

**Essential oils:
a brief overview of international trade of selected oils**

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1. Introduction

Reliable data dealing with essential oils production is notoriously difficult to determine because production is essentially the province of small scale producers who have a history of very poor record keeping. Further, production of most of the raw material used in essential oil occurs in developing countries where nationally statistical systems are weak. Even in developed countries production data is under-reported. This is because most statistical systems need a certain minimum sized industry to start recording and that size is usually well above that of most essential oils.

As a result, I have taken the approach that demand and supply in the industry is best measured by reference to international trade data. This method has the advantage of being associated by a formal documentation process. Again, the documentation process associated with developed countries is considered more reliable than that of developing countries. It is from the trade data that some general parameters can be established for essential oil prices.

Whilst dependence on trade data has its weaknesses, especially with under-reporting as a means of escaping duties and confusion over prices,¹ it has the advantage of cross-checking. That is, the alleged exports of a specific commodity from Country A to Country B can be cross-checked with imports of the commodity into Country B.

The International Trade Centre in Geneva maintains trade data for ten specific essential oils.² This data is used exclusively in this section.

The ten essential oils are:

Bergamot	Geranium	Jasmin	Lavender
Lemon	Lime	Orange	Other mints
Peppermint	Vetiver		

It is noted that there are undoubtedly other data sources for market-based information for essential oils. However, these are invariably subscription-based. Funds were not available to purchase such data. As it was, SNV Bhutan assisted financially the collection of this data in 2005 by assisting me to travel to Geneva. This assistance is gratefully acknowledged.

2. Bergamot oil

2.1 Product

Bergamot oil is the aromatic extract of the rind of the bergamot orange *Citrus bergamia*. The name itself derives from the Italian city of Bergamot in the Calabria region in the south of the country. It is believed that Christopher Columbus took the tree from the Canary Islands to Italy and then to Bergamot. The region has been the centre of global production since.

The oil is made from the inedible, bitter green, pear shaped fruit. The peel of the fruit is cold pressed producing a pale emerald green oil.

¹ Export data is based on FOB prices whilst import data is based on CIF prices so the difference between the two is usually freight and insurances. For this reason, import prices should always be higher than export prices.

² My grateful thanks to Mr Bastiaan Bijl, formerly Market Analysis Section of the ITC for his generous cooperation in assisting me with the splendid data base.

2.2 Use

The main constituents in bergamot essential oil are limonene, linalyl acetate, nerol, and linalool. All of these substances are antiseptic and astringent. These therapeutic properties of the oil allows it to be employed in many forms. They include aromatherapy and as a form of treatment for fevers, dermatologic skin diseases, mouth problems, urinary track infections, and respiratory conditions. However, because of the oil's furo-coumarin content, it is considered photosensitive. This means exposure to the direct sunlight can cause problems for some users. Bergamot essential oils is also used as an insect repellent.

However, the most common use of Bergamot essential oils is to flavor Earl Grey tea. It is noted that drinking very large amounts of Earl Grey tea is held to block the intestinal absorption of potassium.

2.3 Trade

There is a significant gap between the export and import data relating to bergamot oil. Exports in 2003 were estimated to total US\$34.8 m involving 1 389 t. In contrast, imports were estimated to be worth US\$23 m or just 66 percent of exports and 1 122 t or 81 percent lower than total exports. One would have expected the import prices to be higher than the export ones because of the CIF issue.

2.3.1 Exports

The data note that 30 countries export bergamot oil. Whilst it is feasible that all of these could grow the bergamot citrus, it is highly unlikely that all do. Further, it is also unlikely that all 30 would produce the oil for export. The implication is that many of the identified exporters are actually traders.

The data show that the United Kingdom is the world's largest volume exporter of bergamot oil. UK exports are more than double that of Italy. As it is highly unlikely that the weather in the United Kingdom would allow for the production of any meaningful volume of *Citrus bergamia* it is most likely that British exports are really re-exports of imported oils. The same is held to be true for Saudi Arabia. That is, it is not a genuine producer – exporter but a trader.

On the other hand, given that they have large domestic essential oil production capabilities, it is likely that India and Indonesia are genuine producer – exporters. It is noted that the prices achieved by Indonesia and Saudi Arabia are so strangely low as to suggest they may really be bergamot oil.

Table 1. Bergamot oil: Major exporters by volume, 2003

Exporter	Volume (tons)	Value (US\$/ton)
United Kingdom	534	24 337
Italy	246	46 407
Indonesia	184	1 978
India	105	11 210
Saudi Arabia	35	1 000

Table 2. Bergamot oil: Major exporters by value, 2003

Importer	Value (US\$ /ton)	Volume (tons)
Switzerland	91 857	7
Germany	68 750	4
Spain	56 706	17
Italy	46 407	246
United States	38 402	87

Italy also does not export the world's most expensive bergamot oil. Small parcels from Switzerland, Germany and Spain achieve much higher per unit values. The premiums achieved by Switzerland, Germany and Spain may be due to their ability to deliver a product guaranteed not to be adulterated. f

India is the world's fourth largest exporter by volume. In 2003 it exported 105 tons at an annual average price of US\$11 200 /ton.

2.3.2 Imports

Nearly 40 countries record the importing of bergamot oil.

In 2003 a total of US\$23 m encompassing 1 122 t were imported into the 40 countries. This represented a small rise in value terms but a negative growth in volume terms. Overall, this suggests that there is a good demand for the product.

Table 3. Bergamot oil: Major importers by volume, 2003

Importer	Volume (tons)	Value (US\$/ton)
United States	114	28 991
France	106	47 443
Spain	71	21 592
Nigeria	62	3 371
UAE	59	16 220

Table 4. Bergamot oil: Major importers by value, 2003

Importer	Value (US\$ / ton)	Volume (ton)
Japan	86 000	6
Switzerland	69 120	25
Netherlands	50 559	9
Italy	50 157	6
Ireland	49 679	28
France	47 443	106
Germany	43 557	26

In terms of gross import values, the biggest importers are France, the United States, the United Kingdom, Switzerland, Spain, Ireland, and Germany.

However, as with a number of specialist products, there is a two-tiered import market. That is there is the volume market of more than 50 tons per year that pays a lower price, and the high price market averaging more than US\$40 000 / ton that deals in very low volumes.

With the high volume – lower value markets, the major importers are the United States, France, Spain, Nigeria, and the United Arab Emirates.

The high value importers are lead by Japan (US\$86 000 /t for six tons), Switzerland, and the Netherlands.

In terms of volume and value, France is the most significant market. In 2003, it imported 106 tons at an annual average CIF price of US\$47 000 / ton. The United States is the second largest market in terms of gross value. **WiIssues**

Two points are noteworthy regarding the Bergamot essential oils industry.

i. In November 2005 the European Union invested Eu6.2 million to help sustain the industry in Italy. The money will be used for investment in holdings that produce bergamot, in processing and marketing units, start-up aid for producer groups, research work, dissemination of information, the introduction of product quality-control systems, and advertising campaigns.³

ii. The furano-coumarin content issue has caused the development of FCF – furano coumarin free bergamot oil. The toxicity of furano-coumarin is subject to considerable research, the data of which is due to be released soon circa June 2006. There is also debate as to merit of furano – coumarin and FCF oil. It is argued that expressed bergamot oil should not be marketed without an explicit warning regarding the implications of direct application to the skin.⁴

3. Geranium oil

3.1 Exports

World exports of geranium oil in 2003 were estimated at 443 tons worth US\$16.9 m. In the five years to 2003 there has been a 4 percent increase in the value of the trade but a negative growth of – 5 percent in the volume involved. This suggests that there is a good demand for the product. Just over 20 countries are identified as exporting the product.

The major volume exporters are China, Egypt, the United Kingdom, France, Indonesia, and the United Arab Emirates. At the same time China, Egypt, and France are also high priced exporters. Overall the same three are the largest gross exporters of geranium oil.

Table 5. Geranium oil: Major exporters by volume and value, 2003

Volume			Value		
Exporter	Volume (tons)	Value (US\$/ton)	Exporter	Value (US\$/ton)	Volume (ton)
China	91	60 703	Switzerland	62 300	10

³ <http://www.cosmeticsdesign.com/news-by-product/news.asp?id=61219&idCat=&k=bergamot-oil-producers>
Sighted on 19 June 2006.

⁴ MARKETING ISSUES SURROUNDING THE SALE OF ESSENTIAL OILS By Martin Watt.
Originally published in the IATA journal Canada. Sighted at <http://www.aromamedical.com/articles/issues.html>,
19 June 2006.

Egypt	82	55 683	China	60 703	81
United Kingdom	75	18 627	Singapore	55 000	4
United States	46	13 587	Egypt	55 683	82
France	53	51 906	France	51 906	53
Indonesia	31	3 903	South Africa	43 750	4
Total		443			38 237

Indonesia warrants a comment. As Table 5 above shows, Indonesia's FOB value of US\$3 903 /t is a factor of four less than that of the other six major exporters. It is possible that the trade considers Indonesian product to be subject to adulteration and therefore discounts severely the price.

China

China is a most energetic exporter. In the five years to 2003, the value of its exports increased by 5 percent in the face of a significant decline of 13 percent in the volume of its exports. In 2003 it exported 91 tons at an average price of US\$60 703 /t.

Exports go to 16 destinations. Data are available for 11 destinations. The data indicate that China exercises a strong degree of market segmentation, from a low of US\$28 000 / t (to Taiwan) to a high of US\$77 000 / t (Singapore). Two destinations, India and France, take nearly 60 percent of all exports. These two importers pay well above the average global price.

3.2 Imports

Estimated global imports of geranium oil are 516 tons valued at US\$18.1 m. The average CIF unit price was US\$35 254 / t. Whilst 31 countries reported imports, a number of these are for just one or two tons.

In terms of gross import value, the biggest markets are France, the United Kingdom, India, the United States, Spain, and Switzerland. France accounts for around a quarter of the total.

As with most high value – low volume products, there is a two-tiered structure to global imports with the high valued markets being associated with low volumes and vice versa.

The high value markets for geranium oil are Belgium, Japan, Germany, the Argentine, Ireland, Brazil, and Italy.

Table 6. Geranium oil: major importers by value, 2003

Importing country	Value (US\$ / ton)	Volume (ton)
Belgium	109 000	1
Japan	85 000	4
Germany	83 737	11
Argentina	83 000	1
Ireland	77 250	4
Brazil	72 500	2

Italy	70 000	2
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The high volume markets for geranium oil are the United Kingdom, France, India, Spain, the United States, and Switzerland.

Table 7. Geranium oil: Major importers by volume, 2003

Importing country	Volume (ton)	Value (US\$/ton)
United Kingdom	70	35 271
France	63	65 460
India	54	33 333
Spain	55	28 945
United States	29	60 483
Switzerland	17	67 941

3.2.1 France

In 2003, France imported 63 tons of geranium oil valued at an average US\$65 460 /t. In gross value terms, its most important suppliers were Egypt and China. Combined these two provided 90 percent of the combined imports from all 13 suppliers. French imports have been growing at a strong rate of just over 2.0 per cent per annum for each of the past five years.

France pays significantly higher for geranium oil from Egypt and China compared with the average value of exports to all other destinations those two countries. With Egypt, the premium is around 20 percent whilst for China it is a little lower at 13 percent.

3.2.2 United Kingdom

As the world's second largest gross value importer of geranium essential oil, the United Kingdom draws its supplies from seven sources.

Its largest supplier is the United Arab Emirates. Cross checking this information with export data shows that the United Kingdom is the sole destination for geranium oil exported from the UAE. It is noted that the average per unit value of this oil is the lowest of that of all suppliers by a factor of ten. This fact distorts the overall picture. If product from the UAE is removed from the data then the United Kingdom would be the highest gross value importer of geranium oil.

This claim is supported by the fact that the United Kingdom has shown that it is prepared to pay exceptionally high prices for product of exceptional quality. In 2003 it imported a parcel of two tons from South Africa at an average unit price of US\$128 000 / t.

3.2.3 India

India is an energetic trader in geranium oil, importing 54 tons and exporting six. On the other hand, and in contrast to the behaviour of other entrepots, India imports expensive product but exports cheap product.

Supplies are drawn from eight origins. China is the most important supplier providing just under half of all imports. At the same time the average price of Chinese geranium oil imported into India is nearly 50 percent higher than the overall average of US\$33 333 / ton of all imports.

The United States is a supplier of very low priced geranium oil to India.

3.2.3 Japan

Japan draws its small volume of just 4 tons from three suppliers, that is, France, China, and the United Kingdom. Details exists for just the first two. The average imported price paid by Japan was US\$85 000 / t. The two tons imported from France were valued at US\$112 000 /t.

4. Jasmine oil

4.1 Data

Because of problems with the unit of measurement, only value data is consistently supplied for the trade in jasmine oil. It is noted that the relationship between the gross value of exports and imports is very tight, certainly within the limits of variation expected from the difference between the FOB price declared by exporters and the CIF price declared by importers.

4.2 Exports

World exports of jasmine oil were estimated at US\$11.7 m in 2003. Seventeen exporters are recorded. The most important are France, Egypt, and India. Combined they account for about 75 percent of the trade. Unfortunately, data are not available for volume and value from each of the three exporters.

The gap between the high and low priced exporters are probably greater than most of the other essential oils.

Table 8. Jasmine oil: major global exporters by gross receipts, value and volume, 2003

Exporting country	Gross value of Exports (US\$m)	Per unit value (US\$ / ton)	Volume (ton)
France	3.62	213 059	17
India	3.36	146 391	23
Egypt	2.16	n.a.	n.a.
United Kingdom	0.62	125 000	5
Morocco	0.46	466 000	1
United States	0.44	2 804	158
Hong Kong	0.14	141 000	1
Total	11.71	n.a.	n.a.

The figure for the United States seems suspiciously low. This figure is the lowest of all exporters and twice as low as the next lowest exporter.

4.2.1 France

France exports to 13 destinations. The volumes involved are exceptionally low but the prices extraordinarily high, see Table 9.⁵

Table 9. Jasmine oil: France, export destinations by volume and value, 2003

Destination	Gross exports (US\$m)	Per unit value (US\$ / ton)	Volume (ton)
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⁵ Volume and value data only available for three countries.

United States	1.13	565 000	2
Switzerland	0.99	99 091	11
United Kingdom	0.6	600 000	1

The available data suggest that the other significant markets are Ireland, Germany, and Japan.

4.2.2 India

India is the world's second largest gross value exporter of jasmine oil. Whilst export quantities have increased by 10 percent over the five years to 2003, gross export earnings have declined by three percent. This indicates that the per unit value has declined significantly.

Again, complete data are only available for three of the 15 recorded destinations. The United States is the most important destination, taking just under half of all exports. On the other hand, France is far the more valuable market being prepared to pay nearly seven times what the United States market pays, see Table 10.

Table 10. Jasmine oil: India, export destinations by volume and value, 2003

Destination	Gross exports (US\$m)	Per unit value (US\$ / ton)	Volume (ton)
France	1.83	457 250	4
United States	0.67	67 000	10
Singapore	0.05	59 000	1
Total	3.36	146 391	23

It is noted that Bhutan is recorded as receiving US\$246 000 worth on jasmine oil from India in 2003.

4.3 Imports

There is an energetic trade in jasmine oil. The volume traded has increased by 31 percent over the five years to 2003 whilst the value has increased by nine percent over the same period. For most of the 34 importers recorded there is good data.

France, the United States and Switzerland are the dominant importers. Combined they take nearly 80 percent of world imports, see Table 11.

Table 11. Jasmine oil. Global imports by gross receipts, volume and value, 2003

Importing country	Gross export receipts (US\$m)	Per unit value (US\$ / ton)	Volume (ton)
France	4.19	349 750	12
United States	2.43	809 667	3
Switzerland	1.23	616 000	2
United Kingdom	0.63	21 724	29
Nigeria	0.38	3 115	122
Japan	0.32	318 000	1

Ireland	0.3	306 000	1
India	0.18	11 000	17

4.3.1 France

France imports jasmine oil from a small range of destinations. Detailed data only exists for three of these, India, Egypt, and Morocco. The data show that France is willing to pay very high prices for Egypt product.

4.3.2 India

It is noted that the Indian import data is inconsistent with the cross-checked export data by the same suppliers. In a number of cases the difference is as high as a factor of two.

On the available data India is a classic high volume – low price importer of jasmine oil. There are just the three recorded sources.

There are three types of oil:

- True lavender oil from *Lavendula augustifolia* that originated from Italy, Spain, Switzerland, France and North Africa.
- Spike lavender oil from *Lavendula latifolia* that originated from Spain and the Mediterranean but better suited to warmer weather than the other types.
- Lavandin oil from *Lavendula augustifolia x Lavendula latifolia* hybrid originating in the Mediterranean but now widespread to the likes of Bulgaria.

5.1 Data

The ITC data refers to “330123 essential oils of lavender or of lavandin”. The generic term “lavender” will be used to describe both oils.

The data show a significant gap in both gross value and volume terms between what is exported and what is imported. In some cases the gap is as high as 50 percent.

5.2 Exports

The value of world exports of lavender in 2003 was US\$35 m and involved 1 630 tons. Exports are recorded for 20 countries. The trade is dominated by France whose exports constitute around 70 percent of the total in terms of both volume and value.

Table 12. Lavender oil: Major global exporters by gross receipts, value and volume, 2003

Exporter	Gross value of Exports (US\$m)	Per unit value (US\$ / ton)	Volume (ton)
France	23.21	19 377	1198
Bulgaria	2.47	38 015	65
Spain	1.27	21 627	59
Austria	1.22	33 216	37
Switzerland	1.15	60 895	19
Germany	1.02	39 577	26
United States	0.97	17 018	57

Total	35.00	Annual average US\$21 477	1 630
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Exceptional exporters are:

- South Africa that exported two tons worth US\$86 000 per ton.
- Belgium that exported one ton for US\$71 000 per ton.
- India that achieved US\$54 000 for the one ton.
- Australia that exported six tons for US\$43 667 per ton.

5.2.1 France

As the world's major lavender exporter, France exports to 25 destinations. Whilst the three major destinations (United States, Switzerland and Germany) take nearly 50 percent of both the total volume and gross value, the other 22 exporters still take useful volumes.

France exercises considerable market segmentation. Its average annual export price of US\$19 377 per ton is kept low by the huge volume it sends to the United States at just US\$16 625 / ton. This is towards the lowest end of its price spectrum. At the other end is the US\$63 333 per ton it achieved for a parcel of 3 tons it exported to Ireland and US\$47 500 per ton for the two tons it exported to Canada.

5.2.2 Switzerland

At an average annual price of US\$60 895 per ton Switzerland is the world's highest priced exporter. Its average price is nearly three times higher than the global average and more than three times the average price achieved by France, the high volume exporter.

Swiss exports are dominated by what it sends to the United States. This market represents around 40 percent of both gross receipts and volume. Of the 11 destinations it exports to, the one ton it send to Italy for US\$262 000 per ton is clearly exceptional.

5.3 Imports

Lavender is imported by nearly 40 countries. The total gross value is US\$42.8 m for the 2 538 tons involved, see Table 13.

Whilst the United States is the largest single importer, enough other countries import sufficiently large volumes, albeit less than the United States, to militate against the United States exercising any monopsonistic power.

Table 13. Lavender oil: Major global importers by gross receipts, value and volume, 2003

Importers	Gross value of Exports (US\$m)	Per unit value (US\$ / ton)	Volume (ton)
United States	8.01	18 463	434
United Kingdom	4.89	24 480	200
Germany	4.48	21 435	209
Switzerland	4.35	22 443	194
Netherlands	2.26	10 830	218
France	1.83	39 826	46
Japan	1.64	39 976	41

Ireland	0.54	32 059	17
Total	42.83	16 577	2 584

5.3.1 United States

The United States may be the world's largest lavender market but it is a low priced one. Imports are from 11 origins. Of these, France provides more than 75 percent of the total value. However, France is also the lowest priced supplier to the United States, thus explaining the United States' overall position as a low priced importer. Most other countries receive twice the price for their exports compared with France.

5.3.2 United Kingdom

At US\$4.89 million, the United Kingdom is the world's second largest lavender market. However, both the volume and per unit value of its imports are declining. The UK draws its lavender oil supplies from 11 destinations. More than half of the total volume as well as half of the gross value come from France. The bulk of the balance of the volume comes from the United States.

The United Kingdom exercises considerable price discrimination. It paid a high of US\$39 000 per ton for a sizeable parcel of seven tons from Bulgaria and US\$37 091 per ton for an even larger parcel of 11 tons from Austria but a fifth of this amount for imports from the Netherlands.

6. Lemon essential oil

Lemon essential oil is defined as "330113 essential oils of lemon".

6.1 Data

There is a good correlation between the export and import data recorded for lemon oil. The gross value of exports is recorded at US\$131 m for 10 654 tons and the gross value of imports recorded at US\$128 m for 11 892 tons. Nevertheless it is a little odd that the FOB value is higher than the CIF one and that instead of there being shrinkage between the import and export volumes there is a gain.

6.2 Exports

There are nearly 40 countries recorded as exporting lemon essential oil. Export volumes have increased creased quite strongly over the five years to 2003. However, per unit values has shown only marginal growth. This indicates that export growth has been achieved at the cost of price.

Four distinct tiers of exporters can be identified.

- The Argentine is the overwhelming leader in terms of gross value and volume. Its exports constitute around a third of both the gross value and the total volume.
- On a second tier are two countries, the United States and Italy, with comparable gross values and volumes.
- On the third tier are about a dozen countries including Mexico, the United Kingdom, Switzerland, Ireland and Peru who exports vary between one and nine million dollars each annually.

- The fourth tier is comprised of the balance of countries whose exports are worth less than a million dollars each annually. Their volumes are so small that variations over the previous five years result in quite high percentage swings.

There is considerable price segmentation.

- The average price for the 39 exporters is US\$12 340 per ton.
- Switzerland exported 111 tons at an average of US\$64 027 per ton.
- Five countries achieved prices greater than US\$20 000 per ton.
- 19 countries received less than US\$10 000 ton with a number of these receiving less than US\$5 000 per ton and less.

6.3 Imports

The data show that there are 39 importer of lemon essential oil.

Again, there is a clear four-tiered structure.

- The United States imports constitute around a third of the gross value and a third of the total volume. Its imports are nearly three times greater than the next biggest importer.
- The United Kingdom, Japan and France constitute a second tier in terms of gross value of imports.
- 12 countries with imports of between one and eight million dollar constitute the third tier.
- All other countries make up the fourth tier.

In contrast to exports, the degree of price differentiation is not as strong amongst importers as it is with exporters.

- The average per unit price for the 39 importers was US\$10 766 per ton.
- South Africa paid the highest price, US\$35 500 per ton for a parcel of six tons.
- Seven countries paid more than US\$20 000 ton: Japan (419 tons), Ireland (205 t), Argentina (69 tons), Taiwan (23 ton), Egypt (21 tons), Austria (15 tons), Thailand (7 tons), and Columbia (8 ton).
- Low prices importers were those who paid less than US\$10 000 tons. These included China, Mexico, Italy, Venezuela, Nigeria, and Poland.

Within the region it is noted that India imported 57 tons at an average price of US\$11 00 per ton, and Pakistan imported 16 tons at an average annual price of US\$10 500 per ton.

7. Lime essential oil

330114 refers to “essential oils of lime”.

7.1 Data

The data for essential oils of lime are of mixed value. There is a close correlation between the recorded levels for import and export volumes but no such correlation for the gross value of exports and imports.

	Gross value	Volume
Exports	US\$38.3 m	6 466 tons
Imports	US\$53 m	5 073 tons

7.2 Exports

Data recorded for South Africa and Greece are difficult to understand. In both cases the per unit value is recorded as US\$325 per ton and US\$61 per ton, respectively. For South Africa this value is a twentieth of the overall global average and for Greece it is just 1 percent. Further the volumes involved are quite significant, 1272 tons and 1 687 t, respectively. These are large enough to skew the overall data downwards, thus putting into doubt the reported overall average per unit price. South Africa and Greece are ignored in the analysis that follows.

The four tier structure identified for exports of essential oils of lemon is reduced to three in the case of essential oil of lime.

- Mexico is the world's leading exporter of essential oils of lemon in terms of both gross value and volume. Its gross value of exports constitute just under half of all export receipts but the 1 935 tons it exports is well less than half of all exports. This reinforces the data that Mexico is a low priced exporter.
- On a second tier are the United Kingdom, the United States, and Germany.
- The third is comprised of all other exporters.

Market segmentation is actively pursued. At one extreme there is Ecuador achieving US\$53 000 for a one tone parcel. At the other end, Mexico received US\$8 976 per ton, India US\$6 615 per ton, and Canada US\$5 714 per ton. In the middle there is Singapore, Germany, the Netherlands, Italy and Spain receiving more than US\$30 000 per ton.

7.3 Imports

Thirty nine countries record importing essential oils of lime. The rate of growth is quite strong, albeit the rate of growth in volume terms is double that of the rate of growth in value.

The strange data for Zimbabwean imports is noted. These are recorded as 1 683 tons worth an average US\$53 per ton. The volume figure would rank Zimbabwe as the world's ninth largest importer. It would make Zimbabwe a greater user of essential oils of lime than the likes of China, Belgium, France, and Italy who are all well known users of essential oils. For this reason, not only is the specific data from Zimbabwe ignored but so is the overall global average unit price of US\$10 533 per ton.

Whilst the United States constitutes around half of the total international trade in terms of gross value and around a quarter of the total volume, there are a large number of countries who import relatively small volumes.

Those importing more than US\$2.0 m are the United States (US\$22.19 m), the United Kingdom (US\$8.98 m), Ireland (US\$3.22 m), Germany (US\$2.12 m) and Japan (US\$2.11 m).

Those importing more than 100 tons per year are the United States, the United Kingdom, Ireland, and Germany.

Within the region India imported 21 tons at an annual average price of US\$21 733 / ton, and Pakistan imported 5 tons at an annual average price of US\$10 200 /ton.

8. Essential oils of orange

Essential oils of orange are categorised as 330 112.

8.1 Data

Data are not complete for imports of essential oils of orange. There is an alignment of the gross values of exports and imports, that is US\$158 m and US\$168 m, respectively. Even though the volume data is not complete, the existing data also suggests a close alignment.

8.2 Exports

An estimated 39 368 tons of essential oils of orange are exported from 39 countries. The total value is recorded as US\$158.799 m.

Based on the gross value of exports, a four-tiered structure exists of exporters.

- On a level by itself is Brazil. It exports 22 868 tons or a little over half of the export volume. In contrast, its gross receipts are well less than a half of the total, showing that the country is a low-priced exporter.
- The United States exported two-thirds of the value of what Brazil did but did this with a third of the volume. This is because the United States receive nearly double the per unit price of Brazil.
- On a third tier are Germany, United Kingdom, Switzerland, Italy, Canada, France, Costa Rica, the Netherlands, Spain and Tunisia.
- The fourth tier consists of the 27 exporters whose gross annual receipts were less than US\$1 m each.

On a volume basis the exporters of note are Brazil, USA, Germany, the United Kingdom, Italy, Canada, and Costa Rica.

Market segmentation is strong. At the high end, prices are around US\$40 000 per ton achieved by Mexico, Morocco, and Ireland. At the low price end, Switzerland, Japan, Haiti, Cote d'Ivoire and Dominican Republic achieve around US\$20 000 per ton.

8.3 Imports

The United States is the world's biggest importer of essential oils of orange in terms gross value and volume. It imports around a third in volume terms and a little less in value terms. This means that the United States tends to pay a little more for its imports.

There are two types of importers: one is the high volume – low priced group and the other is the low volume – high priced group.

Table 14. Essential oils of orange: High priced importers, 2003

Country	US\$ / ton	Volume
Guatemala	40 100	10
Morocco	19 714	14
Ireland	14 449	361
Nigeria	14 441	27
Thailand	10 068	58

Table 15. Essential oils of orange: Low priced importers, 2003

Country	US\$ / ton	Volume
United States	4 199	12 346
Japan	1 979	6 258
Canada	2 927	3 079
Mexico	1 047	2 665
Belgium	2 634	807

9. Mints

The following covers

- 330124: Essential oils of peppermint.
- 330125: Essential oils of other mints.

9.1 Peppermint

9.1.1 Data

There is a good correlation between the gross value and volumes recorded for exporters and imports, albeit the volume recorded for imports is a little higher than what could be expected.

9.1.2 Exports

Global exports in 2003 were recorded as being US\$170.1 million in gross receipts and 10 368 tons. Thirty four countries record exports of essential oils of peppermint.

The United States is the largest exporter in terms of gross receipts. In 2003 it provided just under half of all gross receipts. In contrast, the United States exported less than a third of the total volume. This indicates that the United States is a high priced exporter. However, the data indicate that growth in exports has been slow.

India is the world's largest exporter in terms of volume. In 2003 its exports amounted to a third of all exports in volume terms. However, India is a low priced exporter. Indian exports are growing at a strong of 13 percent per year for the five years to 2003 in both volume and gross receipts.

India exports to 23 destinations. Whilst more than half of these could be considered "small", that is, receiving less than 60 tons per annum, there are enough larger sized destinations so that India need not be overly concerned about the failure of any one market. Whilst there is market segmentation in terms of price, and with the exception of US\$21 000 per ton it achieved in a nine ton parcel that went to Switzerland, Indian pricing occurs within a relatively narrow price range of US\$5 767 to US\$9 600 per ton. From India's perspective, its largest destination, that is the United States, takes nearly a quarter of all exports. With an average annual price of US\$11 957 / ton, the United States is also India's second highest priced market.

Four exporters provide nearly ninety percent of all exports.

The smaller exporters have achieved very high prices:

Switzerland	US\$56 263 per ton for a parcel of 19 tons
Sweden	US\$55 000 for a parcel of one ton
Canada	US\$43 000 for a parcel of one ton
Hungary	US\$40 000 for a parcel of one ton
Madagascar	US\$39 000 for a parcel of one ton

Japan

US\$32 000 for a parcel of one ton.

9.1.3 Imports

Data exist for 40 importers showing that total imports were US\$179.775 m involving 12 325 tons.

Four markets, Hong Kong, United Kingdom, Thailand, and Mexico take nearly 60 percent of the total volume.

The high priced importers are shown below.

Table 16. Peppermint oils: High priced importers, 2003.

Origin	Gross Receipts (US\$m)	Price (US\$ / ton)	Volume
Sweden	1.45	46 871	31
Belgium	8.34	38 114	219
Canada	2.31	39 305	59
Venezuela	0.56	35 500	16
Japan	8.45	31 917	265
France	6.87	26 127	263
Egypt	0.32	32 200	322
Italy	3.61	30 855	117

9.2 Other mints

9.2.1 Data

There is a significant difference between the data recorded for imports and exports. Export data show gross receipts of US\$79.9 m and volumes of 5 976 tons. In contrast, export values are nearly 80 percent greater at US\$112.057 m. Whilst there is no corresponding volume for imports, the incomplete data indicate that import volume is within a reasonable level of export volume.

9.2.2 Exports

Exports in 2003 were valued at US\$79.93 m involving 5 976 tons.

Overall growth has been poor. There has been an annual decline in value of 6 percent for the five years to 2003 but only a 2 percent annual decline in volume over the same period.

The United States is the world's largest exporter of mint oils, supplying 1 231 tons in 2003. However the oil is well received because its price of US\$24 000 per ton is nearly double the world average. Essential oils from "other mints" from the United States are the third highest priced of all essential oils from "other mints". This includes a one ton parcel from Croatia valued at US\$43 000 per ton and a good sized parcel of 245 ton priced at US\$34 78 per ton from Iran.

Price segmentation is strong, ranging from US\$43 000 per ton noted above to 16 number of suppliers whose prices are greater than US\$10 000 per ton to the three suppliers who prices are in the US\$6 000 per ton range.

There are a number of regional suppliers, see Table 17.

Table 17. “Other mints” essential oils: Regional exporters, 2003.

Exporting country	Gross receipts (US\$m)	Price (US\$ per ton)	Volume (ton)
India	8.87	7891	1125
Vietnam	0.16	9 941	17
Indonesia	0.06	5 909	11

9.2.3 Imports

China is the world’s largest importer of essential oil of other mints in terms of both gross receipts and volume. It is noted that whilst its imports are nearly 50 percent higher than the next largest importer, it still only takes less than 20 percent of all imports.

Other large sized importers are the United States (US\$16.49 m), France (US\$9.34), the United Kingdom (US\$7.91m), Japan (US\$7.75 m), Brazil (US\$7.4 m), and Germany (US\$5.5 m).

There is a group of high importers who have demonstrated a marked willingness to pay high prices for their imports. Four of them are from the same broad geographic region – Turkmenistan, Iraq, Ukraine, and Afghanistan. It is likely that they use the essential oil in their regional / ethnic teas.

Within the region there are two importers of note:

- Thailand that imported 38 tons at an average price of US\$14 105 per ton
- India that imported 18 tons at an average price of US\$11 278 per ton.

10. Vetiver

Vetiver is identified as 330 126 essential oils of vetiver.

10.1 Data

There is a close approximation of the global export and import gross values. Trade volume is further separated.

	Gross receipts (US\$m)	Volume (Ton)
Imports	11.5	269
Exports	11.2	193

10.2 Exports

A relatively small number of 18 exporters account for the export trade in vetiver essential oil. Whilst it is to be expected that tropical countries would be the major producers, it is also noted that the list of exporters includes temperate countries such as the United Kingdom, France, Switzerland, Germany, and Canada. The implication is that these countries receive vetiver oil, value-add it in some form and then re-export the product. It is these exports that are recorded.

World trade has been growing at a strong annualised rate of 10 percent for the past five years whilst the annual rate of growth in volume has seen a decline of 5 percent. This shows that demand is increasing greater than supplies.

Haiti and Indonesia are by far the world's major exporters of vetiver essential oil supplying around 60 percent of both the gross receipts and volume. Further, Haiti is the price leader, achieving US\$82 122 per ton, well above the average of US\$58 383.

In the region, India exported 2 tons for the very good price of US\$66 000 per ton.

10.3 Imports

More importers are involved with the trade in vetiver essential oils than there are exporters. Import volumes have increased by a strong 10 percent per year for the five years to 2003 whilst the annualised growth in value has been slightly stronger at 11 per cent.

There is a high degree of price segmentation in the trade. The average price for the 269 tons imported was US\$42 799 per ton. Switzerland, France, Germany, Japan and Ireland all paid a little more than US\$82 000 per ton. France imported a one ton parcel from Madagascar for US\$179 000 per ton. At the low end of the price spectrum the United Kingdom, Singapore, Indonesia, Sri Lanka and Pakistan paid less than US\$25 000 per ton.