CBI Product Factsheet:
Nutmeg in Europe
Introduction

Although the market for nutmeg is relatively small and has been shrinking, suppliers of high-quality nutmeg may expect to do well in the European market. Indonesia is by far the biggest supplier. Smaller suppliers such as Vietnam and Grenada are expected to increase their market share in the coming years. Suppliers that operate according to food safety principles have an important competitive advantage in the European market. Sustainability is in demand as well.

Product description

The nutmeg tree (*Myristica fragrans* Houtt.) is endemic to Indonesia and other countries in the South Pacific. However, it is also grown commercially on several Caribbean islands, in India, Sri Lanka and Malaysia. Other species include *Myristica argentea* (Papua) and *Myristica malabarica* (India), both used as adulterants in trade. The nutmeg tree bears fruits containing egg-shaped seeds wrapped in a red cover (aril) all year round. The red cover is mace, which is another spice with a similar, but slightly more delicate flavour. Mace and its extract (oleoresin) are not dealt with in this study, which focuses on the above-mentioned egg-shaped seed (nutmeg) in whole, broken or ground form. The statistical data in this document are based on Combined Nomenclature (CN) codes. The CN uses Harmonised System (HS) codes to classify products. The relevant HS codes for nutmeg are shown in the following table.

<table>
<thead>
<tr>
<th>HS Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>09081100</td>
<td>Nutmeg, neither crushed nor ground</td>
</tr>
<tr>
<td>09081200</td>
<td>Nutmeg, crushed or ground</td>
</tr>
</tbody>
</table>

Product specification

Quality:

Product quality is a key issue for buyers in Europe and also includes food safety issues. The European Spice Association (ESA) has published the Quality Minima Document, which is vital for the national spice associations affiliated with the ESA and therefore for most key players in Europe. It specifies the legal European requirements as well as the terms of delivery between buyer and seller that are not defined in legislation. It contains the chemical and physical parameters that determine the minimum quality requirements for nutmeg:

<table>
<thead>
<tr>
<th>Ash (max.)</th>
<th>Acid insol. ash (max.)</th>
<th>Moisture (max.)</th>
<th>Volatile oil (min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0%</td>
<td>0.5%</td>
<td>10%</td>
<td>5-6.5 ml/100gr (depending on grade)</td>
</tr>
</tbody>
</table>

High-quality nutmeg should be oil-rich, whole, unbroken and without stalks, and must not contain any woody, brittle nutmeg. It should be reddish-brown to brown in colour and the head should be light brown and closed. Nutmeg is graded in accordance with the relevant national standard of the country of production. In addition, ISO standard 6577-2002 provides some general guidelines on the grading, handling and packing of whole and ground nutmeg.

Labelling:

Incorrect labelling is a major source of frustration for European buyers. You should therefore take care to label your product properly. See our study on Consumer Packed Spices and Herbs in Europe for information on consumer packaging requirements. Bulk products should include the following information:

- The name of the product
- Details of the manufacturer (name and address)
- Batch number
- Date of manufacture
- Product grade
- Producing country
- Harvest date (month-year)
- Net weight
- Any information that exporting and importing countries may require: bar, producer and/or packager code, any extra information that can be used to trace the product back to its origin.
Packaging:

Nutmeg is usually packed in new, clean, durable, and dry bags of jute, cloth laminated with polyethylene or polypropylene, or high-density polyethylene bags or pouches. Crushed or ground nutmeg can be packed in new, clean, durable, and dry containers made of tin, glass or in pouches made of laminated, extruded, metallised multi-layer food-grade plastic. The containers should be free from insect infestation, fungus contamination, undesirable or bad odour, and substances that may damage the contents.

Buyer requirements

What legal requirements must nutmeg comply with?

Please be aware that your product will have to comply with European legislation the moment it enters the European market. This compliance is a must. You should therefore only consider exporting to Europe when you can meet all the relevant requirements.

Food safety: Traceability, hygiene and control

Food safety is a key issue in European food legislation. The General Food Law is the legislative framework regulation for food safety in Europe. To guarantee food safety and to allow appropriate action in cases of unsafe food, food products must be traceable throughout the entire supply chain and risks of contamination must be limited. One important aspect for controlling food safety hazards is the definition of critical control points on the basis of the hazard analysis and critical control points (HACCP) approach by implementing food management principles. Another important requirement is that your delivery system must allow official controls of your food products. Products that are not considered safe will be denied access to Europe.

Tips:
- European buyers will often ask buyers to implement a food safety management system based on HACCP principles (see Food safety management and traceability below).
- Read more about health control on the EU Export Helpdesk.

Contaminants of spices and herbs

Contaminants are substances that can be present as a result of the various stages of the growth, processing, packaging, transport or storage of the product.

Mycotoxins

Nutmeg is at risk of contamination with mycotoxins (aflatoxin, ochratoxin and others). Specific requirements are laid down in Regulation (EC) No. 1881/2006 (see Annex 2.1.9. and 2.2.11). The maximum permitted level of aflatoxin in nutmeg and mixtures containing nutmeg is between 5.0 μg/kg (aflatoxin B1) and 10 μg/kg (total aflatoxin content B1, B2, G1 and G2). The maximum permitted level of ochratoxin is 15 μg/kg.

From January 2016 onwards, nutmeg from India and Indonesia must be accompanied by a health certificate to enter the European Union. This certificate needs to show that the products have been sampled, analysed for aflatoxin contamination and that they comply with the European legislation on these contamination levels. Nutmeg from India and Indonesia also face an increased level of official controls at import, because of the presence of aflatoxins.
Pesticides

The European Union has set maximum residue levels (MRLs) for pesticides in and on food products. Products containing more pesticides than allowed will be withdrawn from the European market. Pesticides such as biphenyl and dimethoate are sometimes used for the production of nutmeg. Pesticides above permitted levels are an important issue for European buyers as products exceeding these limits are not allowed to be sold on the European market.

Microbiological

European legislation does not lay down specific microbiological requirements for nutmeg as it does for other products. However, Article 11 of the General Food Law states that food products placed on the European market must be safe. It follows that nutmeg is banned from the market if salmonella or other forms of microbiological contamination are found on it. Steam sterilisation is the preferred method for combating microbiological contamination in Europe, especially for nutmeg destined for the retail market. It is important to be able to provide this service, since buyers prefer nutmeg that has been steam sterilised.

Food additives and adulteration

Many of the spices and herbs rejected by custom authorities or buyers have undeclared, unauthorised or excessive amounts of extraneous materials. There is specific legislation for food additives (such as colours, flavours and thickeners) that lists which E-numbers and substances are allowed to be used. Spices and spice blends cannot contain added colours. Nutmeg, whether whole or crushed/ground, is often intentionally adulterated, for example by other members of the genus Myristica fragrans or by nuts. Adulteration is a widespread problem in many countries of origin such as India, where 30-40% of all food sold is intentionally adulterated. An important reason for adulteration – which is a serious malpractice – is economic gain. Unintentional adulteration, due for example to fertiliser spillover or insects, may also be encountered. Food adulteration is an important issue for European buyers. According to a panel of industry experts consulted for this study, this type of food fraud is quite common in spices and herbs, including nutmeg. The European Union and national
Governments are becoming stricter in the enforcement of food fraud legislation. The Dutch government increased the fines on operators willfully tampering with food from € 4,500 to a maximum of € 810,000 in April 2015.

**Tips:**
- If you use additives make sure the way you use them is legal and agreed with your buyers. Also make sure to mention them in the list of ingredients.
- You will have to build up a track record, provide transparency and references if you want to sell processed nutmeg to European buyers. It is impossible for buyers to test spices and herbs for every possible extraneous material. They will therefore tend to refrain from buying processed nutmeg outside the EU or will buy only from suppliers they trust. The burden of evidence is on suppliers.
- Refer to the Adulteration Awareness document of the European Spice Association for further information on food adulteration.
- See our study on buyer requirements for natural food additives and the website of the European Commission for more information on requirements for food additives.

**Irradiation**

Irradiation of spices and aromatic herbs including nutmeg is permitted. This is a safe way of killing pathogenic organisms and affects the taste of spices and herbs less than steam sterilisation. The maximum overall average absorbed radiation dose is 10 kGy. This method is not widely used in Europe, however, since consumers generally prefer unirradiated products.

**Tips:**
- While irradiation has less effect on the taste of spices and herbs than steam sterilisation, this method is not widely used in Europe because consumers here generally prefer unirradiated products. There are fewer consumer objections to irradiation in other countries such as the United States. Ethylene oxide fumigation for combating microbiological contamination is prohibited in Europe. It is however permitted in the United States.
- Read more about irradiation on the website of the European Commission.

**What additional requirements do buyers often have?**

**Food safety management and traceability**

As food safety is a top priority in all European food sectors, you can expect many players to request extra guarantees from you in the form of certification. Many European buyers (e.g. traders, food processors or retailers) require the implementation of a food safety management system, preferably based on HACCP principles. The most important food safety management systems in Europe are BRC, IFS, FSSC22000 and SQF, all of which are recognised by the Global Food Safety Initiative (GFSI) and hence by major retailers.

**Tips:**
- European market entry requirements are more likely than not to include the implementation of a food safety management system. This makes it important to familiarise yourself with such systems.
- Different buyers may prefer a particular management system. Check which one is preferred (for example, United Kingdom retailers often require BRC, while IFS is more commonly required on the mainland of Europe).
- Further information on Food Safety Management Systems is available in the Standards Map.

**Corporate social responsibility**

European buyers (especially those in Western and Northern European countries) are increasingly aware of their corporate responsibilities regarding the social and environmental impact of their business. This also affects you as a supplier. Important issues in the nutmeg supply chain are the correct use of pesticides, soil degradation, the impact on biodiversity,
the health and safety of farmers and fair payment for farmers. Different European companies have different definitions of CSR, and different priorities and ambition levels in this field. Hence, there is no single way to address CSR issues. The right approach can range from signing a code of conduct to ensure compliance with the most important requirements to mapping out and addressing all the CSR issues in your entire supply chain.

**Tip:**
- Exporters interested in supplying the European market should at least address the most important CSR issues. Many buyers already use this as a selection criterion for new suppliers. Prioritise CSR issues by considering your impact on various social and environmental factors, what you can feasibly do to improve your impact and what is appreciated by European buyers. List relevant CSR issues with reference to existing standards such as [ISO 26000](https://www.iso.org/standard/43610.html).

**What are the requirements for niche markets?**

**Sustainable product certification**

There is a growing market for certified products with well-known consumer logos. Organic products focus on land use and inputs. [Fairtrade](https://www.fairtrade.net) focuses specifically on improving the living conditions of smallholders in developing countries by paying them a premium. Processors and exporters can play an important role in the certification process by coordinating the activities of smallholders. If they handle certified sustainable spices and herbs they will have to be certified themselves to ensure a reliable chain of custody. There are specific certifications for traders, such as Fairtrade's [Trade Standard](https://www.fairtrade.net/en/trade-standard).

**Tips:**
- The [International Trade Centre](https://www.intracen.org) and [Organic Bio](https://www.VERSANEbio.fr) provide information on companies in Europe or in your own country that supply organic spices and herbs. Refer to the Fairtrade [producer database](https://producerdatabase.fairtrade.net) for details of certified suppliers. The Fairtrade [price list](https://www.fairtrade.net/en/fairtrade-price-list) will give you an indication of the price you should pay farmers for Fairtrade or Fairtrade/Organic spices and herbs.
- Refer to the ITC [Sustainable Spice Initiative Equivalency Tool](https://www.sustainablespiceinitiative.org/) for an explanation and comparison of sustainability standards.
Supplier assessment

As an alternative to product certification, European buyers conduct a supplier assessment. They use supplier assessment questionnaires that contain questions on both quality and CSR, for example on child labour. Such supplier assessments are used widely.

Suppliers can also assess their own compliance with a sustainability code of their buyer; for example, with Unilever’s Sustainable Agricultural Code (SAC) or the Olam Livelihood Charter.

Tip:
- Refer to Unilever’s Implementation Guides for further information.

Trade and Macroeconomic Statistics

The global spice market is projected to grow by around 5% per annum until 2019. Growth will be slower in developed regions such as Europe, however. Population growth is limited and the market is already mature (Source: Markets and Markets, 2015). The market for nutmeg is expected to remain relatively stable, as it has been in recent years.

Imports

Figure 1: European imports of nutmeg, 2011-2015, in 1,000 tonnes*

Source: Eurostat, 2016
* Countries other than European or developing countries are negligible and excluded from this graph. In 2015 these only accounted for 0.26% of total European imports.

Europe is completely dependent on developing countries for its supply of nutmeg. In 2015, the region imported 4,300 tonnes worth € 45 million from developing countries. There is also significant intra-European trade (2,700 tonnes in 2015), which consists of nutmeg re-exported directly or exported after being processed.

European imports of nutmeg decreased by 5% annually from 2011 to 2015. Direct imports from developing countries fell by an annual average of 2.6% between 2011 and 2015. The value fell by 3.6% annually in the same time frame.

Tip:
- The strong fluctuations in the price of nutmeg lead to rapid changes in market dynamics and marketing opportunities. You should therefore follow the global supply situation and prices closely. Nedspice, McCormick, PBA brokerage, Indian Spice Board and the International Trade Centre regularly publish useful crop and price reports.
For most leading importers of nutmeg, imports decreased from 2011 to 2015 (Figure 2). The exception was the United Kingdom. Spain, Poland and Romania, smaller importers, increased imports in the same time frame.

The Netherlands offers good opportunities for developing-country exporters. In 2015, this country was the leading importer of nutmeg, accounting for 26% of total European imports. Although its total imports decreased, the Netherlands is still the largest European importer of nutmeg. Dutch imports from developing countries were actually stable from 2011 to 2015, the fall in imports came from European sources (-51% annually).

Germany and Italy also offer opportunities for developing-country exporters, as they import a larger share of nutmeg from developing countries than the European average (61%). In 2015, developing countries accounted for 67% and 89% of their imports, respectively.

**Suppliers**

The most important suppliers of nutmeg from developing countries to Europe are:

- Indonesia (73% of imports from developing countries in 2015)
- Vietnam (15%)
- Grenada (6.4%)
- Sri Lanka (2.8%)
- India (1.9%)

Imports from Vietnam grew by 30% annually from 2011 to 2015. Imports by most other developing-country suppliers decreased slightly in the same time frame.
Nutmeg is often sold and consumed in ground or crushed form. Almost 50% of 2015 European imports of ground nutmeg originated in developing countries. Imports of crushed/ground nutmeg from developing countries rose by an annual average of 15% between 2012 and 2015. Before 2012, trade data did not distinguish between crushed and whole nutmeg.

There are good opportunities for suppliers from developing countries in the European market for processed nutmeg. As shown in Figure 3, Indonesia and Vietnam already supply substantial quantities of ground nutmeg. Although nutmeg is not grown in Vietnam, this country does have a significant share of the market (37% of European imports of processed nutmeg from developing countries). Vietnam is a major processor of other spices and herbs. Big players such as Olam are expanding their processing facilities in Vietnam to permit the handling of imported spices as well as local produce.

**Tips:**
- Crushing and grinding should be considered as the last value-adding step after treatment to ensure excellent cleanliness, quality, sterilisation and grinding. These methods of adding value allow you to charge a premium, and they are easy to implement. Measures aimed at achieving economy of scale are also important.
- It is more costly to remove contamination from ground nutmeg than from the whole product. Your buyer will transfer costs to you if your products do not comply with requirements.
- See our studies on crushed and ground spices and herbs and oleoresins for more information.

**Exports**

European exports of nutmeg in 2015 amounted to 2,600 tonnes, with a value of €34 million. The export volume fell by an average of 7.7% per annum between 2011 and 2015 while value fell by 7% annually.

91% of all European exports in 2015 consisted of intra-European trade, the main exporters being:
- the Netherlands (43% of total exported volume in 2015)
- Germany (16%)
- Italy (14%)

European exporters add significant value to imported products. There are thus opportunities in this field for exporters from developing countries with experience of supplying European countries. They may decide to focus on increasing their direct sales to buyers who have so far relied on other European suppliers. This might be a useful way of increasing such exporters’ profit margins.
No nutmeg production figures are available. Global production is estimated to average 10-12 thousand tonnes per annum. Indonesia and Grenada dominate both production and exports, with world market shares of 75% and 20% respectively. Other producers include India, Malaysia, Papua New Guinea, Sri Lanka and Caribbean islands such as St. Vincent (Source: Unispices). Other sources state that Indian production alone is around 8,500 tonnes per annum. This would suggest that world production is much higher.

Indonesia exports most of its annual production. Other suppliers from developing countries such as Vietnam and India also export significant amounts of nutmeg that was either harvested domestically or imported for processing before delivery to international markets.

Grenada used to produce around 2,000 tonnes of nutmeg per annum. However, two hurricanes in 2004-5 destroyed 90% of the nutmeg trees in the country. As a result, Grenada only exported 350 tonnes of nutmeg in 2009. Efforts are being made to revitalise nutmeg production in Grenada. Since nutmeg trees take 7-9 years to become productive and only reach full production after 20 years, it will take time for these measures to have a significant impact.

Consumption

Figure 5: Per capita nutmeg consumption of leading importers
In grams per capita, 2011-2015*
The consumption of nutmeg in Europe in 2015 amounted to 4,300 tonnes. Consumption of nutmeg fell by an annual average of 2.6% between 2011 and 2015. Nutmeg is often used to season potato dishes, processed meat products, soups, sauces and baked goods.

Figure 5 gives an overview of the per capita consumption of the leading importers of nutmeg. Of these, the Netherlands, Belgium and Germany are especially interesting markets as they have a higher per capita consumption than the European average. Although Belgium is a smaller importer of nutmeg, it has the second-highest per capita consumption. At the same time, Italy has a relatively low per capita consumption, indicating that this country’s role is mainly as a trader.

Many food processors based in Western Europe use nutmeg in the production of food such as sausages for domestic consumption or export to other European markets.

**Market Trends**

**Internationalisation of eating habits:** Nutmeg is widely used in some Asian (Indonesian and Indian) cuisines. For example, the Indonesian community in the Netherlands is a relatively big consumer. Another example is the large Indian community in the United Kingdom that uses nutmeg as an ingredient in the garam masala employed to season curry dishes. Asian cuisine is already popular in large parts of Europe and is slowly gaining popularity in Eastern European countries. This increased interest in ethnic foods is likely to increase the long-term demand for nutmeg.

**Steam sterilisation** is an effective way of combating microbiological contamination and is increasingly required by European buyers. It can earn a significant premium for suppliers who are able to supply nutmeg steam sterilised at source. Investment in steam sterilisation equipment can be very costly (up to € 1 million), however. An important downside of steam sterilisation is that it reduces the volatile oil content, which is responsible for the flavour. European buyers would switch to other methods if they were equally safe, accepted by consumers and not too expensive. At the moment there are no alternatives that meet these requirements but GreenFooDec is conducting research in this field.

**Tip:**
- Check the [economic forecasts](#) for European Member States issued by the European Commission to see which countries will enjoy a favourable economic climate in the coming years.

**Tip:**
- Refer to our study on [trends in the spice and herb market](#) for further information on trends in the spice and herb market.
Sustainability is on the rise: sustainable sourcing is an important trend in Europe, especially in the United Kingdom, the Netherlands and Germany. Important issues in the supply chain are pesticide use, soil degradation, the impact on biodiversity, the health and safety of farmers and fair payment for farmers. As a supplier you will be increasingly faced with sustainability requirements from your buyer. Although sustainable nutmeg is still a niche market, demand for products certified for compliance with sustainability standards is increasing. Organic and Fairtrade certified nutmeg has been on the market for some time. The fact that nutmeg is a spice traded in relatively small volumes makes it a fairly low priority for most European operators. A big challenge for the market for certified sustainable nutmeg is the fact that it has to be sold at a higher price to cover some or all of the certification costs. This has resulted in an ongoing debate in the sector concerning the best way forward in the implementation of sustainability in the mainstream market. The option of third-party certification is still under debate. As mentioned above, self-verification could become more common in the future in the mainstream market.

Tips:
- Small producers from developing countries with limited access to capital will probably be unable to steam sterilise their own product. Look for local sterilisation companies that can provide this service for you.
- Steam sterilisation is only effective if food safety is taken into account during drying, storage, processing (such as sieving, mixing, grinding/crushing), packaging and transport. Steps should be taken to avoid contamination after sterilisation.
- Ascertain whether your buyers (or potential buyers) want the product to be steam sterilised before providing this service.
- Refer to GreenFooDec to keep up to date on the development of alternatives to steam sterilisation.

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Tips:
- Governmental and non-governmental organisations in developed countries often have programmes and subsidies available for investments in sustainability. You should therefore look for possible partners to promote sustainability with the aid of these funds. Further information is available on such websites as the Sustainable Spice Initiative, the Netherlands Enterprise Agency, the German Ministry for Economic Cooperation and Development and Cordaid.
- As small farmers often do not have the capacity needed to process, store and export their product, exporters can play a vital role in this process. Working with NGOs and national or international governmental organisations is also a good way of attracting capital.
- Telling the story behind the product is also often an important element in sustainable branding and image building. The website of Verstegen Spices & Sauces gives a good example of such a story about an Indonesian farmer growing Fairtrade nutmeg: The Story Behind Nutmeg.
- See our study on exporting Sustainable Spices and Herbs to Europe for further information on long-term expectations concerning the market for certified sustainable products.

Price

Figure 5: Indicative price breakdown of nutmeg, sold in spices and herbs section of supermarkets

<table>
<thead>
<tr>
<th>Raw material</th>
<th>Processing</th>
<th>Transport</th>
<th>Import &amp; processing</th>
<th>Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>10%</td>
<td>5%</td>
<td>25%</td>
<td>30-50%</td>
</tr>
</tbody>
</table>

Source: ProFound

Please be aware that this price breakdown is only a general indication. It is influenced by many different factors including the country of origin, the current and expected future harvest situation, the quality of the raw material, demand level and price trends.

Prices of nutmeg from Indonesia decreased from mid-2014 to May 2016, reaching just over US$ 8,500 per tonne (around € 7,600).

Retail prices of nutmeg depend on variables such as quality, brand and outlet. Ground or crushed nutmeg sold in containers may cost between € 14 and € 75 per kilo. Ground or crushed nutmeg is sometimes cheaper than whole nutmeg. The fact that lower-quality nutmeg can be used in such products is an important reason for this price difference.
Please be aware that the value of the Euro fell significantly in relation to the dollar in 2015. In 2016, this value picked up again. International prices are often given in US dollars. The changing value of the Euro thus affects European importers who have long-term contracts with their suppliers. Whether fluctuating exchange rates are beneficial for exporters from developing countries depends on the value of their own currency relative to that of the US dollar.

Tip:
- The strong fluctuations in the price of nutmeg lead to rapid changes in market dynamics and marketing opportunities. Keep up to date on the global supply situation and prices. Nedspice, McCormick, PBA brokerage, Indian Spice Board and the International Trade Centre regularly publish useful crop and price reports.

Tip:
- Keep up to date on exchange rates with the aid of such websites as Oanda.

Useful sources
- European Spice Association – http://www.esa-spices.org – provides information on the national spice associations that belong to it
- Food Ingredients Europe – http://www.foodingredientsglobal.com – important international trade fair for the food ingredient and health sector in Europe
- SIAL – http://www.sialparis.com – large international food fair held in France every year
- Biofach – http://www.biofach.de – largest European organic food trade fair held in Germany