

# **Madagascar**

## **Business and Market Expansion Program (BAMEX)**

MOBIS GSA Contract GS-23F-9800H  
Task Order 687-M-00-04-00212-00

### **Essential Oils and Spices: Trip Report Initial Start-Up Visit**

Submitted to:

USAID Madagascar

Submitted by:

Steve Caiger, Essential Oils and Spices Expert

Crimson Capital  
Chemonics International

## **TABLE OF CONTENTS**

---

<b>1. Introduction</b>	<b>2</b>
<b>2. Situational Analysis/Context</b>	<b>2</b>
<b>3. Key Constraints to Business and Market Development</b>	<b>3</b>
<b>4. Preliminary Market Review and Analysis of Principal Crops</b>	<b>3</b>
<b>4.1. Clove</b>	<b>3</b>
<b>4.2. Pepper (black pepper)</b>	<b>4</b>
<b>4.3. Ginger</b>	<b>4</b>
<b>4.4. Cinnamon</b>	<b>5</b>
<b>4.5. Turmeric</b>	<b>5</b>
<b>4.6. Capsicums (covering Capsicums, Chillies and Paprika)</b>	<b>5</b>
<b>4.7. Vanilla</b>	<b>7</b>
<b>4.8. Other Essential Oils</b>	<b>8</b>
<b>5. Recommendations</b>	<b>8</b>
<b>Annex 1: Draft Product Market Profile: Ginger</b>	<b>11</b>
<b>Annex 2: Draft Product Market Profile: Geranium Oil</b>	<b>14</b>

## 1. INTRODUCTION

The consultant was in Madagascar from the 20<sup>th</sup> to the 30<sup>th</sup> of October to initiate BAMEX activities in the essential oils and spices sectors. Meetings were held with a number of Malagasy companies involved in the production and export of spices, essential oils and medicinal plants to gain an understanding of their current operations and the key constraints they currently face. The consultant also provided expert consulting to BAMEX and local business with regards to world market demand and characteristics for essential oils and spices. Discussions were also held with the project team, and in participation in the BAMEX/USAID teambuilding/work planning workshop, to define work requirements and to establish next steps and planned activities.

Per USAID's request, this report focuses on providing initial review of market potential for key crops as well as product profiles and looks at constraints and opportunities for major products in the essential oils and spices sectors. It provides a preliminary demand analysis for selected crops as well as examining supply and production issues, utilizing a demand driven approach.

Most of the “sellable” essential oil and spices being currently produced are already reaching market. Though, through increased quality, improved post harvest handling, and developments of value added goods, product prices and reputation can be enhanced. Production constraints is presently a key issue for several products in the sectors and BAMEX will need to focus on crops/products where there is the potential for sizable increase in market volumes and values to reach its sales targets. Additional issues that the project will need to address are better integration along the value chain and developing alternatives to the current buyer ruled relationship—both which limited sale prices of goods and the development of additional market opportunities. Full recommendations are contained at the end of this report.

## 2. SITUATIONAL ANALYSIS/CONTEXT

- Madagascar produces a number of different spices and essential oils – some have large terminal markets (cloves, pepper, etc), while others have small markets (ravintsara and other minor essential oils)
- Given the significant value target (US\$25 million) the project must achieve, one priority should be to target crops/products where there is scope for substantial increases in market volumes and values. Further demand analysis of existing and potential markets will assist BAMEX to further refine its interventions.
- For most crops (except some wild harvested essential oil crops), all existing production is sold. Therefore, achievement of a significant increase in market volumes depends on an increase in production
- Strategies to deliver increased production within the timeframe of the project will have to focus on:
  - A concentration on annual crops where the production area can be rapidly expanded – ginger, capsicums
  - Reduction of losses in the marketing chain – particularly in the post-harvest handling chain

- Improvement in crop yields – through cross-cutting activities in production technology (use of fertilizers, pest control, etc)
- Value and margins will also be increased by:
  - improvements in quality and enforcement of standards
  - production of value added products – grinding, distillation and extraction

### **3. KEY CONSTRAINTS TO BUSINESS AND MARKET DEVELOPMENT**

From meetings with companies, sector representatives, BAMEX and USAID staff, it is clear that there are a number of common constraints that limit the ability of many companies to service defined needs and opportunities in the markets:

- the fragmented character of the production/marketing chain, preventing processors/exporters from influencing/determining the scale of production and the quality of production
- Lack of information regarding the international, regional, and local demand for products. Many companies are still stuck in a “sell what you can produce” mindset instead of a “produce what you can sell” focus.
- the lack of understanding in the small company sector – or their reluctance to admit – that the producer/collector network on which they rely for raw material supply are an integral part of their business
- the restricted number of companies in the sector with strong management and technical and financial resources
- the ability of many small companies to be able to properly provide buyers the services they now require is marginal – and hence their continuing dependence on long term (primarily French) buyers in trading relationships where little is demanded of the supplier – and in consequence little returns.

### **4. PRELIMINARY MARKET REVIEW AND ANALYSIS OF PRINCIPAL CROPS**

#### **4.1 Clove**

Madagascar is a long establish origin in the markets – and intrinsic quality of the product is good. The primary market is Indonesia (where cloves are used in the local keretek cigarettes). The Indonesian market is for up to 30,000 tonnes, whereas total Western demand is less than 5,000 tonnes. Madagascar's market depends on continuation of Indonesian demand. If and when this market is disturbed (as has occasionally happened in the past), as Indonesia is also a substantial producer, there is no compensatory alternative market. Madagascar has no control over this. The scale of global export production (Zanzibar and Brazil are also major producers) is predicated on the Indonesian market.

Clove is a long term perennial tree crop. Hence, there is little or nothing that the project can do to alter short to medium term production levels. The crop is sun-dried by producers, and it is not clear that any mechanised sorting/cleaning facilities exist to allow grading out of premium grades for premium markets. While the phytosanitary condition of the bulk crop may not be a critical issue for the Indonesian market, sun drying on the ground and subsequent poor conditions for handling and storage result

in product with a high risk of high microbial/fungal loads. This lowers market value/position in Western markets, and places Madagascar in a weaker position vis-à-vis other major suppliers (Zanzibar, Brazil) to Indonesia (Zanzibar has a mechanised cleaning/grading plant, and Brazil has crops from the plantation sector).

Clove bud oil is one of the major essential oil crops of the sector, with good added value. The ability of small distillation companies to produce more – for which they state that they have the market – is constrained by limited working capital and access to affordable credit. Clove leaf oil is a lower value bulk oil.

## **4.2 Pepper (black pepper)**

Madagascar pepper is well regarded in the trade for its intrinsic quality (i.e. its chemical profile), but production levels have remained largely static. This is in contrast to some other countries, notably Vietnam, where production has increased from low levels to over 60,000 tonnes over the past 10 years. In a global market of over 150,000 tonnes there are always opportunities to find additional markets for several thousands of tonnes if costs of production are competitive – which should be the case in Madagascar.

Pepper is a perennial vine crop, with first yields only 3 years after initial planting. Although the promotion of planting is not likely to significantly change output levels during the life of the project, it is clear that the crop should be promoted on its future market potential.

Production and post harvest handling of pepper is basic. As a result, yields are low and losses of product and quality will be high. Changes in the technology of production and post harvest handling can result in significant increases in marketable output, improvements in quality, and hence revenues, returns and margins.

Black pepper oil is another of the important essential oils produced, and as noted for clove bud oil, the ability of the small distillation companies to increase production is limited by lack of access to working capital.

## **4.3 Ginger**

Although current production of the crop is small, planting material is available and production could be expanded rapidly. The market for ginger products is complex and therefore potentially attractive as it can offer very significant scale and product diversity. The current focus is on production of dry ginger (the spice) where end usage can be the dry ground spice, or for extraction (ginger extract) or distillation (ginger oil). The dried spice market is reasonably large, possibly around 5,000 tonnes or more, and certainly an attractive target for substantial development for Malagasy producers. Targeting other ginger product markets will depend on the precise characteristics of the variety/varieties grown in the country, but potentially could include: fresh ginger (the largest market, around 20,000 tonnes in the EU); immature fresh ginger (niche market, air freighted); ginger in brine (very large market in Asia); and crystallised and syruped ginger (a confectionary product, around 4,000 tonnes in the EU). In the short term, the opportunity for competitive supply to the dry ginger markets should be targeted.

There was previously some distillation of fresh ginger – though it is reported that this market has declined in both volume and value and is not of current interest. The standard ginger oil is distilled from dry ginger. Yet, none of the companies met produced this as a standard item, and the market is not large. There is reportedly some extraction of ginger but the scale is unknown, and the competitive position relative to the industry in India is unlikely to be strong.

#### **4.4 Cinnamon**

Madagascan cinnamon is of good intrinsic quality and well regarded in comparison with supplies from Sri Lanka (the market leader). The overall market combines both cinnamon and cassia (major cassia origins being Indonesia, Vietnam, and China). In general terms, the EU uses cinnamon while the US uses cassia. It is unlikely that Madagascar can compete with Sri Lanka in the fine 'quills' market (rods of rolled bark). Very considerable improvements would be needed in production and post-harvest handling to achieve Sri Lankan levels of product presentation. However, Madagascar could be highly competitive in supply to the market for ground product. Other major markets for cinnamon are Mexico and the Central American countries.

Cinnamon is a perennial crop, with production starting around 3 years after planting. The crop has strong ecological benefits – in terms of erosion control and soil improvement, and also yields waste wood material after stripping of the bark that can be used to fire driers. There is an opportunity to significantly improve post harvest handling, and therefore both quality and marketable yield.

Cinnamon bark oil, as with pepper and clove bud oil, is an important crop for the small distillation companies, and the constraints to increasing production are the same as previously mentioned.

#### **4.5 Turmeric**

Although this is an annual crop – very similar to ginger in production terms – there are no significant market opportunities. Global supply is dominated by India – with a domestic crop of over 150,000 tonnes. Western demand is small. The EU market is around 6,000 tonnes, and all except about 250 tonnes is supplied by India. The US market is around 2,500 tonnes with similar total domination of supply by India. Thailand and Peru make small erratic supplies to the Western markets, but rarely more than 100 tonnes per year. The domination by India is partly based on its very large supply, and partly on the well established characterisation – and acceptance by the trade – of its major turmeric types (Madras types for spice uses and Alleppy types for the food colorant market).

#### **4.6 Capsicums (covering Capsicums, Chillies and Paprika)**

Product definitions are frequently confused, and published market statistics (based on import data and customs codings) are similarly confused. In general terms:

- chillies are assessed on the basis of their pungency (usually in terms of capsaicin content)
- capsicums are assessed on a combination of colour and pungency
- paprika is assessed on the basis of colour (generally in terms of ASTA colour units)

Madagascar is known as an origin of 'birds eye' chilli types – small, highly pungent chillies, supplied by a number of East African countries. 50 years ago, birds eye chillies dominated supply to the western extraction markets. Their place has now been taken by a number of other types (the Habenero and other Scotch Bonnet types and a number of Chinese types) that are as pungent if not more so, are much larger (which drastically reducing the main production cost of picking), and are higher yielding. The market for birds eye chillies is now more a niche market with much of the supply going into the retail markets as whole chillies. Prices are at a premium to the main chilli types, but volumes are small.

The main market for all forms of Capsicums (chillies, capsicums, paprika, whole and ground) is large – around 120,000 tonnes equally divided between the EU and US. Of the total, paprika probably accounts for around 30,000 tonnes. The remainder is a wide range of chilli/capsicum types, of which around 40,000 tonnes is traded as ground product. The major opportunity for Madagascar will be the development of production and supply of other, non-birds eye types. Southern Africa (primarily South Africa and Zimbabwe, but with some development in Zambia and Malawi) have developed very substantial production of paprika types over the last 15 years – with production of around 15,000 tonnes. More recently, in the last 5 years Peru has come into the market with over 5,000 tonnes. In a market of this size – a commodity market – competitively priced material meeting defined product characteristics required will find buyers through replacing other origins.

The products come from a range of species – *Capsicum annum*, *C. chinense*, and *C. fructens*. The species are annuals or short term perennials (which crop in the first year). All are seed propagated. There are well defined commercial seed varieties available from major multinational seed houses (Pioneer, etc) for both paprika types (Papri King and Papri Queen) and chillies/capsicums. It is therefore possible to expand production very rapidly (where importation of certified seed is allowed).

While Madagascar can promote its birds eye chilli in the market, the main opportunity will be in the development of a substantial production sector of other chilli/capsicum types, and paprika types.

Capsicums, paprika, and to a lesser extent chillies are a substantial feedstock to the extraction industry. Much of this industry has moved back to origin, but caution needs to be taken over consideration of any development of this sector in Madagascar. India has (finally) developed a very successful extraction industry, and now dominates supply of extracts (including a broad range of other spice extracts as well) to the western industry. India is able to mobilise very substantial investment capital, and has a very strong technology/technician base. In addition to the production of standard paprika, capsicum and chilli (capsaicin) extracts, it has now developed a paprika oleoresin ex-capsicum which substantially undercuts the price of true paprika oleoresin (the capsicum oleoresin is split out to give a paprika oleoresin, and a capsaicin oleoresin – enabling India to use very low cost high volume domestic capsicum supply to make a high value product which it can market at a substantial discount to the standard paprika oleoresin ex-paprika).

Globally there is an excess of extraction capacity. In Southern Africa there are 4 extraction plants that have been established to process the paprika produced there, but

very little oleoresin is produced and few if any of the plants can be operating profitably. The large 250 ton extract capacity plant established in Zambia is barely used, for example. Unless Madagascar can secure market access for oleoresins, it should concentrate on development of the dried spice industry first.

#### **4.7 Vanilla**

The market for cured vanilla has been radically affected by the recent high product prices, and apparent global demand has fallen from around 2,200 tonnes to under 1,000 tonnes in the current year. The reduction in demand has occurred from 3 principal factors: usage of stocks held in the market, reformulation of products to use synthetic sources and usage of synthetic sources without formally notifying the market of a reformulation – (in other words, 'cheating'). It is not yet clear whether, and to what extent, the restructuring of prices for cured vanilla that has been 'agreed' will stimulate demand. Given the uncertainty over the stability of the new floor price, industry in the market may be cautious over restocking. Companies who have formally changed product formulations are unlikely to revert to use of the natural product without substantial confidence over long term price trends (the avoidance of future price spikes). Policing of product market regulation compliance (largely product label legislation) is dependent on the actions of market authorities, and therefore how they respond to requests by Madagascar (and other producers) to investigate and enforce compliance.

Stimulation of demand is clearly critical for Madagascar. Whilst export earnings from vanilla have been abnormally high over the past few years (exports to the US market alone were over US\$100 million in 2002 and US\$177 million in 2003), the reduction in export earnings is going to be a real loss to the sector. Total export values for 2004 will be high due to the high prices to date, but revenues in 2005 could well be only around US\$25 million.

Even at low prices for vanilla (say US\$25/kg), it is still a high priced product when compared to almost all other spices. Assistance in getting back just 100 tonnes of market would delivery US\$2.5 million even at these prices. Reports are that the current crop is around 2,000 tonnes of cured beans, so there is a potentially very substantial excess of production over current demand – the exception to all other crops targeted. The crop and its market must therefore be of interest to the Project – thought it has to be recognised that other Donor programmes (notably the EU Stabex programme) are also active in this area, and any activities would have to be coordinated on a sector basis.

Madagascar's traditional image in the market has been as the dominant supplier of high quality vanilla – the bourbon origin characteristics taken as the definition of preferred quality. Indonesia has supplied the low quality market – almost exclusively linked to a particular label niche in the US market that allows mixing of natural and synthetic vanilla in the same product. The problem for Madagascar is that a number of other origins have developed supply targeting the high quality market, and although all are small by comparison (Uganda around 50 tonnes, India around 30 tonnes but growing and Papua New Guinea probably around 200 tonnes), all can offer a supply chain with much greater linkage development between producer-processor-exporter, and therefore control over the product and the ability to develop a service to the buyer.



The project could initially focus on the need to bring buyers back to the market, but should also consider the opportunity of the current fall in demand to look at the potential for creating more vertically integrated operations that can control product quality and deliver a more comprehensive service to buyers.

#### 4.8 Other essential oils

A number of other essential oils are distilled by companies in the sector, but total volumes and values for each oil are relatively small. A general observation would be that market demand is limited. In some cases – *Calophyllum inophyllum* for example – there are substantial wild raw material resources that could support substantially increased output, but considerable work would have to be done on market development to create the necessary demand.

The exceptions to the above are: *Eucalyptus citriodora* and *E. globulus*, vetiver, geranium and ylang ylang. No companies were met who produce these oils, although the market for each is significant in value terms. The markets for Eucalyptus oils are well established. *E. citriodora* may well offer opportunities as Chinese export production declines. Geranium production has started in Madagascar, but market supply is constrained by crop production – geranium is not an easy crop to maintain in a productive condition over the medium term. The dominant supplier to the vetiver market is Haiti. Recent disruption in Haiti will create short term opportunities, and there will always be interest from the trade in considering other less volatile origins. The ylang ylang market is well established and buying is likely to remain dominated by France since the usage is exclusively perfumery, distillation yields a complex of grades with appropriate pricing, and demand will depend on the output of the dominant supplier, the Comoros. The production sector is well established around Nosy Be and the adjoining mainland, with organised plantings. No immediate opportunities for new market development are apparent.

## 5. RECOMMENDATIONS

On the basis of this short visit and current market conditions, a number of recommendations can be made for early specific consideration by BAMEX:

- i. Do more targeted research to better determine the market demand for key Malagasy products in the essential oils and spices markets. Use this market driven approach to determine further scopes of intervention based on identifying products with strong market potential and adequate production and quality levels.
- ii. Ginger and capsicums (all types) offer the necessary market scale to provide the scale of export development that the project needs to pioneer. Vanilla has to be considered a potential target, though the role for the project needs to be worked out in consultation with other partners
- iii. Ginger: to be able to understand market potential, and market positioning of Madagascar's product, the project must understand the characteristics and

properties of the domestic planting material – the variety/varieties. Key issues to be determined include:

- a. Average extractives content (what is the average extraction yield). The Natoria specification does not address this, and simply gives a minimum essential oil content. One market for dry ginger is the extraction market, and a high extract ratio (as found in Nigerian and other West African origins) is a competitive advantage. If there is no data available on this, it should be established (with material of known age)
  - b. Aroma profile of the oil (from dry ginger), and of the ground dry ginger. Replacement of Indian ginger in the market by material of equivalent characteristics would deliver demand and value. Indian ginger is characterised by citrus or lemon-like top notes, and this is liked in the markets. If a similar profile was present in Madagascar for ginger, it would help in positioning the product and add to a competitive advantage package.
  - c. Assessment/identification of varieties of planting material. Is there a single local type – or are there a number of distinct and easily recognised types.
  - d. Crop economics: baseline data is required on standard production input/output, and the benefits to improved practices – this needs to be collated from past work, or established from field work on farmers fields if it doesn't exist. Crop multiplication rates (harvest yields in relation to weight of seed material actually used) are a fundamental determinant of competitive position in the market and of the ability to rapidly expand production areas.
  - e. Crop development cycle – the build-up of fibre levels. The suitability of ginger for all markets, but particularly the fresh market, is partly determined by level of fibre development – which is a factor of crop age and variety. A practical study is required – based in commercial plantings – of % fibre development in the rhizomes from 4 months after planting until harvest, at a minimum of monthly intervals. This should be linked with parallel assessments of fresh rhizome yield, and levels of oil and total extracts in the rhizomes. This data will allow market suitability to be appraised, and production protocols to be refined.
  - f. Post harvest handling. Ginger requires washing and drying after harvest. There is a massive bulk of material to handle prior to drying – with significant cost and time implications once growers are encouraged to increase cultivated areas. The drying process also has significant time, cost and product hygiene implications. This has to be addressed if there is to be widespread uptake of cultivation, and if a competitive position is to be established in the market.
- iv. Capsicums: the commercial sector should be encouraged, and assisted to introduce and assess the core paprika varieties.
- a. Large plot observations should be targeted rather than formal experimental field plot trials. Target locations should be the highland areas. Key issues for assessment are yield, colour values of the harvested material, and whether pungency develops.

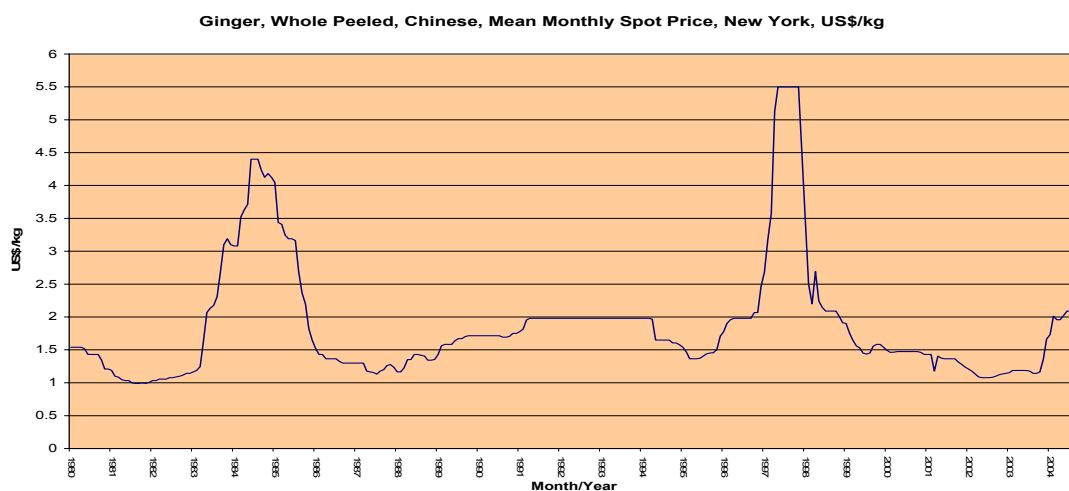
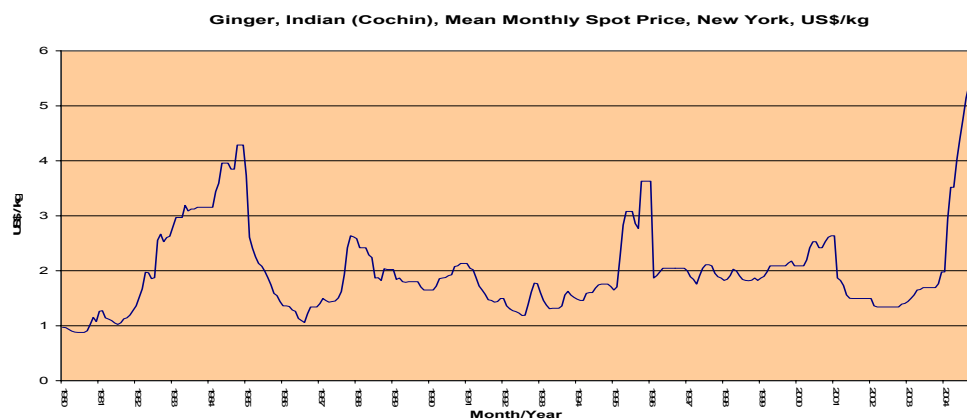
- b. In addition to the domestic birds eye chilli, are other local types of chillies or capsicum cultivated? If they are, assessments should be made of crop yield, and pungency and colour content of the harvested crop.
- v. Crop drying: this has a major impact on crop quality, post-harvest losses and marketable yield, and the hygiene status (microbial and fungal loading) of the dried crop – all of which effect market parameters (volumes, price, competitive position, etc) of direct relevance to the project and its objectives. Improved drying technology – specifically where the crop is raised off the ground, protected from the weather, and dried by artificially heated air using *indirect*<sup>1</sup> heating systems – will make the single biggest difference to spice crop quality, and usually also makes a very significant impact on producer productivity. The project needs to address this – and simple wood fired heating systems (linked to woodlot developments) must be included in the list of systems to be considered, as they are likely to be the most cost efficient and have the most widespread applicability and uptake.
- vi. Cleaning and grading systems. From the limited discussions held with companies, it is not clear how, and to what extent, spice crops (other than vanilla) are cleaned and graded prior to export, and specifically what mechanical systems (if any) are used. Whilst the current crops are sold, market security, and market position and hence price, are determined by product cleanliness and hygiene, and achievement of this provides a base on which to build grading. Whilst Madagascar has the current opportunity to leverage its exchange rate and cost structure to take market share by price, this can't be seen as a long term strategy. In addition, other origins are changing and improving their practices in this area. Mechanical cleaning/grading systems can have high throughputs. If individual companies/exporters are not leading the way in this area, consideration can be given to the development of service companies (the equipment is multi-purpose) – this has worked in other countries. It is premature to consider crop sterilisation units (such as flash steam sterilisation units), but crop hygiene needs to be continually monitored.

---

<sup>1</sup> Air is drawn over a contained heat source and then passes on through the crop to be dried. The exhaust fumes/smoke etc from the heat source do not pass through the crop.

## ANNEX 1: DRAFT PRODUCT MARKET PROFILE: GINGER (DRY)

### Price Evolution:



Dry ginger prices are volatile, with a base price of around US\$1/kg, and a long term average of around US\$1.50/kg. Current prices are high (marker Chinese prices in excess of US\$2/kg) due to shortage of Indian supply – this is possibly a structural change in market supply as India changes from exporter to net importer.

### Global and Regional Trends

Chinese supply dominates market in all forms (fresh, dry) and for all usages (fresh, dried ground, oleoresin extraction, distillation) due to price and availability. India is changing to net importer, and has additional needs to supply expanding extraction industry. India becoming a major source of spice extracts, and will import dry ginger to meet raw material requirements.

Import statistics for ginger do not distinguish fresh and dry – total Western ginger market (EU and US) around 50,000 tonnes/yr and growing. The estimated dry ginger market is around 5,000 tonnes/yr.

Ground ginger (at origin) is small but growing market – in the US, imports increased from 500 tonnes to 1,250/yr over last 5 years. The situation is similar in the EU. Supply is dominated by China.

### **Main competitors**

China is the dominant market player. West Africa (Nigeria) was a significant supplier to extraction industry, but demand for Nigerian product is now very low due to earlier poor trading practices. It is unlikely that the country will become a significant supplier again. India is likely to become a net importer. Other major origins (Central & S America, SE Asia) are all fresh ginger producers. Ground ginger supply is dominated by China, and then India.

### **Market opportunities**

Immediate opportunity: supply of whole dried ginger (not ground) to EU, US and Indian markets. Initial target of 1,000 tonnes/yr.

Medium and long term opportunity: ginger offers a range of product opportunities in addition to dry ginger – mature fresh ginger (sea freight), and immature fresh ginger (airfreight), ginger in brine, ginger oil, ginger oleoresin, crystallised ginger, and ginger in syrup. It can therefore support a diverse range of enterprises supplying the fresh and processed food, confectionary, flavours and fragrances markets.

### **National and International regulatory framework**

Ginger is a standard item of international commerce.

### **National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

### **Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade. Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

### **Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

### **Distribution system**

Primary commercial targets are importer/dealers, and extractors.

### **Packaging**

Polypropylene sacks of 25 kg.

### **Usual terms of sales and payments**

Letter of credit

### **Conclusion**

Madagascar's cost structure allows it to compete with the price setting supplier – China – and it can therefore support long term market supply. Current high market prices reflecting a supply shortage offer an attractive framework to support crop development.

Diversification of ginger products (a medium to long term opportunity) depend on a full analysis and appraisal of the physio-chemical characteristics of Madagascar ginger.

Development of (dry ginger) product quality (to support positioning of the product in the market), and maintaining/increasing price competitiveness, and increasing margins (at all levels of the production/market chain) requires technical development of production systems, crop drying systems, and producer/exporter linkages.

## ANNEX 2: DRAFT PRODUCT MARKET PROFILE: GERANIUM OIL

---

### Price Evolution:

Price – US\$/kg

1999	2000	2001	2002	2003
40.60	44.69	43.91	51.64	59.01

Prices are an average of all origins, including fractionated material re-exported from European countries. Prices of natural oils from origin will be higher. The general trend in prices is upwards as the crop is not easy to grow and the production base is limited.

### Global and Regional Trends

Overall, the market is stable and showing moderate growth. Total demand is around 150 tonnes/yr, and is mainly concentrated in Europe. The bulk market is supplied by Egypt and China. The premium market was supplied by Reunion ('Bourbon' quality), but this supply has now stopped. Continuing growth of the global branded perfumery market maintains demand for high quality oils.

### Main competitors

China and Egypt dominate supply to the bulk market. Unless Madagascar can produce a 'Bourbon' quality oil, it will not compete with China/Egypt. East African production has stopped, and recent attempts to revive production have failed. No new entrants to the market are likely.

### Market opportunities

Core opportunity focused on the Bourbon niche market. Supply of up to 10 tonnes/yr at up to US\$100/kg.

### National and International regulatory framework

Geranium oil is a standard item of international commerce.

### National and International transport costs and conditions

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

### Customs regulations and tariffs

Established standards exist (ISO, ASTA) which enable international trade. Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

### Norms and certification requirements

Established standards exist (ISO, ASTA) which enable international trade.

### Distribution system

Primary commercial targets are importer/dealers.

**Packaging**

Standard PTE drums.

**Usual terms of sales and payments**

Letter of credit

**Conclusion**

Madagascar can replace Reunion production – accessing premium prices – due to its environmental conditions. Long term market development opportunities are limited – competition with China/Egypt for the bulk market is unlikely to be commercially attractive. The crop can form one part of a range of essential oils crops that can support small enterprises.



## SUMMARY OF PRODUCT MARKET STUDIES: NEXT STEPS

Category/Product	Market Opportunity: Positive/Negative	US\$ Value Opportunity	
		Short term	Long term
<b>SPICES:</b>			
Cinnamon	Positive	500,000	1,500,000
Dry Ginger	Positive	1,000,000	2,000,000
Paprika	Positive	2,000,000	3,000,000
Chillies and other capsicums	Positive	600,000	600,000
Pepper (black)	Positive	3,500,000	7,000,000
Vanilla <sup>1</sup>	Positive	5,000,000	10,000,000
Turmeric	Negative		
<b>ESSENTIAL OILS:</b>			
Cinnamon oil	Positive	10,000	30,000
Eucalyptus oils	Positive	400,000	800,000
Ginger oil	Positive	400,000	
Geranium oil	Positive	375,000	750,000
Clove oil	Negative		

### Next Steps and Approaches:

Cinnamon	<ul style="list-style-type: none"> <li>• Audit of production sector and practices and development of programme to boost production</li> <li>• Appraisal of post-harvest handling and processing system, and development of programmes to improve product quality</li> <li>• Development of high quality quill production</li> <li>• Detailed investigation of Mexico and other Central American markets to confirm and identify opportunities</li> </ul>
Dry Ginger	<ul style="list-style-type: none"> <li>• Development of programme to boost production</li> <li>• Development of improved post-harvest handling and drying to improve quality, increase efficiency and reduce costs</li> <li>• Detailed investigation and development of European and Indian markets</li> </ul>
Paprika	<ul style="list-style-type: none"> <li>• Introduction and rapid observational trialling of Papri Queen &amp; Papri King varieties to confirm suitability</li> <li>• Promotion of production and drying operations</li> <li>• Development of market linkages (US and Spain)</li> </ul>

<sup>1</sup> The opportunity (**requirement**) for vanilla is to re-establish market demand that was stifled by recent excessive prices – that part of the past market that will not come back naturally and immediately as a result of lower prices.

Chillies and other capsicums	<ul style="list-style-type: none"> <li>• Introduction and rapid observational trialling of Scotch Bonnet type chillies to confirm suitability</li> <li>• Promotion of production and drying operations</li> <li>• Development of market linkages</li> </ul>
Pepper	<ul style="list-style-type: none"> <li>• Promotion of production and drying operations</li> </ul>
Vanilla	<ul style="list-style-type: none"> <li>• Support to development of integrated groupings of growers &amp; processor/exporters</li> <li>• Development of improved curing facilities</li> <li>• Market promotion programmes focused on companies in food ingredients and processing sector</li> <li>• Establish unit/programme to monitor global production and changes in traded volumes closely</li> <li>• Develop dialogue with regulatory authorities in major markets (particularly France, Germany, US) on auditing product labelling compliance</li> </ul>
Cinnamon oils	<ul style="list-style-type: none"> <li>• Detailed investigation of major users of Sri Lankan oils to confirm and refine quantification of supply opportunity</li> <li>• Targeted promotion programme at users of cinnamon bark oil in major markets</li> </ul>
Eucalyptus oils	<ul style="list-style-type: none"> <li>• Audit of species used and oil composition/ characteristics against market standards</li> <li>• Assessment of existing scale of planting resource and production &amp; distillation systems to identify optimum/viable operations</li> <li>• Direct contract programme with major users of perfumery (E. citriodora) oils to assess interest in Madagascan oil characteristics</li> </ul>
Ginger oil	<ul style="list-style-type: none"> <li>• Develop contact programme with major buyers and users of Indian and Sri Lankan oils to assess interest in Madagascan oil characteristics</li> <li>• Link with developments of ginger for dry ginger production, to secure efficient production of high quality resource of dry raw material</li> </ul>
Geranium oil	<ul style="list-style-type: none"> <li>• Develop contact programme with major buyers and users of geranium oil for high end fragrance uses;</li> <li>• sample supply programme to confirm acceptance as replacement to Reunion oils, and refine demand volumes</li> <li>• Support development of field production to maximise yield and crop life, to minimise costs of production</li> </ul>

## **PRODUCT MARKET PROFILE: PROCESSED FRUIT**

This overview outlines the markets for processed fruit. Processing fruit extends the storage life of perishable products which allows:

- flexibility in timing of sales
- less restrictive transport requirements leading to wider distribution and export possibilities
- added value

By processing to a preserved form products can be supplied to the market throughout the year.

### **Range of Products:**

The range of techniques used to reduce deterioration in foods is extensive. The selection of the appropriate procedure depends on the food concerned and also on the user, and not all means of preservation are appropriate for fruit. However, freezing, dehydration, concentration, chemical preservation, sugaring, pasteurisation, sterilisation, sterilising filtration and irradiation are all used to supply international trade with fruit in a preserved form:

- ⇒ Juices, nectars, concentrates and pulps – The juice of a fruit, which may also be a simple pulp or concentrated by evaporation. The leading products are orange and apple but pineapple, mango and grapefruit are also substantial. Other tropical juices that are traded internationally include guava, banana, passion fruit (granadilla) and lychee
- ⇒ Canned fruit – principally pineapples and deciduous fruits from temperate climates, but also lychees and citrus.
- ⇒ Frozen fruit – mostly temperate berry crops such as strawberries, raspberries and blueberries.
- ⇒ Dried fruit – substantial trade in temperate climate fruits such as apricots, apples, prunes and raisins. In tropics, principally dates but also in bananas, papaya, mango and pineapple
- ⇒ Jams – generally boiled fruit with sugar added and usually made from citrus or soft fruit.
- ⇒ Candied fruit – fruits and peels preserved in sugar. Candied citrus and citrus peel are the leading products in this category. Consumption of candied tropical fruits has declined.
- ⇒ Fresh cut fruit – Small market but high value with potentially interesting margins. Fresh-cut fruit uses advanced packaging technology to maintain the fruit in an acceptable standard. The market for prepared fresh produce has developed strongly over the last decade, but fruit has not shown the rapid expansion that is seen in salads and vegetables.

For the present exercise only those fruits that have separate customs codes have been reviewed. The list is quite extensive but most of the tropical juices cannot be separated out from the trade statistics. In general, however, any product where the trade has become important receives a custom coding.

**Price Evolution:**

For the most part prices of tropical fruit products are not published or recorded. The International Trade Centre (ITC) however does monitor tropical juice prices.

For 2003 the ITC reported the following prices for tropical juices:

<b>Product</b>	<b>Origin</b>	<b>Form</b>	<b>Brix</b>	<b>Price (US\$/t)</b>	<b>Basis</b>
Banana	C America	Pulp	22	485-515	fot Netherlands
Guava	RSA	single strength	9-10	490-520	cfr Netherlands
Guava	RSA	Concentrate	20	975	cfr Netherlands
Papaya	Brazil	Concentrate	20	1100-1150	fot Netherlands
Pineapple	Thailand	Concentrate	60	1250-1300	cfr Netherlands
Pineapple	Thailand	Pulp		625-650	cfr Netherlands
Passion Fruit	Ecuador	single strength	14-15	1200-1225	fca Netherlands
Passion Fruit	Ecuador	Concentrate	50	2600-2700	cfr Netherlands
Mango	India	Pulp	16-18	1175-1200	fot Netherlands
Mango	India	Concentrate	28	1150-1200	fot Netherlands
Acerola	Brazil	single strength	7	1150-1175	fot Netherlands

Prices for other processed fruit products are not published and the nearest substitute is the unit import value that can be calculated from trade statistics of declared import volumes and values. Only those products that are distinguished by the trade figures can be handled this way.

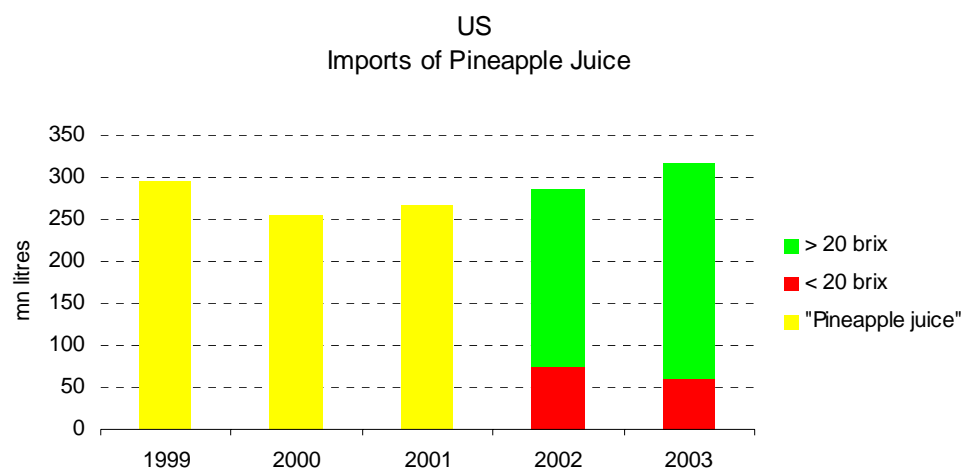
**Global and Regional Trends**

The following survey draws only on the trade figures for the US and the EU. These are the two largest importers and it is likely that any other international trade is relatively minor.

**Product Description:** Pineapple Juice – includes frozen and unfrozen

**Product Code:** Up to 2001 all pineapple juice imports categorised under 200940 - Pineapple juice, not fermented or spirited  
 From 2002 concentrate and single strength juices separated into 200941 - Pineapple juice of a brix value <=20, not fortified, unfermented, and not containing added spirit  
 And 200949 - Pineapple juice, not fortified, unfermented and not containing added spirit, nesoi

**Trade Statistics:**



**Principal Suppliers:**

Single Strength		Concentrate	
Thailand	27%	Philippines	70%
Indonesia	27%	Thailand	23%
		Indonesia	6%

**Trade Value:** 2003 Imports to the USA valued at \$93mn.

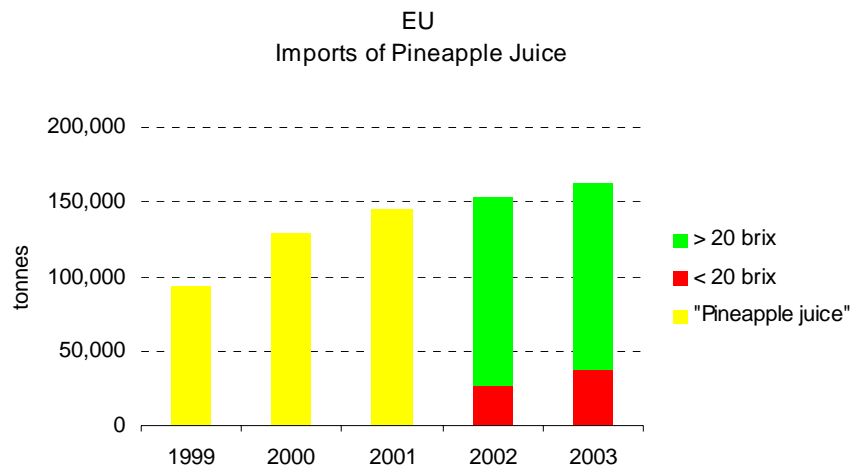
**Notes:**

- ⇒ Strong growth in imports since 2000
- ⇒ Apparent decline in single strength imports

**Product Description:** PINEAPPLE JUICE

**Product Code:** All pineapple juice products classified under 200940 up until 2001.

**Trade Statistics:**



**Principal Suppliers:**

Single strength	Concentrate
Costa Rica 36%	Thailand 45%
Thailand 35%	Kenya 13%
	Indonesia 11%
	Philippines 10%

**Trade Value:** Imports to the EU valued at €140mn in 2003 (\$158mn)

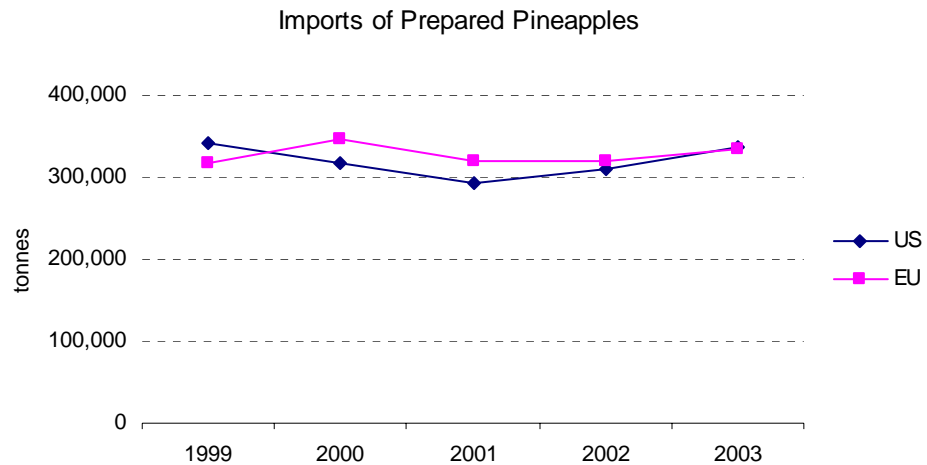
**Notes:**

- ⇒ Good growth in imports
- ⇒ Single strength juice growing rapidly

**Product Description:** Pineapples, prepared or preserved (whether or not with added sugar)

**Product Code:** US code 200820 is divided into two categories – with added sugar and without.  
 EU code 200820 is divided into 11 categories depending on the added spirit or sugar content and the packaging. Most prepared pineapple enters the EU with added sugar but no spirit.

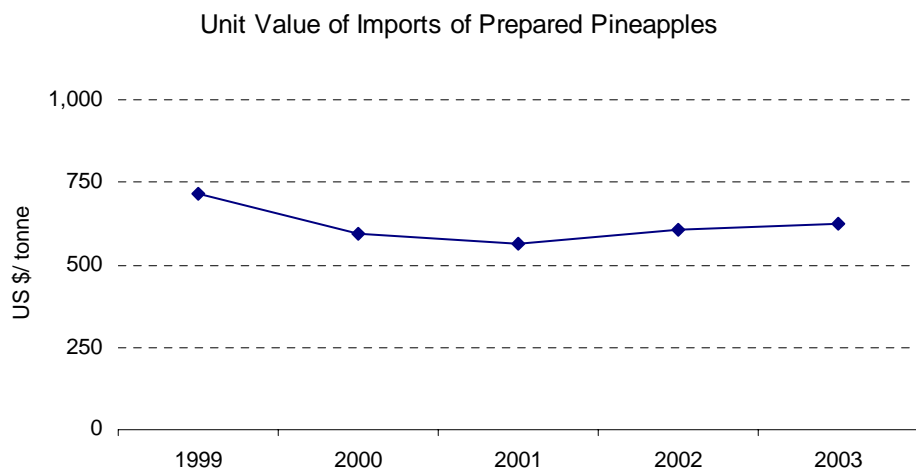
**Trade Statistics:**



**Principal Suppliers:**

US		EU	
Philippines	41%	Thailand	47%
Thailand	30%	Indonesia	19%
Indonesia	16%	Kenya	15%

**Trade Value:**



2003 US imports \$211mn. EU imports €209mn (\$237mn)

**Notes:** ⇒ Large scale product

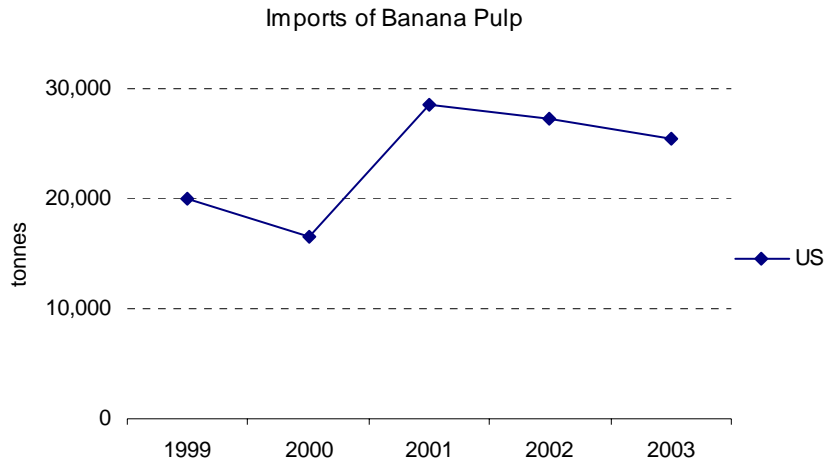
- ⇒ Mostly supplied by the Far East
- ⇒ No growth or decline in imports



**Product Description:** BANANA PULP,PRE/PRS

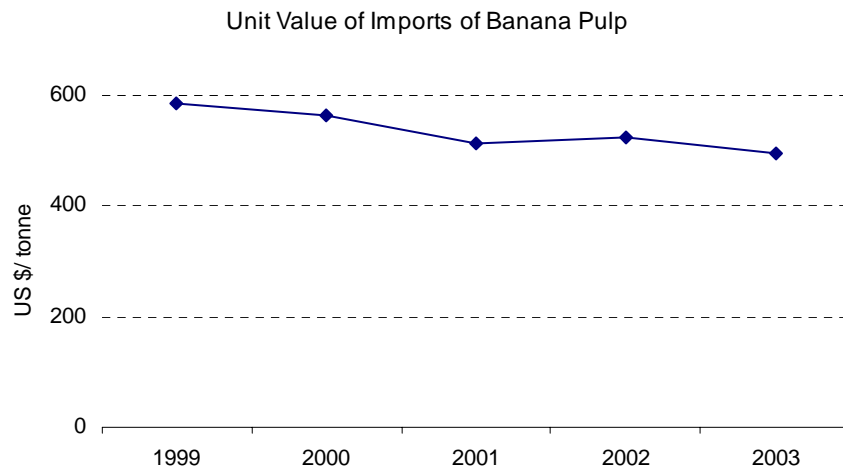
**Product Code:** 2008991300

**Trade Statistics:**



**Principal Suppliers:** Costa Rica 80%  
Ecuador 19%

**Trade Value:**



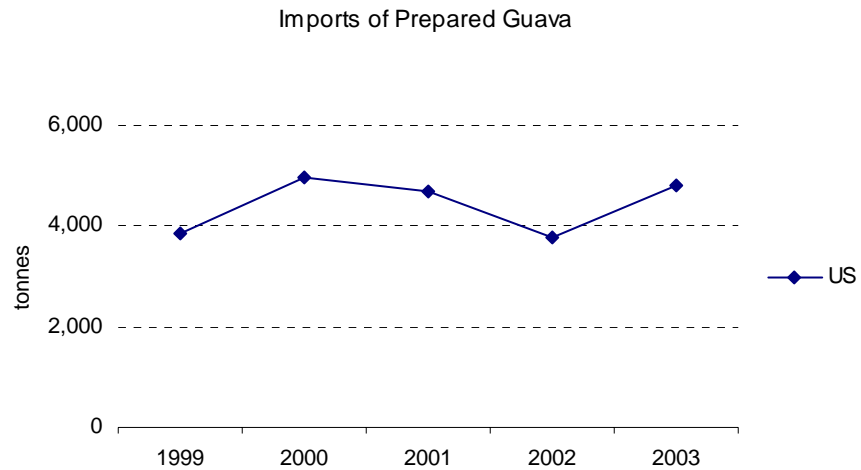
2003 US Imports \$13mn

**Notes:**

**Product Description:** GUAVA,PREPARED,PPRESERVED,

**Product Code:** 2008993000

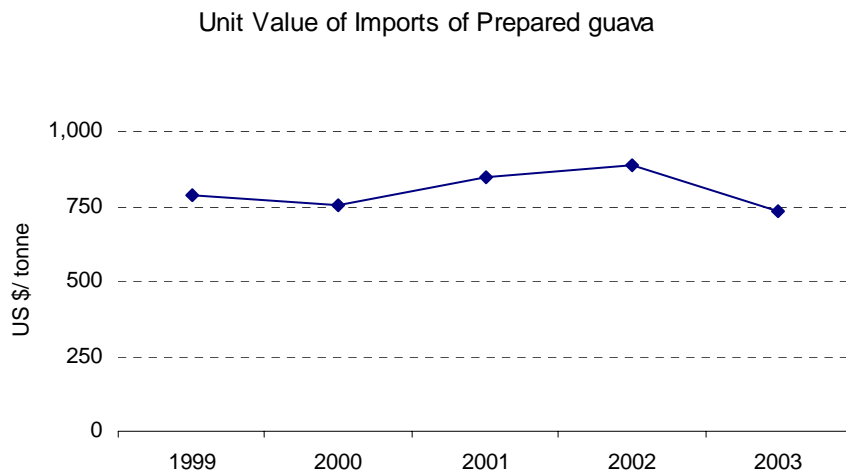
**Trade Statistics:**



**Principal Suppliers:**

Dominican Rep	24%
Mexico	16%
Brazil	15%
Ecuador	13%

**Trade Value:**



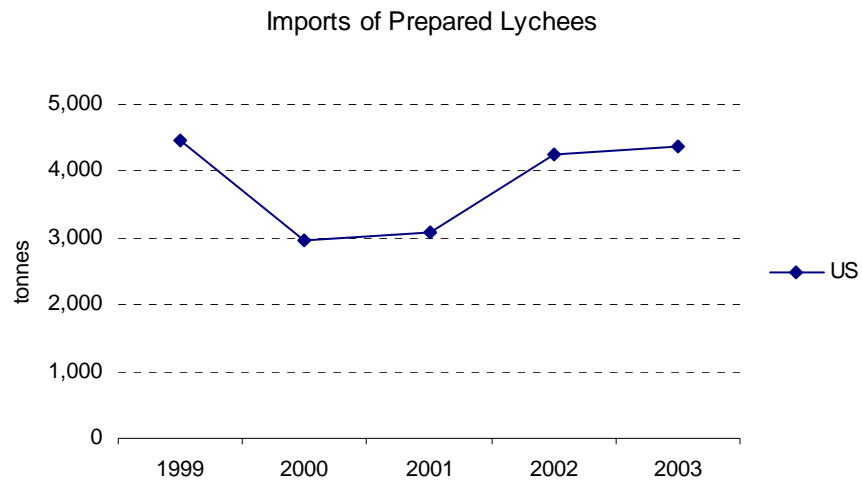
2003 US Imports \$3.5mn

**Notes:**

**Product Description:** LYCHEES,PREPARED,PRESERVED

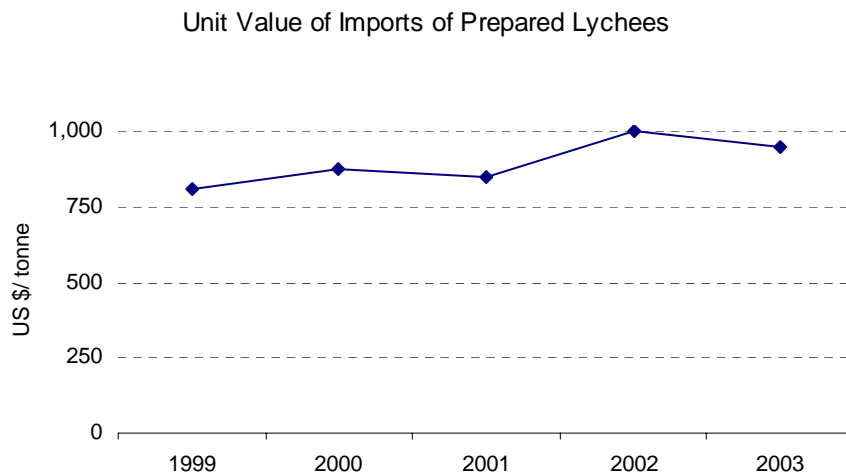
**Product Code:** 2008993500

**Trade Statistics:**



**Principal Suppliers:** Thailand 85%  
China 12%

**Trade Value:**



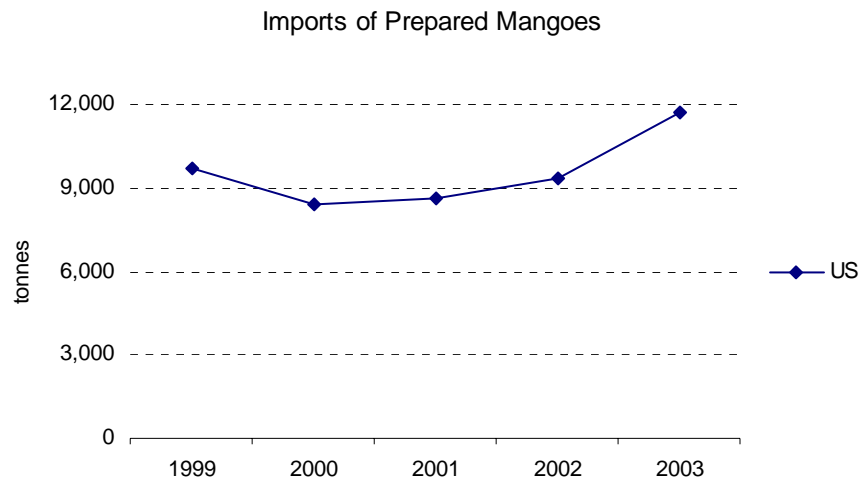
2003 US Imports \$4.4mn

**Notes:**

**Product Description:** MANGOE,PREPARED,PRESERVED

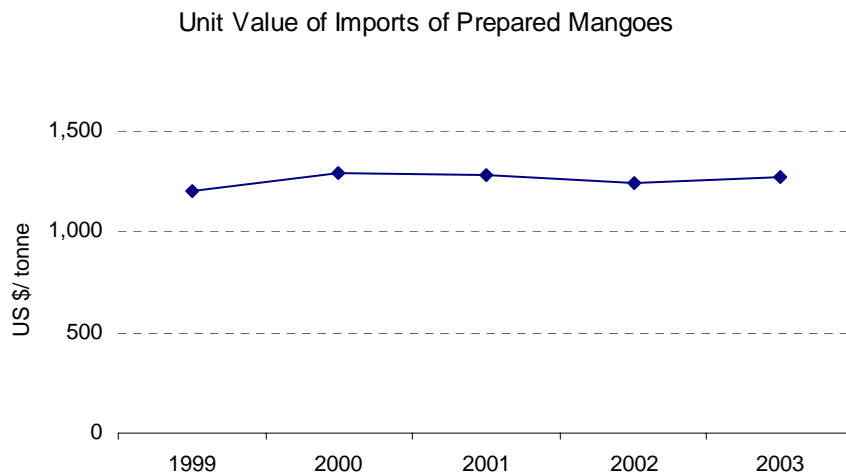
**Product Code:** 2008994000

**Trade Statistics:**



**Principal Suppliers:** Mexico 36%  
India 20%  
Thailand 16%

**Trade Value:**

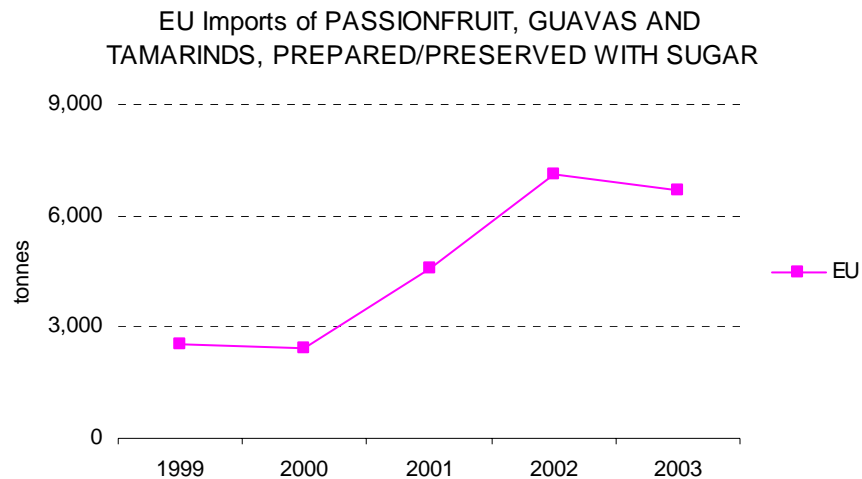


2003 US Imports \$15mn

**Notes:**

**Product Description:** PASSIONFRUIT, GUAVAS AND TAMARINDS, PREPARED OR PRESERVED, CONTAINING NO SPIRIT BUT WITH ADDED SUGAR  
**Product Code:** 20089946 + 20089961

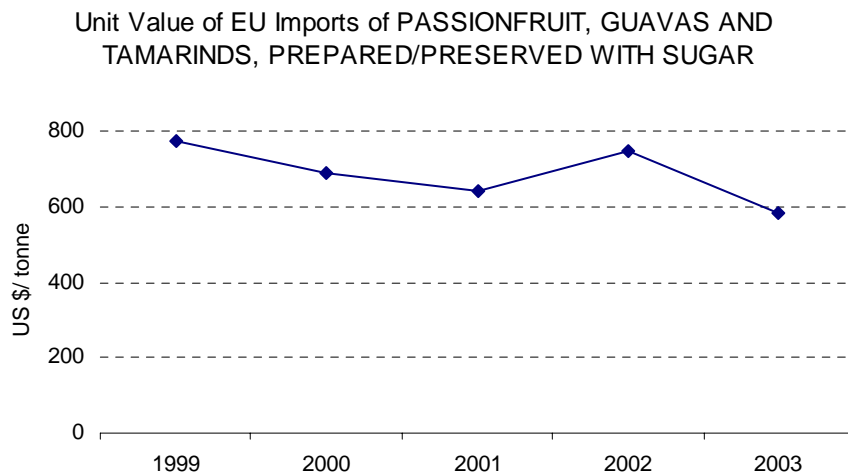
**Trade Statistics:**



**Principal Suppliers:**

South Africa	48%
Malaysia	13%
India	12%
Ecuador	11%

**Trade Value:**



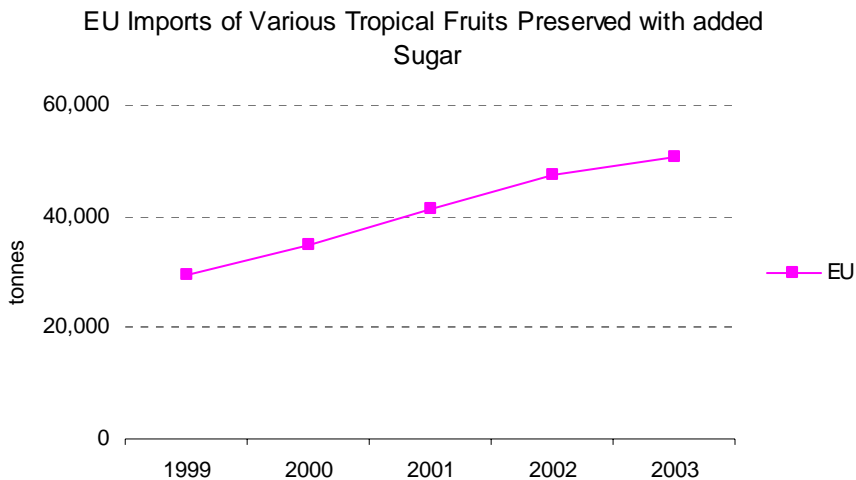
2003 EU imports \$3.9mn

**Notes:**

**Product Description:** MANGOES, MANGOSTEENS, PAPAWS 'PAPAYAS', CASHEW APPLES, LYCHEES, JACKFRUIT, SAPODILLO PLUMS, CARAMBOLA AND PITAHAYA, PREPARED OR PRESERVED, NOT CONTAINING ADDED SPIRIT BUT CONTAINING ADDED SUGAR

**Product Code:** 20089947 + 20089962

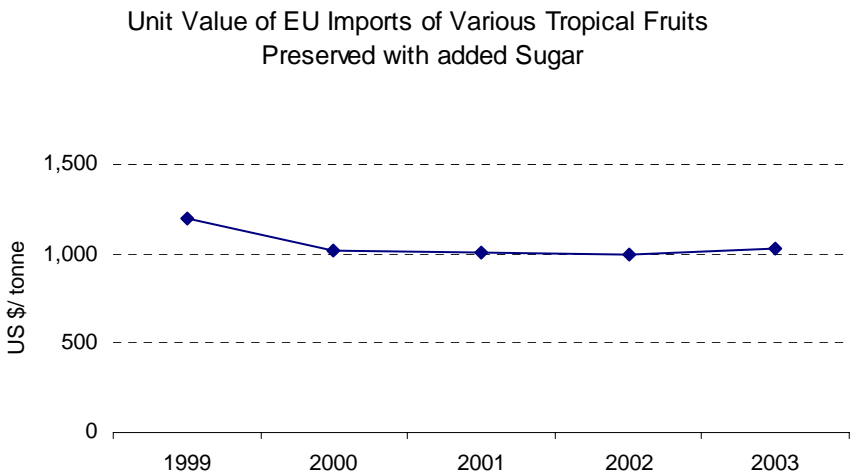
**Trade Statistics:**



**Principal Suppliers:**

India	41%
Thailand	21%
China	14%

**Trade Value:**



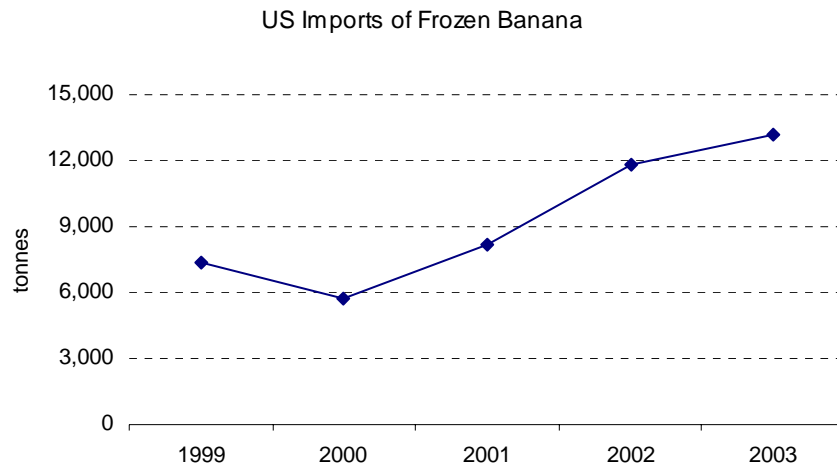
2003 EU Imports \$52mn

**Notes:**

**Product Description:** Bananas or Plantains, Frozen

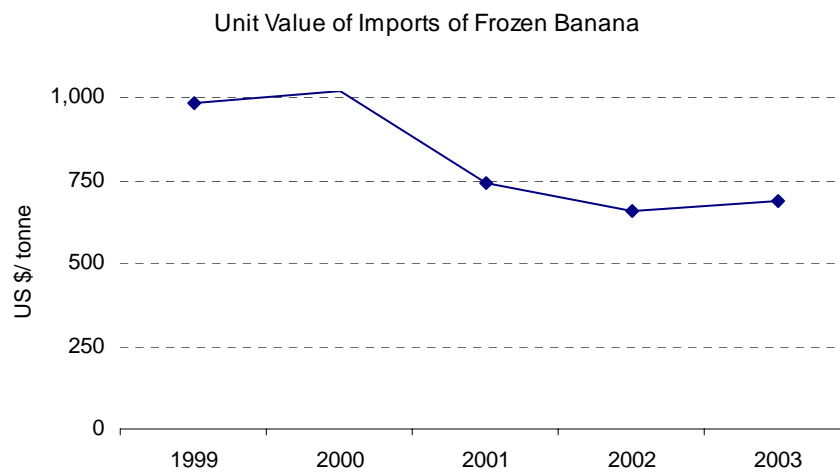
**Product Code:** 0811901000

**Trade Statistics:**



**Principal Suppliers:** Costa Rica 70%  
Ecuador 17%

**Trade Value:**



2003 US Imports \$9mn

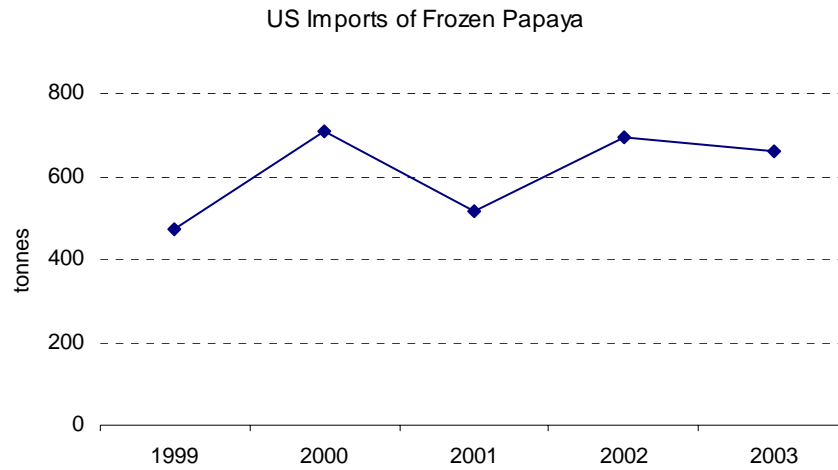
**Notes:**



**Product Description:** Papaya, frozen

**Product Code:** 0811904000

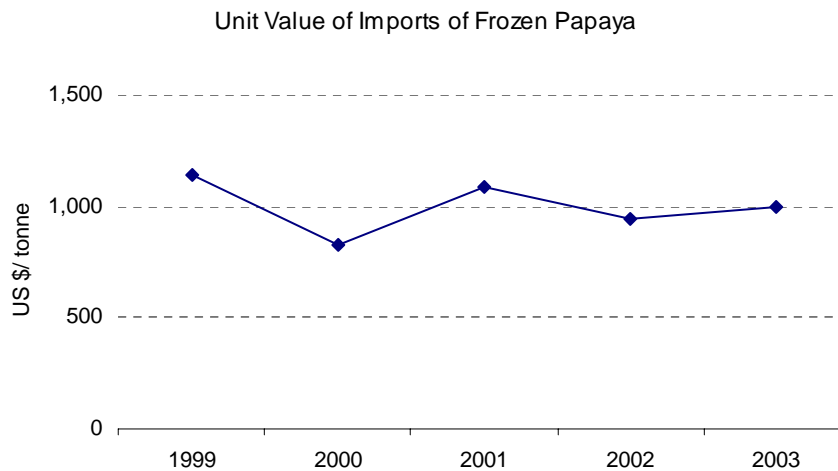
**Trade Statistics:**



**Principal Suppliers:**

Costa Rica	50%
Mexico	12%
Colombia	11%

**Trade Value:**



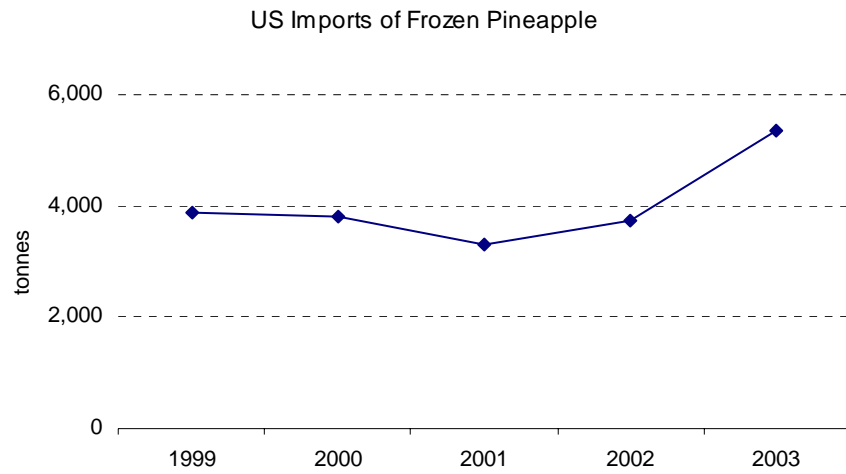
2003 US Imports \$0.7m

**Notes:**

**Product Description:** Pineapple, frozen, not sweetened

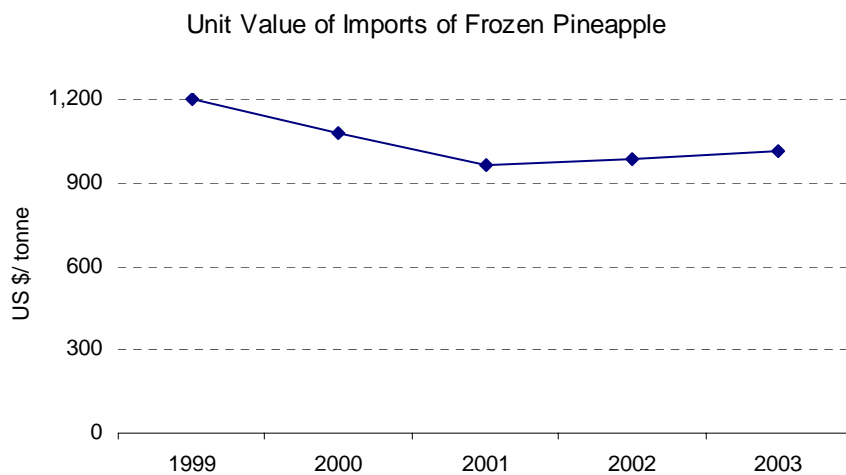
**Product Code:** 0811905000

**Trade Statistics:**



**Principal Suppliers:** Costa Rica 64%  
Ecuador 23%

**Trade Value:**



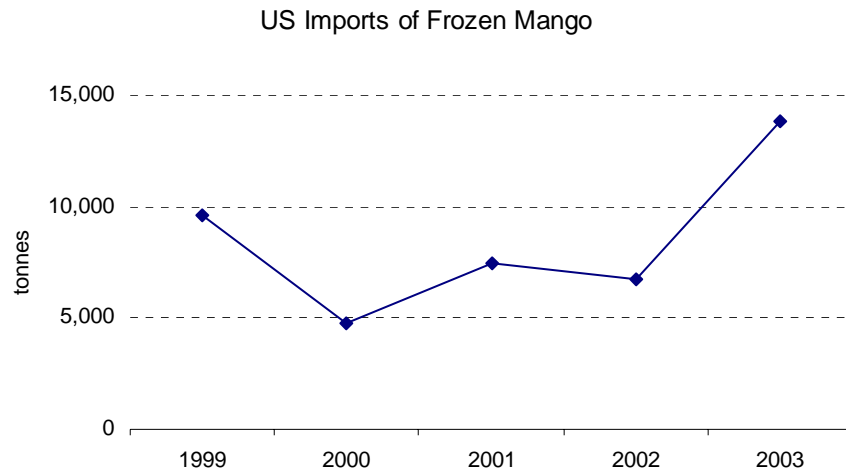
2003 US Imports \$5.4mn

**Notes:**

**Product Description:** Mangoes, frozen

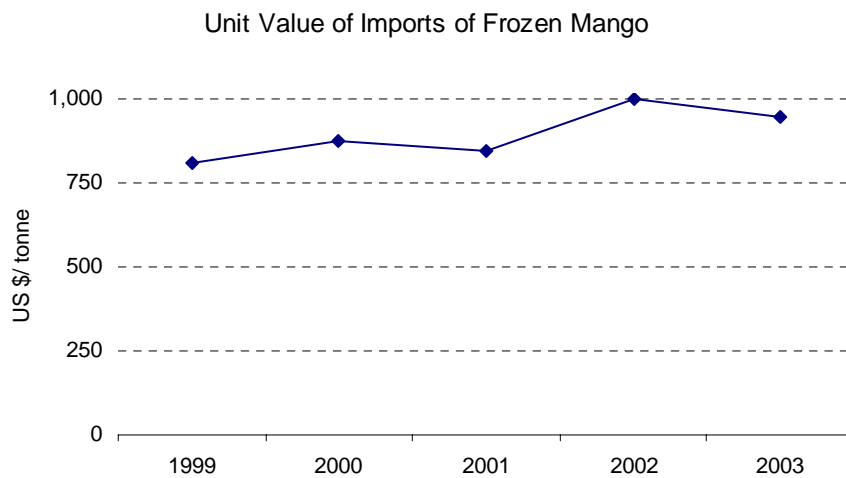
**Product Code:** 0811905200

**Trade Statistics:**



**Principal Suppliers:** Mexico 77%  
Peru 10%

**Trade Value:**



2003 US Imports \$13mn

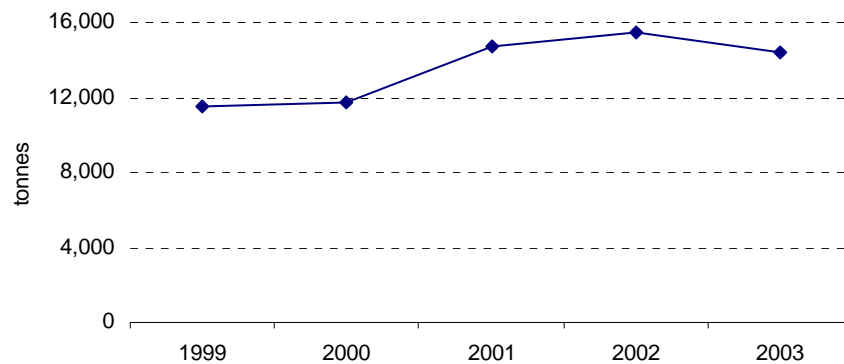
**Notes:**

**Product Description:** GUAVAS, MANGOES, MANGOSTEENS, PAPAWS 'PAPAYAS', TAMARINDS, CASHEW APPLES, LYCHEES, JACKFRUIT, SAPODILLO PLUMS, PASSION FRUIT, CARAMBOLA, PITAHAYA, COCONUTS, CASHEW NUTS, BRAZIL NUTS, ARECA 'BETEL' NUTS, COLA NUTS AND MACADAMIA NUTS, UNCOOKED OR COOKED BY STEAMING OR BOILING IN WATER, FROZEN, NOT CONTAINING ADDED SUGAR OR OTHER SWEETENING MATTER

**Product Code:** 08119085

**Trade Statistics:**

EU Imports of Frozen Tropical Fruits



**Principal Suppliers:**

Peru	18%
South Africa	15%
India	13%
Thailand	10%

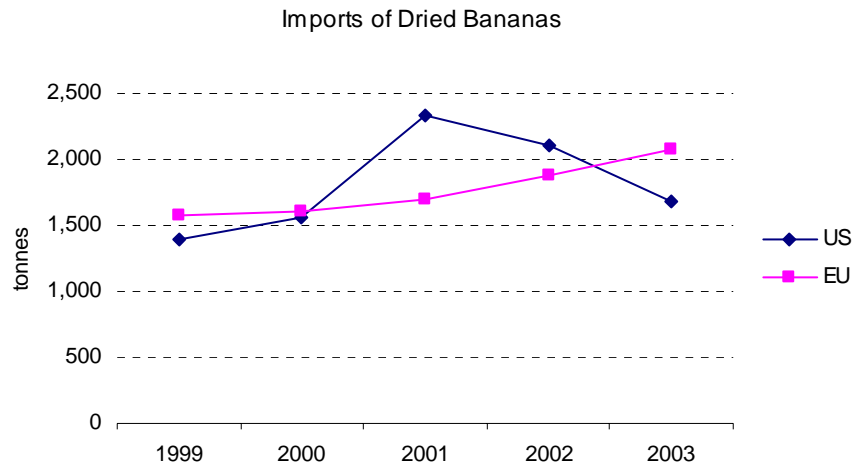
**Trade Value:** 2003 EU Imports \$15mn

**Notes:**

**Product Description:** Dried Bananas, incl. plantains

**Product Code:** US 0803002040  
EU 080300900

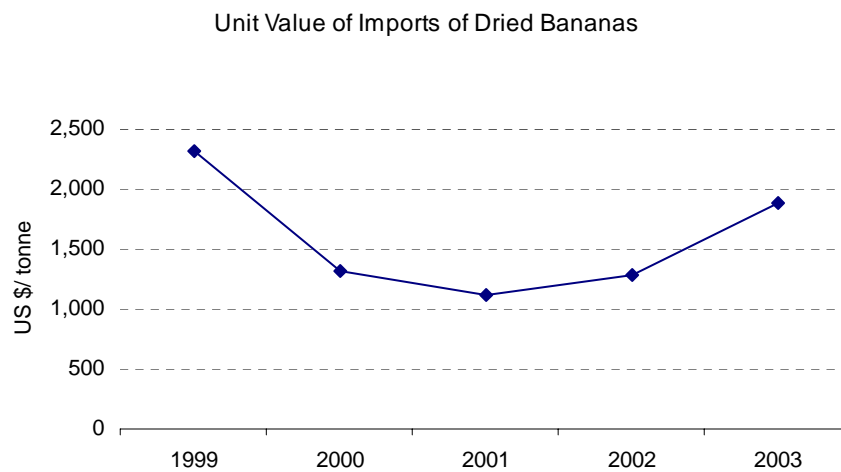
**Trade Statistics:**



**Principal Suppliers:**

US		EU	
Philippines	70%	Ecuador	62%
Ecuador	15%	Costa Rica	11%

**Trade Value:**



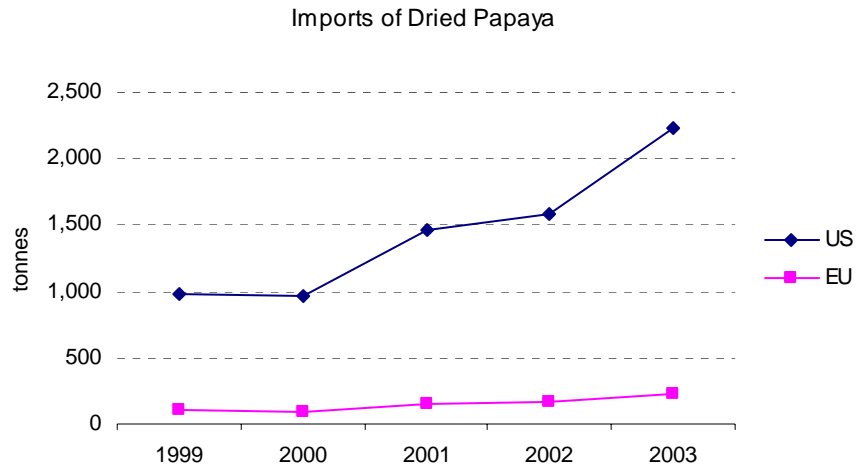
2003 US Imports \$3mn EU Imports \$4.7mn

**Notes:**

**Product** Papayas, dried  
**Description:** Pawpaw, dried

**Product Code:** US 0813401000  
 EU 08134050

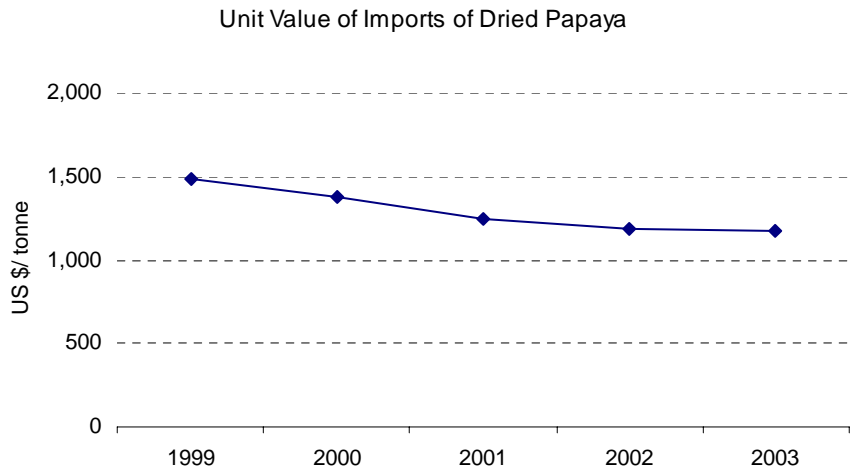
**Trade Statistics:**



**Principal Suppliers:**

US		EU	
Thailand	99%	Thailand	76%
		Brazil	17%

**Trade Value:**



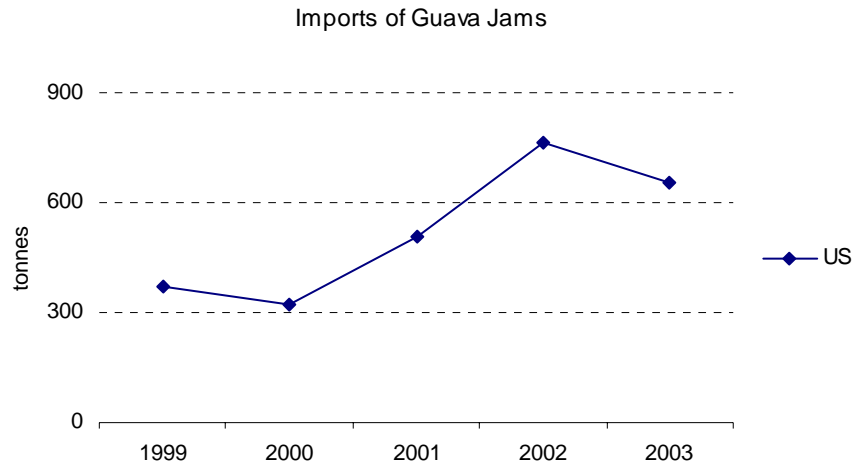
2003 US Imports \$2.6mn EU Imports \$1.3mn

**Notes:**

**Product Description:** GUAVA JAMS

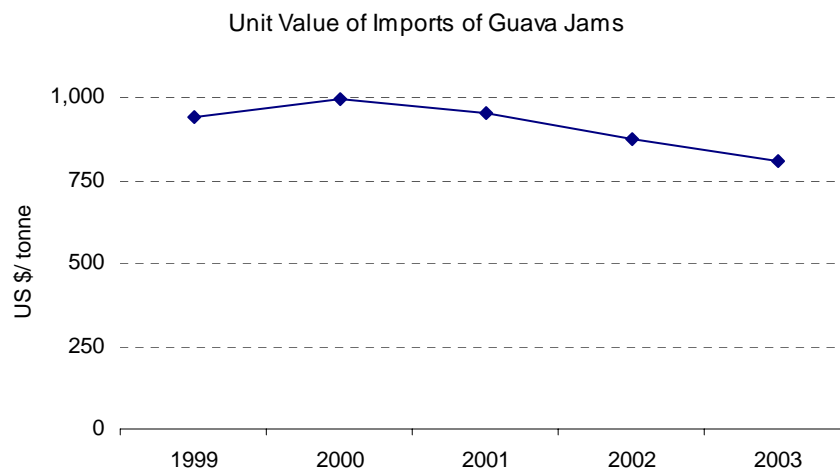
**Product Code:** 2007993000

**Trade Statistics:**



**Principal Suppliers:** Brazil 52%  
Costa Rica 41%

**Trade Value:**



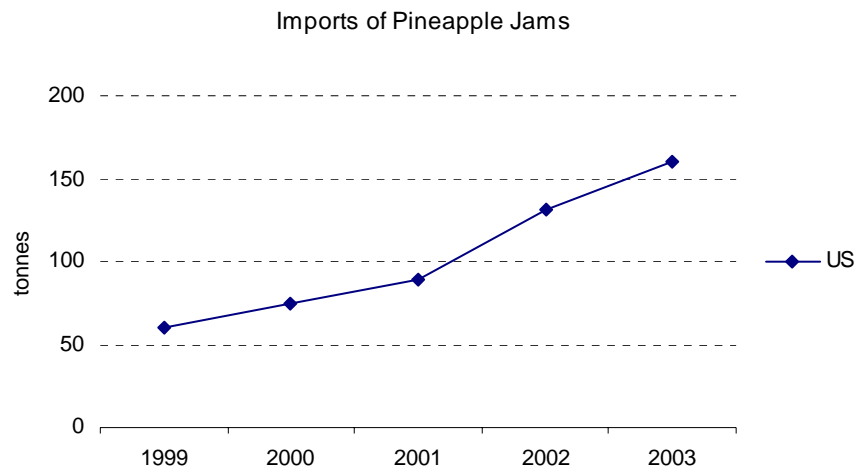
2003 US Imports \$0.5mn

**Notes:**

**Product Description:** PINEAPPLE JAMS

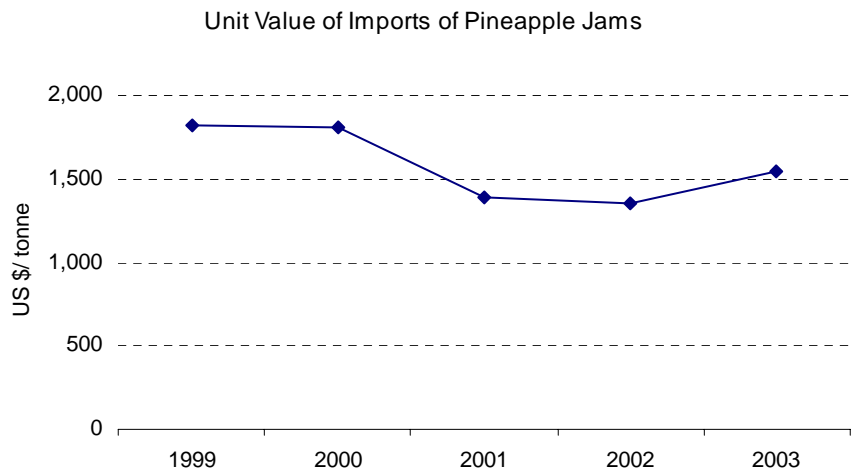
**Product Code:** 2007994000

**Trade Statistics:**



**Principal Suppliers:** Canada 27%  
Poland 24%

**Trade Value:**



2003 US Imports \$0.25mn

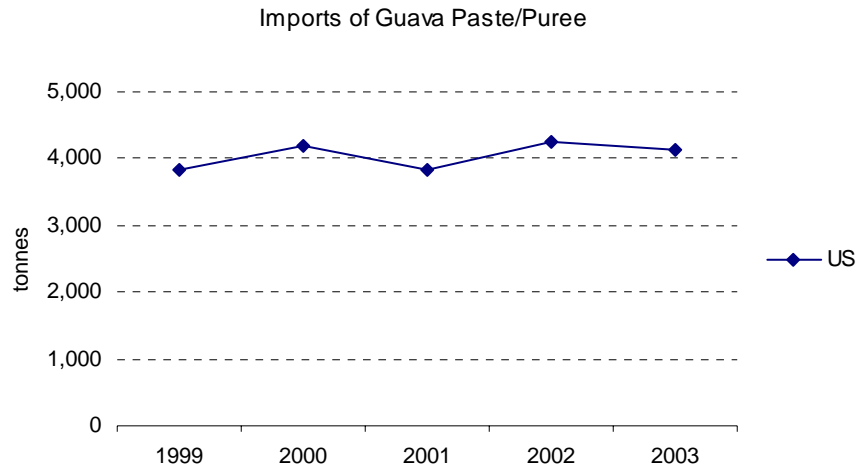
**Notes:**



**Product Description:** GUAVA PASTES AND PUREE, COOKED PREP WHETHER OR NOT SWEETENED

**Product Code:** 2007995010

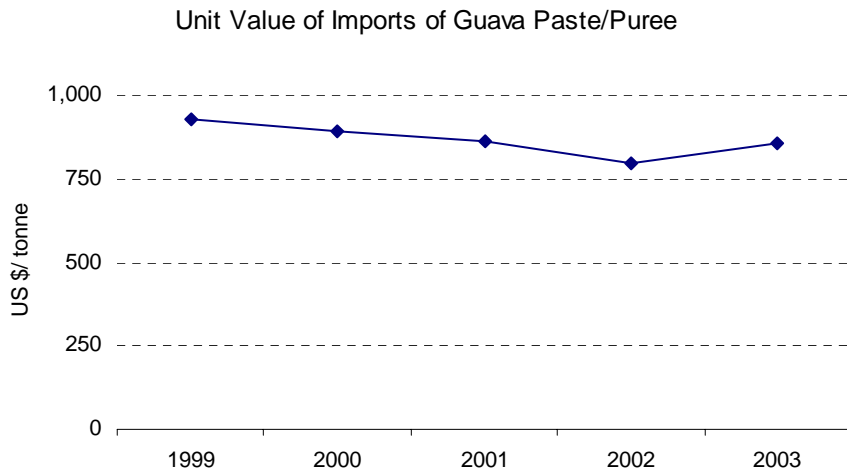
**Trade Statistics:**



**Principal Suppliers:**

Brazil	39%
Dominican Rep	19%
India	14%

**Trade Value:**



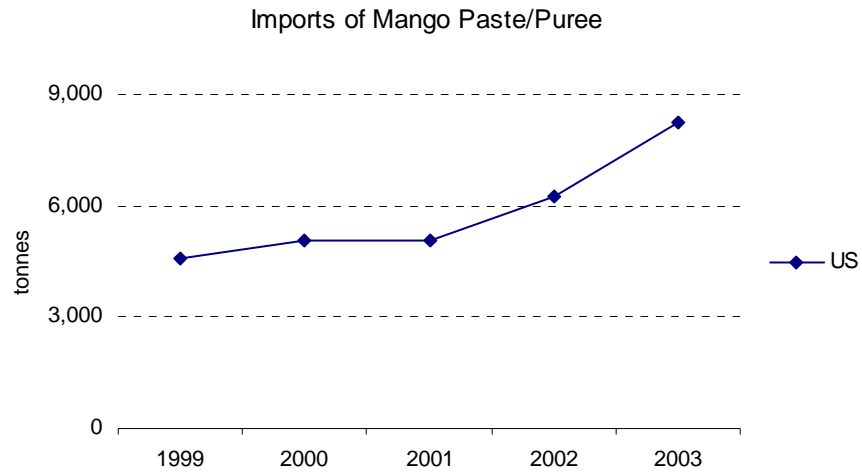
2003 US Imports \$3.5mn

**Notes:**

**Product Description:** MANGO PASTES AND PUREE, COOKED PREP WHETHER OR NOT SWEETENED

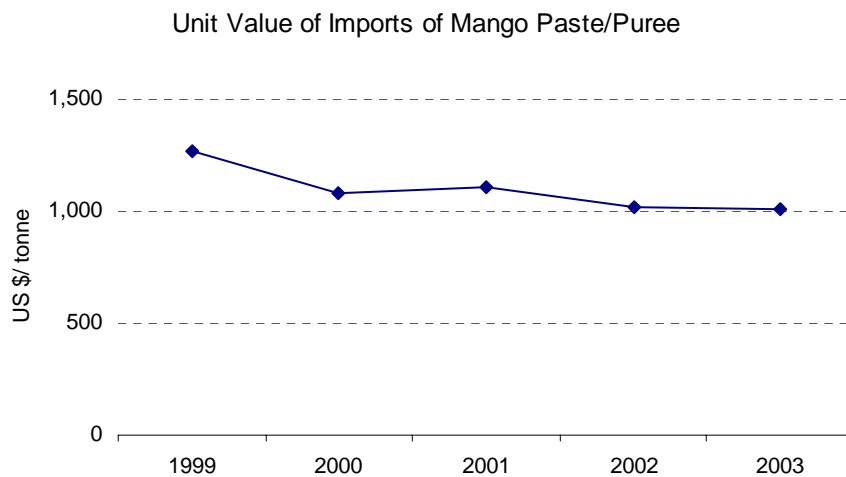
**Product Code:** 2007995020

**Trade Statistics:**



**Principal Suppliers:** Mexico 32%  
Colombia 28%  
India 17%

**Trade Value:**



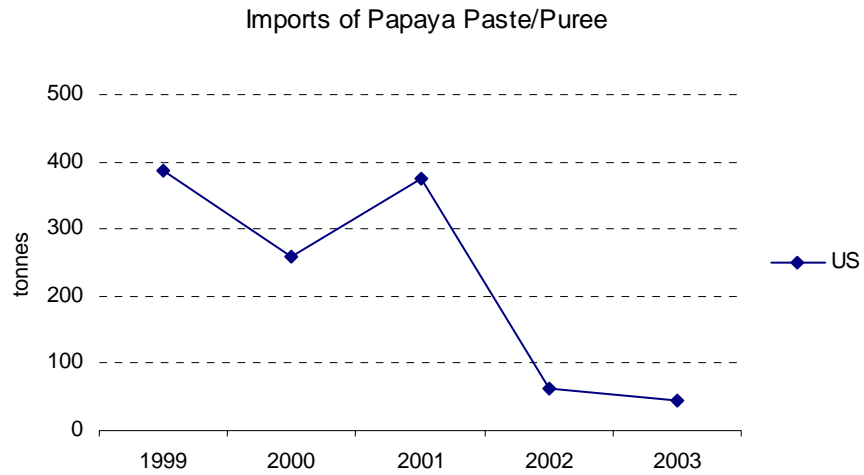
2003 US Imports \$8.3mn

**Notes:**

**Product Description:** PAPAYA PASTES AND PUREE, COOKED WHETHER ORNOT SWEETENED

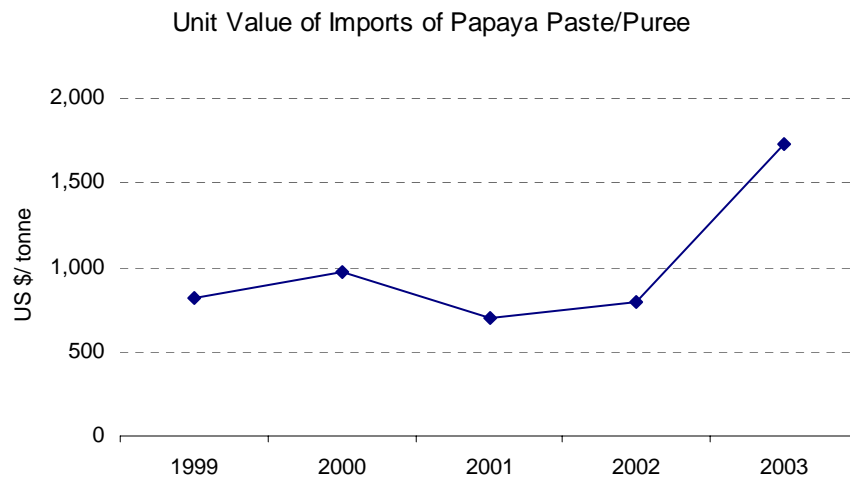
**Product Code:** 2007995500

**Trade Statistics:**



**Principal Suppliers:** In 2003, only Japan supplied this product.  
Previously imports derived from Colombia, Philippines and India

**Trade Value:**



2003 US Imports \$0.08mn

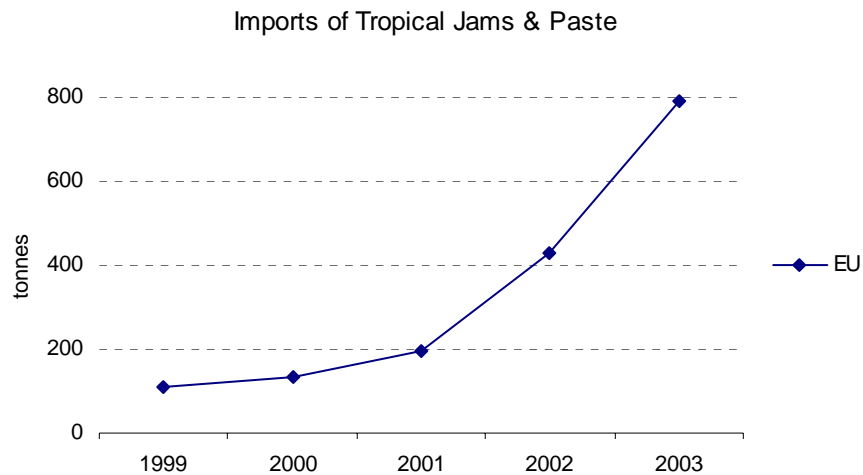
**Notes:**

**Product Description:**

JAMS, JELLIES, MARMALADES, PUR ُغ AND PASTES, OF GUAVAS, MANGOES, MANGOSTEENS, PAPAWS 'PAPAYAS', TAMARINDS, CASHEW APPLES, LYCHEES, JACKFRUIT, SAPODILLO PLUMS, PASSION FRUIT, CARAMBOLA, PITAHAYA, OBTAINED BY COOKING, WHETHER OR NOT CONTAINING ADDED SUGAR OR OTHER SWEETENING MATTER, PUT UP FOR RETAIL SALE AS INFANT FOOD OR FOR DIETETIC PURPOSES, IN CONTAINERS OF A NET WEIGHT OF <= 250 G (EXCL. WITH A SUGAR CONTENT OF > 13% BY WEIGHT)

**Product Code:** 20071091

**Trade Statistics:**



**Principal Suppliers:**

India	35%
Brazil	18%
Colombia	13%

**Trade Value:** \$0.94mn imports to EU in 2003.

**Notes:** Strong growth but still a very small market of speciality products.

**Regulatory Framework:**

There are no exceptional regulatory issues, although it must be remembered that processed products will be expected to have a full declaration of additives particularly where the product is exported in retail packaging.

**National and International transport costs and conditions:**

The transport requirements depend on the product. Frozen juices and pulps will require specialized handling, whereas canned or boxed products can be handled at ambient temperatures in standard conditions.

**Customs Regulations and Tariffs**

Madagascan suppliers would not be at any particular disadvantage with this product range. In some instances there may be a small tariff advantage.

**Norms and Certification requirements**

As processed products there may be no further processing involved and suppliers will be expected to work to EU and US norms of food processing with HACCP And ISO standards mandatory.

**Distribution System**

Depends to some extent on the specific product.

**Packaging**

Juices may be shipped in 200l drums (steel double lined with food grade polythene), or in tankers. Juices may be frozen but increasing aseptic packaging is preferred. Clearly it is preferable to concentrate to the product first rather than transporting water, but this depends on the market.

Dried fruit is shipped in cardboard cartons, poly lined or containing 204 5kg boxes. Boxes are easier to palletize than bags.

Canned goods are exported in hot-packed metal cans up to 5kg.

Frozen fruit products are exported in a range of different carton sizes from 10 to 25kg. Usually polylined.

**Usual terms of sales and payments**

Importers would expect to buy on a delivered or possibly c&f basis. Letter of credit.

**Conclusion**

Although the tropical juices and canned pineapple are items of substantial volume trade Madagascar is unlikely to be able to compete with the major suppliers. These are commodity items and the returns do not justify the cost of entry to the market. There are shortages in the market from time to time but overall the market is well supplied. Niche markets and niche products within this category of processed fruits are generally quite small.

## CLOVE OIL

5 types of clove oils and products are traded. 3 oils are directly distilled from plant parts – clove bud, clove stem, and clove leaf oils. In addition, clove oil redistilled is recovered from the water used to wash cloves during the manufacture of keretek cigarettes; and clove terpenes are obtained as a by-product from the production of eugenol from clove leaf oil.

### Price Evolution:

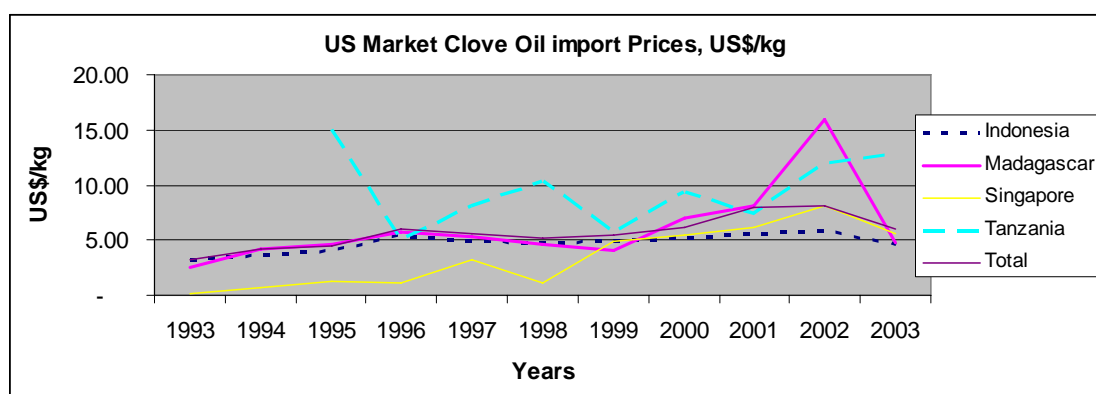
Spot prices (ie ex-store) for different oil types by origin are shown below. Bud oil is the most expensive, and used in high quality flavours and perfumery. Stem oil is substantially cheaper, with poorer taste and odour, but the chemical specifications of stem and bud overlap, and bud oil is frequently extended with the addition of stem oil. Leaf oil is the bulk low value oil, primarily used for the production of eugenol, and priced on the eugenol content (hence Indonesian leaf oil, with higher eugenol content is priced above Madagascan, although the latter has a better odour). Prices for bud and stem oil are broadly stable (though declining in real terms); prices for leaf oil, and the re-distilled oil which has similar pricing, are declining. There can be substantial differences between the prices for the same oil from different origins – reflecting the quality of the oil on offer – how close it is to the 'true' oil of that particular type, whether bud, stem or leaf. Demand for particular qualities of particular oils is driven by the actual requirements of the end usage – resulting in a continuum of prices across the various types.

Few prices are available for Zanzibar (Tanzanian) production – production is largely sold to regular dealer customers rather than entering the trade.

### Spot Prices, ex-Store, for Clove Oil types, US\$/kg

	2002	2003	2004
<b>Bud Oil:</b>			
Madagascan	49	31	49
Indonesian	23	21	24.50
<b>Stem Oil:</b>			
Zanzibar	15		
Indonesian	15.60	15.25	15.20
<b>Leaf Oil:</b>			
Madagascan	7.00	5.70	4.90
Indonesian	7.50	5.75	5.20
<b>Redistilled oil:</b>			
Indonesian	8.00	6.90	7.10
<b>Clove Terpenes</b>	4.50	5.00	5.00

All clove oil types are declared under the same customs coding – calculated import prices cannot be used to assess price levels for the different grades. The sharp variation in prices year-to-year for particular origins indicates changes in the balance of different oils produced each year.



### Global and Regional Trends

Total production of all clove oils is estimated to be around 4-5,000 tonnes, but the bulk of this is produced and used in Indonesia – for the production of eugenol. The internationally traded market is centred on supply to the major Western markets (EU, US) for the bud and stem oil, with demand in a wider range of other markets for the stem and leaf oils for lower cost flavour and fragrance uses.

Total imports into the western markets (all oil types) are declining slowly, and currently around 800 to 1,000 tonnes. Madagascar is the largest supplier to the market, and dominates supply to Europe. In the smaller US market, Indonesia remains the major supplier, and Madagascar has not managed to establish a stable position – the market demand being for the lower quality lower priced Indonesian product. **Note:** In the EU, clove oil imports are combined with other oils – data shown for Comores, in particular, and Madagascar, will include exports of ylang ylang oils, and Madagascar also Niaouli oil.

### EU Imports Clove Oils, Major Origins, tonnes

(data shown is for clove, niaouli & ylang oils combined)

	1998	1999	2000	2001	2002	2003
Indonesia	213	132	124	180	163	130
India	1	0	9	1	3	1
Comores	35	52	60	46	59	50
Madagascar	759	984	768	601	869	500
Singapore	11	21	60	26	15	97
Tanzania	23	26	29	10	10	22
<b>Total these origins</b>	<b>1,042</b>	<b>1,215</b>	<b>1,050</b>	<b>863</b>	<b>1,119</b>	<b>800</b>

### US Imports of Clove Oils, tonnes

Code: 3301295013

	1998	1999	2000	2001	2002	2003
Indonesia	237	172	220	139	251	229
Madagascar	65	58	20	22	6	58
Singapore	29	44	4	33	67	35
Tanzania	10	6	5	7	4	10
Others	25	44	55	48	45	52
<b>Total</b>	<b>355</b>	<b>318</b>	<b>298</b>	<b>241</b>	<b>368</b>	<b>373</b>

**Main competitors**

The 3 major producers of clove oils are Madagascar, Indonesia, and Zanzibar (Tanzania). Sri Lanka and India also make smaller supplies to the markets. The 3 major origins are quite well differentiated in the markets in terms of quality and price, and Madagascar would have to drop its prices significantly to take market share from the other origins – not an attractive strategy. Indonesia dominates the production of eugenol from clove leaf oil.

**Market opportunities**

No major opportunity is seen to substantially increase supply to the market – where Madagascar is already the dominant supplier. If Madagascar started the production of eugenol from clove leaf oil it would be in direct competition with Indonesia – and whilst the market might like an alternative (reserve) source, increased supply to the market is likely to simply lead to weakening of prices.

**National and International regulatory framework**

Clove oil is a standard item of international commerce.

**National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

**Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade. Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

**Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

**Distribution system**

Primary commercial targets are importer/dealers.

**Packaging**

Standard containers suitable for carrying essential oils and meeting IATA requirements are acceptable..

**Usual terms of sales and payments**

Letter of credit

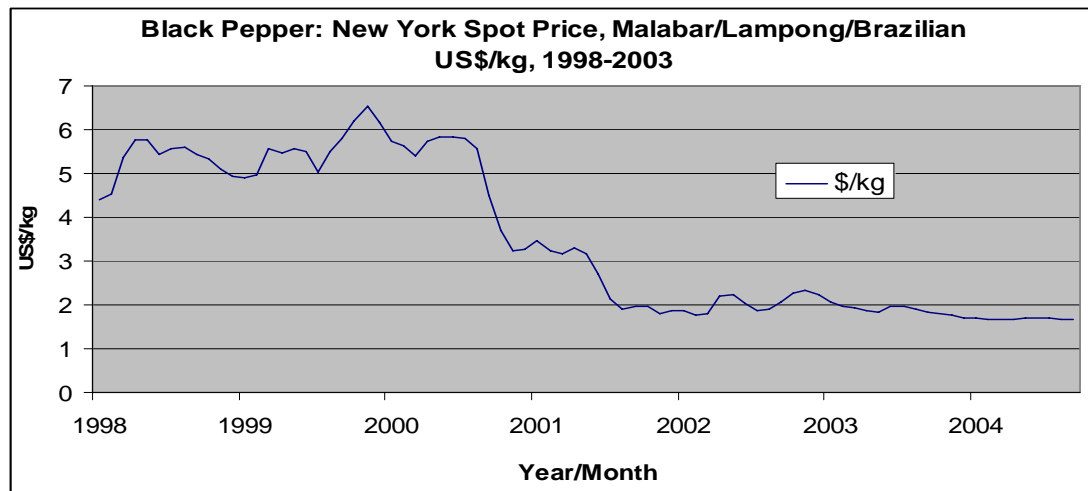
**Conclusion**

Madagascar is the major supplier to the market, and little prospect is seen for any substantial increase in exports to the markets. Development of eugenol production from clove leaf oil would bring Madagascar into direct competition with Indonesia and result in oversupply to the market.



## PEPPER

### Price Evolution:



Pepper is traded as black and white pepper, whole and ground. Black pepper is the dominant spice form of commerce. New York Spot prices for a range of major black pepper origins is given in the Table above. Prices are volatile over long cycles – total world production is around 300,000 tonnes, with around 150,000 tonnes traded. Major producer origins carry stocks from one year to the next which are used to smooth short term crop variation, but once this buffer is removed prices rise substantially and do not fall until global stocks are re-established. White pepper is priced at a premium over black, the actual premium varying substantially around a mean of 30-50%, reflecting the weight loss and extra processing required.

#### US Imports of Black and White Pepper by Major Origin, 1998 to 2003 US\$/kg

Origin/Year	1998	1999	2000	2001	2002	2003
<b>Average US\$/kg</b>	<b>5.07</b>	<b>4.74</b>	<b>4.76</b>	<b>2.42</b>	<b>1.59</b>	<b>1.72</b>
Brazil	5.07	4.48	4.58	2.47	1.45	1.43
India	4.84	4.53	5.10	2.83	1.61	1.83
Indonesia	5.24	5.30	4.61	2.34	1.66	1.74
Malaysia	5.38	4.72	5.01	2.45	1.90	2.22
Vietnam	4.83	4.20	4.63	2.00	1.40	1.57
<b>Black</b>		<b>4.50</b>	<b>4.71</b>	<b>2.39</b>	<b>1.55</b>	<b>1.59</b>
<b>White</b>		<b>6.35</b>	<b>5.10</b>	<b>2.67</b>	<b>1.88</b>	<b>2.59</b>

#### US Imports of Crushed or Ground Pepper, 1998 to 2003, US\$/kg

	1998	1999	2000	2001	2002	2003
Brazil		3.83	4.80	7.50	1.44	3.06
China	3.36	3.58	3.93	3.34	3.40	2.47
Germany	2.45	2.16	3.25	2.76	1.94	1.88
Indonesia	4.51	5.00	4.50	4.05	4.32	3.95
India	4.16	4.41	4.57	3.00	1.83	1.67
Malaysia	7.03	7.05	7.61	5.54	2.67	4.17
Vietnam	3.50	4.25	3.82	1.67	2.21	2.00
<b>Avge all origins</b>	<b>3.95</b>	<b>4.42</b>	<b>4.32</b>	<b>3.55</b>	<b>2.71</b>	<b>2.24</b>

### Global and Regional Trends:

Pepper is a major traded commodity, with around 150,000 tonnes traded. The major western markets (EU, USA) dominate imports, and continue to show consistent volume growth. Total imports to these markets are around 110,000 tonnes. White pepper only accounts for around 10% of this. Imports of ground pepper are small by comparison, around 6,000 tonnes to the USA, and although volumes are growing strongly (figures are not available for the EU but are likely to be similar) around half of the supplies are from other western markets. Volumes from origin are still very low, reflecting issues and concerns over quality (particularly SPS issues) – this is frequently reflected in little value added achieved over whole pepper. Regional markets can be locally important – Kenya and S Africa both import over 1,000 tonnes, and demand is growing.

### European Pepper Imports, extra-EU, black & white, 1998-2003, tonnes

Code 0904

	1998	1999	2000	2001	2002	2003
Madagascar	757	870	810	644	790	694
Brazil	6,065	7,717	5,543	10,545	11,387	13,902
India	6,742	8,461	6,205	5,121	5,214	5,310
Vietnam	2,189	6,437	6,519	7,882	13,309	12,320
Indonesia	12,714	12,774	19,886	19,547	15,426	13,651
Malaysia	4,936	5,606	3,428	3,024	2,488	2,920
China	465	1,324	364	122	367	1,720
<b>Total</b>	<b>39,003</b>	<b>47,032</b>	<b>45,768</b>	<b>49,189</b>	<b>52,124</b>	<b>53,936</b>

### US Imports of Black and White Pepper by Major Origin, 1998 to 2003 (tons)

Codes: 0904110020 + 0904110040

Origin/Year	1998	1999	2000	2001	2002	2003
Brazil	5,838	7,093	7,853	11,698	11,299	13,792
India	15,604	24,931	10,980	7,998	7,407	4,950
Indonesia	17,615	13,645	22,118	25,412	20,197	20,937
Malaysia	617	2,812	4,333	3,077	3,316	1,640
Vietnam	738	3,683	3,732	5,302	12,574	11,888
<b>Total</b>	<b>41,900</b>	<b>54,394</b>	<b>50,850</b>	<b>55,114</b>	<b>57,362</b>	<b>57,881</b>

### Main competitors

Market supply is dominated by Brazil, Indonesia, India, Vietnam and Malaysia. Madagascar is a small (700 to 900 tonnes) but established supplier to the EU market. In such a commodity market, there is always scope for new suppliers/expansion of existing supply of a few thousand tonnes if quality and price are competitive. Vietnam, for example, has increase supply from under 2,500 tonnes to over 25,000 tonnes within 5 years to the EU and USA markets.

### Market opportunities

Provided quality and price are competitive, there is an immediate opportunity for Madagascar to increase exports to the 2,000 to 3,000 tonne range, and given the growth in domestic demand in India (resulting in falling export levels), Madagascar could realistically target export levels of at least 5,000 tonnes. The principal competitor would be Vietnam, that is expanding production and market share aggressively.

**National and International regulatory framework**

Pepper is a standard item of international commerce.

**National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

**Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade.

Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

**Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

**Distribution system**

Primary commercial targets are importer/dealers, and extractors.

**Packaging**

Polypropylene sacks of 25 kg.

**Usual terms of sales and payments**

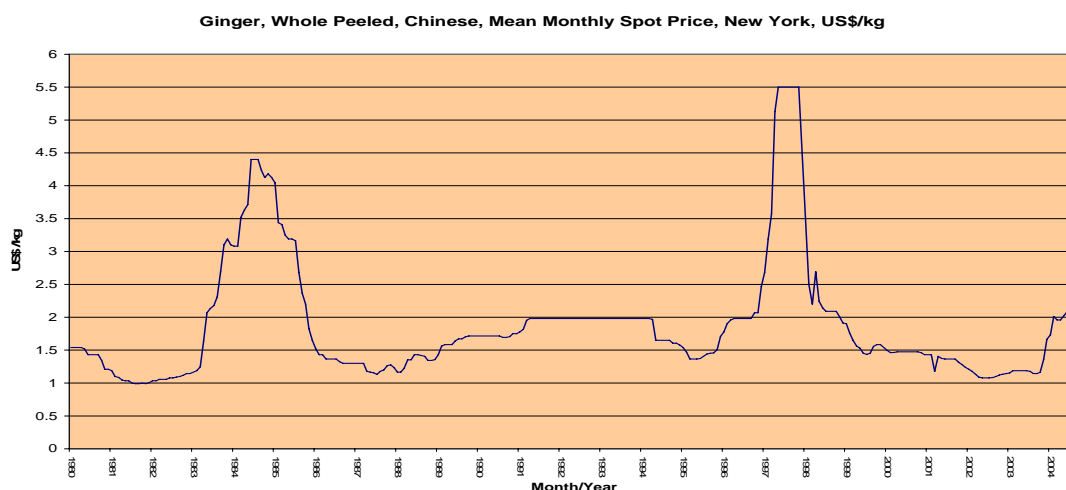
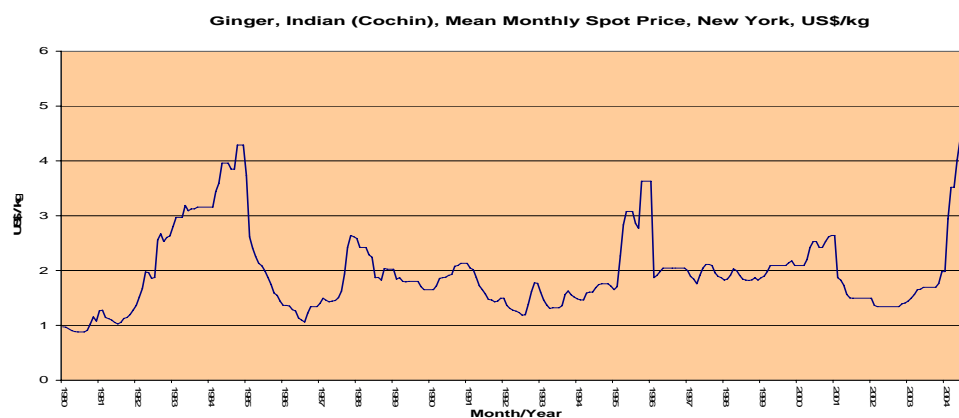
Letter of credit

**Conclusion**

A clear and immediate opportunity to expand exports towards 5,000 tonnes per annum. The critical competitive factor is price. Maintenance of competitive position during periods of low pepper prices is likely to demand a higher level of productivity from growers – requiring increased usage of improved technologies (primarily fertilizers).

## DRY GINGER

### Price Evolution:



Dry ginger prices are volatile, with a base price of around US\$1/kg, and a long term average of around US\$1.50/kg. Current prices are high (marker Chinese prices in excess of US\$2/kg) due to shortage of Indian supply – this is possibly structural change in market supply as India changes from exporter to net importer.

### Global and Regional Trends

Chinese supply dominates market in all forms (fresh, dry) and for all usages (fresh, dried ground, oleoresin extraction, distillation) due to price and availability. India is changing to net importer, and has additional needs to supply expanding extraction industry. India becoming major source of spice extracts, and will import dry ginger to meet raw material requirements.

Import statistics for ginger do not distinguish fresh and dry – total Western ginger market (EU and US) around 50,000 tonnes/yr and growing. Estimated dry ginger market around 5,000 tonnes/yr.

Ground ginger (at origin) is small but growing market – in US, imports increased from 500 tonnes to 1,250/yr over last 5 years. Situation similar in EU. Supply dominated by China.

### **Main competitors**

China is dominant force. West Africa (Nigeria) was significant supplier to extraction industry, but demand for Nigerian now very low due to earlier poor trading practices and unlikely that country will become significant supplier again. India likely to become net importer. Other major origins (Central & S America, SE Asia) are all fresh ginger producers. Ground ginger supply dominated by China, then India.

### **Market opportunities**

Immediate opportunity: supply of whole dried ginger (not ground) to EU, US and Indian market. Initial target of 1,000 tonnes/yr.

Medium and long term opportunity: ginger offers a range of product opportunities in addition to dry ginger – mature fresh ginger (seafreight), and immature fresh ginger (airfreight), ginger in brine, ginger oil, ginger oleoresin, crystallised ginger, and ginger in syrup. It can therefore support a diverse range of enterprise supplying the fresh and processed food, confectionary, flavours and fragrances markets.

### **National and International regulatory framework**

Ginger is a standard item of international commerce.

### **National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

### **Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade.

Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

### **Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

### **Distribution system**

Primary commercial targets are importer/dealers, and extractors.

### **Packaging**

Polypropylene sacks of 25 kg.

### **Usual terms of sales and payments**

Letter of credit

### **Conclusion**

Madagascar's cost structure allows it to compete with the price setting supplier – China – and it can therefore support long term market supply. Current high market prices reflecting a supply shortage offer an attractive framework to support crop development.

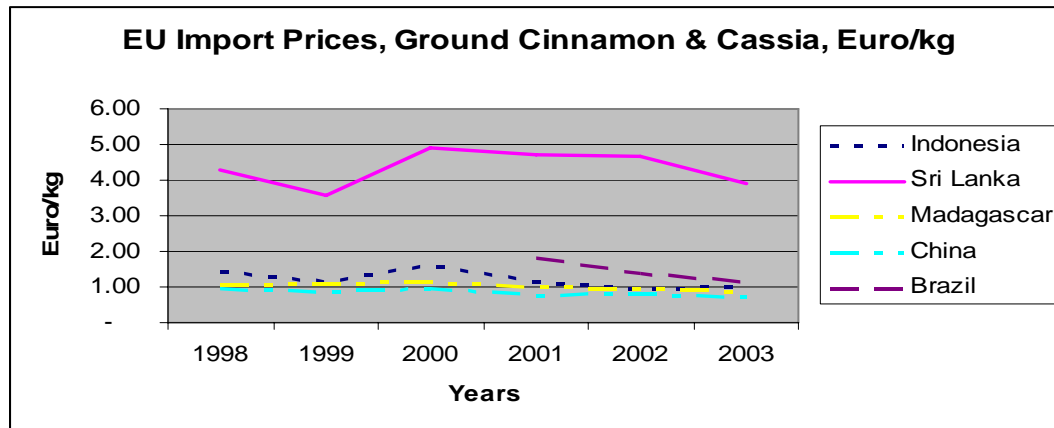
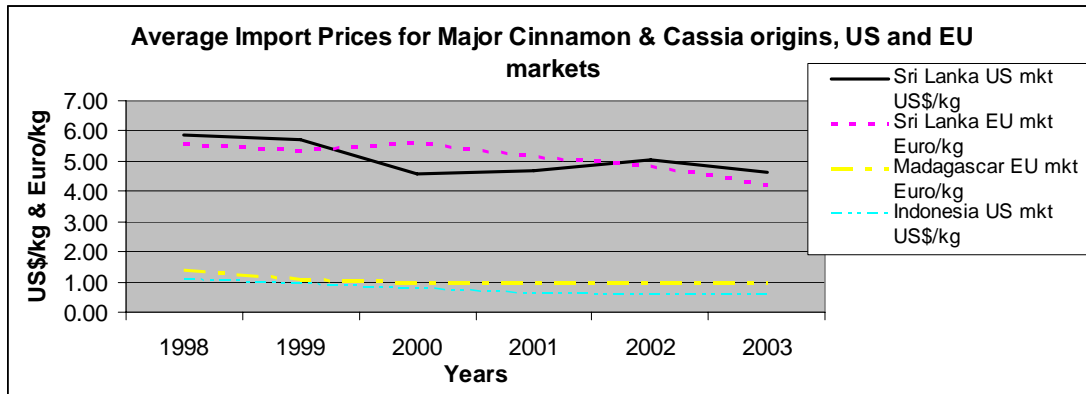
Diversification of ginger products (a medium to long term opportunity) depend on a full analysis and appraisal of the physio-chemical characteristics of Madagascar ginger.

Development of (dry ginger) product quality (to support positioning of the product in the market), and maintaining/increasing price competitiveness, and increasing margins (at all levels of the production/market chain) requires technical development of production systems, crop drying systems, and producer/exporter linkages.

## CINNAMON:

### Price Evolution:

The market for cinnamon is supplied by 2 different product types – true cinnamon (from *Cinnamom zeylanicum*) and cassia (from *C. cassia* and a number of other *Cinnamomum* species). True cinnamon is supplied by Sri Lanka, Madagascar, and the Seychelles. Dominant origins for cassia are Indonesia, China and Vietnam. Cinnamon and cassia share the same customs coding<sup>1</sup>.



It is clear from the import price data that: (a) prices for all product types are declining gradually in real terms; (b) Sri Lankan product sells at a very substantial premium – reflecting the quality of the product and this is true of both whole (ie quills) and ground product); (c) Madagascan cinnamon is not differentiated from cassia by price; and (d) no significant value added is gained by grinding/crushing.

### Global and Regional Trends

Total imports to the EU and US markets are flat, at around 26,000 tonnes. The US is the larger market (around 60%). Supply to both markets is dominated by cassia. True cinnamon accounts for less than 10% of the market, although the niche market for cinnamon has been growing – Sri Lanka has increased exports by around 50% over the last 6 years (including doubling in the smaller EU market). Madagascar only

<sup>1</sup> Sri Lanka has obtained agreement that true cinnamon will have a separate customs coding under the HTS system after 2007.

supplies the EU market, and its exports have decreased by around 50% over the same period.

Market volumes for ground cinnamon/cassia have also been increasing – particularly in the US where imports have tripled over the last 5 years – but this market is dominated by cassia. Neither Sri Lanka for Madagascar have developed consistent supplies of ground product to these markets.

#### **Imports of Cinnamon and Cassia to the Major Markets (tonnes), by Origin**

Codes: 090610

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
<b>USA</b>	18,133	16,346	14,900	14,159	14,024	16,173
<b>of which:</b>						
Indonesia	16,782	15,019	13,335	12,648	12,195	14,357
Sri Lanka	886	760	985	870	1,148	1,034
China	111	31	27	43	81	132
<b>EU</b>	10,895	12,221	10,566	9,268	8,535	9,245
<b>of which:</b>						
Indonesia	6,728	8,543	6,956	6,055	5,360	6,356
Sri Lanka	368	861	702	707	801	745
Madagascar	464	350	328	272	219	245
China	354	342	387	422	339	449

#### **Extra-EU Imports of Crushed or Ground Cinnamon and Cassia, 1998 to 2003, tonnes**

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Indonesia	354	396	337	343	429	501
Sri Lanka	66	111	33	94	118	88
Madagascar	85	39	36	73	135	50
China	418	255	245	30	120	77
Brazil	0	0	0	18	495	701
Others	219	330	105	122	186	150
<b>Total</b>	<b>1,142</b>	<b>1,131</b>	<b>756</b>	<b>680</b>	<b>1,483</b>	<b>1,567</b>

#### **US Imports of Crushed or Ground Cinnamon and Cassia, 1998 to 2003, tons**

Code: 0906200000

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Brazil	0	0	2	0	2,147	1,550
China	83	67	53	64	38	49
Sri Lanka	7	11	8	56	36	7
Indonesia	1,159	1,048	1,853	1,910	2,054	2,653
Other	75	94	117	52	105	251
<b>Total</b>	<b>1,324</b>	<b>1,220</b>	<b>2,033</b>	<b>2,082</b>	<b>4,380</b>	<b>4,510</b>

The major market for true cinnamon is Central America. Mexico is the major market, importing around 6,000 tonnes/yr, followed by Colombia, Guatemala and Peru each importing in the range 500 to 800 tonnes/yr. Sri Lanka, with total exports of around 11,000 tonnes, is almost the sole supplier. Market volumes are stable; prices declining slightly as in the US/EU markets.



## Imports of True Cinnamon to the Central American Area, 2000 to 2003 tonnes

Market/Year	2000	2001	2002	2003
Mexico	5635	5709	5627	5957
Peru	772	796	775	841
Guatemala	476	374	491	506
Colombia	844	739	768	736
Ecuador	290	377	467	387
El Salvador	153	191	212	155
Nicaragua	126	114	145	134

### Main competitors

Madagascar produces true cinnamon and should differentiate itself from cassia producers. It has no competitive advantage against large volume cassia producers, and demand and prices for its product will continue to fall if it remains in the cassia market. The market for true cinnamon is dominated by Sri Lanka, which supplies in excess of 90% of the market. Madagascar should focus exclusively on the market niches supplied by Sri Lanka

### Market opportunities

There are substantial supply opportunities for Madagascar in both the EU/US markets, and Central America. The EU/US market for true cinnamon, although small, is growing and is now around 2,000 tonnes/yr, and Madagascar's supply has declined from around 400 tonnes to under 250 tonnes. Given the price differential between Madagascan and Sri Lankan supply (under Euro 1/kg versus over Euro 4/kg) there is substantial scope for the expansion of exports if quality can be addressed. The Central American market (around 10,000 tonnes) offers very substantial market opportunities, provided that Madagascar can develop quality to Sri Lankan standards.

### National and International regulatory framework

Cinnamon is a standard item of international commerce.

### National and International transport costs and conditions

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

### Customs regulations and tariffs

Established standards exist (ISO, ASTA) which enable international trade. Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

### Norms and certification requirements

Established standards exist (ISO, ASTA) which enable international trade.

### Distribution system

Primary commercial targets are importer/dealers, and extractors.

### Packaging

Quills packed in boxes. Bark pieces and ground powder in polypropylene sacks of 25 kg.

## **Usual terms of sales and payments**

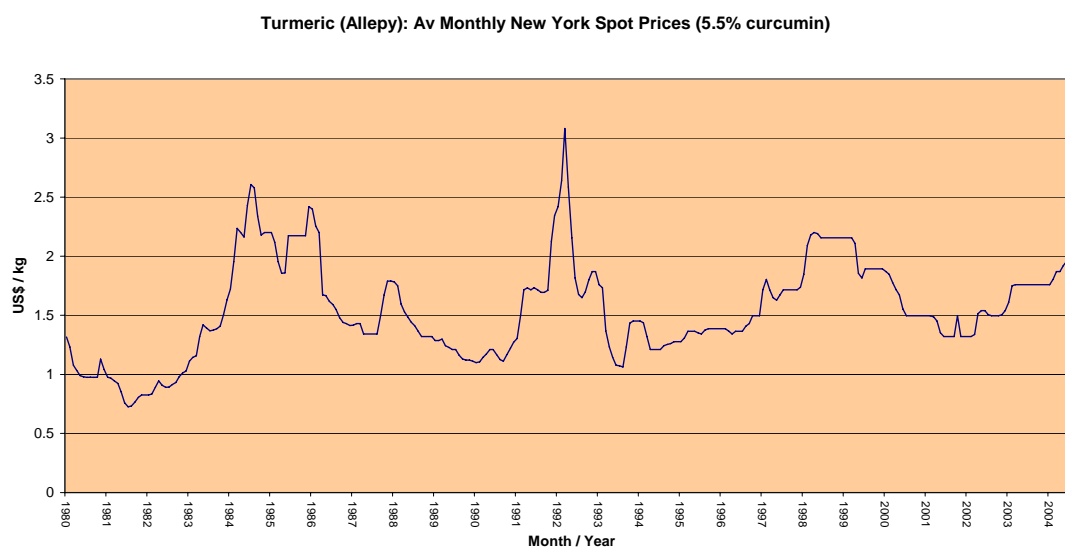
Letter of credit

## **Conclusion**

There is a very substantial opportunity to increase prices and volumes if quality can be developed to provide a product that can compete with Sri Lanka. The total global market for true cinnamon is around 10,000 tonnes, and Madagascar is only currently exporting a few hundred tonnes. Average Madagascar prices are only a fraction – around 25% – of Sri Lankan prices.

## DRY TURMERIC

### Price Evolution:



There are 2 basic types of turmeric: Madras types, primarily used as the ground spice, and lower value; and Alleppey types, used as food colourant and as the ground spice. Alleppey types dominate the market, and are priced according to curcumin content, with the standard grades being 5% and 5.5% curcumin content.

Turmeric prices are moderately volatile, with a base price of around US\$1/kg, and a long term average of around US\$1.50 to US\$1.65/kg. Current prices for Alleppey 5.5% (New York Spot<sup>1</sup>) are relatively high, around US\$2/kg, but this will have as much to do with the weakness of the dollar as with the supply position in India. Prices for 5% curcumin material are typically at a 5 to 10% discount to this price. Madras types are typically around US\$1.20/kg.

### Global and Regional Trends

The global traded turmeric market is not large and markets are static or declining. The major world markets are the USA, EU and Japan. The predominant supply in most tropical countries is domestic production. The EU market is the largest. Earlier growth during the 1990's has slowed and the market is stable at around 6,000 tonnes. The UK is the largest market, accounting for almost 50%, and together with Netherlands and Germany accounting for around 80% of demand. The US market is around 2,500 tonnes, with Japan around 4,000 tonnes. Outside of these markets, the largest import markets are Sri Lanka and Malaysia, but annual imports are only around US\$1 million/yr, and are declining (by 30-40% over the period 1999-2001).

---

<sup>1</sup> Landed and available for delivery

**EU: Extra-EU imports of Turmeric, by major origin, 1998-2003 tonnes**

HTS 091030

<b>Origin</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
India	4,617	5,230	3,799	6,097	5,925	5,586
Indonesia	6	16	5	20	0	99
Madagascar	17	14	50	26	0	11
Peru	79	183	31	114	62	105
Other	110	75	99	147	138	212
<b>Total extra-EU</b>	<b>4,829</b>	<b>5,518</b>	<b>3,984</b>	<b>6,404</b>	<b>6,125</b>	<b>6,013</b>
% Indian supply	96%	95%	95%	95%	97%	93%

**EU: Extra EU imports of Turmeric, by major origin, 1998-2003, Euro/kg**

<b>Origin</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
India	1.02	0.96	0.96	0.83	0.83	0.93

**US Imports of Turmeric, 1996 - 2003, tons**

HS Code 0910300000

<b>Origin/World</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
India	2,200	2,555	2,377	2,347	2,304	2,288
Pacific Islands	41	37	42	40	58	64
Indonesia	18	0	0	0	7	10
Others	23	35	4	10	14	88
<b>Total</b>	<b>2,284</b>	<b>2,642</b>	<b>2,427</b>	<b>2,404</b>	<b>2,383</b>	<b>2,450</b>
% Indian supply	96%	97%	98%	98%	97%	93%

**US Imports of Turmeric, 1996 - 2003, av prices US/kg\$**

<b>Average Unit Price</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
all origins	1.69	1.37	1.20	1.03	1.24	1.34
Indian	1.64	1.38	1.19	0.99	1.22	1.30

**Main competitors**

Market supply is dominated by India. For the major western markets, India supplies in excess of 90% of demand. No other origin supplies more than 100 tonnes/yr on a regular basis to the major markets. The scale of the Indian crop – around 150,000 tonnes – provides an adequate resource to supply the relatively small import needs of all other markets, and the trade are not interested in taking up new origins.

**Market opportunities**

There is no significant export market opportunity to target. Madagascar makes small erratic shipments to France, but France's dominant supply is from India (around 600 tonnes) and re-exports from other European countries. It is unlikely that Madagascar could take a significant share of India's supplies to France, and there is no competitive basis on which significant supply to other western or regional markets could be proposed.

**National and International regulatory framework**

Turmeric is a standard item of international commerce.

**National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

**Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade.

Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

**Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

**Distribution system**

Primary commercial targets are importer/dealers, and extractors.

**Packaging**

Polypropylene sacks of 25 kg.

**Usual terms of sales and payments**

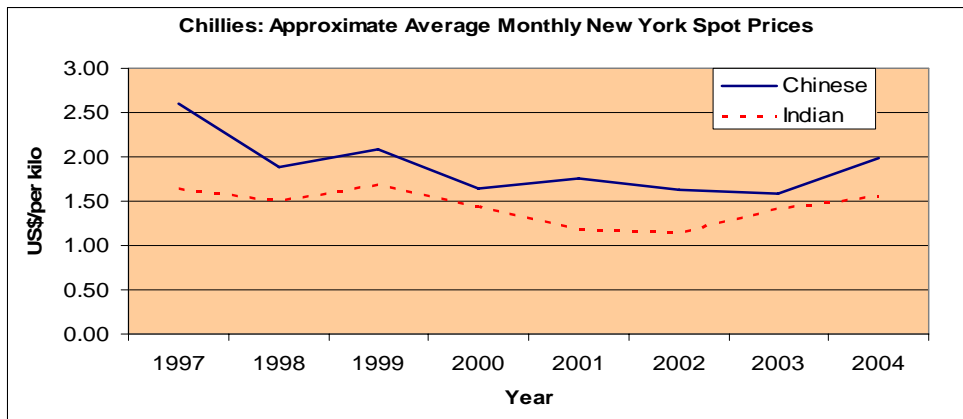
Letter of credit

**Conclusion**

Turmeric does not offer any opportunity for Madagascar to develop a significant export trade in the dried spice. As a result, no special focus should be given to the crop.

## CHILLIES AND OTHER CAPSICUMS

### Price Evolution:



### US Imports of Other Capsicum Peppers, 1998 - 2003, US\$/kg

Origin/Year	1998	1999	2000	2001	2002	2003
India	1.28	1.27	1.13	1.06	1.07	1.17
Mexico	2.21	1.60	1.51	1.43	1.57	1.54
China	1.35	1.62	1.33	1.20	1.18	1.11
Others	0.79	0.94	1.88	1.64	1.50	1.42
<b>Average all origins</b>	<b>1.45</b>	<b>1.37</b>	<b>1.34</b>	<b>1.23</b>	<b>1.27</b>	<b>1.25</b>

Capsicums and chillies are priced primarily on colour and pungency: capsicums generally having moderate levels of colour and pungency; chillies having high pungency and moderate to low colour. Pungency is measured as % capsaicin content. Pricing is therefore specific to the product offered. In the NY Spot Price graph above, Indian product is likely to be S4 chillies, and Chinese product Fukien types with higher (0.7% or above) capsaicin content. In the US Import price table, above, the high price for Mexican origin product will partly reflect the inclusion of some paprika types, but also production of the habenero chillies, with very high (above 1%) capsaicin levels. There overall trend in pricing is a general weakening, reflecting greater competitive supplies from origin, and easier export access for the substantial domestic production in India and China.

### Global and Regional Trends:

The major markets are the EU, US and Japan. Most Asian and African markets are mainly supplied by their domestic production. Japan is almost wholly supplied by China. Demand in the EU and US continues to increase, although as noted for paprika, demand for the different types – paprika, capsicums, chillies – cannot be separated out on the basis of published import data. Total capsicum supply in both the EU and US markets has increased by around 10,000 tonnes over the last 5 years. The US market supply is dominated by India, China and Mexico. Mexico has a particular competitive advantage for the US market based on location, and in addition to supply of dry chillies also supplies around 15,000 tonnes of mashed preserved chillies. China and India are also important suppliers to the EU, together with S American origins.

Large volumes (2,000 tonnes) of East African Birdseye chillies were supplied to the market in the past, but this trade has finished. A range of chillies with as high or higher capsaicin levels and much larger fruit size are available (Scotch Bonnet types, *C. annuum*) with substantially lower production costs (essentially lower picking costs given the larger fruit size). The remaining small volume supplies of birdseye chillies supply niche retail markets.

The tables below contained mixed data for paprika, capsicums and chillies. They should be used to give an indication of the diversity of origins supplying the markets, and the scale of supplies.

#### US Imports of Other Capsicum Peppers, 1998 - 2003, tonnes

HTS Codes: 0904206090: Other Dried Capsicums

Origin/Year	1998	1999	2000	2001	2002	2003
India	5,339	7,316	8,402	8,297	8,527	5,264
Mexico	3,968	6,100	5,271	6,145	7,148	5,382
China	4,877	3,058	5,707	8,431	9,259	11,572
Others	2,288	3,289	1,711	1,448	1,306	2,047
<b>Total</b>	<b>16,472</b>	<b>19,763</b>	<b>21,091</b>	<b>24,321</b>	<b>26,240</b>	<b>24,265</b>

#### EU: Extra-EU Capsicum Imports, by major origin, 1998-2003, tonnes

HTS: 09042030 (excludes sweet and crushed and ground)

Origin	1998	1999	2000	2001	2002	2003
Zimbabwe	6,745	8,199	3,019	2,626	6,402	n/a
S Africa	4,472	3,319	1,357	10,535	4,637	1,698
Mexico	691	736	677	440	1,087	1,196
Peru	1	123	1,534	5,930	6,773	7,624
China	674	383	430	745	478	1,319
Others	3,321	2,930	1,516	2,796	2,696	
<b>Total Extra-EU</b>	<b>15,904</b>	<b>15,690</b>	<b>8,533</b>	<b>23,072</b>	<b>22,073</b>	

#### US Imports of Ground Capsicum Peppers, 1998-2003, tonnes

HTS Code: 0904207600

Origin/Year	1998	1999	2000	2001	2002	2003
India	3,043	4,316	3,756	4,935	7,976	7,900
Mexico	795	723	1,088	798	506	1,232
China	412	449	680	1,447	1,362	1,025
Chile	28	19	29	39	2,290	2,253
Others	288	477	811	1,190	1,454	1,313
<b>Total</b>	<b>4,566</b>	<b>5,984</b>	<b>6,364</b>	<b>8,409</b>	<b>13,588</b>	<b>13,723</b>

#### EU: Extra-EU Ground Capsicum Imports, by major origin, 1998-2003, tonnes

HTS: 09042090 (crushed and ground, including sweet)

Origin	1998	1999	2000	2001	2002	2003
Hungary	3,220	3,947	2,314	3,333	3,473	3,914
Morocco	2,530	1,265	390	1,395	1,535	1,554
Zimbabwe	2,086	1,008	434	367	479	n/a
S Africa	2,731	1,718	762	1,168	543	1,778
Brazil	1,212	2,604	2,298	4,884	5,004	5,422
India	2,609	3,010	2,355	3,535	3,975	3,197
China	1,365	1,344	898	1,747	1,697	2,225
Others	6,804	4,848	3,516	6,127	5,946	
<b>Total Extra-EU</b>	<b>22,557</b>	<b>19,744</b>	<b>12,967</b>	<b>22,556</b>	<b>22,652</b>	

### **Main competitors**

Any production of capsicums and chillies is going to result in direct competition with China and India – both low cost producers with very substantial domestic crops to draw upon. Production of capsicums and chillies is almost wholly based on short season (3 to 6 month) annual species (*C. annuum* types), with both rainfed and irrigated production systems giving 2 or 3 crops per year in the main producing areas. Existing origins can therefore react rapidly to changes in the markets.

### **Market opportunities**

Whilst in markets of this scale there is always an opportunity for new suppliers, the main bulk markets are highly cost competitive and the core origins of India and China have substantial domestic production and domestic market demand – producers are therefore not primarily dependent on export markets for their market. Madagascar's potential competitive position could be maximised by production of highly pungent selections of Scotch Bonnet type chillies. This would avoid the bulk low value trade, and differentiate the country from the low cost Asian producers. Production would also open opportunities for the supply of fresh product to the EU market, and the production of hot chilli sources (both of which are growth areas in the market). An initial supply of around 500 tonnes could be targeted.

### **National and International regulatory framework**

Chillies and capsicums are a standard item of international commerce.

### **National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

### **Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade. Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

### **Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

### **Distribution system**

Primary commercial targets are importer/dealers, and extractors.

### **Packaging**

Whole pods are usually chopped, de-seeded and compressed into large bales (100 kg or more). Ground product can be packed in drums in polypropylene sacks of 25 kg.

### **Usual terms of sales and payments**

Letter of credit

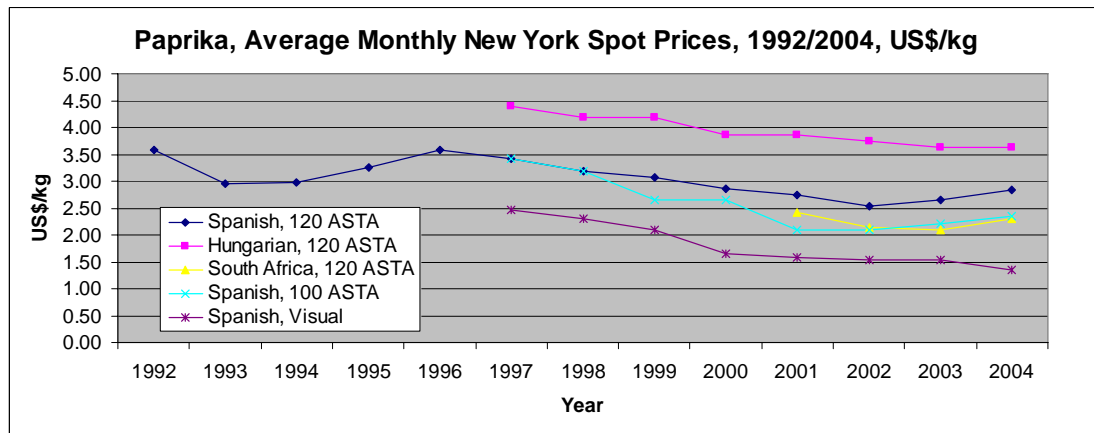
### **Conclusion**

If Madagascar can deliver competitive unit costs of production, it can make volume supplies to the major western markets. It is recommended that competitive position would be maximised through the production of Scotch Bonnet type high capsaicin content chillies. An initial market supply of around 500 tonnes could be targeted.



## PAPRIKA

### Price Evolution:



### US Imports of Paprika, 1998 - 2003, av unit price, US\$/kg

Origin/Year	1998	1999	2000	2001	2002	2003
Spain	2.11	2.09	1.90	1.84	1.77	1.76
Peru	4.50		2.40	1.97	1.73	1.75
Israel	1.79	1.61	1.41	1.63	1.45	1.51
South Africa	1.07	1.37	1.34	1.21	1.27	1.12
Zimbabwe	2.10	1.53	2.34	1.88	1.76	2.15

Paprika trade data is often mixed with data for other capsicum types. The US market gives the best separation, and US price series are given above. Paprika prices have been declining since the mid-1990's reflecting the substantial move in production from the markets (USA, Spain) to lower cost origins. Origin is still factored into price, with new origins priced at a discount for equivalent quality product (generally assessed as ASTA Colour units). Given the scale of production development in S America, India, and China, prices are unlikely to firm significantly from current levels – as an annual crop with production in both N and S hemispheres, growers can react quickly to any developing shortages.

### Global and Regional Trends:

Paprika is a large commodity market, with the product used in the food flavouring and colouring markets. Total market demand in the USA and EU markets is probably around 50,000 tonnes, with Spain playing a major entrepot role in the trade. Whilst the overall market has been showing steady volume growth, the major change in the last 20 years has been the move of substantial production from the US and Europe to lower cost origins. The result has been the development of substantial new centres of production in Southern Africa, S America, India and Asia (China), supplying around 30,000 tonnes to the markets. Although this process continues, the major structural movement has already taken place. Current changes in production are mainly centred on the competitive replacement of origins due to price and other factors (instability in Zimbabwe for example), and the development of significant paprika extraction in India from domestic capsicum supply reducing demand for paprika feedstock from extractors based in the markets.

Instability in Zimbabwe (which had developed production of up to 10,000 tonnes) has resulted in production moving to S Africa, and more recently Tanzania. Zambia and Malawi are also trying to expand their existing production.

Paprika is declared under a range of customs codings together with other capsicums, covering both whole and ground product. In neither the US nor EU is paprika trade limited to Paprika/Sweet Capsicum codes. The Tables below should be used to give an indication of the range of origins involved, and the scale of overall capsicum production, and the scale of trade in product ground at origin.

#### US Imports of Paprika, 1998 - 2003, tonnes

HTS Code: 0904 202000

Origin/Year	1998	1999	2000	2001	2002	2003
Spain	5,363	3,488	4,363	4,127	5,101	4,902
Peru	2	0	94	788	3,465	3,697
Israel	1,691	458	527	747	614	956
South Africa	858	409	682	679	1,540	1,263
Zimbabwe	1,192	605	313	401	136	219
Others	3,507	2,812	2,740	2,756	1,549	1,391
<b>Total</b>	<b>12,613</b>	<b>7,772</b>	<b>8,718</b>	<b>9,498</b>	<b>12,405</b>	<b>12,428</b>

#### US Imports of Other Capsicum Peppers, 1998 - 2003, tonnes

HTS Codes: 0904206090: Other Dried Capsicums

Origin/Year	1998	1999	2000	2001	2002	2003
India	5,339	7,316	8,402	8,297	8,527	5,264
Mexico	3,968	6,100	5,271	6,145	7,148	5,382
China	4,877	3,058	5,707	8,431	9,259	11,572
Others	2,288	3,289	1,711	1,448	1,306	2,047
<b>Total</b>	<b>16,472</b>	<b>19,763</b>	<b>21,091</b>	<b>24,321</b>	<b>26,240</b>	<b>24,265</b>

#### EU: Extra-EU Sweet Capsicum Imports, by major origin, 1998-2003, tonnes

HTS: 09042010 (excludes crushed and ground)

Origin	1998	1999	2000	2001	2002	2003
Turkey	1,041	1,044	589	492	567	373
Zimbabwe	2,377	1,544	979	750	1,270	n/a
Peru	155	332	328	1,374	2,047	1,323
China	902	1,220	1,210	2,247	3,404	2,792
Others	1,954	591	203	1,093	731	
<b>Total Extra-EU</b>	<b>6,429</b>	<b>4,731</b>	<b>3,309</b>	<b>5,956</b>	<b>8,019</b>	

#### EU: Extra-EU Capsicum Imports, by major origin, 1998-2003, tonnes

HTS: 09042030 (excludes sweet and crushed and ground)

Origin	1998	1999	2000	2001	2002	2003
Zimbabwe	6,745	8,199	3,019	2,626	6,402	n/a
S Africa	4,472	3,319	1,357	10,535	4,637	1,698
Mexico	691	736	677	440	1,087	1,196
Peru	1	123	1,534	5,930	6,773	7,624
China	674	383	430	745	478	1,319
Others	3,321	2,930	1,516	2,796	2,696	
<b>Total Extra-EU</b>	<b>15,904</b>	<b>15,690</b>	<b>8,533</b>	<b>23,072</b>	<b>22,073</b>	

### US Imports of Ground Capsicum Peppers, 1998-2003, tonnes

HTS Code: 0904207600

Origin/Year	1998	1999	2000	2001	2002	2003
India	3,043	4,316	3,756	4,935	7,976	7,900
Mexico	795	723	1,088	798	506	1,232
China	412	449	680	1,447	1,362	1,025
Chile	28	19	29	39	2,290	2,253
Others	288	477	811	1,190	1,454	1,313
<b>Total</b>	<b>4,566</b>	<b>5,984</b>	<b>6,364</b>	<b>8,409</b>	<b>13,588</b>	<b>13,723</b>

### EU: Extra-EU Ground Capsicum Imports, by major origin, 1998-2003, tonnes

HTS: 09042090 (crushed and ground, including sweet)

Origin	1998	1999	2000	2001	2002	2003
Hungary	3,220	3,947	2,314	3,333	3,473	3,914
Morocco	2,530	1,265	390	1,395	1,535	1,554
Zimbabwe	2,086	1,008	434	367	479	n/a
S Africa	2,731	1,718	762	1,168	543	1,778
Brazil	1,212	2,604	2,298	4,884	5,004	5,422
India	2,609	3,010	2,355	3,535	3,975	3,197
China	1,365	1,344	898	1,747	1,697	2,225
Others	6,804	4,848	3,516	6,127	5,946	
<b>Total Extra-EU</b>	<b>22,557</b>	<b>19,744</b>	<b>12,967</b>	<b>22,556</b>	<b>22,652</b>	

### Main competitors

A diverse range of origins in S America, Southern Africa, India and China make substantial supply to the markets. The development of significant production in S America shows that simple low labour costs are not the sole driver of competitive position – higher cost economies with high input/high output production systems can deliver low unit costs of production and therefore strong competitive position.

### Market opportunities

In a market of this scale, there is always the opportunity for a new origin to enter the market with a few thousand tonnes provided quality and price are competitive. The trade data show, for example that Chile, Peru and Brazil have each developed export production in the range 3,000 to 10,000 tonnes in the last 5 years. In addition to this general opportunity, there is a specific opportunity to take advantage of the disruption to production in Zimbabwe and develop replacement production. This is a short term opportunity: South Africa is increasing production, one Spanish company is now developing production in Tanzania (target 2,000 tonnes); Zambia and Malawi have existing production sectors that can be expanded.

### National and International regulatory framework

Paprika is a standard item of international commerce.

### National and International transport costs and conditions

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

### Customs regulations and tariffs

Established standards exist (ISO, ASTA) which enable international trade.

Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

**Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

**Distribution system**

Primary commercial targets are importer/dealers, and extractors.

**Packaging**

Whole pods are usually chopped, de-seeded and compressed into large bales (100 kg or more). Ground product can be packed in drums in polypropylene sacks of 25 kg.

**Usual terms of sales and payments**

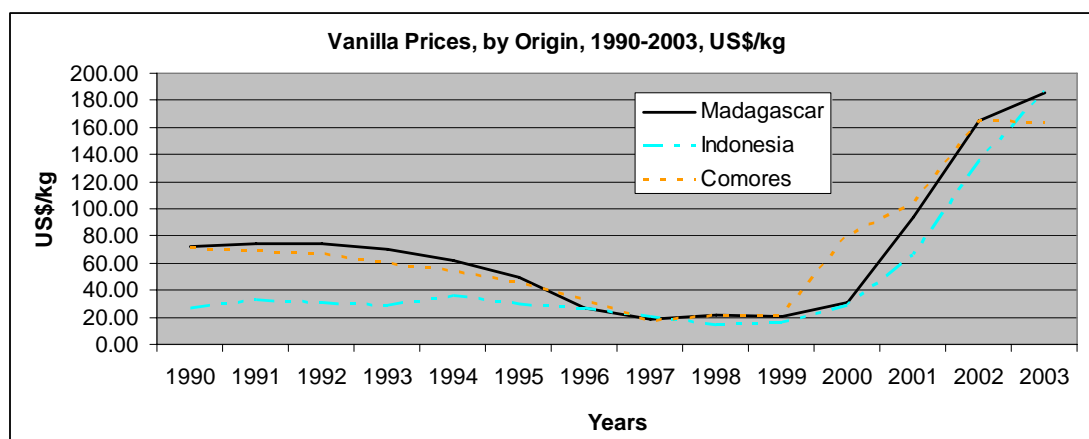
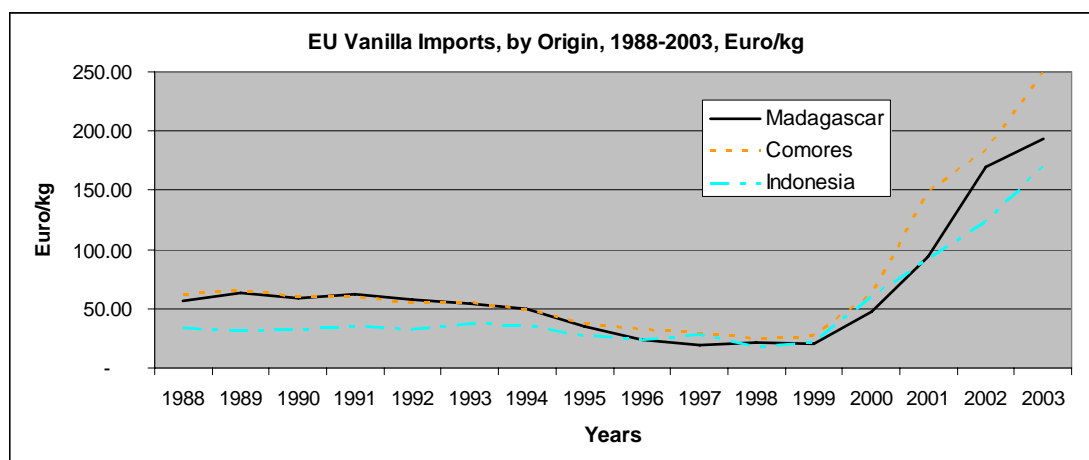
Letter of credit

**Conclusion**

A clear and immediate opportunity to expand exports towards 2,000 tonnes per annum based on imported seed of an established variety (Papri King or Papri Queen) and subsequent use of saved seed. The critical competitive factors are price and colour levels. Maintenance of competitive position is likely to demand a higher level of productivity from growers – requiring increased usage of improved technologies (primarily fertilizers).

## VANILLA

### Price Evolution:



During the price stability of the Univanille cartel prior to 1994/1995, vanilla prices are stable around US\$70/kg, with Indonesia supplying the US market with predominantly low quality early picked unripe beans at around US\$30/kg. With the price collapse after the ending of the cartel and the release of stocks from Madagascar, prices fell to around US\$20/kg over the period 1996 to 1999. The price differential between Bourbon vanilla and Indonesia disappeared. Prices started to firm back into the range US\$40 to US\$60/kg over 2000/2001 as the overhang of supply was removed from the market and market demand increased from around 1,800 tonnes to around 2,200 tonnes. Cyclones in Madagascar in 2002 reduced the crop, and prices rose steadily to peak at over US\$40/kg in early 2004. During this period of rising prices Madagascar lost most of the price premium over Indonesia due to the range of lower quality grades produced, while Comores established a premium quality position – seen more clearly in the EU market which is dominated by demand for the higher quality grades.

The high price levels of 2004 (in the range US\$200 to US\$400/kg) are not compatible with volume usage. As a result, 2004 traded volumes are severely restricted, and prices are falling sharply. A period of low prices while the stock overhang is taken by the market and demand is re-established – as during the period 1996/1999 – is likely. In the medium to long term, however, prices in the range US\$40 to US\$70/kg are

compatible with market demand in excess of 2,000 tonnes and annual growth in demand of 3 to 5%. Given the substantial plantings that have been made in 'non-traditional' origins (India and PNG in particular), increased global production may keep prices at the lower end of this range.

### **Global and Regional Trends:**

Almost all demand for vanilla is focused on the western markets of USA, EU and Japan. At the end of the 1990's, combined EU and US demand was around 2,000 tonnes, with Japan accounting for another 150 tonnes. Total world demand was in the range 2,200 tonnes. Total traded demand for 2004 may be under half this level. The market for vanilla is protected by label legislation in the principle markets (US, France, Germany). The rapid fall in demand without substantial product change in the market implies that apart from using up all stocks in the market, most of the fall in demand has resulted from manufacturers non-compliance with label legislation and that re-establishment of viable pricing will result in a rapid increase in demand back into the 1,500 tonne range as compliance with the product regulatory environment is re-established. However, some re-formulation has occurred, and therefore the 2005/2006 market can be expected to be restricted. In this environment, the EU market will continue to focus on quality and select origins accordingly; the bulk of the US market is a low and low/medium quality market, and buys on price rather than origin. Re-establishment of demand above 2,000 tonnes will depend on the market seeing prospects for adequate long term supply at viable commercial prices – probably no more than US\$40 to US\$70/kg.

### **Vanilla Imports to the US Market (tons), 1998-2003**

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Madagascar	1,060	847	890	807	694	955
Indonesia	752	337	261	448	286	336
Comores	23	72	35	93	24	22
Uganda		38	35	59	54	87
Papua New Guinea		2	9	4	3	27
India		11	44	23	28	24
Others	104	21	8	1	0	3
<b>Total</b>	<b>1,939</b>	<b>1,327</b>	<b>1,282</b>	<b>1,435</b>	<b>1,089</b>	<b>1,454</b>

### **European Vanilla Imports, extra-EU, 1998 to 2003 (tonnes)**

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Madagascar	496	719	588	547	380	318
Comores	133	109	55	100	56	60
USA	74	75	108	45	101	75
Indonesia	48	24	11	20	23	50
Others	90	124	111	66	91	179
<b>Total</b>	<b>841</b>	<b>1051</b>	<b>873</b>	<b>778</b>	<b>651</b>	<b>682</b>

### **Main competitors**

Madagascar dominates global supply, with around 65% of the market, having increased market share (by volume) since the ending of the Univanille cartel. In the US market, Indonesia is the major competitor, although Indonesian supply has fallen since much of the price differential has been removed – a result of larger volumes of lower quality vanilla being released by Madagascar. A significant part of the US market is for low quality low priced vanilla – driven by a product label category that

allows the use of natural vanilla and synthetic vanillin in the same product, and where manufacturers look for a low priced natural vanilla. In the high quality part of the US market, Madagascar competes with Comores, Uganda, and increasingly PNG (either directly, or through Indonesia) and India. The EU market demand is concentrated on higher quality, and the main competition is with Comores, India, PNG and a range of other small volume origins.

PNG, India and Uganda represent important competitors, all focusing on high quality. It is estimated that the PNG crop is now around 200 tonnes (part of which is exported out of Indonesia); Uganda is producing 75 to 100 tonnes; Indian production is now around 50 tonnes with further substantial plantings about to come into bearing. These origins take market share directly from Madagascar.

### **Market opportunities**

The key opportunity is to dominate supply to the medium and high quality markets. Madagascar should not try to compete with Indonesia for the US low quality market – which Indonesia can profitably supply with early picked immature crop at very low prices – in the range US\$15/kg. The key advantage that Madagascar has is the 'bourbon' label – the characteristics of good quality Madagascan vanilla are, by definition, the characteristics of high quality vanilla (aroma profile etc). The key competitive weakness that Madagascar has is that the supply chain is fragmented (no linkages between exporters and growers) and there are few professional companies operating at the processing level.

### **National and International regulatory framework**

Vanilla is a standard item of international commerce.

### **National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure.

### **Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade. Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

### **Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

### **Distribution system**

Primary commercial targets are importer/dealers, and extractors.

### **Packaging**

Metal or cardboard boxes, lined with wax paper.

### **Usual terms of sales and payments**

Letter of credit

### **Conclusion**

The critical task in the vanilla sector is to re-establish lost export volumes. Madagascar can re-establish export levels of around 1,400 tonnes, but must focus on

high quality production, and on establishing a functional structure to the industry that links exporters, processors and growers in a clear chain and leads to the development of a professional processing sector – allowing buyers to work constructively with the sector. A critical area for intervention in the short term is the re-establishment of product regulatory compliance in the markets to ensure rapid re-establishment of volume demand.



## CINNAMON OILS

2 types of cinnamon oil are traded – *bark oil*, the higher priced fragrance and flavour material, and *leaf oil*, high in eugenol and similar to clove leaf oil.

### Price Evolution:

Price of cinnamon bark oil is related to its cinnamic aldehyde content – typically in the range 30 to 60%. Higher levels command higher prices, provided that oils have not been adulterated with natural/synthetic cinnamic aldehyde and the organoleptic profile is good. Prices cannot therefore be assessed without knowledge of the aldehyde content. A typical price for a good quality oil ex-store in the markets is around US\$240/kg, and pricing is relatively stable.

Cinnamon leaf oil is used in cheap perfumery/fragrance, and is priced relative to clove leaf oil based on its 80% eugenol content. Prices are stable/declining slightly. Sri Lanka is the major supplier, and major price movements reflect the effect of climatic variables on production.

### Average Sri Lankan Cinnamon Leaf Oil Prices, US\$/kg

	2002	2003	2004
Leaf oil	8.50	8.00	7.60

Cinnamon oils are not recorded separately in market import data.

### Global and Regional Trends

Sri Lanka is the major producer. India also produces, but almost all production is used in the domestic market. There are no published market import data for cinnamon oils. Trade estimates that demand is relatively stable. Leaf oil is generally only produced to client order.

### Main competitors

Sri Lanka dominates supply and given the scale of cinnamon production in Sri Lanka – around 10 to 12,000 tonnes – the country has the ability to meet all demand.

### Market opportunities

No major opportunity is seen to substantially increase supply to the market. Sri Lanka is a well established and high quality origin with the capacity to meet all market demand. The only opportunity available to Madagascar is to produce a bark oil of good (equivalent) quality, at a lower price. The quality should be available in Madagascar, and given the competitive price structure, Madagascar could try to take some market share from Sri Lanka – although any substantial increase in supply to the market would seriously undermine pricing. Total supplies of bark oil from Sri Lanka are estimated at around 350 to 450 kgs. Madagascar could initially target around 50 kgs.

### National and International regulatory framework

Cinnamon oils are a standard item of international commerce.

### National and International transport costs and conditions

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

**Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade.

Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

**Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

**Distribution system**

Primary commercial targets are importer/dealers.

**Packaging**

Standard containers suitable for carrying essential oils and meeting IATA requirements are acceptable..

**Usual terms of sales and payments**

Letter of credit

**Conclusion**

A limited opportunity to develop small volumes of cinnamon bark oil, around 50 kgs, of equivalent quality to Sri Lankan production, but offered to the market at a price discount.

## EUCALYPTUS OILS

A very wide range of *Eucalyptus* species are used to provide 2 main oil types of commerce: (i) a medicinal oil, rich in cineole, generally referred to as *E. globulus* but also termed 'Natural' eucalyptus oil; (ii) a perfumery oil, rich in citronellal (the starting point for many chemicals such as hydroxycitronellal – giving sweet floral lily-of-the-valley type notes), from *E. citriodora*. China also produces a medicinal oil type from fractionation of white camphor oil (from *Cinnamomum camphora*) – also referred to as Natural.

### Price Evolution:

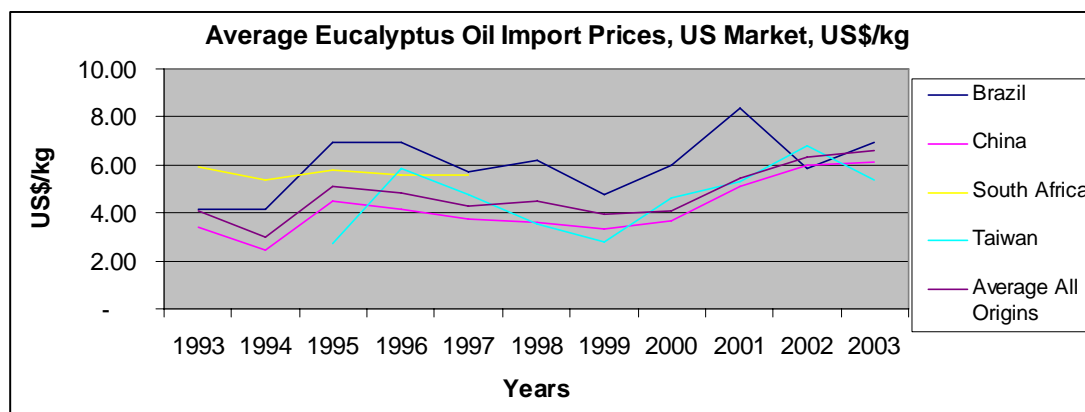
Eucalyptus oil, globulus type, is priced on cineole content. The standard is 80%, but a 70% grade is also recognised. *E. globulus* typically produces a crude oil of around 65% cineole content requiring fractionation to meet the Standard. *E. citriodora* oil is based on a minimum 65-70% citronellal content. *E. citriodora* is also priced by origin as major users (Quest, IFF, Takesaka etc) have distinct origin preferences restricting the interchangeability of origins. Recent oil prices, ex-store Europe, are given below:

### Prices for Eucalyptus oil types, ex-store Europe, US\$/kg

	2002	2003	2004
Eucalyptus oil, 80% cineole (globulus type)	7.30	6.95	6.30
<i>E. citriodora</i> ex-Brazil	7.50	7.70	7.50
<i>E. citriodora</i> ex-China		8.40	8.90

Eucalyptol, 99.5% cineole, produced by fractional distillation of cineole types, is currently priced around US\$7.35/US\$7.50 (at origin, US\$8.50 landed) representing a 10% value addition over the simple price of cineole in the crude oils.

The different Eucalyptus oils are not recorded separately in market import data. Combined data for all Eucalyptus oils is only available for the US market. As all origins produce all types, levels and differences in calculated import prices simply reflect differences in the balance of oil types shipped. However import price data does show a general rise in underlying import price levels, reflecting supply constraints.



### Global and Regional Trends

China and Brazil are the major suppliers to the market, with China dominating supply. Both origins have substantial production levels but also significant domestic usage for the oils and as a feedstock for fractionation. Supplies to the major western markets are stable/declining, reflecting increased domestic usage in the major origins and change in supply to the downstream chemicals. As supply from the old established origins has declined (Australia, South Africa etc, due to increased domestic/regional usage, decline of the timber industries that gave leaf oil as a by-product and development of downstream chemical industries) a range of other small suppliers – notably Taiwan – have come into the market.

#### **US Imports of Eucalyptus Oils, tonnes**

Code: 3301291000

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Australia	1	12	75	29	11	14
Brazil	138	18	80	32	51	71
China	485	482	466	571	632	397
South Africa	0	0	1	0	0	1
Taiwan	21	7	55	55	50	59
Others	58	56	32	47	103	118
<b>Total</b>	<b>704</b>	<b>576</b>	<b>708</b>	<b>734</b>	<b>847</b>	<b>660</b>

Imports to the EU market will be of a similar order of magnitude.

#### **Main competitors**

China dominates supply.

#### **Market opportunities**

Eucalyptus oils are relatively low value oils from bulk distillation of leaf. Major operations in the more developed origins would be based on mechanical harvesting of coppiced plantings. Within this context, there is scope for new entrants to balance developing constraints to Chinese supply. Opportunities for Madagascar depend on the species (oil types) available for distillation. Opportunities for perfumery types will depend on market acceptance of the actual characteristics of the oil produced – but if accepted would open an immediate opportunity for 30 to 50 tonnes. Immediate opportunities for cineole types are of a similar order of magnitude.

#### **National and International regulatory framework**

Eucalyptus oils are a standard item of international commerce.

#### **National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

#### **Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade.

Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

#### **Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

#### **Distribution system**

Primary commercial targets are importer/dealers.

**Packaging**

Standard containers suitable for carrying essential oils and meeting IATA requirements are acceptable..

**Usual terms of sales and payments**

Letter of credit

**Conclusion**

An opportunity to develop around 30 to 50 tonnes of each oil type, though the potential for the perfumery types depends on acceptance by the major buyers of the characteristics of the oil actually produced.

## GINGER OILS

The major ginger oil traded is distilled from dry ginger. An oil is also distilled from fresh (green) ginger, but the yield is low, distillation costs are high (due to excessive water content of the feedstock), and the green notes – coming from the citral content – can be replaced by addition of natural commercial citral. As a result the trade is small and erratic, and the fresh oil is mostly produced to order.

### Price Evolution:

The market is divided between the traditional high quality sources of Sri Lanka and India, and Chinese material. The bulk lower priced market is now dominated by China. Prices are generally in the US\$20/kg range.

High quality oils from India and Sri Lanka do not generally enter the open trading system, but pass directly through the producer/dealer/long-term customer chain. Prices are typically 50-100% above Chinese oils –US\$40/kg and higher. The prices for Indian and Sri Lankan oils have been brought down (or capped) by the growth in supply of Chinese material, and the gradual increase of quality of Chinese oils.

### Chinese Ginger Oil Prices, ex-store Europe, US\$/kg

	2002	2003	2004
Chinese oil	20	18	33

Current high prices for Chinese oils are due to temporary crop production problems at origin and are expected to return to the US\$20/kg level.

Small parcels of green ginger oil (ex-Indonesia) are currently on offer at around US\$105/kg.

### Global and Regional Trends

China has dominated all major global ginger markets, for all product types, including that for ginger oil. Given the scale of ginger production in China, and the low cost of the raw material (fresh rhizomes), it is able to dominate any market where buyers can offset changes in quality characteristics against price. Some distillation continues in the markets – based on high quality dry ginger (poor storage, drying and handling conditions lead to a fatty note in the oil – a characteristic of some earlier Chinese material).

Production levels have been maintained in Indian and Sri Lanka – the traditional origins – although increased domestic demand in India has reduced supplies available for export.

The total volume of ginger oil traded is estimated to be in the range 100 to 200 tonnes, the bulk of it Chinese material.

### Main competitors

China dominates supply. Indian and Sri Lanka have fixed positions in the market

### Market opportunities

The main opportunity is production of a high quality oil from dry ginger to fill demand that cannot be supplied by India/Sri Lanka, where buyers do not want to change to Chinese quality material – provided Madagascar material can match the organoleptic and olfactory characteristics required. Volumes will be small – less than 10 tonnes. Larger volumes could be produced, but material would then be in direct competition with Chinese supply, and prices would be correspondingly lower.

#### **National and International regulatory framework**

Ginger oil is a standard item of international commerce.

#### **National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

#### **Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade.

Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

#### **Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

#### **Distribution system**

Primary commercial targets are importer/dealers.

#### **Packaging**

Standard containers suitable for carrying essential oils and meeting IATA requirements are acceptable.

#### **Usual terms of sales and payments**

Letter of credit

#### **Conclusion**

An opportunity to develop a high quality oil – and if approved by the trade, potential volumes in the short term of up to 10 tonnes. Larger volumes could be produced, but supply would be in direct competition with Chinese material, and prices are likely to be unattractive.

## **GERANIUM OIL**

### **Price Evolution:**

**Price – US\$/kg**

<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
40.60	44.69	43.91	51.64	59.01

Prices are an average of all origins, including fractionated material re-exported from European countries. Prices of natural oils from origin will be higher. The general trend in prices is upwards as the crop is not easy to grow and the production base is limited.

### **Global and Regional Trends**

Overall the market is stable and showing moderate growth. Total demand is around 150 tonnes/yr, concentrated in Europe. The bulk market is supplied by Egypt and China. The premium market was supplied by Reunion ('Bourbon' quality), but this supply has now stopped. Continuing growth of the global branded perfumery market maintains demand for high quality oils.

### **Main competitors**

China and Egypt dominate supply to the bulk market. Provided Madagascar can produce a 'Bourbon' quality oil, it will not compete with China/Egypt. East African production has stopped, and recent attempts to revive production have failed. No new entrants to the market are likely.

### **Market opportunities**

Core opportunity focused on the Bourbon niche market. Supply of up to 10 tonnes/yr at up to US\$100/kg, targeting an average price of around US\$75/kg.

### **National and International regulatory framework**

Geranium oil is a standard item of international commerce.

### **National and International transport costs and conditions**

No special conditions apply to transport. The current export trade lives within current transport cost structure. Increased trade will reduce costs.

### **Customs regulations and tariffs**

Established standards exist (ISO, ASTA) which enable international trade. Madagascar is under no duty/tariff disadvantage in any of the markets targeted.

### **Norms and certification requirements**

Established standards exist (ISO, ASTA) which enable international trade.

### **Distribution system**

Primary commercial targets are importer/dealers.

### **Packaging**

Standard PTE drums.



**Usual terms of sales and payments**

Letter of credit

**Conclusion**

Madagascar can replace Reunion production – accessing premium prices – due to its environmental conditions. Long term market development opportunities are limited – competition with China/Egypt for the bulk market is unlikely to be commercially attractive. The crop can form one part of a range of essential oils crops that can support small enterprises.