CBI MARKET SURVEY

THE NATURAL COLOURS, FLAVOURS AND THICKENERS MARKET IN THE EU

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REPORT SUMMARY

This market survey provides exporters in developing countries of natural colours, flavours and thickeners with a wide range of facts, figures and information with respect to the European Union (EU) market. The emphasis of this survey lies on those products which are of importance to developing country suppliers. The natural colours, flavours and thickeners market in individual EU countries is discussed further in individual CBI market surveys. These market surveys can be downloaded from http://www.cbi.eu/marketinfo.

Industrial demand and trends

Most of the natural food colour producing industry which requires raw materials is located in Denmark, the UK and Germany.

Flavours are the most important food additive category in terms of market value. The global flavours market was estimated to amount to approximately € 4.5 billion in 2004. The flavour producing industry is mainly located in Germany, France, the UK and The Netherlands.

Figures on the market for thickeners are not available. They are mainly processed in the Mediterranean region and in Northwest Europe.

The markets for food colours, flavours and thickeners are performing very well. The market for colouring foodstuffs is growing at 10-15% annually. The markets for natural food colours and flavours have been growing faster than the total food colour and flavour market in recent years. Consumers increasingly look for foodstuffs with an authentic and pure colour and taste. They also want their food to consist of fewer synthetic ingredients and more natural ingredients. As a result, food manufacturers have increasingly been looking for alternatives to synthetic food colours, flavours and thickeners.

Another important driver behind the growth in the natural colours and flavours market is the advances made in the food industry regarding stability of natural colours and flavours. Consumer concern about the environment and food safety, increased consumption of convenience food and increased interest in ethnic foods are other factors explaining the growth of the natural colours, flavours and thickeners sector.

Production

Most of the raw materials for colours and flavours require growing conditions which are more favourable in countries outside the EU. Exceptions are some essential oils which are produced in Italy, France and Spain, locust bean gum (Mediterranean), xanthan gum (UK and France) and carrageenan (Atlantic coast).

A trend in the production of raw materials is the increased use of organic production methods. Continuous efforts by the European Commission to increase organic farming facilitate this development.

Although raw materials production in the EU is and will remain small, there is a well-developed processing industry for the production of finished products. It is this (growing) industry which provides good opportunities for developing country exporters of raw materials.

Imports and exports

The three leading importers of natural colours, flavours and thickeners are Germany, France and the UK. The Netherlands is also a major importer of natural colours, flavours and thickeners. However, it re-exports large amounts to other EU countries. Between 2001 and 2003, total EU imports decreased. The market then recovered and showed healthy growth between 2003 and 2005. It followed the developments in the food market in general, which saw a dip in EU imports in 2003 as well.

Imports consisted mainly of essential oils and pectates, agar-agar, mucilages and thickeners. The essential oils which performed best between 2001 and 2005 were lemon oil, essential oils of citrus fruit other than bergamot, lemon, lime or orange, and vetiver. Imports of pectates agar-agar, mucilages and thickeners increased strongly. This was mainly the result of price increases. Noteworthy is that the already large share of Sudan in the import market for natural gums, resins and balsams increased by 18% between 2001 and 2005, largely as a result of price increases for Arabic gum, which represents 77% of total natural gums imports.

Developing countries accounted for 36% of EU imports of natural colours, flavours and thickeners. Leading developing country suppliers to the EU are India, China, Indonesia, Argentina, Philippines, Brazil, Morocco and Peru. Imports coming from these countries did not show a very different development from that of total imports.

Export figures for natural colours, flavours and thickeners showed a development very different from that of imports. Between 2001 and 2005, the value of EU exports decreased slowly at an average annual rate of 0.9% in both terms of value and volume, amounting to € 1,351 million / 191 thousand tonnes in the latter year. However, these figures are likely to be flawed due to the lack of reliable data and real exports are expected to have experienced a development more similar to that of imports.

France remains by far the leading exporter of natural colours, flavours and thickeners in the EU. It is a leading re-exporter of essential oils, gums (Arabic gum in particular) and carrageenan. Spanish exports performed particularly well. The 27% increase in exports between 2003 and 2005 was contributed by exports of locust bean gums, Spain's main export product within the group of natural colours, flavours and thickeners.

Trade structure

Traditionally, producers/exporters supply raw materials to processing industries, such as flavour houses; the latter refine the product, blend it or include it as a part of a compound and sell the end-product to food manufacturers, which use it in their turn as an ingredient in final consumer products.

In many cases, traders also play an important role in the distribution of products. They analyse, purify, blend and/or stockpile products and sometimes provide extra services.

The EU market for natural colours, flavours and thickeners is consolidating. Many European flavour houses, for example, although quite large within the flavour industry, have been taken over by major chemical and pharmaceutical companies. The result of the consolidation is that a small and decreasing number of dominant players dictates the markets for natural colours, flavours and thickeners, particularly in the larger, more mature markets for hydrocolloids such as xanthan gum and alginates.

Prices

Prices of natural food additives traditionally fluctuate in line with the size of harvests. Demand for food additives which is related to the demand for the final product, is fairly inflexible as food manufacturers are reluctant to make changes to product formulations. The fluctuating supply, coupled with a relatively stable demand, attributes to speculation in the market. Large price fluctuations are common and have caused importers and exporters to build up stocks when prices are favourable. However, due to the limited possibilities of preservation and the continuous demand for the small supply, stocks do not last long. As a result, import value and volume fluctuate strongly.

1 INTRODUCTION TO CBI'S MARKET INFORMATION

CBI provides a wide range of documents containing EU market information. All CBI market information is targeted at developing countries. See appendix 'List of developing countries' for the definition of developing countries used in CBI market surveys.

Sector specific market information
CBI publishes market information for about 37 market sectors.
For each market sector, the following kind of information is available:

- CBI market surveys on **the EU market in general**, focusing on developments and trends in the field of market size (consumption, production and trade), distribution and prices in the EU. E.g. 'The fresh fruit and vegetables market in the EU'.
- CBI market surveys on **the market in specific EU countries**, focusing on developments and trends in the field of market size, distribution and prices in the EU country concerned. E.g. 'The fresh fruit and vegetables market in Spain'. On average, about 20 documents per market sector are available. Those EU countries responsible for the highest share of total EU imports from CBI target countries are discussed in documents of about 10 pages. Less relevant EU countries are discussed in fact sheets of about 2 to 3 pages.
- CBI market surveys on a **specific product(group)** within the market sector concerned, focusing on developments and trends in the field of market size, distribution and prices in the EU and a number of specific EU countries as well as on business practices. E.g. 'The EU market for papaya'.
- **EU export marketing guidelines**, explaining how to conduct an external analysis (market audit) and internal analysis (company audit), a SWOT analysis and dealing with the decision-making process whether or not to export to the EU.
- Information on **market access requirements**, focusing on legislative and non-legislative requirements based on environmental, consumer health and safety and social concerns in the EU and in specific EU countries.

General trade related information
Besides information on specific market sectors, CBI also publishes more general trade related information, the so-called Export manuals. At the moment, the following Export manuals are available:

- Exporting to the European Union – trade-related information on the EU
- Export planner - how to plan your export process
- Your guide to market research - practical and low cost research methods
- Your image builder - how to present yourself on the EU market
- Your show master - selection, preparation and participation in trade fairs
- Digging for gold on the Internet - Internet as a source for market information
- Website promotion - how to promote your website in the EU

These Export manuals can be downloaded from the CBI website at http://www.cbi.eu/marketinfo. Go to 'Search CBI publications'.

How to use the different CBI market information tools
If you are new on the EU market, you are advised to start by consulting the more general Export manuals, like 'Exporting to the European Union' and 'Export planner', before consulting sector specific information. If you are a more experienced exporter, you can use these manuals as reference material, while focusing on the specific information for your market sector.
Concerning the sector specific-information, you are advised to start with the information on the EU market in general and the EU export marketing guidelines. After consulting this information, you should have gained a better idea on which surveys on the market in specific EU countries are most interesting to consult. It is advisable also to check if a survey on your specific product(group) is available. And you are strongly advised always to check the documents on market access for your product.

Finally it is stressed that CBI market information serves as a basis for further research, meaning that you should - after consulting the CBI information - further research your EU target markets for more detailed and specific information related to your specific situation.

The natural colours, flavours and thickeners market in the EU
This CBI market survey covers the EU market for natural colours, flavours and thickeners. The emphasis of this survey lies on those products, which are of importance to developing country suppliers. Statistical market information on consumption, production and trade, and information on trade structure, prices and market access is provided. Opportunities and threats for developing country suppliers are highlighted and sources for more information are provided.

For information on how to get involved in the EU marketplace reference is made to the EU export marketing guidelines. These EU export marketing guidelines can be downloaded from http://www.cbi.eu/marketinfo and are especially interesting for more experienced exporters. Go to 'Search CBI database' and select the market sector concerned and the EU.

If you are a starting exporter, you are advised to read this survey together with CBI's 'Export planner' and to use the interactive tool 'EMP Document Builder' on the CBI website.

CBI market surveys covering the market in specific EU countries, specific product(group)s or documents on market access requirements can be downloaded from the CBI website. Go to 'Search CBI database' on http://www.cbi.eu/marketinfo and select the market sector concerned and an EU country.

2 INTRODUCTION TO THE EU MARKET

The European Union (EU) is the current name for the former European Community. Since January 1995 the EU has consisted of 15 member states. Ten new countries joined the EU in May 2004. Negotiations are in progress with a number of other candidate member states. In this survey, the EU will be referred to as the EU25, unless otherwise stated.

For general information on EU member states, reference is made to CBI's Export manual 'Exporting to the European Union (2006)'. Information can also be found at the official EU website http://europa.eu/abc/governments/index_en.htm or the free encyclopedia Wikipedia http://en.wikipedia.org/wiki/Portal:Europe.

Monetary unit: Euro

On 1 January 1999, the Euro became the legal currency within twelve EU member states: Austria, Belgium, Finland, France, Germany, Italy, Ireland, Luxembourg, The Netherlands, Spain, and Portugal. Greece became the 12th member state to adopt the Euro on January 1, 2001. In 2002 circulation of Euro coins and banknotes replaced national currency in these countries. Denmark, United Kingdom and Sweden have decided not to participate in the Euro. In CBI market surveys, the Euro (€) is the basic currency unit used to indicate value.

Table 2.1 Exchange rates of EU currencies in €, average yearly interbank rate

Country	Name	Code	2006	March 2007
Cyprus	Pound	CYP	1.736881	1.722428
Czech Republic	Crown	CZK	0.035285	0.035627
Denmark	Crown	DKK	0.134035	0.134233
Estonia	Crown	EEK	0.063898	0.063910
Hungary	Forint	HUF	0.003791	0.003996
Latvia	Lats	LVL	1.435695	1.411840
Lithuania	Litas	LTL	0.287832	0.289590
Malta	Lira	MTL	2.322062	2.329728
Poland	Zloty	PLN	0.256887	0.257230
Slovakia	Crown	SKK	0.026891	0.029520
Slovenia	Tolar	SIT	0.004136	0.004169
Sweden	Crown	SEK	0.108036	0.107660
United Kingdom	Pound	GBP	1.466950	1.469814

Source: OZ Foreign Exchange Service http://www.ozforex.com.au/ (March 2007)

3 PRODUCT CHARACTERISTICS

Product groups
Natural colours, flavours and thickeners are all used as food additives by the food industry. Food additives are defined in EU legislation as: "any substance not normally consumed as a food in itself and not normally used as a characteristic ingredient of food whether or not it has nutritive value, the intentional addition of which to food for a technological purpose … results … in it or its by-products becoming directly or indirectly a component of such foods." The categories of food additives discussed in this survey as identified by the European Commission are colours and thickeners. Flavourings are not covered by the Framework Directive on Food Additives of the EU.

This survey focuses mainly on natural food additives. Most synthetic food additives are excluded, as they are mainly supplied by the chemical industry in Western countries.

Colours and flavours

Colours
The definition of additive colours in the EU food Colours Directive is as follows: “Colours are substances which add or restore colours in a food, and include natural constituents of foodstuffs and natural sources that are not consumed as foodstuffs as such and not normally used as characteristic ingredients for food. Preparations obtained from foodstuffs and other natural source materials obtained by physical and/or chemical extraction, resulting in selective extraction of the pigments relative to the nutritive or aromatic constituents, are colours within the meaning of this Directive.” In other words, colours are intentionally applied to food for their colouring capacity and not for other reasons.

Traditional raw materials used for producing natural food colours are red beet, blue grapes, red grapes, elderberries, hibiscus fruits, red cabbage, carrots, tomatoes or pumpkins. According to Mrs. Arola of the Sensient Technologies Corporation, the most important raw materials for colours are grape, elderberry, carmine, black carrot, paprika, turmeric root, carotene and chlorophyll.

Some natural food colours are being manufactured in part from substances of natural origin, which would normally not be eaten. Annatto, for example, is an extract from the seeds of the *Bixa orellana L.* bush. These seeds, however, are not edible and the colour is extracted by using organic solvents. Carmine is an extract obtained from the cochineal insect, precipitated by aluminium salts.

Flavours
Natural food flavours can be prepared from the original plant material by extraction, distillation, purification, concentration. However, not all natural flavours consist entirely of the respective plant material. For example, not all strawberry flavour is prepared from strawberries. It would require too much raw material and would be too expensive. Natural food flavours may be manufactured as a composition of natural substances, prepared from any natural origin (EU Framework directive on Flavours for use in foodstuffs).
It should be noted that there are numerous different flavouring substances, but unfortunately no specific HS codes exist for all these flavouring substances. A few exceptions are menthol, vanilla and a number of essential oils. The flavours covered by this survey are listed in Table 3.1.

An essential oil contains volatile aromatic compounds from plants. They are valuable commodities for the flavourant industries, as the food industry relies heavily on flavourings to make its products attractive to consumers. There are many essential oils which can be used in food. Closely related to the essential oils flavourings are resinoids and extracted oleoresins, which serve a similar function.

Oleoresins are also used for colouring purposes, e.g. paprika, turmeric. Oleoresins are normally thick, viscous and sometimes highly coloured products. Due to their concentrated form, they may give colour to the finished product even in lower concentrations. The flavour of oleoresins may not be fully equivalent to their corresponding essential oils. The normal use range of oleoresins in food is 1/5 to 1/20 of their corresponding dry spices.

Note that the food industry often refers to natural colours and flavours as botanicals.

Thickeners

Thickeners are substances which, when added to the mixture, increase its viscosity or improve structure without substantially modifying its other properties. “While flavour and colour might have more visibility and glamour, it is the texturisers that provide the underpinning of countless food formulations. The importance of texture to any food product is critical” says Dennis Seisun of IMR International, the leading research centre in the food hydrocolloid industry. Gums or thickeners are polymeric material, usually carbohydrates, which can be dissolved or dispersed in water to give a thickening or gelling effect. The thickeners discussed in this survey are: manioc starch, pectins, natural gums, agar-agar, locust bean gums, guar gums and other thickeners derived from vegetable products such as carrageenan. Differences in their properties mean that each of these thickeners has its particular value in different food formulations. Note that gums are often referred to as hydrocolloids, because of their water-binding capacity and their colloidal structure, and that pectins are referred to as pectates (pectic acid) in Chapter 6 and 7 on imports and exports, according to their registration in the Harmonised System.

Gums and resins (exudates from plant material, usually terpenes) are not only used as thickeners, but also as emulsifiers, stabilisers, suspending agents, gelling agents and mouth feel improvers. The ability to perform in this wide range of functions had made them particularly good in fat-replacement systems. There is no single “magic” ingredient/fat replacement product, and this has given way to an approach in which each ingredient supplier has its own products. Many food companies also experiment with combinations of various gums and resins in their products.

The list of thickeners given above is only a selection. There are many other products which can also be used as thickeners. However, many of these products are mainly used for other purposes (i.e. in the pharmaceutical, cosmetics or other industries) and are only applied in the food industry in small quantities. They have been excluded to prevent confusion about figures which include all product appliances. Some other products have been excluded from this survey for reasons of irrelevance to developing country suppliers. The supply of these products is dominated by a few large companies with highly developed supply chains, which makes entry to this market very difficult for new exporters. Pectins are among the products for which the markets are dominated by a few large companies. However, they are included in this survey as the large companies dominating this market have production facilities in developing countries. Moreover, the raw material for pectin manufacturing (citrus peel, apple pomace) is often sourced in developing countries.

Statistical product classification

Combined nomenclature (CN)

Trade data based on the Combined Nomenclature are used in this survey. These data are provided by Eurostat, the statistical body of the EU. The abbreviation CN stands for Combined Nomenclature. The Combined Nomenclature contains the goods classification prescribed by the EU for international trade statistics. The CN is an 8-digit classification consisting of a further specification of the 6-digit Harmonised System (HS), HS having been developed by the World Customs Organisation (WCO). The system covers about 5,000 commodity groups, each identified by a six-digit code, arranged in a legal and logical structure. More than 179 countries and economies use the system.

Table 3.1 Product selection for the group of natural colours, flavours and thickeners

Product category	Product groups	HS/CN codes	Products
Natural food colours		3203 00	Colouring matter of vegetable or animal origin
Natural food flavours		2906 11	Menthol
		2912 41	Vanillin
	Essential oils of citrus fruit		
		3301 11	Bergamot oil
		3301 12	Orange
		3301 13	Lemon
		3301 14	Lime
		3301 19	Other citrus fruits
	Essential oils other than those of citrus fruit		
		3301 21	Geranium
		3301 22	Jasmine
		3301 23	Lavender
		3301 24	Peppermint
		3301 25	Other mints
		3301 26	Vetiver
		3301 29	Other essential oils
	Resinoids and extracted oleoresins		
		3301 30	Resinoids
		3301 90 21	Extracted oleoresins of liquorice and hops
		3301 90 30	Extracted oleoresins of quassia wood, aloe, manna and other plants
		3301 90 90	Others
Thickeners	Manioc starch		
		1108 14	Manioc starch
	Natural gums		
		1301 20	Natural gum arabic
		1301 90	Natural gums, resins, gum-resins and balsams (excl. gum arabic)
	Agar-agar and thickeners		
		1302 20	Pectins
		1302 31	Agar-agar, whether or not modified
		1302 32 10	Mucilages and thickeners of locust beans or seeds whether or not modified
		1302 32 90	Mucilages and thickeners of guar seeds, whether or not modified
		1302 39	Other mucilages and thickeners derived from vegetable products

Also refer to Appendix A for a list of the selected products and their HS or CN codes.

Statistical data: limitations

Trade figures quoted in CBI market surveys must be interpreted and used with extreme caution. In the case of intra-EU trade, statistical surveying is only compulsory for exporting and importing firms whose trade exceeds a certain annual value. The threshold varies considerably from country to country, but it is typically about € 100,000. As a consequence, although figures for trade between the EU and the rest of the world are accurately represented, trade within the EU is generally underestimated.

With respect to import figures it should be noted that import is sometimes to a large extent due to intra-EU trade: some EU countries only get their imports from other member states (who in their turn may import from developing countries). Regarding some products/product groups, EU countries are thus listed as a main supplier while they are in fact only important ports of entry to the EU and re-export considerable amounts of their imports.

Furthermore, the information used in CBI market surveys is obtained from a variety of sources, such as Eurostat and private companies. Figures, especially in Chapters 4 and 5 on consumption and production, should be interpreted with care, as they are estimations. Unfortunately, exact data are not available for the markets as discussed in this survey. Therefore, extreme care must be taken in the qualitative use and interpretation of quantitative data, because it puts limitations on in-depth interpretation of relations between consumption, production and trade figures within one country and between different countries.

4 INDUSTRIAL DEMAND

4.1 Market size

Due to the lack of reliable figures on industrial demand for natural food colours, flavours and thickeners, this section will focus more on the qualitative characteristics of the markets than on the quantitative characteristics.

Despite the lack of reliable data on the market, Leatherhead Food International, a large research company, has attempted an estimate of the value of the food additives market. It estimated the value of the global food additives market, which covers, amongst others, the markets for colours, flavours and thickeners, at around € 17 billion in 2005. It was expected to grow by 2-3% annually between 2005 and 2007 (Leatherhead Food International, 2005).

Natural colours and flavours

Chr. Hansen, one of the leading food ingredient manufacturers, estimated the European market for natural colours in 2001 at € 393 million. This is about a third of the total global colour market of € 1.1 billion. In an earlier report from 2000, published in the International Journal of Food Science and Technology, the world market value for both natural and artificial colours was estimated at € 880 million. The market for natural colours accounted for approximately one fourth of the total colour market, or € 230 million. Artificial colours were estimated to account for around 40%, nature identical colours for 20% and caramel for 10%.

Flavours are the most important additive category in terms of market value. Leatherhead Food International estimated the global flavours market to amount to approximately € 4.5 billion in 2004. According to another research firm (SRI Consulting), the industrial demand for basic flavours and fragrance products was worth around € 14.4 billion in 2003 and was growing at 5.6% annually during the first three years of the millennium, a considerable improvement on the 2.9% a year recorded in the last three years of the 1990s.

The market for food colourings is performing very well. According to figures from Frost & Sullivan, a business research and consulting firm, the total colouring market in Europe faces annual growth of 1% between 2001 and 2008, while the market for colouring foodstuffs will be growing at 10-15% annually by 2008. Moreover, the market for natural food colours and flavours has been growing faster than the total food colour and flavour market in recent years. Consumers increasingly look for foodstuffs with an authentic and pure colour and taste, they also want their food to consist of fewer synthetic ingredients and more natural ingredients. A decreasing number of people is willing to eat or drink foodstuffs, which are coloured or flavoured synthetically. Synthetic additive colours and flavours and colouring foodstuffs are perceived not to fit in a healthy and environmentally conscious lifestyle. This distinct trend will be further explained in section 4.2. As a result, food manufacturers have increasingly been looking for alternatives to synthetic food colours (Natural blue pigment from bacteria for food, FoodNavigator (FoodNavigator is a daily online newsservice for the food industry), 2007).

Another important driver behind the growth in the natural colours market consists of the advances made in the food industry regarding the stability of natural colours. Research is continuously taking place to find ways to keep the desired properties of food additives functional in different food formulations. Making colours stable in acidic formulations in which they would normally fade or making them more resistant to higher temperatures are examples of this kind of research. Another technological breakthrough in recent years has been the stabilization of natural colours against oxidation. Naturally oil-soluble products are vulnerable to oxidation, which can lead to early fading of the colour. However, the addition of antioxidants protects the colour and preserves it in the food for longer than would otherwise be possible.

Although they are still more expensive than synthetic colours, the improvement in price-performance ratio also added to the increased use of natural colours.

In view of the favourable development of prices and the visible trend towards natural raw materials and processes, it can be safely assumed that the market share of "foods having natural colouring and flavouring properties" will increase even further in the coming years. Note that this does not necessarily implicate a decreasing industrial demand for synthetic colours. The wide range of shades and applications possible with synthetic colours ensures the continued use of these synthetic colours.

Menthol

There are no indications that demand for the cooling effects of products such as menthol is changing. However, the position of menthol in the market for cooling agents is of great importance as well. Natural menthol has an advantage over synthetic menthol as the scent of synthetic menthol is affected by contaminants which arise during the crystallization process (Central Institute of Medicinal and Aromatic Plants in India).

Advances in food technology might threaten the use of menthol. Stronger coolants are being developed and might replace the traditional menthol in food formulations. On the other hand, advances in food technology may lead to opportunities for products like menthol. Multinational Quest has been able to prevent menthol becoming bitter when used in large amounts (FoodNavigator, 2007).

Another positive development for the menthol market is the health trend which will be discussed in Section 4.2. It suffices to state here that menthol has many medicinal uses which appeal to consumers.

Vanillin

Data composed by FAOstat give an indication of the relative demand for vanilla in EU countries. Note that these figures concern natural vanilla and not vanillin, which forms only a small part of vanilla and which is also produced synthetically.

Table 4.1 Demand for vanilla in the EU, 2001-2005, in tonnes

	2001	2003	2005
Netherlands	160	310	630
Spain	50	170	450
Ireland	120	50	180
Belgium	10	40	170
United Kingdom	n.a.	170	110
Austria	60	30	100
Denmark	60	40	80
France	320	230	80
Germany	90	80	60
Slovakia	0	30	50
Portugal	20	40	40
Greece	10	10	20
Czech Republic	10	0	10
Estonia	10	0	10
Finland	0	0	10
Hungary	0	0	10
Italy	30	10	10
Latvia	0	10	10
Lithuania	20	10	10
Poland	10	0	10

Slovenia	10	10	n.a.
Sweden	10	20	10
Cyprus	0	n.a.	0
Malta	0	0	0

Source: FAOstat 2007 (http://faostat.fao.org/site/346/DesktopDefault.aspx?PageID=346)

Approximately 12,000 tonnes of vanillin (natural and synthetic) is currently needed by the world's food industry. The vanillin market as a whole has experienced large fluctuations in supply in the last decade. In 2000, a storm destroyed much of the vanilla crops in Madagascar, the largest producer of vanilla from which vanillin can be extracted, and the political crisis in 2002 also affected supplies from the country. This led to a world shortage of vanilla and subsequent price increases. Large fluctuations in supply cause highly speculative cycles during which price increases or price decreases are followed by increases or decreases in production respectively. Moreover, sudden shortages in food ingredients such as vanilla cause significant supply problems for food manufacturers. Many of them have responded by substituting their natural vanilla by synthetic vanillin. The alternative for natural vanilla is also known as WONF: With Other Natural Flavour. Synthetic vanillin is much cheaper, has a more constant quality and reaches the same flavour intensity in much smaller amounts. Synthetic vanillin already accounts for the main part of the market in the EU countries according to the Federation of Indian Chamber of Commerce. "Since 2002, there has been a 50% decline in the use of vanilla and it could take 10 years to recover this", said Naushad Lalani, of Sentrex Ingredients in the USA (Oversupply signal slide in price of vanilla, The Public Ledger 2006). This development of substitution shows how the short-term advantage of increased prices for natural vanilla producers have led to the long-term disadvantage of decreased demand.

Nevertheless, demand for natural vanilla is expected to remain considerable. Although approximately 12,000 tonnes of vanillin is currently needed by the world's food industry, only 50 tonnes of natural vanillin, as a component in 2,300 tonnes of vanilla, is available. This demand is stimulated by the increased interest in natural products. There are strong indications that EU consumers prefer natural vanilla over other vanilla flavours. The arguments for this preference are discussed in detail in the next section. The preference of consumers for natural vanilla outweighs the price/performance advantage of synthetic vanillin in many cases. Food manufacturers are very sensitive to consumer demands. Consequently, the current world market for natural vanilla is still attractive for exporters of this product and, although the current low prices are not favourable for suppliers of vanillin, it has a positive effect on the long-term as food manufacturers which switched to synthetic substitutes earlier are stimulated to return to natural vanilla.

Essential oils

The essential oils markets worldwide amounted to approximately 45,000 tonnes in 2004 and is rising. There are varying estimates on the value of the fragrance and flavour market. According to the Dutch Association of Fragrance and Flavour Producers, global sales for 2004 are estimated at some € 11 billion, while other sources give estimations of about € 15 billion. The main essential oils used are citrus fruit, mint and clove. New food and beverage products require strong flavour, for instance in fashionable drinks. Other major outlets for essential oils are the pharmaceutical and cosmetic industry, where there is a growing interest in a multiple of different, often very specific, essential oils and extracts from plants and seed, most of them of tropical origin.

The popularity of fruit flavours could contribute to an increase in the industrial demand for essential oils. The popularity of fruit flavours is related to consumer demand for healthy and natural products, which will be elaborated in the next section.

Increased consumer interest in organic products, which will be further explained in the next section, is driving growth in the market for organic essential oils in the food industry. Growth is slightly dampened by high price premiums and legislation allowing non-organic flavourings in organic products. An organic food product is allowed to be composed for a maximum of 5% of

non-organic parts. This does not stimulate food manufacturers to use organic essential oils as these often form less than 5% part of the final product. Moreover, the allowance of non-organic ingredients makes consumers sceptical about organic food in general. Refer to EU Council Regulation (EEC) 2092/91 on organic production for more information.

Next to their positive consumer perception, organic essential oils are also often perceived by buyers to have a reduced risk of adulteration. Organic essential oils thus receive particular interest from buyers looking for premium quality products (ITC's marketing manual for organic spices, herbs and essential oils, 2004).

Thickeners

Starch

Starch is the most commonly used thickener in the food industry. The world market for starches and starch derivatives amounted to roughly € 11 billion in 2003. Total industrial demand for starch and starch derivatives in the EU amounted to 9.0 million tonnes in 2005. Starches of wheat, corn, potatoes and rice dominate the very competitive starch market. Manioc starch accounts for only 3% of total world starch production and most of it is consumed locally (CIAT, 2004).

Food manufacturers are always on the lookout for good alternatives to their existing ingredients. Manioc starch from cassava, which is mainly produced in developing countries could be a good alternative to other starches. However, food manufacturers continue to have certain requirements regarding the functional characteristics of starches. The best opportunities exist for starches with positive obesity and satiety effects. It will be important for the competitive strength of manioc starch among the other starches to find new purposes in niche markets through research. Unfortunately, there is no established tradition of value-added public research and development, and the private sector is reluctant to invest in research to improve cassava starch technology, because of the lack of patent protection (Danilo Mejía of FAO, 2006).

Although growth of the EU market for starch is expected to remain very low at less than 1%, the market for manioc starch could grow faster depending on the tightness in the total starch market and the progress in the manioc starch industry. This progress will need to consist of increased production, lowering of production costs, consistent quality and research on application in food products (FoodNavigator, 16-7-2004).

An increasingly serious problem for the entire world starch market, already causing higher prices for corn starch (tortilla revolt in Mexico), is that in some countries an increasing part of the crop of plant material (e.g. corn, soya) is used for energy production ('biofuel')

Hydrocolloids

According to IMR International, the global market for hydrocolloids amounted to € 3.3 to € 3.8 billion in 2003. This includes hydrocolloids for all uses (food, cosmetics, pharmaceuticals, etc.) and products which are not hydrocolloids by definition, but which serve a similar function. Another source estimates the EU market for gums and resins at € 1,032 million. This is a little less than one-third of the global market. Growth in the EU market is slower than in Asia and Latin America. One of the most dynamic markets within the hydrocolloid market is the market for xanthan gum. The world market for this gum amounts to approximately € 230 million. In terms of volume, the market size is between 40 to 50 million tonnes.

Though many processed food products are sensitive to spiralling raw material costs, demand for hydrocolloids remained impressive in 2006 (FoodNavigator, 2006). An important factor was the increased demand from China. Between 2003 and 2008, the world aggregate growth rate of demand for hydrocolloids was expected to be 1.5-2.5% annually. Industrial demand for pectin, xanthan and carrageenan is expected to increase at a higher rate. The market for xanthan gum for example, is expected to increase by 5% annually (FoodNavigator, 2005).

Natural gums and resins face strong competition from gums, which are manufactured industrially through biotechnology. The competition from these synthetic substitutes is partly the result of supply chain problems when using natural gums and resins. Manufacturers often need a constant and reliable supply of ingredients. Sudden shortages can lead to production problems which are harmful to sales and relationships with buyers.

Gelatine is the most popular animal-derived food ingredient available. However, awareness over health issues related to meat and animal-derived products, also genetically modified foods (GM), have led to an increased demand for alternatives. Besides, gelatine replacement is also desirable in order to meet Kosher and Halal food standards. Hydrocolloids, which are suitable for replacing gelatine, are gelling and non-gelling gums like modified starches, carrageenan, pectin, agar-agar, alginates, guar gum, locust bean gum and xanthan gum. The leading suppliers of most of these hydrocolloids are large food manufacturers in western countries. However, a large part of the production of the raw materials for these products takes place in developing countries, which could take advantage of the change in the market.

Pectins
Market demand for pectins is around 30,000 tonnes annually (An economic alternative to pure pectin?, FoodNavigator, 2007). Over the years, the positive public connotation of pectin has proven helpful in its widespread use, and this may be a contributing factor to the growing interest in investigating pectin for possible direct health benefits and thus applications in functional foods and nutraceuticals (International Pectin Producers Association, 2007).

Guar gum
Guar gum is hardly produced in the EU. Trade figures give some indication of important markets for guar gum. Re-exports make it difficult to extract reliable conclusions about markets for guar gum from EU import data. However, as approximately 80% of the world's guar gum is produced in India, trade figures on Indian supplies are good indications of EU demand. According to these figures, important EU markets for Indian guar gum are Germany, France, UK, The Netherlands and Italy. In general, world demand for guar gum is stable.

Agar-agar, locust bean gum
Due to a lack of information, it is not possible to give a reliable description of the markets for these products.

Carrageenan
Historically, the use of carrageenan in food has grown in industrialised countries by at least 5 to 7% annually. It is mainly driven by growing demand for convenience foods (Foodnavigator, 2006). Xavier Martin of FMC, a global supplier of carrageenan, stressed the importance of the health trend for carrageenan sales. In response to consumer demand, food manufacturers are replacing fats by substitutes such as carrageenan.

Continued research is taking place to improve food products by changing their formulations. One of the most recent findings has expanded the potential use of carrageenans in food. According to Thomas Karbowiak from the University of Bourgogne, carrageenan is a good candidate for application such as encapsulation of active substances in food, including antimicrobial agents, flavour compounds, colorants, antioxidants and vitamins.

Of particular interest for carrageenan is that the increasing number of vegetarians in the EU increases demand for substitutes for gelatine. Gelatine is used as a gelling agent in a wide variety of food products and is derived from animals. A number of hydrocolloids, such as carrageenan, offer good opportunities for manufacturers of vegetarian food to replace gelatine.

4.2 Patterns and trends in industrial demand

Segmentation

Natural colours and flavours

Natural food colours have many different applications. The main product sectors, in order of importance, are:

- dairy
- soft drinks
- savoury/bakery
- confectionery
- beverages

Natural food flavours also have many different sectors of application including, in order of importance:

- soft drinks and other beverages
- dairy
- savoury/bakery
- confectionery

According to Christan Gorfer of the agent Zuegg, organic flavours are particularly important in the ice cream/dairy, bakery and beverages sectors.

Essential oils also have a large market in the fragrance industry. Many flavour compounders in the EU produce both flavours and fragrances. In particular, organic essential oils, as opposed to conventional essential oils, have their main market in the fragrance (and cosmetics) industry. The food industry offers a smaller market.

Thickeners

It should be noted that different thickeners have very different functional characteristics and, correspondingly, find different specific applications.

Starch

According to a study by researchers Henry, Westby, and Collinson of CIRAD (Center for International Cooperation in Agricultural Research for Developing Countries) in 1998, the EU starch market is segmented as follows: Food use (12%), Non-food use (41%), Ethanol (3%), HFS (4%) and Other sweeteners (40%). Segmentation by industry utilisation is also possible. According to the study by Henry, Westby and Collinson, the segmentation by industry utilisation is: sweets and drinks (33-34%), processed foods (21-22%), pharma and chemicals (15-16%), paper and corrugating (27-28%) and Feed (2%).

Natural gums and resins

Most gums and resins are primarily used in the food industry, where they are used to manufacture beverages, jam, confectionery, bakery and dairy products. Gum Karaya is mainly used in the pharmaceutical industry. Other industries using gums and resins are the cosmetics, paper, textile and oil-drilling industries

Trends

Due to increased prosperity and other structural developments in the EU, eating behaviour is changing. Despite the increase in prosperity, the food market in the EU is highly competitive, since consumers are not going to eat more, but will only, at the very most, switch to other products.

Health food

EU consumers have a strongly increased interest in a healthy lifestyle and, consequently, in the consumption of health food. Health food refers to food products, which are low in fat or even have calorie-burning properties and which have limited sugar and salt content; this includes functional foods, which have specific health-promoting properties (e.g. antioxidants) and food products with added vitamins and minerals, or bacteria supporting the intestinal function. It is therefore also expected that health-giving properties of natural pigments, for example, will become more important than their colouring properties. However, so far only a few functional food products have actually reached the marketplace. This is due partly to the fact that developing adequate scientific support for health claims, which need to go through a regulatory Process for the Assessment of Scientific Support for Claims on Foods, can be relatively expensive and time-consuming for producers. Moreover, some food manufacturers struggle with how best to communicate diet- and health-related information to consumers.

Natural and organic food

The increasing awareness of the importance of diet and nutrition among EU consumers has been accompanied by increasing concerns about the safety of food. Recent food scandals and critical food research have led to a negative image of synthetically manufactured food (ingredients). Together with a higher appreciation of products from nature and a growing environment consciousness, this has made natural products more popular. According to DSM Food Specialties, consumers prefer to see the names of natural ingredients on food labels instead of E-numbers or names of chemical formulations.

Food processors have responded by producing more natural products. In the first half of 2005, food processors released a total of 564 products in Europe, labelled as either without preservatives or additives or billed as "all natural", compared to 438 released over the same period last year, according to statistics compiled using Mintel's Global New Products Database. The manufacturers of natural food colours and flavours have restricted their basic raw material to edible fruits, vegetables and plants. They manufacture natural colours such as E163 (Anthocyanins), from grape skins. These are now used in products such as yogurt, soft drinks and ripple syrups where previously red synthetic colours were used. Some food colour manufacturers, such as the GNT Group, are clearly adapting to the natural health trend by stressing certain health profits of natural colours. One of these health profits is the presence of dietary phytonutrients, which are generated only in plants. For example carotenoids, from carrots, tomatoes and pumpkins, serve as antioxidants and immunostimulants and help to protect against cancers (German Society for Nutrition, 1996).

Closely related to the increased interest in natural food is the increased interest in organic foods. There are two major factors behind this trend. Firstly, there are growing environmental concerns about the effects of intensive farming on the countryside. Secondly, the increased consumer interest in natural products has also led many food manufacturers to utilise manufacturing processes that are as close to nature as technically possible. This has stimulated organic farming.

Although environmental concerns are shared by a much smaller group of consumers, organic food products also profit from the general interest in natural products, as they are perceived to be purely natural products. Mariann Fischer Boel, member of the European Commission responsible for Agriculture and Rural Development stated at BioFach 2007: “It is very clear to me that this growing sector (the organic sector) has an important role to play. It addresses a range of expectations on the part of the public and consumers’ expectations about food quality, care for the environment, animal welfare and rural development.”

Demand for organic food was particularly booming during the late nineties. In many EU countries annual growth rates of 5–30% were reported. However, since 2000, growth in organic sales decreased in several countries, and in 2002/2003 some sources even reported negative growth rates. Some market researchers even thought that this was proof that, like in the case of the fair trade market, market shares of organic products could not reach levels

higher than 2–3% of the total food market. However, at the end of 2004 the picture looked better again: Germany for instance, the largest European market, is recovering from stagnation. The confidence among consumers is increasing and investors are opening large organic supermarkets in several German cities.

Another positive sign for the organic market is that the European Commission adopted the 'European Action Plan for Organic Food and Farming' in June 2004. Good news for exporters in developing countries is that the European Commission is planning to do more promotion of organic food in general, and on the EU organic logo in particular. The current status of the action plan is that the EU has implemented most of the planned measures, although not all. For more information on the European Action Plan for Organic Food and Farming refer to http://www.orgap.org/.

According to the latest indications from institutions such as Organic Monitor, demand for organic products is outgrowing supply. A recent Organic Monitor report warned that an undersupply of organic ingredients could undermine the long-term stability of the sector (Study underlines global organic growth, FoodNavigator 2007).

These developments can offer interesting market opportunities for exporters in developing countries, where often the major part of agricultural produce is already organic although not certified ('organic by default'). Certification by an EU accredited certifying body (including regular inspections) is necessary.

Under current EU legislation, only 95% of a product needs to be organic to allow the manufacturer to put an organic label on it. This is not favourable for suppliers of food additives. Food additives generally form only a very small part of a final product, often less than 5%. Food manufacturers are thus not stimulated to use organic food additives if more than 95% of their product is already organic. However, food manufacturers are very sensitive to consumer demand and many consumers are demanding 100% organic products. Food manufacturers are increasingly taking measures to respond to this demand.

Food safety

Food products should be safe to human health and eating them should not result in any danger or risk. Several food scares (BSE / mad cow disease, dioxin) and a general increase in consumer awareness about food ingredients have stimulated the attention to food safety.

The European Commission also recognises the importance of food safety and set up the European Food Safety Authority (EFSA) in January 2002. In the EU, the safety of food colours and other food additives is nowadays evaluated by the Scientific Committee on Food (SCF). Based on toxicological assessments, SCF has allocated Acceptable Daily Intake (ADI) values to food additives.

Safe Quality Food (SQF), which was originally developed in Australia, has also been introduced in the EU. SQF aims at chain certification and combines quality concerns, HACCP and Tracking & Tracing in its certification requirements. For information on SQF, HACCP and Tracking & Tracing, go to 'Search CBI database' at http://www.cbi.eu/marketinfo.

The SCF has stated that colours derived from natural materials can not be presumed to be safer than synthetic materials. However, it is the perception which matters and the opportunity to mention the natural ingredients in a product on the label is of great value to food manufacturers.

Convenience

European people (men and women) are working more and more in jobs outside their home and have busy social lives. Moreover, the number of single households increases. Less time remains for the preparation of a full meal and, as a result, demand for products requiring extensive preparation has declined, while the opportunities for easy to prepare, semi-

prepared, catered and processed products are increasing. As a result, convenience meals, which often include food additives, are increasingly popular in the EU. However, in 2006, growth of the market for prepared food products slowed down. Nevertheless, many food manufacturers continue to focus on easy-to-prepare products.

The demand for convenience food is related to the demand for food which can be consumed in between other activities. The modern consumer does not confine himself to the traditional three meals a day (breakfast, lunch and dinner), but is eating smaller bites at more frequent intervals: ready-to-eat products or products requiring very little ultimate preparation: take-out foods, hamburgers, mini-pizzas, instant soups, filled croissants, candy bars, muesli bars, cheese sticks and fruit yoghurts. Restaurant quality is becoming the benchmark for the growing ranges of added-value, prepared food offerings.

Variety and internationalisation

The EU food industry is continuously looking for new formulas to achieve higher quality standard flavours, such as orange and more unique and complex 'fantasy' flavours, to respond to the increased variety in EU food consumption. Moreover, the EU has an increased demand for diverse fresh natural food products with complex and authentic flavours, which yield a high impact. TV cooking programmes have also stimulated the use of distinctive ethnic or foreign flavours.

As the world is increasingly turning into a global village, culinary traditions from other continents tend to be more widely accepted by European consumers, thereby increasing the demand for ethnic and exotic ingredients. This development is also stimulated by the steady population growth of ethnic minority groups, which have significantly increased their purchasing power over the last years. Ethnic flavours received particularly much attention in 2006. Asian and Hispanic flavours were the most popular ethnic flavours. According to Packaged Facts, a research company, 2007 will see international flavours and influences continuing to grow and spread.

In 2007, Asian and Hispanic flavours are expected to move mainstream, while emerging ethnic cuisines forecast to gain a lot of attention include Mediterranean (particularly Greek) and regional Asian influences, such as Thai. Mexican is also expected to move more upscale, and Indian will also feature strongly. African flavours will start to emerge, while Scandinavian and German/Slavic tastes are further out on the horizon.

4.3 Useful sources

- SIPPO report on the European organic market: http://www.sippo.ch/files/publications/organic04_b.pdf
- Confederation of the Food and Drinks Industries in the EU: http://www.ciaa.be
- The World Of Food Ingredients: www.foodingredientsfirst.com
- The Quarterly Review of Food Hydrocolloids
- Food Hydrocolloids Journal
- AIPG (http://www.treegums.org/): Association for the International Promotion of Gums
- Digital resource of food processing magazine: http://www.foodprocessing.com
- Digital center of excellence for hydrocolloids: http://www.cybercolloids.net
- CNI Market Brief Essential Oils

5 PRODUCTION

5.1 Size of production

The production of natural colours, flavours and thickeners involves two steps. The first step consists of the production of the raw materials. The second step consists of the processing of the raw materials. The distinction between these two steps is important as the EU does not have a substantial production of the necessary raw materials, but does have a large processing industry.

Raw material production

Natural colours and flavours

EU production figures for natural colours are not available. In the FAO publication 'Natural colourings and dyestuffs', which includes an overview of major colourings and dyestuffs entering international trade, no significant production of raw materials in European countries is reported, except for paprika from Spain and Hungary. According to industry sources, the EU also produces the following raw materials for colours: grape, elderberry, black carrot, carotene and chlorophyll. Carmine and turmeric root are raw materials for which a particular import need exists, as they are not available in the EU.

The EU does not seem to have a substantial domestic production of raw material for natural food flavours either, except for some essential oils which are produced in Italy, France and Spain. Anu Arola of Sensient Technologies Corporation, a leading flavour company, confirms this by stating that leading EU processors (especially the multinationals) generally do not have their main processing locations close to the raw material production sites. Exceptions are France and Italy, where the production of some colours and flavours is often close to the raw material (e.g. grapes).

According to FAO, global production of essential oils was estimated at 28.2 thousand tonnes in 2003. Although not recorded by FAOSTAT, the EU used to be a traditional production area for essential oils. Currently, developing countries command a dominant position in the global production of raw materials. The competition with EU countries, however, remains very strong. According to Ir. Eshuis of Food & Technology Consult, in The Netherlands, where some important flavour industries are located (Givaudan (Quest), IFF) production (i.e. processing of imported raw essential oils) is approx. 5,000 tonnes annually. EU countries remain in a dominant position where modern technology and full mechanisation have made high yields possible with limited labour input. This made cultivation competitive with countries which rely on low labour costs.

The major producers are the Mediterranean countries like France, Portugal, Spain, Italy and Greece. The essential oils are produced from around 2,000 plants, many of them supplied by developing countries with a tropical climate. Lavender and peppermint are among the most widely cultivated. France is by far the leading producer of lavender oil, with approximately 400 producers, while the East European countries are increasing their production of lavender. (An economic study of essential oil production in the UK, 2002). There is thus no need for the EU to import lavender and peppermint from outside the EU. Italy is the leading producer and supplier of lemon oil. It accounts for a large part of intra-EU imports of lemon oil (Eurostat, 2005).

The production of orange and lime oils in the EU is significant as well. However, the demand for these oils is even higher and is largely met by imports.

Based on the climatic conditions needed for the cultivation of the oil producing plants, it is estimated that no significant production of jasmine oil and vetiver takes place in the EU.

Vetiver oil, however, is also produced in Reunión, an overseas region of France in the Indian Ocean, which is officially part of the EU.

On a global scale, the 18 most important species represent nearly 75% of the total production value. The concentration in terms of tonnage is even higher, as there is a trade in small volumes of products with high unit values (e.g. rose, jasmine, vetiver).

Vanilla and menthol are not produced in the EU. Both flavour ingredients need to be imported from outside the EU.

Thickeners

Manioc starch
Manioc starch is derived from cassava roots, which are grown in sub-tropical climates. It is not grown in the EU and thus needs to be imported from outside.

Agar-agar
In the EU, Agar-agar is produced in the Iberian peninsula, including Spain and Portugal. One of the major producers in Spain is Roko (http://www.rokoagar.com). Both raw material production and processing take place in Spain. However, the production in the Iberian peninsula is not sufficient to supply all the agar-agar needed by the EU.

Guar gum
The raw material for guar gum is not produced in the EU or only in negligible quantities. Demand needs to be met by imports.

Locust bean gum
Locust bean gum producers in the EU are concentrated around the Mediterranean. Locust beans grow on the carob tree which is native to the Mediterranean. According to Cybercolloids, there are 5 producers in Spain, 2 in Portugal and 1 in Italy. As a general rule, the locust bean gums with the lightest colour and highest gel strength come from Portugal, with a gradual deterioration in properties if you travel East across the Mediterranean. Most of the demand in the EU for locust beans is met by EU countries. However, there still exists a need to import additional locust beans from outside the EU.

Xanthan gum
The bacteria needed to produce xanthan gum is mostly grown under laboratory conditions and its production is therefore located in or near the processing facility. A number of large xanthan gum processing facilities are located in the EU and the need to import xanthan gum from outside the EU is small.

Carrageenan
Carrageenan can be extracted from 3 different types of seaweed: Gigartina, Eucheuma and Chondrus. The Chondrus type grows in the Atlantic ocean and EU countries along the Atlantic coast such as Denmark, Ireland, the UK, France, Portugal and Spain which have best access to this seaweed. Denmark and France are currently major sources of carrageenan extracted from Chondrus seaweed. However, considerable quantities are also imported from outside the EU.

Table 5.1 Seaweed production for carrageenan extraction in EU countries, 1999, in tonnes

Country	Seaweed type	Production (tonnes)
France	Chondrus	1,260
Spain	Chondrus	300
	Mastocarpus stellatus	600
Denmark	Furcellaria fastigiata	100
Portugal	Chondrus	30
	Mastocarpus stellatus	70
Ireland	Chondrus	3

	Mastocarpus stellatus	5

*Data gathered from different sources over a number of years since 1999
Source: Surialink

Processing

Natural colours and flavours

There is a well-developed colour and flavour industry for the production of finished products, which are sold to food manufacturers, and semi-finished products which are sold to other flavour houses. The industry consists of a couple of large manufacturers (mostly multinational companies) which produce natural as well as nature-identical and artificial colours and flavours from raw materials, which they import from outside the EU. More information on these companies is given in Chapter 8 on trade structure. The companies supply most of the EU's need for colours and flavours.

The only figures available at FAO regarding the processing of raw materials for natural colours and flavours are those for vanilla extract production in Belgium and Portugal. In 2005, Belgium produced around 100 tonnes and Portugal around 10 tonnes. However, significant production of vanilla extract also takes place in other countries. Nielsen Massey, for example, produces significant amounts of vanilla extract in The Netherlands. According to Nielsen Massey, it is the only producer of pure vanilla extracts in the EU. Other major EU processors are chemical companies, which do not produce entirely natural vanilla.

Thickeners

Manioc starch

Manioc starch from developing countries faces fierce competition from other starches produced in the EU. The EU starch industry is a concentrated industry with 24 companies producing virtually all of the EU's cereal and potato starches. The four largest companies, Cerestar, Roquette, Amylum and Avebe, together produce almost 80% of total EU starches. The EU producers have considerable competitive advantages. Some 40% of total EU starch output benefits from production refunds. The EU farm and industry lobby is extremely strong, opposing any policy changes that will reduce profit margins. Nevertheless, the EU is expected to decrease import tariffs on manioc starch in response to international pressure. This will make manioc starch from developing countries more competitive with EU starches.

Pectins

Worldwide production of pectins is estimated at 35,000 tonnes a year ('Designer' pectins to shine in food ingredients future, FoodNavigator 2006). The production of pectins is dominated by five worldwide operating companies. The largest producer of pectins is CP Kelco, with a market share of 35-45% and production facilities in Denmark and Germany, followed by Danisco (Denmark, 15-25% market share with a processing plant in Brazil), Herbstreith & Fox (Germany), Cargill (Germany, market share of 15-25%, acquired Citrico and Degussa Food Ingredients) and Obipektin (Switzerland) (EC investigation into Cargill's acquisition of Degussa, 2006). A reason for this concentration is that the pectin business is a specialty business where technology and expertise are very important. This makes it almost impossible for developing countries to start production of pectins.

In recent years, the centre of production has moved to Europe and to citrus-producing countries like Mexico (Mexpectin, belonging to Danish Grindsted) and Brazil (CPKelco and Danisco). There are two major factors explaining this development: the advantages of having the processing plant near the citrus production and the less stringent legislation on waste and waste water. According to industry sources, Denmark is still the number one producer of pectins, followed by Germany. Overall, the production of pectin is increasing and this is in line with the general health trend in the EU and the demand for higher quality food. EU customers are becoming more health aware and ask for more natural ingredients, leading to an increasing demand for pectins.

The raw materials used to obtain pectin are most often apples and citrus fruits. Where CP Kelco only uses citrus fruits, Herbstreith & Fox only uses apples. CP Kelco imports its raw materials (citrus fruits) from South America, with Argentina and Brazil as their main suppliers. They also have their own company in Brazil.

Industry sources indicate that the production of pectins increased by 5% in 2006 and is expected to continue to increase in the future. This is strongly related to the food industry in general, which is growing at approximately the same rate.

The main interest for developing countries lies in supplying raw material (citrus peel and apple pomace) to existing pectin industries.

Xanthan gum
CP Kelco, the world's leading xanthan gum manufacturer has a major production facility in the UK. This facility produces much of the EU's xanthan gum. There are also xanthan gum manufacturing facilities in France. The EU production of xanthan gum is relatively large and the need for imports is small.

Agar-agar
In the EU, agar-agar is mainly processed in Spain and Portugal. The production of processed agar-agar is significant, but there is still a need to import processed agar-agar from outside the EU.

Guar gum
Processing of guar gum is done by a few large facilities in countries in Northwest Europe. Much of the EU demand for processed guar gum is met by these facilities. However, there is still room for imports.

Locust bean gum
Processing facilities for locust bean gum are found in numerous EU countries. These facilities supply the bulk of the EU demand.

Carrageenan
Denmark and France process major amounts of raw material and semi-refined carrageenan. This is not enough to meet EU demand and large amounts thus need to be imported.

5.2 Trends in production

Organic production
Organic food production continues to grow steadily in the EU. In 2005, in the European Union of 25 Member States, around 6 million hectares were either farmed organically or were being converted to organic production. This marks an increase of more than 2% compared to 2004. The current leaders in organic farming in terms of acreage are Italy, Germany and Spain.

Over the same period, the number of organic farmers grew by more than 6%. There has also been particular interest in organic production in many of the new member states. The development is supported by the EC commissioner, who stated that the EC is working on a better framework for organic production which should make it more clear and logical (Speech by Mariann Fischer Boel, Member of the European Commission responsible for Agriculture and Rural Development, at BioFach 2007).

Organic foods are grown according to principles laid down in Directive EC 2092/91 (for detailed information, please refer to www.cbi.eu/marketinfo).

Opportunities and threats

Relatively few raw materials for natural colours, flavours and thickeners are produced in the EU. Most raw materials require considerable labour input or could be more easily grown in a tropical climate, making the EU member countries highly dependent on supply by developing countries for the majority of these raw materials. Taking only the competition from EU production into account, developing country exporters may find the best opportunities in the supply of exotic colours, flavours and thickeners, or their (semi-processed) raw materials, for which the production conditions are not favourable in the EU, such as vanilla, vetiver oil and manioc starch. In contrast, exporters of products such as pectins, carrageenan and lavender oil are threatened by EU production.

Healthy, natural and organic products are occupying an increasingly stronger position in the EU. This applies to the consumer market as well as to the food industry. Organic production is particularly attractive for growers in developing countries, since much of their production is already organic although not certified ('organic by default').

The major players in the EU market for natural colours, flavours and thickeners are mainly food ingredient manufacturers, which process raw materials into food ingredients for food manufacturers:

- Chr. Hansen (http://www.chr-hansen.com/): largest producer of colours in the world, based in Denmark, supplier of colours, flavours, cultures, enzymes and more.
- Givaudan (http://www.givaudan.com): largest flavour company in the world (acquired Quest in March 2007), based in Switzerland, buying essential oils and other flavour ingredients.
- Sensient Technologies Corporation (http://www.sensient-tech.com): second largest producer of colours in the world and sixth largest flavour company, based in the US. Acquired, amongst others, Pointing Holding Ltd. and Dr Marcus GmbH.
- IFF (http://www.iff.com): second largest flavour company in the world, based in The Netherlands.
- Firmenich (http://www.firmenich.com): third largest flavour company in the world, based in Switzerland, buying essential oils and other flavour ingredients.
- Symrise (http://www.symrise.com): fourth largest flavour company in the world, based in Germany.
- Mane (http://www.mane.com): eight largest flavour company in the world, based in France.
- Robertet (http://www.robertet.com): ninth largest flavour company in the world, based in France.
- Overseal Food Ltd. (leading supplier of colours and food ingredients in the UK: http://www.overseal.co.uk/
- Döhler (http://www.doehler.com/): German flavourings manufacturer focusing on the beverage market.
- Cargill (http://www.cargill.com/): leading US food manufacturer with subsidiaries in the EU. Cargill recently acquired Degussa, a supplier of hydrocolloids, essential oils and a leading supplier of refined carrageenan. Also acquired Cerestar, a major supplier of starches including tapioca starch.
- Danisco (http://www.danisco.com): Danish supplier of value-added ingredients such as colours, essential oils, hydrocolloids, etc. Recently purchased Rhodia Food Ingredients.
- CP Kelco (http://www.cpkelco.com/): largest producer of various gums and pectins; US company with subsidiaries in the EU.
- Jungbunzlauer (http://www.jungbunzlauer.com/): Swiss-based company supplying citrics, gluconates, special salts, specialties, sweeteners and xanthan gum.
- Herbstreith & Fox (http://www.herbstreith-fox.de/): German manufacturer of pectins.
- C.N.I. (http://www.cniworld.com/): French leading processor of gum Arabic.
- Alfred L. Wolff (http://www.alwolff.com): German supplier of gum Arabic, licorice extract, dietary fibre, hydrocolloids and organic products.
- Nielsen Massey (http://www.nielsenmassey.com/): Distributor of conventional and organic vanilla
- Avebe (http://www.avebe.name): Supplier of tapioca and potato starch.

- Kanegrade (leading supplier of natural food ingredients): http://www.kanegrade.com/index.htm

5.3 Useful sources

- European Starch Industry Association: http://www.aaf-eu.org/
- Information source for the carrageenan and agar industries: http://www.surialink.com

6 IMPORTS

The trade statistics in this chapter and the following chapter should be interpreted with care. First, trade figures do not distinguish between destination markets of the products. Many of the products discussed in this survey have applications in food products as well as in cosmetics, pharmaceuticals, chemicals, etc. Refer to Chapter 4 for indications of market segmentation for different uses, if available. Another drawback of the categorisation by Eurostat is the lack of differentiation between raw materials and processed materials. There is also a lack of differentiation by processing method. No difference is made between natural and synthetic products. Finally, no differentiation is made between production methods, as in organic or conventional production.

6.1 Total imports

The three leading importers of natural colours, flavours and thickeners are Germany, France and the UK. All three experienced a stagnation or dip in imports between 2001 and 2005. This reflects the development of the EU market in general. Between 2001 and 2003, imports decreased. However, the market recovered and showed healthy growth between 2003 and 2005. It followed the developments in the food market in general, which saw a dip in EU imports in 2003 as well. Current growth of the market is driven by the trends as discussed in Chapter 4.

In the period 2001-2005, imports by the UK, the third largest importer, lagged behind total EU imports. Total EU imports increased by 4% annually between 2001 and 2005, while the increase of imports by the UK did not even reach 1% annually. French imports also showed slightly disappointing growth figures. In contrast, imports by Ireland increased at a high rate of 16% annually. The growing dairy industry in Ireland is one of the factors behind this growth.

The Netherlands is also a major importer of natural colours, flavours and thickeners. However, it re-exports large amounts to other EU countries. Its net imports are considerably smaller. The re-export will be discussed further in the next chapter.

Table 6.1 Imports of natural colours, flavours and thickeners by EU member countries, 2001-2005, € million / 1,000 tonnes

	2001		2003		2005		Average % change in value
	value	volume	value	volume	value	volume	
Total EU	1,519.2	373.0	1,485.4	333.1	1,775.2	367.5	4%
Intra-EU	691.8	163.0	736.6	121.0	852.1	140.7	5%
Extra-EU	827.4	210.0	748.9	212.1	923.1	226.8	3%
Developing countries	553.1	181.6	494.6	180.1	639.9	200.6	4%
Germany	294.8	72.7	298.3	72.2	343.0	79.0	4%
France	307.0	59.3	289.9	61.4	337.3	64.2	2%
United Kingdom	257.6	74.8	220.1	48.3	259.7	45.5	0%
Netherlands	111.9	30.7	116.1	29.3	128.6	45.8	4%
Italy	105.3	25.2	107.7	31.2	121.9	31.3	4%
Spain	102.5	17.9	114.4	20.3	120.9	18.3	4%
Denmark	89.3	13.9	81.1	15.7	95.8	15.8	2%
Ireland	43.9	3.6	37.4	3.7	79.9	7.3	16%
Belgium	69.8	11.9	77.1	15.1	79.8	15.9	3%
Poland	0.0	0.0	0.0	0.0	52.8	7.8	n.a.
Austria	37.0	6.6	34.8	8.6	39.1	8.2	1%
Sweden	20.5	5.2	24.0	6.0	33.0	8.2	13%
Czech Republic	16.2	2.1	21.2	4.7	18.8	3.6	4%
Hungary	17.2	2.2	16.0	2.8	13.5	2.4	-6%
Finland	11.3	1.8	11.4	2.1	11.5	1.9	0%

	2001		2003		2005		Average % change in value
	value	volume	value	volume	value	volume	
Portugal	14.0	12.9	9.9	7.8	10.3	7.4	-7%
Greece	8.2	30.7	8.8	1.4	9.2	1.7	3%
Slovenia	3.7	0.5	4.6	0.6	4.8	0.7	7%
Lithuania	2.2	0.3	2.8	0.6	4.4	0.9	19%
Slovakia	3.0	0.4	5.4	0.8	4.2	0.6	9%
Estonia	0.6	0.1	1.0	0.1	2.5	0.5	41%
Luxembourg	0.3	0.0	0.3	0.0	1.2	0.1	40%
Latvia	1.2	0.2	1.3	0.2	1.2	0.2	-1%
Cyprus	1.1	0.1	1.0	0.1	1.1	0.1	0%
Malta	0.6	0.1	0.7	0.1	0.8	0.2	8%

Source: Eurostat (2007)

Although total imports of natural colours, flavours and thickeners did not differ from food imports in general, individual product groups have shown different developments. These will be discussed in the next paragraph.

6.2 Total imports per product group

When interpreting the following table, it is important to take into account that supplies by EU countries consist for a considerable part of products in transit. These are registered as imports in the country of transit, but are then transported to the country of the final consumer. This causes relatively high shares being attributed to some EU transit countries in the total supplies to the EU. The real importance of these transit countries is significantly smaller.

Table 6.2 EU imports and leading suppliers to the EU, 2000 - 2004, share in % of value

Product	2001 € mln	2003 € mln	2005 € mln		Leading suppliers in 2004 Share in %	Share (%)
Total	1,519	1,485	1,775	Intra-EU:	France (10), Germany (8), Denmark (6), Spain (5), Sudan (5), UK (5), Italy (4)	48
				Extra EU excl DC*:	USA (10), Switzerland (2), Norway (1)	16
				DC*:	India (7), China (6), Indonesia (2), Argentina (2), Philippines (2), Brazil (2), Morocco (1), Peru (1)	36
Natural Colours	182	183	204	Intra-EU:	France (11), Spain (10), Germany (10), Denmark (8), The Netherlands (8)	61
				Extra EU excl DC*:	USA (9), Japan (2), Switzerland (1)	15
				DC*:	China (8), Peru (7), India (6), Mexico (1), Ethiopia (1), Chile (1)	25
Menthol and vanillin	131	104	111	Intra-EU:	Germany (17), France (11), UK (6), Sweden (3), Spain (2), The Netherlands (2)	43
				Extra EU excl DC*:	Norway (7), USA (6), Japan (3), Singapore (1)	17
				DC*:	China (22), India (18)	40
Manioc starch	8	8	12	Intra-EU:	The Netherlands (20), Germany (9), France (3), Belgium (2), Denmark (2)	38
				Extra EU excl DC*:	USA (3), Singapore (1)	4
				DC*:	Thailand (44), Brazil (10), Vietnam (2), Ghana (1)	58
Natural gums & resins	112	104	222	Intra-EU:	France (13), UK (9), Germany (4), Belgium (2), The Netherlands (1), Italy (1)	34
				Extra EU excl DC*:	USA (2)	2

Product	2001 € mln	2003 € mln	2005 € mln		Leading suppliers in 2004 Share in %	Share (%)
				DC*:	Sudan (39), Chad (6), Nigeria (5), India (3), China (3), Iran (2), Senegal (1), Brazil (1), Indonesia (1), Eritrea (1)	64
Pectates, agar-agar, mucilages & thickeners	470	482	584	Intra-EU:	Denmark (15), Germany (11), France (10), Spain (9), Italy (8)	64
				Extra EU excl DC*:	Switzerland (3), USA (3), Norway (2)	10
				DC*:	India (7), Philippines (6), Morocco (3), China (3), Indonesia (2), Chile (2), Pakistan (1), Mexico (1)	26
Essential Oils	618	605	642	Intra-EU:	France (9), Germany (5), UK (5), Italy (4), Ireland (3), Spain (3), The Netherlands (3)	35
				Extra EU excl DC*:	USA (21), Switzerland (1)	27
				DC*:	India (6), China (6), Argentina (6), Brazil (4), Indonesia (4), Turkey (2), South-Africa (1), Mexico (1), Morocco (1), Egypt (1)	38

Source: Eurostat (2007)
*Developing Countries

Before the individual product groups are discussed, it should be noted that EU industrial demand and production are not the only major factors influencing imports. Production outside the EU is of great importance as well. The global markets for the food ingredients under review are relatively small and volatile. Crops are often produced in addition to more important crops, such as rice. In years when the main crop is expected to yield more income than the additional crop, the latter one is replaced by the first. This leads to large differences in total global production. Of course, other factors of influence in agricultural markets, such as the weather and political (in-)stability also lead to large differences in production between years. The fluctuating supply, coupled with a relatively stable demand contributes to speculation in the market. Large price fluctuations are common and have caused importers and exporters to build up stocks when prices are favourable. However, due to the limited possibilities of preservation and the continuous demand for the small supply, stocks do not last long. As a result, import value and volume fluctuate strongly. This also poses difficulties for future expectations.

Of the 6 product groups distinguished in this survey, 5 experienced increases in imports between 2001 and 2005. The only product group with a net decrease in imports was menthol and vanillin (natural and synthetic). Imports of this group, decreased by 15%. This is partly due to high price levels for vanilla between 2001 and 2003 and price increases for menthol. Prices are discussed in more detail in Chapter 9. Due to the high price levels and shortages, EU importers have substituted these flavours by other products. Nevertheless, China increased its vanillin supplies to the EU by 20% annually between 2001 and 2005 and became the leading vanillin supplier. Note that these figures do not include imports of the raw material vanilla, which is likely to have increased between 2003 and 2005 as global vanilla harvests were good in that period and prices decreased sharply.

Imports of manioc starch consist entirely of modified manioc starch. This is currently being used in the food industry for its greater clarity and viscosity, compared to starches derived from most other plants, and for its stability in acidic food products (Danilo Mejía of FAO, 2006). Imports of manioc starch increased strongly (11% annually) between 2001 and 2005, although the market for this product remains relatively small. One of the driving factors behind the growth is the increasing diversification of EU starch companies in joint ventures, exploring cassava as an alternative starch source. They have good expectations for the technological advances in manioc starch production and developments in EU import tariffs. Note that the EU only imports modified manioc starch, mainly from the world's leading exporter of manioc

starch, Thailand. Supplies from The Netherlands, which is a major re-exporter of manioc starch increased by 29%. Supplies from Brazil increased even faster, by 44% annually, while supplies from the UK, formerly a leading supplier, decreased by a sharp 82% in total.

The group of gums and resins showed exceptional growth, mainly due to price increases. Volumes increased at a much lower rate. The price increases were caused by a number of factors. Bad crops, supply chain problems and sudden increases in demand from China have been mentioned as reasons for the strong price increases in 2005. The speculation in the markets for gums and resins may lead to a sharp drop in prices and import values in the near future. However, it is not possible to predict if this will happen or when it will happen.

Imports of pectates, agar-agar, mucilages and thickeners experienced the same development as gums and resins. Volumes increased at a stable rate, but prices increased at a much higher rate in 2005. Prices of locust beans, guar gum and carrageenan are all known to have experienced considerable price increases in 2005. It is notable that supplies from leading developing country suppliers The Phillipines and Morocco decreased, while the major increases were accounted for by EU suppliers. Imports of pectins from Brazil are expected to increase in 2007 as CP Kelco and Danisco have both invested in production plants in Brazil. Their production capacity for pectins is expected to increase by 20-30% and 30-40% respectively.

The essential oils which performed best between 2001 and 2005 were lemon oil, essential oils of citrus fruit other than bergamot, lemon, lime or orange, and vetiver. The increases in imports of lemon oil were mainly accounted for by Argentina which increased its supplies by 16% annually. Leading suppliers which accounted for most of the increases in imports of essential oils from 'other citrus fruits' were the USA, increasing its supplies by 20% annually, The Netherlands (28% annually) and Cuba (38% annually). Increases in imports of vetiver were mainly contributed by Haiti. The world trade in vetiver oil is estimated in excess of 250 tonnes a year. The leading supplier to the EU increased its supplies by 18% annually.

6.3 The role of the developing countries in imports per product group

Imports coming from developing countries did not show a very different development from total imports. Explanations for the developments are the same as for total imports.

The leading developing country supplier of natural colours, flavours and thickeners, India, lost 1.2% market share in total imports. Sudan gained 3.3% market share, mainly due to large price increases of Arabic gum for which Sudan is the world's leading supplier.

China gained 5.9% market share in the import market for natural colours. India lost 3.3% market share and Mexico lost 4.1% market share between 2001 and 2005.

The most notable development in the import market for menthol and vanillin was the 9% gain in market share by China. The entire increase in these flavour imports from China was accounted for by vanillin supplies, which increased by 20% annually between 2001 and 2005. However, the close-down of two major vanillin suppliers in 2006 had a large impact on Chinese vanillin supplies and has probably resulted in a smaller market share for China. Meanwhile, India maintained its domination in the menthol import market.

Thailand maintained its position as leading supplier in the market for manioc starch while Brazil also became a leading supplier.

The already large share of Sudan in the import market for natural gums, resins and balsams increased by 18% between 2001 and 2005, largely as a result of price increases for Arabic gum which represents 77% of total natural gums imports. Chad, Nigeria and some other countries in the 'Arabic gum belt' also profited considerably from the price increases for Arabic gum, while China increased its supplies of other natural gums, resins and balsams.

In the group of pectates, agar-agar, mucilages and thickeners, India is the leading developing country supplier. It maintained its position in the growing market for guar gum, partly at the expense of Pakistan, which lost 2.8% market share in this market between 2001 and 2005. The Philippines is also a leading supplier in the market for pectates, agar-agar, mucilages and thickeners. This is almost entirely accounted for by their supplies of carrageenan. The Philippines is the world's main supplier of carrageenan. Unlike prices of many other food ingredients, carrageenan prices decreased between 2001 and 2005. Consequently, The Philippines lost market share in terms of value. Morocco, the leading developing country supplier of locust beans, lost market share in both terms of value and volume to developed countries. It also lost market share in the market for agar-agar, for which it is still the leading supplier. China, on the contrary, has rapidly become a leading supplier of agar-agar, by increasing its supplies by 27% annually between 2001 and 2005.

Supplies of essential oils by India remained at the same level. Supplies from China decreased sharply by 8% annually. This decrease was accounted for by supplies of essential oils not further specified, peppermint oil and geranium oil. In contrast, Argentina performed very well in the EU import market for lemon oil and increased its total supplies of essential oils by 15% annually between 2001 and 2005. Brazil is the leading supplier of orange oils to the EU. However, supplies fluctuated strongly between 2001 and 2005. Haiti is the leading supplier of vetiver, as Haitian vetiver is highly prized by perfumeries for its 'roseate notes'.

Refer to Table 6.2 for an overview of leading developing country suppliers.

Table 6.3 Natural colours, flavours and thickeners supplied to the EU by developing countries, 2001 - 2005, in € million and 1,000 tonnes

	2001		2003		2005	
	Value € Mln	Volume	Value € Mln	volume	Value € Mln	Volume
Total	**553**	**182**	**495**	**180**	**640**	**201**
Natural colours	52	6	44	6	50	7
Menthol and vanillin	40	3	42	5	45	5
Manioc starch	5	17	6	20	7	21
Natural gums and resins	69	58	54	54	142	68
Pectates, agar-agar, mucilages and thickeners	143	65	123	62	150	67
Essential oils	244	33	226	33	246	34

Source: Eurostat (2007)
*Developing Countries

6.4 Useful sources

- EU Expanding Exports Helpdesk
  - ➔ http://export-help.cec.eu.int/
  - ➔ go to: trade statistics
- Eurostat – official statistical office of the EU
  - ➔ http://epp.eurostat.cec.eu.int
  - ➔ go to 'themes' on the left side of the home page
  - ➔ go to 'external trade'
  - ➔ go to 'data – full view'
  - ➔ go to 'external trade - detailed data'

7 EXPORTS

Exports of natural colours, flavours and thickeners showed a very different development from that of imports. Between 2001 and 2005, the value of EU exports decreased by an average annual rate of 0.9% in both terms of value and volume, amounting to € 1,351 million / 191 thousand tonnes in the latter year. The explanation for the decrease is given by developments in exports of selected products and countries, which will be discussed in the next paragraphs.

France remains by far the leading exporter of natural colours, flavours and thickeners in the EU. It is a leading re-exporter of essential oils, gums (Arabic gum in particular) and carrageenan. Figures for exports from Germany and Denmark both decreased considerably between 2001 and 2005. These decreases contributed most to the decrease in total EU exports. According to Eurostat data, the decrease in exports by Germany was mainly the result of the complete stops in exports of menthol and pectins. The decrease in exports by Denmark was mainly the result of an almost complete stop in exports of pectins. However, according to the sales manager of CP Kelco in Denmark, production and exports of pectins in Denmark remained stable. The decrease in German pectin exports also seems highly unlikely, as no other sources indicate such sharp declines in exports. In fact, the pectin industry is a very concentrated industry with a very stable market, as pectin has a very limited substitutability due to technical reasons and the impact on taste. It is therefore advisable to take into account that figures for pectins exports and total export figures could be distorted.

Spanish exports of natural colours, flavours and thickeners slowed down the decrease in total EU exports between 2003 and 2005. The 27% increase in exports between 2003 and 2005 was achieved by exports of locust bean gums, Spain's main export product within the group of natural colours, flavours and thickeners.

Table 7.1 Exports of natural colours, flavours and thickeners by EU member countries, 2001-2005, € million / thousand tonnes

	2001		2003		2005		Average % change in value
	value	volume	value	volume	value	volume	
Total EU	1,401.7	184.1	1,425.2	212.9	1,351.5	191.1	-0.9%
Intra-EU	682.5	98.5	696.2	118.1	706.8	112.6	0.9%
Extra-EU	719.2	85.6	729.0	94.8	644.7	78.6	-2.7%
Developing countries	153.1	22.0	151.2	23.8	185.3	28.7	4.9%
France	317.5	38.3	287.7	36.4	324.1	38.0	0.5%
Spain	163.1	19.4	156.9	23.5	199.5	22.5	5.2%
Germany	245.8	36.0	260.5	39.8	166.6	28.2	-9.3%
United Kingdom	162.8	19.0	151.4	28.4	156.8	20.0	-0.9%
Denmark	215.7	21.6	233.6	26.5	133.7	16.9	-11.3%
Netherlands	87.5	19.3	111.6	23.3	116.5	22.9	7.4%
Italy	98.2	14.3	91.2	15.3	106.7	15.6	2.1%
Belgium	25.2	6.0	33.2	8.3	42.8	10.6	14.1%
Austria	19.0	2.4	21.8	3.4	23.5	3.6	5.5%
Czech Republic	9.1	1.5	14.1	1.8	21.9	3.3	24.4%
Sweden	8.6	1.0	10.9	1.2	14.4	1.6	13.9%
Ireland	29.0	2.1	33.8	1.2	14.4	3.0	-16.1%
Greece	7.9	0.8	6.3	2.0	7.9	0.3	-0.2%
Portugal	6.5	1.5	5.4	1.0	6.7	1.3	0.7%
Poland	0.0	0.0	0.0	0.0	4.9	1.1	n.a.
Hungary	1.9	0.1	2.9	0.1	3.7	1.1	17.8%
Estonia	0.8	0.1	0.9	0.1	2.5	0.3	30.9%
Slovenia	0.9	0.2	0.9	0.2	1.7	0.3	18.0%
Lithuania	0.2	0.2	0.7	0.2	1.6	0.2	65.9%
Luxembourg	0.0	0.0	0.0	0.0	0.6	0.1	134.6%

	2001 value	2001 volume	2003 value	2003 volume	2005 value	2005 volume	Average % change in value
Malta	0.7	0.0	0.6	0.0	0.5	0.0	-8.8%
Finland	0.9	0.1	0.4	0.1	0.3	0.0	-26.8%
Cyprus	0.1	0.0	0.1	0.0	0.1	0.0	7.1%
Slovakia	0.1	0.0	0.2	0.0	0.1	0.0	-0.5%
Latvia	0.1	0.0	0.1	0.0	0.0	0.0	-8.6%

Source: Eurostat (2006)

Total EU exports of natural colours, flavours and thickeners consisted of pectates, agar-agar, mucilages and thickeners (€ 500 million, representing 86 thousand tonnes), essential oils (€ 452 million, 37 thousand tonnes), colours (€ 228 million, 27 thousand tonnes), natural gums, resins and balsams (€ 137 million, 33 thousand tonnes), flavours (€ 31 million, 4 thousand tonnes) and manioc starch (€ 4 million, 4 thousand tonnes).

Exports of colours showed developments similar to the imports of this product group. The growth is mainly driven by exports to the USA (+24% annually) and China (+46% annually).

Exports of vanillin and menthol experienced considerable decreases between 2001 and 2005. This relates strongly to the developments in global production of vanillin and menthol. These products have become scarce due to low global production levels. Smaller amounts were available for trade and EU imports consequently decreased. This led, in turn, to smaller amounts available for (re-) exports, which confirms the favourable situation of the flavours market for exporters of vanillin and menthol.

Manioc starch exports fluctuated between 2001 and 2005. The Netherlands and Germany are major re-exporters of manioc starch, although they also consume large amounts.

The group of natural gums, resins and balsams performed well between 2001 and 2005. Price increases on the global market for these products increased the value of relatively stable export quantities of gums, resins and balsams. France is a leading re-exporter of Arabic gum. Ireland was a major exporter of gums, resins and balsams other than Arabic gum in 2001, but its exports of this product group came to a halt in 2005.

It has been mentioned earlier that Eurostat figures for exports of pectins by Germany and Denmark decreased sharply between 2001 and 2005. This had a heavy impact on figures for the exports of pectates, agar-agar, mucilages and thickeners and also for total exports of the products under review in this survey. Exports of pectins from the Czech Republic, on the other hand, increased considerably due to expansion in the production capacity of Danisco's Czech Republic pectin plant.

In the same product group, EU agar-agar exports remained larger than imports. Spain in particular is a major producer and exporter of agar-agar. The Netherlands is a strong net exporter of guar gum, but as it does not produce any guar gum it can be concluded that it is a re-exporter. Spain and Italy are major producers and exporters of locust bean gum. Exports of locust bean gum increased strongly between 2001 and 2005, indicating fierce competition for developing country exporters. Denmark contributed to this increase as well. It is a relatively large re-exporter of locust bean gums. Denmark also exports large amounts of other mucilages and thickeners not further specified. The main product in this group is carrageenan, of which Denmark is a major producer. France is also a major producer and exporter of carrageenan and, consequently, of the group of unspecified mucilages and thickeners. The exports of this product group are increasing, posing a threat to developing country exporters.

Essential oils exports remained relatively stable between 2001 and 2005. France is by far the leading EU exporter of essential oils.

Table 7.2 Exports of natural colours flavours and thickeners by the EU and top-5 EU exporters, 2001-2005, € million / thousand tonnes.

	2001		2003		2005		Annual % change in value
Colours	**value**	**volume**	**value**	**volume**	**value**	**volume**	
Total EU	202.7	22.3	203.4	29.0	228.1	27.1	3.0%
Spain	54.2	5.6	46.3	6.8	44.8	6.3	-4.6%
Germany	28.8	2.6	32.0	3.0	37.7	3.6	6.9%
Netherlands	18.8	1.8	22.8	1.7	32.1	2.0	14.3%
Denmark	28.1	2.9	25.5	3.3	29.0	3.1	0.7%
France	27.5	3.9	21.4	2.9	26.5	3.3	-0.9%
Menthol and vanillin							
Total EU	72.8	7.0	54.4	6.2	30.8	3.6	-19.3%
United Kingdom	10.4	0.7	9.4	0.8	8.4	0.9	-5.2%
Sweden	5.7	0.5	4.8	0.4	5.4	0.5	-1.2%
Germany	37.8	3.5	27.8	2.9	4.2	0.4	-42.3%
Netherlands	5.4	0.5	4.2	0.4	3.3	0.4	-11.5%
Spain	2.7	0.7	3.0	1.1	3.2	0.9	4.8%
Manioc starch	0.0	0.0	0.0	0.0	0.0	0.0	
Total EU	2.9	4.7	4.7	6.2	3.5	4.4	5.1%
Netherlands	1.8	3.4	2.7	4.0	1.8	2.4	-0.7%
Germany	0.5	0.8	1.3	1.6	1.2	1.6	21.1%
United Kingdom	0.2	0.2	0.4	0.3	0.2	0.1	-1.5%
Denmark	0.1	0.1	0.1	0.1	0.1	0.1	4.6%
France	0.1	0.1	0.1	0.2	0.1	0.1	3.6%
Natural gums, resins & balsams							
Total EU	99.9	31.7	89.8	34.5	137.3	33.3	8.3%
France	48.4	17.9	40.9	18.6	74.9	18.6	11.5%
United Kingdom	15.4	4.9	16.4	6.4	24.4	6.0	12.2%
Germany	13.7	4.4	14.1	5.1	18.4	3.7	7.6%
Belgium	2.0	1.0	2.5	1.8	8.3	2.5	41.9%
Greece	2.9	0.1	2.7	0.1	4.7	0.1	13.0%
Pectates, Agar-agar, Mucilages & Thickeners							
Total EU	567.8	85.1	610.3	101.2	500.1	85.6	-3.1%
Spain	70.4	10.5	74.3	12.7	110.5	12.0	11.9%
Denmark	183.0	18.4	204.0	22.9	102.5	13.6	-13.5%
France	67.8	9.7	52.2	8.6	58.0	10.2	-3.8%
Germany	126.3	21.0	137.8	22.9	54.3	14.3	-19.0%
Italy	32.2	6.8	37.0	9.2	50.4	9.5	11.9%
Essential oils							
Total EU	455.7	33.4	462.5	35.9	451.6	37.1	-0.2%
France	169.4	6.4	171.9	6.0	163.5	5.7	-0.9%
United Kingdom	104.9	7.5	92.0	6.1	81.7	5.8	-6.1%
Germany	38.6	3.8	47.5	4.4	50.8	4.5	7.1%
Netherlands	30.1	6.4	41.5	7.0	43.2	8.8	9.5%
Spain	34.8	2.5	32.1	2.8	39.9	2.8	3.5%

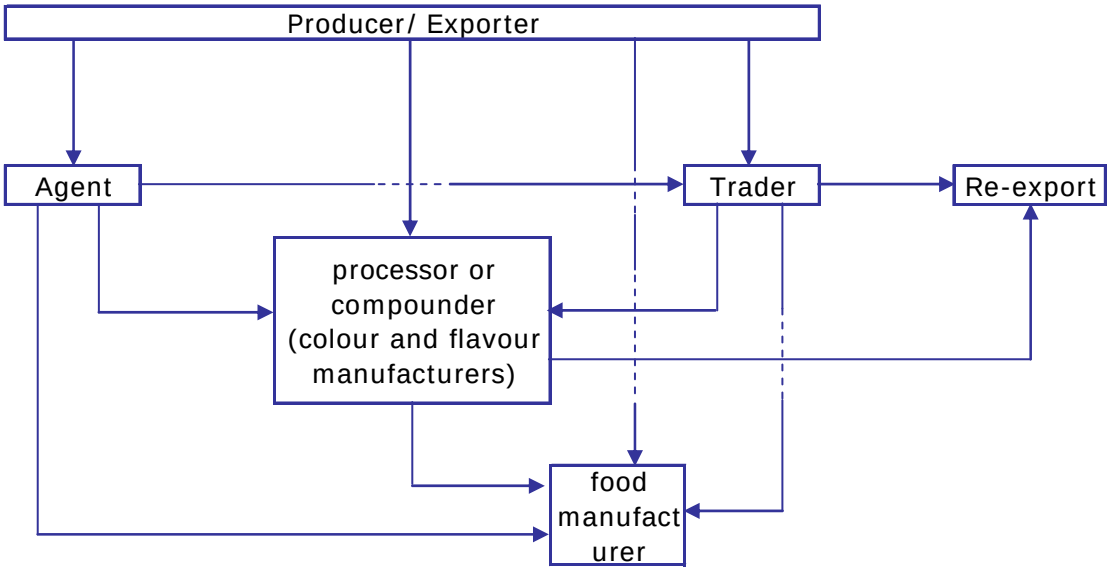
Source: Eurostat (2006)

8 TRADE STRUCTURE

8.1 Distribution channels

The appropriate trade structure depends on the product. Different types of product are traded through different channels. Figure 8.1 gives an overview of possible routes for food additives.

Figure 8.1 Trade structure for the food additive industry



Traditionally, producers/exporters supply raw materials to processing industries, such as flavour houses, which refine the product, blend it or include it as a part of a compound and sell the end-product to food manufacturers, which use it in their turn as an ingredient in final consumer products.

In 2006, the world's leading flavour manufacturers with subsidiaries in the EU, according to their sales, were: Givaudan, International Flavours and Fragrances (IFF), Firmenich, Symrise, Sensient Flavours, Mane and Robertet.

In many cases, traders also play an important role in the distribution of products. They analyse, purify, blend and/or stockpile products and sometimes provide extra services. Some food manufacturers prefer to purchase food additives through well-known traders and agents. One of their main arguments for purchasing through traders and agents is the transaction costs associated with purchasing food additives. Food additives are only a small part of the cost price of the final product, which makes it too expensive for many food manufacturers to import the ingredient directly from the country of origin. The other argument is the technical knowledge of importers about their products. They are often able to give technical advice on why and how to use specific food additives and they take care of the cumbersome negotiations and trade procedures. Some larger traders even have their own production facilities in producing countries.

Position of developing country producers

Developing countries mainly supply the raw materials and semi-processed products for food additives. Forward integration by exporters of raw materials, to include processing and compounding finished food ingredients, seems attractive. However, there are various factors which explain the current division in production. These will be briefly discussed here.

The EU food additives industry is continuously carrying out research to develop new colours, flavours, thickeners and other food additives which appeal to consumers and meet the expectations (and detailed product specifications) of food manufacturers. The industry has the intrinsic knowledge of the EU food market necessary to identify demand for new or improved products. This expertise is difficult for companies in developing countries to obtain, because the distance to the EU food market is generally much larger, both physically and in terms of business links. Also, up-to-date knowledge of food legislation requirements in far-away export destinations is not always easy to obtain.

Research is furthermore needed to develop food ingredients which are low-cost and retain their functional properties under specific conditions. Particularly formulations of food colours and flavours are becoming increasingly complex, as food manufacturers are increasingly demanding tailor-made products. Food additives producers thus need to have extensive knowledge on food science. They explain to the food manufacturers which food additives should be used in various applications and how they are used. The communication with the food manufacturers needed to transfer the required knowledge is often easier for multinationals to establish than for small developing country exporters.

One way for developing country exporters of ready-to-use food additives to overcome the barriers of reputation and/or technical expertise is to use EU-based distributors. The proximity to the market facilitates close contact with buyers and allows them to serve as a bridge between the distant exporter and the EU market.

Developments in the trade structure

The EU market for natural colours, flavours and thickeners is consolidating. Many European flavour houses, for example, although quite large within the flavour industry, have been taken over by major chemical and pharmaceutical companies. The wider fields of research and laboratory facilities, which then become available, allow the flavour houses to develop more products and gain a technical advantage over their competitors. The earlier acquisition of PFW/Hercules in the nineties and the recent acquisition of the leading flavour manufacturer Quest by Givaudan in early 2007 are clear examples of the consolidation. The European Commission keeps a close eye on this process, to keep the market competitive. In the case of the acquisition of Quest by Givaudan, it was decided that the combined firm would continue to face competitive pressure from several established multinational players as well as many smaller competitors, to which customers could switch in the even of price increases (European Commission press release, 2007).

The result of the consolidation is that a small and decreasing number of dominant players dictates the markets for natural colours, flavours and thickeners, particularly in the larger, more mature markets for hydrocolloids such as xanthan gum and alginates. The consolidation results in fiercer competition for developing country exporters and a smaller number of potential buyers.

Some of the large companies in the EU have vertically integrated their businesses to get more control over their supply chains and to become more competitive. Vertical integration takes place through purchases of processing facilities or joint ventures with suppliers. Note that the integration through joint ventures with EU investors also offers opportunities for developing country suppliers, particularly in the manioc starch market. It facilitates often much needed capital and significantly improves marketing capacity and product distribution networks, which are essential to successfully penetrate and capture EU markets.

Due to the aforementioned consolidation in the food additive industry, many large companies are trying to shorten supply chains to save costs on intermediaries. Particularly food manufacturers, which have integrated food ingredients departments or subsidiaries, are often dealing directly with exporters.

Consolidation is also taking place among well-established traders. The number of gum traders, for example, has declined considerably in the past 10-20 years due to intense competition.

Although the EU food additives industry is consolidating, raw material production in developing countries remains largely in the hands of independent companies. Food manufacturers and ingredients suppliers prefer to be able to switch between suppliers, when prices or quality are not favourable.

8.2 Useful sources

- Natural Food Colours Association: http://www.natcol.org/
- Federation of European Food Additives and Enzymes Industries: http://www.elc-eu.org
- European Starch Industry Association: http://www.aaf-eu.org/
- Spanish Association of Manufacturers and Traders of Food Additives: http://www.afca-aditivos.org/
- Italian Association of the Fine Chemicals Industry: http://www.aispec.it
- International Federation of Essential oils and Aroma Traders (IFEAT): http://www.ifeat.org/
- European Flavour and Fragrance Association (EFFA): http://www.effa.be/
- European Federation of Essential Oils (EFEO): http://www.efeo-org.org/
- International Organization of the Flavour Industry (IOFI): http://www.iofi.org/

9 PRICES

9.1 Prices

Prices of natural food additives traditionally fluctuate in line with the size of harvests. Demand for food additives, which is related to the demand for the final product, is fairly inelastic as food manufacturers are reluctant to make changes to product formulations. Thus, prices are very dependent on supplies. It is advisable to check weather conditions in major production regions to predict the size of harvests and world prices.

Other major factors influencing prices are speculation and price developments for substitute products, like modified/synthetic counterparts.

Table 9.1 Prices for selected natural flavours and thickeners

Product	Supply details	Time of quotation	Price
Vanilla	Standard grade Madagascar, CIF Europe	March 2007	€ 23/kg
Menthol crystals	India/China, spot price	March 2007	€ 17/kg
Manioc starch	FOB Bangkok	March 2007	$ 250/tonne
Xanthan gum	n.a.	2005	€ 3.4 - € 4.0/kg
Guar gum powder	Spot price, 200 mesh 3500 CPS, FOB Kandla	March 2007	€ 1/kg
Arabic gum	Kordofan gum, FOB Sudan	March 2007	€ 2/kg
Pectin	n.a.	Early 2007	€ 9 - € 11/kg
Lemon oil	Spot price, Argentina	March 2007	€ 13/kg
Lime oil	FOB Mexico	2006	€ 13/kg
Peppermint oil	Spot price, origin China/India	March 2007	€ 10/kg
Bergamot oil	CIF, origin Zambia	March 2007	€ 57/litre
Geranium oil	CIF, origin China	March 2007	€ 53/kg
Lavender spike oil	Spot price	March 2007	€ 28/kg
Vetiver oil	Spot price, origin Indonesia	March 2007	€ 65/kg

Source: Public Ledger, 2007; Dennis Seisun of IMR, 2005

Flavours

Vanilla
Strong demand and tight supplies kept vanilla prices high between 2001 and 2003. However, due to the high prices some buyers switched from natural vanilla to synthetic substitutes or switched to other flavours completely. Coupled with good harvests in recent years, this led to low vanilla prices in 2005 and 2006. Procuring agencies and processing companies subsequently withdrew from the market, aggravating the effects. In 2006, the vanilla market was relatively quiet with low prices, according to Emmanuel Nee of French trader Sivanil (The Public Ledger, 2006). Good harvests are expected for 2007 and prices are expected to remain low.

Menthol
Continued speculation and activity on the Multi-Commodity Exchange (MCX) in India drove up menthol prices in 2005. It seems that prices are no longer just dependent on the monsoon. Menthol has become a modern multi-traded commodity with new speculative outside interest driving the futures markets well above the spot physicals. The MCX has given the market greater sustainability and therefore it is anticipated that prices will hold firm for the foreseeable future.

Essential oils
Prices vary a lot between different essential oils. In general, a distinction can be made between three price categories. The first category consists of relatively cheap citrus oils, which are produced and processed on a very large scale. The second category consists of essential oils with mid-range prices: peppermint oil, lavender oil, bergamot oil, etc. The third category

consists of specialty oils which are produced and traded in very small amounts: cardamom, cinnamon bark and rose oil.

Thickeners

Manioc starch
In 2005, prices of cassava products reached historic heights. In the first months of 2006, prices decreased again (FAO Food Outlook, June 2006). In the long term, the price for manioc starch is expected to decrease as a result of technological advances, such as high yielding varieties and greater economies of scale in major production regions.

Hydrocolloids
The price developments for gums on the world market are the result of major factors such as commoditisation. Although some people in the industry regard hydrocolloids as specialities, most buyers have historically demanded hydrocolloids for the lowest possible price, leading to commoditisation. This was facilitated by advances in technology and scale enlargements. The commoditisation is reflected in long-term price developments. Hydrocolloids prices have dropped significantly, due to commoditisation.

In the shorter term, prices experienced a different development. Prices of most hydrocolloids increased in 2005 and 2006 due to rising energy, raw (processing) material, transport and environmental compliance costs. Increased demand from China also contributed to price increases. Most price increases as announced by leading food manufacturers were in the range of 5 to 10% for their processed hydrocolloids.

9.2 Useful sources

- The Public Ledger (http://www.public-ledger.com): Prices for selected colours, flavours and thickeners
- MCX India (http://www.mcxindia.com/): Prices for menthol and guar
- Quarterly Review of Food Hydrocolloids: Prices for hydrocolloids
- Organic Trade Services (http://www.organicts.com/): Prices for organic products

10 MARKET ACCESS REQUIREMENTS

As a manufacturer in a developing country preparing to access EU markets, you should be aware of the market access requirements of your trading partners and the EU governments. Requirements are demanded through legislation and through labels, codes and management systems. These requirements are based on environmental, consumer health and safety and social concerns. You need to comply with EU legislation and have to be aware of the additional non-legislative requirements that your trading partners in the EU might request.

10.1 Legislative requirements

European legislation is compulsory for all products traded within the EU. Therefore, as an exporter in a developing country you have to comply with the legislative requirements which are applicable to your products. For information on legislation, go to 'Search CBI database' at http://www.cbi.eu/marketinfo, select your market sector and the EU in the category search, click on the search button and click on legislative requirements for an overview of all documents on legislation.

Although the CBI database covers most relevant legislative requirements, some issues are elaborated here as they are of particular interest.

REACH
REACH (Registration, Evaluation and Authorisation of Chemicals) is a new regulatory framework for chemicals in the European Union which will come into force as of June 2007. Essential oils consist of a number of substances, including naturally occurring chemicals and would thus fall under REACH. The essential oils industry was therefore concerned over the consequences of REACH for the industry. To make matters clear: REACH does not affect essential oils for use in foodstuffs and exporters do not have to worry about it if their products target the food industry.

Carrageenan
Media coverage of scientific research on the safety of carrageenan in 2001 might have caused confusion about regulatory requirements. However, the European Commission's Scientific Committee on Food (SCF), backed by research by the Joint FAO/WHO Expert Committee on Food Additives (JECFA), did not deem it necessary to take regulatory actions which would restrict market access for carrageenan. The SCF only tightened the specification for carrageenan to ensure than any degraded carrageenan is kept to a minimum (not more than 5% below 50 kDa). This measure was taken to prevent safety problems and is not expected to have a negative impact on industrial demand for carrageenan.

Organic agriculture
Currently, the European Commission is working on improvements in the regulation concerning the organic sector. The changes are good news for overseas suppliers, because they make the import process much easier to manage.

Moreover, the EC no longer restricts organic imports to those from third countries which have organic standards and a control system officially recognised as equivalent to that of the EU. From now on, in third countries which are not on this list, the EC will also accept authorisations from inspection bodies approved by the EU.

For more information on EU legislation: http://www.cbi.eu/marketinfo.

10.2 Non-legislative requirements

Social, environmental and quality-related market requirements are of growing importance in international trade and are often requested by European buyers through labels, codes of

conduct and management systems. For information on non-legislative requirements, go to 'Search CBI database' at http://www.cbi.eu/marketinfo, select your market sector and the EU in the category search, click on the search button and click on your subject of interest under non-legislative requirements for an overview of all documents on the subject concerned.

Product quality
Specifications for food additives as required in the EU are often based on the official specifications for food additives set by the Joint FAO/WHO Expert Committee on Food Additives (JECFA) which are found on its website: http://www.fao.org/ag/agn/jecfa/archive_en.stm

More information on product quality is given in the document 'From survey to success'.

10.3 Packaging, marking and labelling

You can download information on requirements on packaging, marking and labelling in specific EU countries from the CBI website. Go to 'Search CBI database' at http://www.cbi.eu/marketinfo, select your market sector and the EU country of your interest, click on the search button and click on 'market surveys' for an overview of documents on the country of your interest.

Packaging

Vanilla
Spices are hygroscopic goods, which interact with the moisture in the air. The risk of mold growth is minimized by storing them in cool, dry places. To ensure that the product does not become musty under the influence of moisture, vanilla pods are packaged in cans.

Vanilla has a delicate, sweetish/aromatic odour. Airtight packaging in cans prevents degradation of odour during transport.

One method of transporting vanilla is as bundles in tinplate cans (8 kg) lined with waxed paper, which are in turn packaged in sixes in wooden boxes (48 kg). It is also packaged in cartons, each containing 4 cans.

Menthol
Packaging of menthol is similar to that of essential oils described beneath.

Manioc starch
Starch products are often packed in (kraft) paper bags, PP/PE bags or totebags of 25 kg or 50 kg. The bags must be clean, sturdy, and strongly sewn or sealed.

Gums
There are no specific rules for the packaging of natural gums and resins, but the packaging must be of waterproof material because many gums are hygroscopic. Most of the gums are packed in multi-wall paper bags or jute bags with a polyethylene liner/barrier. They can also be packed in gunnysacks with a plastic liner. Most products are packed in bags of 25 or 50 kg. The exact net weight of a bag is usually mentioned in a specification.

Essential oils
Norms for packaging and labelling have been laid down by the ISO. Where choice is available, packaging is a matter of negotiation between customer and supplier. It is very important to create solid relationships with customers by delivering the essential oil according to their requirements and needs. In a number of cases, there have been reports that the supplier-customer relationship was damaged due to inappropriate packaging by the supplier. This has tended to occur with low-value oils, causing the final price to rise disproportionately, as the oils have to be filtered or rectified before they can be used again.

Bulk products are packaged in containers which serve to prevent contamination of the oils and should preserve the organoleptic qualities. The most widely used material for drums containing essential oils is lacquered or lined steel. Expensive products are sometimes stored in aluminium drums. Cheaper plastic drums of high density polyethylene (HDPE) are only accepted by some buyers. Although the use of second-hand 200-litre containers is widely accepted for several essential oils, in view of the growing cost of new drums, it is important to thoroughly clean and remove all trace of impurities which would affect the quality of the oil. The fragrance nature of the oil, and importance of ensuring that epoxy-resin linings are intact and not cracked, cannot be overstated.

Preferably, headspace in containers should be filled with nitrogen gas for storage. Carbon dioxide is a cheaper and more available alternative. However, there is a risk of reaction with residual moisture to form carbonic acid, which may in turn react with essential oil constituents (ITC's marketing manual for organic spices, herbs and essential oils, 2004).

Trends in packaging

The overall trend in Europe is towards facilitating re-use and recycling of packaging, through incentives. In order to harmonise the different forms of legislation, the EU has issued a directive for packaging and packaging materials (Directive 94/62/EC) in which minimum standards are regulated. The maximum sum of concentrations of lead, cadmium, mercury and chromium allowed in packaging is 100 ppm.

Most of the time, packaging policy does not affect 'foreign' manufacturers because importers will be held responsible for the packaging. However, sensible marketing requires taking the obligations of the importer into consideration. That means that packaging materials should be limited and re-useable or recyclable. Otherwise the importer will be confronted with additional costs, thus reducing the competitiveness of the exporter. Re-usable packaging materials should be well cleaned and perfectly dried prior to their usage. It must be guaranteed that no contamination takes place by re-using bags.

Labelling

The labels on food ingredients for industrial use in the EU should include the following information (in English or in the language of the importing country):

- Product name
- Batch code/lot identification
- If the product is destined for use in food products
- Name and address of manufacturer/exporter
- Date
- Net weight
- Recommended storage conditions.

Producers and buyers can agree to include additional label information, like:

- Country of origin;
- Quality of the product;
- Viscosity of the product.

According to the EU Labelling Directive 2003/89/EC, food industries in the EU are obliged to explicitly declare on the label of their product if allergenic substances are present. This means that importers and importing food industries will require full information from their suppliers with regard to (potential) presence of these ingredients in their products. This issue is of importance to all exporters of these products or products which could have been contaminated by such products.

10.4 Tariffs and quota

You can download information on requirements on tariffs and quota in specific EU markets from the CBI website. Go to 'Search CBI database' at http://www.cbi.eu/marketinfo, select

your market sector and the EU country of your interest, click on the search button and click on 'market surveys' for an overview of documents on the country of your interest.

Table 10.2 Import tariffs by product group

HS code	Product description	Conventional import duty (%)	Country group SPGA
3203 00	colouring matter of vegetable/animal origin	0/2.5	0
2906 11	Menthol (for pharmaceutical use/for other uses)	0/5.5	0
2912 41	vanillin	5.5	0
1108 14	manioc starch	€ 166 /1000 kg	0
1301 20	natural gum arabic	0	0
1301 90	natural gums, resins, gum-resins and balsams (excl. gum arabic)	0	0
1302 31	agar-agar, whether or not modified	0	0
1302 32 10	mucilages and thickeners of locust beans or seeds whether or not modified	0	0
1302 32 90	mucilages and thickeners of guar seeds, whether or not modified	0	0
1302 39	other mucilages and thickeners derived from vegetable products	0	0
3301 11	Bergamot oil (terpeneless/ not terpeneless)	7/4.4	0
3301 12	Orange (terpeneless/ not terpeneless)	7/4.4	0
3301 13	Lemon (terpeneless/ not terpeneless)	7/4.4	0
3301 14	Lime (terpeneless/ not terpeneless)	7/4.4	0
3301 19	other citrus fruits (terpeneless/ not terpeneless)	7/4.4	0
3301 21	Geranium	2.3	0
3301 22	Jasmine	2.3	0
3301 23	Lavender	2.9	0
3301 24	peppermint (terpeneless/ not terpeneless)	0/2.9	0
3301 25	other mints (terpeneless/ not terpeneless)	0/2.9	0
3301 26	Vetiver	2.3	0
3301 29	other essential oils (terpeneless/ not terpeneless)	0/2.3	0
3301 30	resinoids	2	0
3301 90 21	extracted oleoresins of liquorice and hops	3.2	0
3301 90 30	extracted oleoresins of quassia wood, aloe, manna and other plants	0	0
3301 90 90	others	3	0

Note: The list of countries belonging to the SPGA group and having preferential access to the EU can be found here: http://ec.europa.eu/taxation_customs/dds/cgi-bin/geolist?Lang=EN&SimDate=20070306&Area=SPGA.
Source: http://hbi.douane.nl/tarieven/aktueel/M/S2/C6/Chapter_6_3FS.htm (March 2007)

Starch

The EC has established an annual import tariff quota of 10,000 tonnes cassava starch subject to a preferential tariff of € 166 per tonne and an additional autonomous annual tariff quota of 500 tonnes (Commission Regulation (EC) No 46/2007). Imports beyond the preferential access quota are often charged prohibitive tariffs.

APPENDIX LISTS OF DEVELOPING COUNTRIES

OECD DAC list - January 2006 - When referring to developing countries in the CBI market surveys, reference is made to the group of countries on this OECD DAC list of January 2006:

Afghanistan	Gabon	Nepal	Uruguay
Albania	Gambia	Nicargua	Uzbekistan
Algeria	Georgia	Niger	Vanuatu
Angola	Ghana	Nigeria	Venezeula
Anguilla	Grenada	Niue	Vietnam
Antigua and Barbuda	Guatemala	Oman	Wallis & Futuna
Argentina	Guinea	Pakistan	Yemen
Armenia	Guinea-Bissau	Palau	Zambia
Azerbaijan	Guyana	Palestinian Admin. Areas	Zimbabwe
Bangladesh	Haiti	Panama	
Barbados	Honduras	Papua New Guinea	
Belarus	India	Paraguay	
Belize	Indonesia	Peru	
Benin	Iran	Philippines	
Bhutan	Iraq	Rwanda	
Bolivia	Jamaica	Samoa	
Bosnia & Herzegovina	Jordan	Sao Tome & Principe	
Botswana	Kazakhstan	Saudi Arabia	
Brazil	Kenya	Senegal	
Burkina Faso	Kiribati	Serbia	
Burundi	Korea Rep. of	Seychelles	
Cambodia	Kyrgyz Rep.	Sierra Leone	
Cameroon	Laos	Solomon Islands	
Cape Verde	Lebanon	Somalia	
Central African Rep.	Liberia	South Africa	
Chad	Libya	Sri Lanka	
Chile	Macedonia	St. Helena	
China	Madagascar	St. Kitts Nevis	
Colombia	Malawi	St. Lucia	
Comoros	Malaysia	St. Vincent & Grenadines	
Congo Democratic Rep.	Maldives	Sudan	
Congo Rep.	Mali	Suriname	
Cook Islands	Marshall Islands	Swaziland	
Costa Rica	Mauritania	Syria	
Cote d'Ivoire	Mauritius	Tajikistan	
Croatia	Mayotte	Tanzania	
Cuba	Mexico	Thailand	
Djibouti	Micronesia, Fed. States	Timor-Leste	
Dominica	Moldova	Togo	
Dominican Republic	Mongolia	Trinidad & Tobago	
Ecuador	Montenegro	Tunisia	
Egypt	Montserrat	Turkey	
El Salvador	Morocco	Turkmenistan	
Equatorial Guinea	Mozambique	Turks & Caicos Islands	
Eritrea	Myanmar	Tuvalu	
Ethiopia	Namibia	Uganda	
Fiji	Nauru	Ukraine	

List of CBI countries – January 2006 - CBI supports exporters in the following Asian, African, Latin American and European (Balkan) countries:

Bangladesh
Albania
Armenia
Bangladesh
Benin
Bolivia
Bosnia-Herzegovina
Burkina Faso
Colombia
Ecuador
Egypt
El Salvador
Ethiopia
Georgia
Ghana
Guatemala
Honduras
India
Indonesia
Jordan
Kenya
Macedonia
Madagascar
Mali
Moldavia
Montenegro
Morocco
Mozambique
Nepal
Nicaragua
Pakistan
Peru
Philippines
Rwanda
Senegal
Serbia
South Africa
Sri Lanka
Suriname
Tanzania
Thailand
Tunisia
Uganda
Vietnam
Zambia