to add vitamins into your product, you will have to know which *vitamins* (see Annex I), sources, formulations and mineral substances are allowed (see Annex II).

Additives that are authorised are listed in Annex II of the *Food Additives Regulation*. The authorised use of additives is listed according to the category of food to which they may be added. Other annexes of the regulation list food enzymes, flavourings and colorants. Note that pectin derived from apple, citrus fruits or quinces (which is used in the production of jams and marmalades) is not considered to be a food additive.

Vitamins and minerals can be added to fruit juices and fruit nectars. Maximum levels have not been established yet, but the European Commission is working on a proposal for those.

Product specific legislation regarding composition applies to *fruit juices* and *fruit jams, jellies, marmalade and sweetened chestnut purée*. The directives indicate which raw materials and additives may be used. In the processed fruit and vegetables sector, problems commonly occur because of the undeclared or excessive use of preservatives.

Examples of frequent problems with processed fruit and vegetables are sulphite used as a preservative in dried fruit and coconut products, and benzoic acid in some pickled vegetable products. Another frequent problem is the excessive or undeclared use food colouring. Typical examples are colour E110 (Sunset Yellow) used in dried candied fruit or fruit purees or colour E102 (Tartrazine), which also gives a yellow colour and is used in condiments, spreads, pickled products and soft drinks.

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Intentionally placing wrongly declared products on the European market is considered as a criminal activity. The main reason to mislead consumers is to gain profit. Still, many food criminals are not aware that placing undeclared ingredients can present a serious risk to human health. Some substances can cause allergic reactions, and some are toxic. Many laboratories around Europe have increased testing to discover this type of fraud in food.

Sometimes selling products to Europe which are not in line with the European requirements is not intentional but it occurs due to lack of processing technology, lack of processing controls or simply through human error. Therefore, it is important that suppliers from developing countries regularly implement training and awareness programmes for their employees. Also, it is important to be keep up-to-date with the developments and changes in European food safety legislation.
**Tips:**

Read more about additives for processed fruit and vegetables in the Food Additives Regulation under section four.

Use the European Commission’s Food Additives Database to check which food additives are allowed in Europe.

Find a list of vitamins and minerals and their forms, which can be added to foods in Europe.

E numbers indicate approval by the European Union. To obtain an E number, the additive must have been fully evaluated for safety by the competent food safety authorities in the European Union. For an overview of E numbers, refer to the specifications for food additives in the annex of the Food Additive Regulation.

Prepare in advance for the potential changes of food additives limits by checking the re-evaluation of food additives on the website of European Commission.

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**Safe packaging and informative labelling**

Export packaging must be in line with the European legislation on weighting, be safe for consumer health and for the environment. Packaging made of wood or vegetable materials may be subjected to phytosanitary controls. The labelling of packed products must contain various items of information relevant to the consumer.

**Safe, well measured and eco-friendly packaging requests**

The content of the packaging must correspond with the indicated quantity (in weight or volume) on the label. Importers will check packaging size and weight to ensure that pre-packed products are within the limits of tolerable errors.

Specific health controls apply for consumer packaging materials that come in contact with food (like cans, jars, or bottles). Food contact materials may not transfer their constituents to food in quantities that could endanger human health, change the composition of the food in an unacceptable way or deteriorate the taste and odour.

An interesting substance to be aware of is Bisphenol A (BPA). BPA is known for its use in plastic bottles, but is also sometimes used in inner coatings of jar lids. The use of BPA is currently still allowed, but its use is under review. The official opinion of the EU Food Safety Authority should be published in 2020.

The European Union has announced the introduction of new legislation concerning plastic packaging. From 2021 onwards, some types of single-use plastic will be banned and the use of other types will be restricted. Items on the banned list include oxo-degradable plastic and expanded polystyrene take-away food and drink containers. From 2029, member states are obliged to collect 90% of their plastic throw-away bottles.

By 2030, all bottles in the European Union must be made from at least 30% recycled materials. Also, by 2024 all beverage bottles below 3 litres must be closed using only tethered caps. Tethered caps are caps that remain attached to the bottle once it is opened. The aim of this rule is to reduce the number of caps that are found in nature, as bottle caps represent 10% of plastic litter found on European beaches, for example.

During a meeting of the European Council in July 2020, it was agreed that they will implement a new on non-recycled plastic packaging waste tax from 1 January 2021, at a rate of €0.80 per kilogramme. The tax was announced within the agreed EU recovery deal to support member states during the coronavirus pandemic, and the revenue generated by the tax is set to go directly into the EU budget.
Labelling requirements for retail food products

In the European Union, the labelling rules ensure citizens get comprehensive information about the content and composition of food products. Labelling helps consumers make an informed choice while buying their foodstuffs.

Regulation on the provision of food information to consumers defines obligations such as:

- Labelling of energy value and the quantities of fat, saturates, carbohydrates, protein, sugars and salt.
- Presentation of allergens (like soy, nuts or gluten) for pre-packed foods in the list of ingredients.
- Mandatory allergen information for non-pre-packed food, including in restaurants and cafes.
- Minimum font size for the mandatory information of 1.2 mm

Some of the obligations (such as the minimum font size) relate to consumer-packed products only. However, as a supplier of bulk products, you will be asked to provide relevant information on allergens and composition.

In addition to this regulation, from 1 April 2020, all food in retail packs in Europe must be labelled with an indication of origin. For example, if a product is packed in the Netherlands, packaging still needs to indicate the origin. This can be done by indicating a country (for example Turkey), by indicating “non-EU” or by declaring “product does not originate from the Netherlands”.

It is possible to place additional nutrition information on the retail products on a voluntary basis, such as fibre, vitamin or mineral content, for example. In order to better inform consumers about healthier food choices, several nutritional labelling voluntary schemes were developed in Europe. The most famous and widely consumer-accepted nutritional labelling scheme is nutri-score, but there are other schemes such as Nutriform battery (Italy), Front of Pack Nutritional Labelling (also known as ‘traffic light’, the United Kingdom) or Keyhole (Sweden).

In May 2020, the European commission published a report on additional forms of expressing nutrition declaration. According to this report, the European Commission will prepare a legislative proposal to introduce a harmonised mandatory front of pack nutrition labelling at EU level to help consumers make better choices for healthier food.

The European nutrition and health claims are important for exporters from developing countries aiming to sell labelled retail products directly to the final consumers. It does not apply to business-to-business communication. European labelling legislation forbids misleading consumers (Chapter 2, Article 3). Claims that any food is preventing, treating or curing a human disease cannot be made on labels in the European Union. So, it is better to avoid health or nutritional claims that are not substantiated by scientific evidence.

Tips:

Visit the EU Trade Helpdesk for more information on food labelling. For practical guidance on food labelling for pre-packed products, see a guidance document on information about the new food labelling legislation and check the official guidance document published by European Commission on the control of compliance of nutrient values declared on a label.

Note that the presence of allergens is becoming more and more important. The chance of cross-contamination (for example when a product is processed in a factory that also processes peanuts) is sometimes even considered to be possible at farm level.

Read the official answers from the European Commission on the most frequently asked questions regarding Food Labelling regulation published in 2018.

For product-specific packaging requirements, read product-related studies about promising export products.

Be aware of the new plastic packaging rules in Europe and make sure to adapt to new packaging
Novel foods must be authorised before entering the European market

Novel food refers to all foods that were not consumed in the European Union to a significant degree before May 1997. Novel food can be newly developed, innovative food, food produced using new technologies and production processes, as well as food that is or has been traditionally eaten outside of the European Union. Novel food must be approved, safe for consumption and properly labelled.

As of 1 January 2018, the new Regulation (EU) 2015/2283 on novel foods is applicable. This new legislation improves conditions so that food businesses can easily bring new and innovative foods to the European market, while maintaining a high level of food safety for European consumers. Still, the process of placing novel foods on the European market is difficult and expensive for many suppliers.

The new regulation simplifies the authorisation process for the notification of traditional foods from third countries, by requiring evidence of safe use in at least one country outside of the European Union for a period of 25 years. A notification is sent to the European Commission and then forwarded to all member states and EFSA. Within four months of receiving the valid notification, a member state or EFSA may submit safety objections to the traditional food in question.

In the processed fruit and vegetables sector, novel foods frequently appear, especially in the subsector of “superfruit” or “superfood” ingredients. Authorised novel food includes products traditionally eaten in non-European Union countries such as noni and baobab juice, maca powder, aswaganda or food produced using the latest technological innovations such as high-pressure fruit juice (which is an example of a food derived from new production processes).

Tip:
To check if your product or ingredient is authorised as a novel food check the Novel Food Catalogue. Note that the list is non-exhaustive and serves as orientation on whether a product will need authorisation under the Novel Food Regulation.

2. What additional requirements do buyers often have?

European buyers will also require additional food safety certification in the form of specific certification performed by an independent control body. Some of the buyers will have their own control lists and number of different quality requests. Aside from food safety and product quality requests, there is an increasing demand for proof of sustainable and ethical business practices.

Product quality requirements

The quality of processed fruit and vegetables is determined by different factors depending on the product type. For example, for frozen and dried fruit and vegetables and for edible nuts, mainly the allowed percentage of defective produce and fruit size are used to define quality categories. For homogenous products such as juices, purees or fruit spreads, there are many quality criteria including colour, flavour, chemical composition and brix level (sugar content in water solution).

Most quality criteria are defined by industry standards and not by official European legislation. This is because
some criteria, such as taste or flavour, are difficult to measure as they are subjective. The most common quality standards for specific products include the following:

Frozen fruit and vegetables quality: mostly defined by Codex Alimentarius standards. Currently, Codex standards apply for many frozen products, including peas, strawberries, raspberries, peaches, bilberries, blueberries, broccoli, cauliflower, spinach, brussels sprouts and green beans. The industry has set several additional criteria to determine the quality for frozen products. For example, the brix level in frozen fruits is important for the processing industry, while retailers value the uniform shape and colour of individually frozen products.

The quality also is determined by the type and variety of frozen products. For example, frozen wild bilberries (Vaccinium myrtillus) are more valued by processors due to their higher anthocyanin levels and stronger colour and flavour, while packers and retailers prefer cultivated blueberries (Vaccinium corymbosum) due to their larger and size and more uniform shape.

Dried fruit and nuts quality: commonly defined by United Nations Economic Commission for Europe (UNECE) standards. UNECE standards apply for many nuts including almonds, brazil nuts, cashews, coconuts, hazelnuts, macadamias, pine nuts, pistachios and walnuts. UNECE standards for dried products include apricots, bananas, grapes, mangoes, melons, papayas, pears, pineapples, prunes and tomatoes. Codex Alimentarius also has standards for dried apricots, raisins, pistachios, dates, desiccated coconuts, peanuts and dried mushrooms.

Fruit and vegetable juice quality: in Europe this is based on the EU Fruit Juice Directive and on Industry Codes set by the European Fruit Juice Association. The European Fruit Juice Directive defines several quality aspects such as authorised ingredients, labelling rules and minimum brix levels for reconstituted fruit juices and purees. There is also a Codex Alimentarius standard for fruit juices and nectars, which can be used to define parameters for coconut water, which is not included in the European fruit juice directive.

Jams, jellies and marmalades quality: in Europe this is based on the European regulation for fruit jams, jellies and marmalades and sweetened chestnut purée. This regulation basically defines a minimum content of fruit pulp and/or purée in finished products. There are many other product characteristics not included in the European legislation that do define quality, such as consistency (homogenised, with fruit pieces, with seeds or ‘seedles’), fruit brix level, colour, taste and type of sweetener used. There are also Codex Alimentarius standards for jams that define quality categories such as “extra jam” and “high fruit jam”.

Canned fruit and vegetables quality: usually defined by several Codex Alimentarius standards. At the moment, Codex has published standards for processed tomatoes, apple sauce, canned pineapples, canned raspberries, canned strawberries, fruit cocktails, tropical fruit salad, chestnuts and chestnut puree, mango chutney, canned bamboo shoots, canned stone fruits, pickled fruit and vegetables, certain canned vegetables, coconut milk and cream. With regards to quality, Codex also published Guideline Procedures for the Visual Inspection of Lots of Canned Foods for Unacceptable Defects.

**Food Safety Certification as a basis for entering the European market**

Although food safety certification is not obligatory under European legislation, it has become a must for almost all European food importers. Most established European importers will not work with you if you cannot provide some type of food safety certification proof as the basis for cooperation.

The majority of European buyers will ask for Global Food Safety Initiative (GFSI) certification. For fruit and vegetable processors and traders, the most popular certification programmes are:

- **International Featured Standards** (IFS)
- **British Retail Consortium Global Standards** (BRCGS)
- **Food Safety System Certification** (FSSC 22000)

Please note that this list is not exhaustive and food certification systems are constantly developing. The
majority of food safety certification programmes are similar to ISO 22000 standard.

Although different food safety certification systems are based on similar principles, some buyers may prefer one specific management system. For example, British buyers often require BRC, while IFS is more common for German retailers. Also note that food safety certification is only a basis to start exporting to Europe. Serious buyers will usually visit/audit your production facilities within one or a few years.

In the fruit juice industry, the most recent development is SGF certification, which aims to achieve more safety, quality and fair competition in the fruit juice sector through industrial self-regulation. SGF certifies fruit processing companies, packers and bottlers, traders and brokers for fruit juices, as well as transport companies and cold stores in almost 60 countries worldwide.

For concentrated juices and purees producers, an important part of the SGF certification system is called IRMA (International Raw Material Assurance). In an ideal situation, the fruit juice industry has the whole supply chain under control, farmers should be GlobalGap certified, fruit processors should be IRMA certified, while juice bottlers should be certified by IQCS (International Quality Control System for juices and nectars). Apart from fruit processors, IRMA certification is also applicable for traders/brokers, transport companies, producers of semi-finished products and storage facilities.

**Tips:**

Get food safety certification. However, check with the importers and experts if the food safety certification company you consult is appreciated by European Union buyers. Examples of independent internationally accredited certification companies include SGS, CIS, TÜV and Bureau Veritas.

Stick to the rules! New laboratory testing methods can easily discover non-permitted additions (such as sugars, water or other fruit) into your products. It takes a long time and a lot of money to build a good reputation in European markets, but this can be lost very quickly if you are caught tampering with your products or delivering sub-standard products. You can find several examples of food fraud in our mango puree study.

Consider becoming a member of SGF if you are supplying raw materials for the European juice industry.

**Private pesticide residue requests**

Be aware that some European buyers may use stricter limits for pesticide residues than official MRL regulations. This is often the case with producers and importers of baby food, such as fruit and vegetable purees. Also, most supermarkets have their own standards (codes of practice) regarding pesticides, which are stricter than legislation. Recent examples include the Danish operations of German headquartered supermarket chains Coop,
Aldi and Lidl, which request even lower levels of pesticide residues than legally required: Lidl requires 66% less residues, Coop 50% less and Aldi 20%-30% less than mandated by European Union legislation.

More European retailers are expected to increase their demands regarding pesticide residues. If your buyers do business with these supermarkets, they will impose these standards on your products too. Suppliers that are able to reduce pesticide residues in their products will improve their chances of selling to European retailers.

Another initiative, called “free from pesticide residues” allow for the controlled use of phytochemicals combined with biological control and natural stimulation. The goal of these initiatives is to support controlled production with total degradation of residues, leading to less environmental impact. Under these schemes, residue-free means that any active ingredient is measured at under 0.01 ppm when analysed under European regulation on maximum residue levels. One such new initiative is Zerya, which already has 15 operators with a valid certificate plus another 34 in the conversion period. Consumer awareness and health concerns about pesticide use are on the rise, leading consumers to demand simple but accurate information regarding these issues.

**Sustainability and corporate social responsibility (CSR) requests**

Social, environmental and ethical activities in the European processed fruit and vegetables industry are becoming very important. Those activities are implemented and monitored from the farm and production level, to the processing (factory) level and up to delivery to the final consumer. Companies have different requirements for social responsibility. Some companies will require adherence to their code of conduct, or to follow up international standards such as the Supplier Ethical Data Exchange (SEDEX), Ethical Trading Initiative (ETI) or Business Social Compliance Initiative code of conduct (BSCI), BCorp or Fair for Life.

In order to improve sustainable production and sourcing of nuts, a group of mainly European companies and organisations formed the Sustainable Nuts Initiative in 2015. The major objective of this initiative is to improve the circumstances in nut-producing countries and work towards sustainable supply chains. A similar initiative is a Sustainability Initiative Fruit and Vegetables (SIFAV). The aim of SIFAV is to reach 100% sustainable imports of fruits and vegetables from Africa, Asia and South America by 2020.

Also, leaders in the fruit juice industry formed The Sustainable Juice Covenant (SJC) with the global aim of making sourcing, production and trade of fruit and vegetable-derived juices, purées and their concentrates 100% sustainable by 2030. The European Fruit Juice Association (AIJN), established the Juice CSR Platform to support, guide and inspire juice stakeholders to integrate corporate social responsibility throughout the supply chain.

Sustainability has become one of the most important topics on the official European agenda. The European Union implemented a set of policies called the European Green Deal, with the aim of making the European economy more sustainable and climate neutral by 2050. Policies also include specific measures which may impact supply from developing countries. They also include a 50% reduction of the use of more hazardous pesticides and increasing the share of agricultural land used for organic farming to 25% by 2030.

Sustainability is also an important part of the new certification schemes. Several existing certifications focusing on environmental and social aspects are described in the sections below. There are new certification schemes based on CO2 emissions including MyClimate or Carbon Footprint Certification. One certification scheme supporting several sustainability aspects is Planet Proof. Planet Proof includes several themes such as energy and climate, crop protection, biodiversity and landscape, soil fertility, clean water, packaging and waste.

**Tips:**

Do a self-assessment through the producer starter kit on the BSCI website.

Ask your farmers to fill in the Farmer Self-Assessment by the Sustainable Agriculture Initiative to check how sustainable their production is.
Consider implementing management systems such as ISO 14001 (environmental aspects), OHSAS 18001 (occupational health and safety), ISO 26000 (a comprehensive system including all social responsibility aspects) or SA 8000 (labour and working conditions). Those systems are good ways to address sustainability and possibly gain a competitive advantage. Research with your buyer whether this is appreciated.

Read more about specific sustainability initiatives in our trends study and our product specific studies.

3. What are the requirements for niche markets?

Increasing demand for certified organic products

To market processed fruit and vegetables and edible nuts as organic in Europe, they must be grown using organic production methods according to the European legislation. Growing and processing facilities must be audited by an accredited certifier before you may put the European Union’s organic logo on your products, as well as the logo of the standard holder- Soil Association in the United Kingdom and Naturland in Germany, for example. The procedure for the certification roughly follows these five steps:

- Step 1 – Follow organic production rules - A common practice is to engage agronomists who are experts in organic production in order to implement the best practices and to get guidance that will prepare producers and exporters for the organic certification. When engaging consultants be aware that the same company cannot provide both consulting and certification services as this is considered a conflict of interests.
- Step 2 – Apply for certification - When companies decide that their production and processing are ready for organic certification they can select and negotiate a certification fee with any of the EU recognised control bodies which are approved by European Union regulation (EC) No 1235/2008. A frequent practice for small farmers is group certification as that may save costs.
- Step 3 – Inspection - During the inspection phase an inspector verifies whether the organic management plan is consistent with the reality and identifies any issues. After evaluation of the report a control body decides if a certificate can be issued or some non-conformities must be corrected first.
- Step 4 – Certification - Once the control body confirms that the organic management plan is consistent with the reality an organic certificate is issued. After being audited by an accredited certifier, you may affix the EU organic logo on your products, along with the logo of the standard holder. Together with a logo a certifier code number must be indicated. Be aware that an organic certificate is valid for one year from the date it was issued.
- Step 5 – Submitting the certification of inspection - Every shipment of organic products must be accompanied by the certification of inspection from the selected certifier only electronically through the central platform called TRACES. European importers must also submit an application form for the import of organic products from developing country exporters. For this application form, the company information, the name of the certifier, and the date of the last inspection need to be provided. The importer also needs to submit a confirmation from a third party, stating that the certifier fulfils the requirements of ISO standard 65 / EN 45011.

A new EU regulation on organic production is expected to enter into force in 2022. The new rules will allow for mixed farming, combining conventional and organic production, provided that the two are sufficiently separated. Also, inspections of organic production and organic products will be stricter to prevent fraud. Producers in third countries will have to comply with the same set of rules as those producing in the European Union.

Tips:

Consider investing in organic production and make a cost-benefit analysis. Organic production will often make your products more expensive, but you may be able to compensate this with higher sales.
prices. Demand for certified organic processed fruit and vegetables is increasing. Try to combine organic certification with other sustainable initiatives to increase your competitiveness on the European market.

Check the guidelines for imports of organic products into the European Union to familiarise yourself with the requirements for European traders. Consult the Sustainability Map database for organic labels and standards.

Social and environmental requests

The two most-used sustainability certification schemes are Fair Trade and Rainforest Alliance. Fair Trade international has developed a specific set of standards for processed fruit and vegetables and edible nuts for small-scale producer organisations. Those standards define protective measures for farmers and workers in processing facilities. Also, standards define terms of payment, Fair Trade Minimum and Premium Price for conventional and organic products from several countries and regions.

Tips:
Consult the ITC Sustainability Map for a full overview of certification schemes.
Check the Fair Trade Standards relevant for your production, processing and trade.

Ethnic certification

The Islamic dietary laws (Halal) and the Jewish dietary laws (Kosher) propose specific restrictions in diets. If you want to focus on Jewish or Islamic ethnic niche markets, you should consider the implementation of Halal or Kosher certification schemes.

Tip:
If you are focusing on the European Jewish or Islamic market, make yourself familiar with relevant certification procedures. You can find answers at many Halal or Kosher certification organisations.

This study has been carried out on behalf of CBI by Autentika Global.

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