



## Global Market Assessment

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## **1. Introduction**

This report is aimed at identifying, in broad terms the export market opportunities for tropical natural products from Nigeria. The report starts by taking an overview of the existing export sectors from Nigeria, on the basis that most successful export business have been built on an existing foundation. The next section outlines the mega-trends in agricultural trade. The report goes on to discuss each of the major export sectors in terms of world market, Nigeria's current export industry and the possible opportunities. Finally the themes and opportunities and drawn together in the final section of the report.

This is prepared as part of the process for identifying and prioritising the investment opportunities in Nigeria for export oriented agri-businesses.

Mr Grahame Dixie has prepared this report, with assistance from Dr Peter Jaeger.

## 2. Overview of the Nigerian Exports of Agricultural and Natural products

Table 1 sets out the Major Nigerian Exports of Agricultural, Fish and Wood Products to selected major markets. Its purpose is to highlight the important products and the differences between markets.

Exports can be conveniently considered under 6 headings: Marine Products, Agricultural Raw Materials, Vegetable Oil Products, Animal Feed from Food waste, Hides and Leather and Wood and Wood Products.

### 2.1. Marine Products

Nigeria has been exporting annually some 8,000 tonnes of fish, prawns and shellfish to the European Union (E.U). The dominant product is **frozen prawns** (approximately 7,000 tonnes) – especially cooked and frozen ‘Panaeus’ prawns. The value of this trade is approximately \$ 45 million. The industry is experiencing slow growth, particularly in ‘Panaeus’ prawns, crabs, fish fillets and cuttle fish.

### 2.2. Agricultural Raw Materials

In the past Nigeria was a major exporter of agricultural products and in particular palm oil and groundnuts, in which commodities Nigeria was the major West African source. Nigeria was also an important player in supplying cocoa beans for processing in Europe.

The largest single product and the most valuable agricultural product exported are now some 100,000 tonnes **Cocoa beans** that are primarily exported to Europe for processing. There also been some growth in the exports of cocoa paste, liquor and butter.

Nigeria exports 42,000 tonnes of **rubber**. Exports have been falling, especially of natural rubber, with the exception of crepe sheets of rubber, a more processed commodity.

Nigeria exports around 13,000 tonnes of raw **cashew nuts** (worth about \$ 8.5 million) to India where they are processed into the shelled cashews – equivalent to just under 3,000 tonnes of kernel (worth about \$ 11 million).

Nigerian **ginger** has a high oil content and is noted for its lemony tones. It is mainly processed into a ginger oleoresin used by the meat industry. However, despite its qualities, Nigerian dried ginger is low priced. This is variously explained as due to poor grading and quality control and/or due to under-invoicing. Sales are made to the EU, the USA and increasingly to India – where Bush, Boke & Alan are processing the ginger into an oleoresin. The value of the trade is some \$ 2.2 million.

Nearly 10,000 tonnes of **palm nuts and kernels** are sold to Europe for processing, while 90% of the 24,000 tonnes of **sesame** are exported to Japan, where they are processed into sesame oil. The trade figures suggest that less than 1,000 tonnes of **shea** are exported.

Nigeria is the world's third largest exporter of **gum arabic**. There are two forms – **hard gum arabic**, the exudate of the *Acacia senegal*, and the **friable gum arabic** collected from *Acacia seyal*. Hard gum Arabic has a price of some \$ 1000 per tonne, as opposed to some \$ 600 per tonne for the friable gum Arabic. Nigeria's exports have been growing, but nevertheless it has lost its position as the second largest exporter of Gum Arabic, after Sudan, to Chad. Chad has significantly expanded direct exports through liberalisation, improved quality control and the certification of some product as 'organic'. The trade from Nigeria is worth some \$ 7.5 million. Nigerian gum arabic trades at a discount; this is attributed to quality and possibly under-invoicing.

### 2.3. Vegetable Oil products

Despite Nigeria having excellent growing conditions for **oil palm** and in the past being a major exporter of groundnuts for processing, the country is in deficit for vegetable oils. About 250,000 tonnes of the total internal demand for vegetable oil, estimated at 1.25 million tonnes, have to be imported. Nevertheless, some 13,000 tonnes of **groundnut oil** and 11,000 tonnes of **Palm Oil** are exported to the EU.

### 2.4. Animal Feed from Food waste

Without a major livestock sector some of the food waste from the oil industry, principally from palm oil and cotton seed, is exported, mainly to Europe as **palm oil cake** and South Africa as **cotton seed cake**.

### 2.5. Skins and Leather

Nigeria exports the **skins of goats and sheep**, mainly to the EU. These are mainly exported in a de-haired pre-tanned form. Sales have been in decline. The only growth has been in tanned goats and sheep hide.

### 2.6. Wood and Wood Products

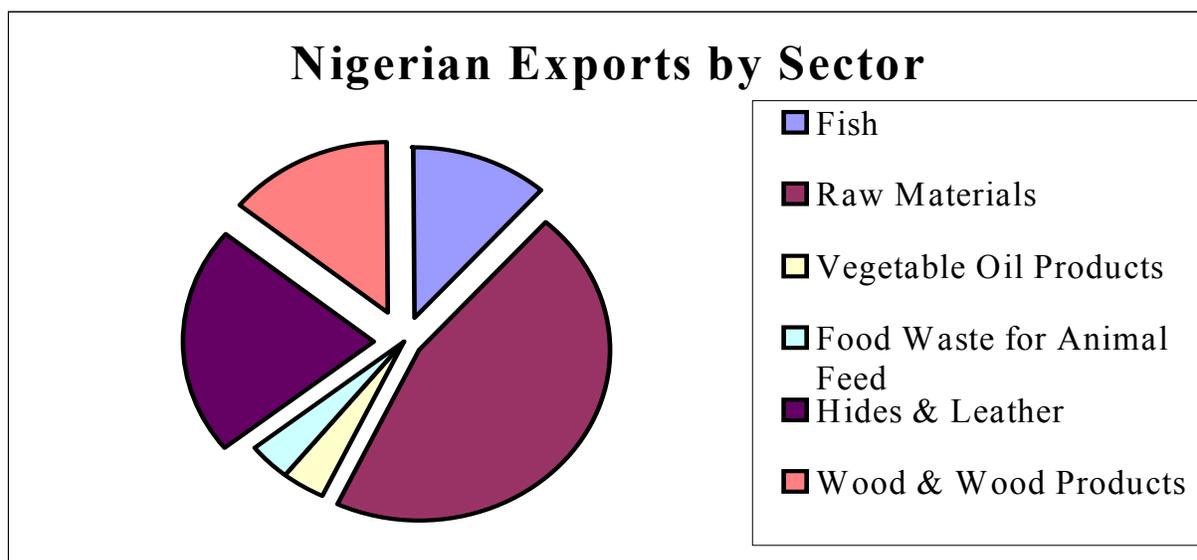
**Wood and wood products** are mainly exported to the EU. The growth has been in specific **veneers** and in **parquet** flooring, i.e. added value products. Sales of parquet flooring blocks have increased from 670 tonnes in 1995, reaching nearly 9,000 tonnes in 1999.

**Table 1 Major Nigerian Exports in Tonnes in late 1990s**

Code	Product	E.U. 1997-99	USA 1998-00	Japan 1998-00	South Africa 1998-00	Brazil 1998-00	India 1998-00	TOTAL 1998-00	Market Trend	Comments
030420	Frozen Fish Fillets	400↗						400↗	↗	8000 Tonnes of food products, slow growth in all sectors. Sales focused on EU
030613	Frozen Shrimps	6840↗						6840↗	↗↗	
030614	Frozen Crabs	390↗						390↗	↗	
030749	Cuttle Fish	300↗						300↗	↗	
<b>Raw Materials</b>										
08213201	Raw Cashew nuts						13000↗	13000↗	↗	Slow growth, sales to India
091010	Ginger	2400→	420↗				590↗↗	3410↗	↗	Sales to India increasing
012710	Palm Nuts & Kernels	9640↘						9640↘	→	EU market
012740	Sesame	1700→		22200→				23900→	↗	Sales flat, mainly to Japan
012792	Shea	470→					520↗	990↗	→	Minor Product/small market
130120	Natural Gum Arabic	3600	840			420	6800↗	11660↗	↗	Market diversification to US, Brazil & India
4001	Natural Rubber	42400↘					↗	42400↘	→	Small player
1801000	Cocoa Beans	114000↗						114000↗	→	Some growth in volume & processed p
<b>Vegetable Oil Products</b>										
150810	Groundnut Oil	13000↗						13000↗	→	Minor product
151321	Palm Kernel Oil	11400→						11400→	↗	Market prospects need investigating
<b>Food Waste for Animal Feed</b>										
230230	Wheat Bran as Animal Feed		38800→					38800→		This apparent trade must be verified
2306600	Oil Cake from Palm Kernels	157400↘			3400↗			160800↘		Low value product
230690	Oil Cake	4600↗			16300↘			20900↘		Low value product
<b>Hides &amp; Leather</b>										
4105	Sheep Leather and Hides	3900→	80					3980→	↗	Growth only in the more
4106	Goat Leather and Hides	7100→						7100→	↗	Processed products
<b>Wood &amp; Wood Products</b>										
4402000	Charcoal	17000→						17000→	→	Growth in the added value Products
4403	Tropical wood	3500→						3500→		
4407	Sawn Wood	31500↘						31500↘		Specific veneers & wood floorings
440799	Cut wood > 6 mm thick	29989↘						29989↘		
440920	Semi prepared wood – moldings, beading, parquet flooring	9000↗						9000↗	↗	

## Estimated Value in US \$ of Agricultural and Natural Product Exports

Code	Product	TOTAL 1998-00 Tonnes	Units values \$/ tonne	Values in US \$	Product %	Sector %
<b>Fish</b>						12.1
030420	Frozen Fish Fillets	400	5240	2096000	0.5	
030613	Frozen Shrimps	6840	6440	44049600	11.3	
030614	Frozen Crabs	390	2080	811200	0.2	
030749	Cuttle Fish	300	1900	570000	0.1	
<b>Raw Materials</b>						47.0
08213201	Raw Cashew nuts	13000	600	7800000	2.0	
091010	Ginger	3410	1000	3410000	0.9	
012710	Palm Nuts & Kernels	9640	600	5784000	1.5	
012740	Sesame	23900	600	14340000	3.7	
012792	Shea	990	600	594000	0.2	
130120	Natural Gum Arabic	11660	1000	11660000	3.0	
4001	Natural Rubber	42400	600	25440000	6.5	
1801000	Cocoa Beans	114000	1000	114000000	29.3	
<b>Vegetable Oil Products</b>						3.8
150810	Groundnut Oil	13000	600	7800000	2.0	
151321	Palm Kernel Oil	11400	600	6840000	1.8	
<b>Food Waste for Animal Feed</b>						4.0
230230	Wheat Bran as Animal Feed		70	2716000	0.7	
2306600	Oil Cake from Palm Kernels	160800	70	11256000	2.9	
230690	Oil Cake	20900	70	1463000	0.4	
<b>Hides &amp; Leather</b>						22.4
4105	Sheep Leather & Hides	3980	9420	37491600	9.6	
4106	Goat Leather & Hides	7100	7010	49771000	12.8	
<b>Wood &amp; Wood Products</b>						10.7
4402000	Charcoal	17000	230	3910000	1.0	
4403	Tropical wood	3500	420	1470000	0.4	
4407	Sawn Wood	31500	570	17955000	4.6	
440920	Semi prepared wood - moldings, beading, parquet	11500	1610	18515000	4.8	
<b>TOTAL</b>				<b>389742400</b>		



The value of Agricultural, Natural products both raw and processed from Nigeria amounts to some \$ 380 million per year. The major products in terms of value are set out in the pie graph above (Figure 1) and in the table 3 below.

**Table 3. Major Exports by Value (late 1990s)**

Products	Value in US\$	% of Exports
Cocoa Beans	114,000,000	29.3 %
Goat & Sheep Skins & Leather	87,250,000	22.4 %
Frozen Shrimps/Prawns	44,000,000	11.3 %
Natural Rubber	25,000,000	6.5 %
Parquet Flooring	18,500,000	4.8 %
Sawn Wood	18,000,000	4.6 %
Sesame	14,000,000	3.7 %
Gum Arabic	11,500,000	3.0 %
Cake from Palm Oil	11,250,000	2.9 %
Raw Cashew Nuts	7,800,000	2.0 %
Groundnut Oil	7,800,000	2.0 %
Palm Kernel Oil	6,800,000	1.8 %
Palm Nuts & Kernels	5,800,000	1.5 %
Charcoal	3,900,000	1.0 %
Ginger	3,400,000	0.9 %
<b>TOTALS</b>	<b>\$ 371,200,000</b>	<b>96.8 %</b>

The largest single sector is sales of raw materials amounting to nearly 50% of all exports. The single most important product is a cocoa and cocoa product. The second most important sector is the skins of sheep and especially goats both tanned and untanned.

### 3. Overview of the Markets and Trends

This section of the report sets out some of the more pertinent mega-trends in the trade in agricultural and natural products.

The first point that must be made is that the international market for natural products and foods is changing, and changing rapidly.

The three major markets are the European Union, the USA and Japan. Products are imported in large volumes, unit prices are high, but so are the demands in terms of quality, packaging, market servicing and food standards. To access the market involves high costs. In total growth is slow, supplies are abundant and profits are largely in the hands of huge multiple retail stores, who are easily the most powerful players in the whole production/marketing chain. Supermarket chains select suppliers, demand incredibly exacting standards of market servicing and typically need to trade with companies of similar scale, professionalism and culture.

Within the three major markets there are product lines where growth is fast and profits high, because they match specific consumer demands. In a cash rich and time poor world, the market is driven by consumer choice. They are looking for cheap food, ready-made foods and exotic flavours. Cheap bulk products and high value niche products are where the growth has been, while the middle range products have weakened. Consumers are making choices for new, interesting products, vegetarianism, organic foods (produced and processed entirely without recourse to agro-chemicals) and ethical products (e.g. Fairtrade, suppliers conforming to specific environmental, social and labour standards). One of the most crucial attitudes of consumers in the major markets has been that they are increasingly health conscious. Food scares, such as BSE, Foot and Mouth, salmonella, food poisoning and the use of agro-chemicals, have massively affected people's buying habits. In addition, consumers are taking greater responsibility for their health and self-medication. This has translated into new products, which can be considered as Functional Foods and Nutraceuticals. Functional foods are those which are claimed to provide health benefits. Two important examples are Yakult, a yoghurt drink containing the beneficial bacteria *Lactobacillus casei*, and Bencol, a spread that is proven to lower blood cholesterol. Just because the consumer is interested in healthy products does not mean that sales of un-healthy products will decline. Quite the reverse. There is even a suggestion that people have a trade balance of health in their head, so that after a night of drinking alcohol they are more likely to take a health food as an internal compensation for the damage caused by the night before. Sales of snacks and food to eat whilst on-the-move are increasing, but in addition to potato chips the consumer also now has the choice of buying a bag of dried fruit.

The fastest expanding markets are those of the developing countries themselves. Although the volume of product is low, and so are prices, the volume of sales is expanding and is set to continue with strong long-term growth. The important developing markets are highly populated countries with a strengthening economy. Examples are Mexico, India and China. Nigeria itself is an example of a developing nation, which is an important import market for both commodities and processed products. Food aid is another example, which creates opportunities of trade flows from one developing country to another.

The next section of the report examines these mega-trends in trade, markets and consumer demand in more detail. The following section of the report covers the major existing export sectors and considers which products have strong potential for growth and how that growth might be stimulated. The themes emerging are pulled together in the final section of this report.

### 3.1. The Trouble with Commodities

The table 4 below serves to demonstrate that agricultural commodity prices have been falling in real terms. The rates vary, but in the years 1970 through to 2000 prices are projected to have fallen by about 2/3 in the case of cocoa, palm oil and sorghum. For cotton and rubber prices have fallen in real terms by over a half. For timber products the value of logs and more added-value products like sawn wood are holding up, largely due to diminishing supplies, coupled with increased demand. Shrimps are exceptionally high unit value products, again with increased demand, and are a relatively new agricultural commodity. Initially shrimps were a small scale luxury product, however, they are now sold in larger volumes, but the volumes are limited by the productivity of the sea. Like sawn wood, prawns are a value-added product.

**Table 4. Typical Units Prices of Commodities in Current and Constant US Dollars**

		Current Dollars									
		1970	1980	1990	1998	1999	2000	2001	2002	2005	2010
<b>Cocoa</b>	\$/mt	675	2600	1270	1680	1135	900	950	1100	1500	1700
<b>Palm Oil</b>	\$/mt	260	584	290	671	436	322	340	360	400	450
<b>Sorghum</b>	\$/mt	52	129	104	98	84	85	88	100	120	125
<b>Shrimp</b>	\$/m3		11520	10690	15790	14610	15030	15150	15300	15500	15900
<b>Logs</b>	\$/m3	43	252	343	286	269	275	285	300	330	385
<b>Sawnwood</b>	\$/m3	175	396	533	484	601	600	620	655	750	900
<b>Cotton</b>	C/kg	68	206	182	145	117	128	137	141	159	181
<b>Rubber</b>	C/kg	41	143	87	72	63	71	75	79	88	99
		Constant 1990 Dollars									
		1970	1980	1990	1998	1999	2000	2001	2002	2005	2010
<b>Cocoa</b>	\$/mt	2689	3616	1267	1579	1099	891	909	1015	1291	1323
<b>Palm Oil</b>	\$/mt	1036	831	290	632	423	319	325	332	344	350
<b>Sorghum</b>	\$/mt	206	179	104	92	82	84	84	92	103	97
<b>Shrimp</b>	\$/m3		16000	10690	14880	14140	14890	14490	14120	13340	12370
<b>Logs</b>	\$/m3	171	350	343	270	261	273	273	277	284	299
<b>Sawnwood</b>	\$/m3	697	550	533	456	581	595	593	604	645	700
<b>Cotton</b>	C/kg	269	286	182	136	113	127	131	130	137	141
<b>Rubber</b>	C/kg	162	198	87	68	61	70	73	72	76	77

Source: Global Economic Prospects, World Bank 1998

### 3.2. Comparative to Competitive Advantage

The received wisdom is that exporting raw agricultural commodities is a path that leads to lower and lower returns, as production resolves into the hands of the lowest cost producers. Mechanisable crops tend to be grown by technically advanced nations and labour intensive crops are grown in countries with the lowest wage rates. The emphasis is now on 'turning a comparative advantage into a competitive advantage'. In practice, this means building on any production advantage a country has to create a range of export products that are:

- higher priced (added-value, quality),
- targeted to specific markets and market opportunities.

Export sectors need to be focussed on market servicing, efficiency and a continuing programme of product development. It is only with this broad approach that developing countries can turn a comparative advantage into a competitive advantage. With competitive advantage exporters are in a better position to defend and expand market share and develop new opportunities.

The World Bank's publication 'Exporting High Value Food Commodities, success stories from Developing Countries' (Steven Jaffee, 1993), emphasises the importance to developed countries of this new high value product sector and its rapid expansion. The study covers a range of products including orange juice (now worth as much as the world cocoa trade), frozen prawns, shelled cashew, cut flowers and vegetables. Numerous studies of future demand and trade have emphasised that although the developed markets of Europe, North America and, to a lesser extent, Japan are the largest import markets, the growth in demand is of the order of 1-2% per annum. The fastest growth in trade is into developing countries with expanding economies and large populations, e.g. India, Brazil, Mexico and China.

The definition of marketing is "to find out what your customer wants, and then to supply him at a profit". The vital first step in any export development or investment is to understand what the export markets want. The next section of the report aims to identify some of the major developments in the market for internationally traded agricultural products and focuses on how world demand is changing. The new products and market sectors that are emerging are identified.

### **3.3. Consolidation of Supply and Buying Power**

The international market for food products has a number of recurring themes. The main ones are:

1. Import prices are in the main falling, both in real (when international inflation is factored in) and in actual terms. Principal causes are continual expansion of supply, improvements in efficiency and the increased negotiating power of the major supermarkets.
2. Buying is consolidating in the hands of fewer and larger companies. Multiple supermarket stores dominate food sales. Buying is generally centralised. Supermarket chains are often the most powerful link in the production/marketing chain and are dictating prices, product specifications, production policies, food hygiene standards and increasingly the environmental and labour policies of the export companies.
3. Marketing channels have had to change in response to the purchasing power of supermarkets. Supply has consolidated into the hands of fewer and larger importers and food processing companies, who provide a range of services, such as food preparation, pre-packing and distribution.
4. Export companies are increasing in size. There are significant entry barriers for new suppliers because of the standards of professionalism, food hygiene and quality assurance required.

5. In the main the expansion in supply is from the major exporting nations, while the smaller suppliers are tending to fall away. Increasingly, international alliances are formed and there is vertical integration.
6. The food trade is driven by changing consumer demands and needs. Primary factors are socio-economic. They include levels of disposable income and the increasing disparity between the so-called “haves” and “have nots”. The growth in car ownership is making weekly shopping at out of town stores a feature of modern shopping. The growing number of women who work is resulting in a population who is “cash rich, time poor”. There is a trend towards healthy eating with the corollary of increased concern over food safety issues. There is a decline in formal meals and a growing habit of snacking or “grazing”. Refrigerators, freezers and microwaves for food preparation and storage are increasingly important. There is increased familiarity and interest in eating exotic foods and prepared meals.
7. Food is taking a smaller share of the family budget. In Britain, for example, it has fallen from about one third of monthly expenditure to one sixth. In addition, rather than buying the raw ingredients for a meal, e.g. potatoes, rice, sugar, etc., people are buying ready-prepared products, e.g. shelled and frozen peas, savoury rice, sauces and ready-made meals. The average person is spending five times more than they would need on food because they are buying prepared and processed foods rather than buying basic food ingredients. In practice this means that a declining portion of the income of a family in a developed country is flowing back to the agricultural sector, be they local growers or overseas producers.
8. In terms of products, the expanding product sectors are:
  - Snacks & convenience foods
  - Semi-prepared and ready-meals
  - Exotic products, e.g. tropical fruits, fine vegetables and specific ethnic foods (Indian, Mexican, Chinese)
  - All-year-round supply of fresh fruit and vegetables
  - Sauces
  - Organic products and fair-traded products, i.e. ethical products
  - Functional foods and nutraceuticals, i.e. products specifically created for their perceived health benefits
  - Healthy food options, i.e. low fat, white meat and fish
  - Floracultural products, both cut flowers and pot plants
  - Fruit juice consumption is increasing and diversifying, as is the demand for energy drinks, flavoured waters and wines
  - The rising importance of vegetarianism, which now accounts for over 5% of the population
  - Catering and “fast food” and take-away restaurants.

### **3.4. Snacks, Prepared Meals, Ethnic, Ethical, Organic**

In general the food retail sector is dividing into two. This reflects partly the increased disparity between the “haves” and “have nots”, but also the different purposes that food is used for, i.e. food as entertainment, eating to live, living to eat, etc.

The fastest growing sectors in the food industry have been at opposite ends of the spectrum – those companies that aim to deliver exceptionally cheap food, i.e. discounters such as Wal-Mart, Makro and Aldi, where price is the key issue, margins are tight and lines are limited. The other sector that has expanded has been the high margin, high-priced food sector, e.g. Marks & Spencer and Waitrose. These supermarkets tend to have multiple lines with much new product development and target luxury food products for the more affluent sectors.

The taking of formal meals where the family sit round a table and share food has declined. Instead snacking and “grazing” are of increasing importance. Primary snacking locations are in cars and snatched snacks in the home (in place of a meal). Snacking has moved away from the traditional peanuts and crisps and diversified into a wide range of products, including hot snacks, luxury nuts, health bars, and chilled desserts. The most important consumers of snacks are the U.S. at 8.6 kilos per head p.a., the Netherlands at 6.5 kg and the UK at 5.7 kg. Markets like Italy and Brazil have significantly lower snacking levels – but are increasing rapidly. The market is highly competitive and tends to consolidate in the large food companies capable of developing new products and supporting them with major promotional campaigns, e.g. TV advertising.

Supermarkets are intentionally promoting value-added products in order to persuade customers to spend more and because value-added products have higher profit margins. This supermarket intention, coupled with a cash-rich but time-poor society, has propelled an enormous growth in prepared food markets. Some supermarkets go so far as to define their purpose as providing the equivalent of restaurant meals to take away (“food to go”). This has led to rapid growth in sales of chilled and frozen ready-meals, prepared salads, salad dressing, oven-ready chips, pizzas and pastas, and a range of chilled prepared pastries. The corollary has been the decline in sales of ingredients for cooking, such as sugar, flour, root vegetables, yellow fat and edible oil. People are buying more convenience versions of foods, for example, sales of oranges have been flat whilst demand for easy-peeling citrus, i.e. clementines, has increased rapidly.

The ethnic food sector can be conveniently divided into two. In ethnically diverse markets, such as the USA and the U.K., there has been very significant growth in the sales of specific ethnic products, which match the traditional eating habits of particular immigrant communities, e.g. the Hispanic population in the USA, and the Indian population in the U.K. Secondly, there has been an increasing interest amongst the indigenous populations in exotic eating. Amongst the ethnic food sectors which have grown fastest are Japanese, Middle Eastern, Mexican, Thai and Cajun. Sales are principally made to the A, B and C1 categories of consumer, i.e. the wealthier ones. More recently the market has shown rapid growth in sectors which combine two or more trends, e.g. ethnic ready meals.

Organic sales, while still a small sector of the market, have been rapidly expanding at the rate of between 10% and 30% per year, propelled by health food concerns such as BSE, genetically modified foods, and agro-chemical contents and the perception that organic foods are healthy.

The dominant products are fresh fruit and vegetables, probably accounting for 80% of sales. The fastest expanding sectors have been in dairy and meat and in the U.S.A. snack products.

Ethical and fair-traded products are a much newer product sector. Fair-traded product, initially, has created niches in the supply for products such as tea, coffee and chocolate. In addition, supermarkets are insisting that their suppliers conform to acceptable labour policies.

### 3.5. Functional Foods & Nutraceuticals

Research into the health benefits of foods has been escalating during the last five to seven years, driven by consumers' awareness of the relationship of diet to optimal health, ever-increasing health care costs, the aging baby boomer population and others motivated to take control of their own health. A 1998 nationwide survey found that 95% of Americans believe certain foods have health benefits that go beyond basic nutrition and may reduce the risk of disease, 92% believe they have control over their own health, and 78% can name a particular food or component and the health benefit associated with it. Broccoli, oranges and orange juice, carrots, fish and fish oil, garlic, green leafy vegetables, milk, and fibre were most often mentioned by consumers, in that order.

**Functional foods**, according to their generally accepted definition, are "any food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains". Soy, which contains soy protein associated with a reduction in cardiovascular disease, is considered a functional food. Other functional foods include red grapes and cranberry juice (for the oligomeric proanthocyanidins, OPCs) and oat bran (for the fibre content), all with health benefits attributed to "non-nutrient" compounds as classified by standard agreement of the term. So-called "super-fortified" foods - those fortified with more than 100 % of the daily required intake and/or foods that have added botanicals or other supplements - also fall into the category of functional foods. Two examples of the latter are orange juice with echinacea (*Echinacea angustifolia* or *E. purpurea*) and salad dressing with omega-3 polyunsaturated fatty acids (PUFAs). Functional foods may carry health or structure/function claims provided adequate scientific evidence supports the claim.

**Nutraceuticals** covers a wide range of products - including dietary supplements - those fortified foods that are enriched with nutrients not natural to the food such as orange juice with added calcium, functional foods and medicinal foods. Thus, nutraceuticals are more correctly defined as parts of a food or a whole food that have a medical or health benefit, including the prevention and treatment of disease. There is a move to legally define nutraceuticals as a separate regulatory category, thus allowing them to carry specific disease treatment or prevention claims previously allowed only for drugs.

### 3.6. Markets in Developing Countries

Faced with over supply and falling prices in agricultural commodities the world has looked with hope at the populations of countries of countries like China and India as potentially huge demands for their products. Quotes like "imagine the impact on the trade in skins and hides if every Chinaman has a pair of leather shoes" or "if every Indian ate as much chocolate as a

typical European the crises in the cocoa bean market would be solved” are often heard. Because of the continuing crisis of commodity prices, the trade is largely disappointed and even think that the opportunities are mythical. What has happened is that these markets are importing more and more product. India is the world’s largest market for pulses importing some 500,000 tonnes. China is absorbing boat loads of bananas. Although there has been growth, imports have not taken off. Partly it is a result of the inevitable time lag before the liberalising effects of the Uruguay Round are fully felt. The Asian economic crisis of the 1990’s has applied a significant brake on progress in international trade and particularly on trade between developing countries.

India is an example of a market which has strong long term growth potential. India will have a population of one billion, of which 250,000,000 are classified as middle class with jobs and salaries. Food retailing is becoming more sophisticated matching the increasing sophistication of city dwellers. Food processing is becoming more industrialised. New products are being innovated. Nigeria is already the most important international supplier of Gum Arabic and dried ginger to India. India has traditionally taken all of Nigeria raw cashew exports, some 10,000 tonnes per annum. An important question is what would be the long term impact on rural incomes if Nigeria purposely positioned itself to become the dominant supplier in a wider range of agricultural commodities to the Indian market? Such a strategy would enable Nigeria to be well placed to participate in the take off of the import market.

Annually food aid amounts to between 6 and 14 million tonnes. The quantity fluctuates wildly depending on the number and level of crises in the world. As a market the demand for food aid is not, fortunately, experiencing long term growth. Food Aid is mainly purchased by international tender. Prices are highly competitive. To participate developing countries need to be opportunistic, able to respond to requests for tenders and efficient. This is not an area for investment or marketing strategy and is not considered further.

#### **4. Nigeria's Export Products**

##### **4.1. Cocoa**

###### **4.1.1. Supply, Demand and Prices**

The world trade in cocoa stands at some 2.5 million tonnes, with sales mainly focussed on the E.U. (56%) and North America (17%). After a growth in trade in the eighties, especially to developing countries, the rate of increase in trade is expected to decline.

Africa supplies about 2/3 the world supply of cocoa with the Cote d’Ivoire producing 1.3 million tonnes and Ghana at around 490,000 tonnes of premium product. Nigeria’s production stands at 180,000 tonnes of which some 130,000 are exported as beans. Bean exports have declined and are now showing small growth.

Prices of cocoa have fallen to about 1/3 of prices in the 1970s, in terms of constant dollars (i.e. buying power). Prices have been steadily falling with the exception of a period in the late 1970s, and short periods of higher prices in the mid 1980s and in 1998. Cocoa prices reached a record

low in February 2000. Although some recovery in price is taking place, with prices now standing at some US \$1000 per tonne, cocoa beans are unlikely to ever be a highly profitable crop again.

Cocoa beans are exported to developed countries, where they are processed into butter and powder. Traditionally, butter was in stronger demand than powder. Recently this has shifted somewhat, with increased demand for powdered products, particularly within developing countries.

There has been interest in expansion of processing capacity in developing countries. Superficially, the lower transport costs and savings on labour should translate into increased profitability when processing is carried out at source. In practice, the comparative advantages are not so clearly evident. Energy costs in developing countries are often higher than those in developed countries. Most chocolate manufacturers require a blend of butters to produce their specific chocolates consistently. Processing at source produces an unblended butter. Butters then have to be mixed in the developed countries prior to manufacturing chocolate. In addition, there remains scepticism within the trade about the quality of product processed at source.

#### 4.1.2. The Nigerian Situation

Nigeria exported some 135,000 tonnes of cocoa beans in 2000/1. These are exported to Belgium, UK, Germany and the Netherlands.

#### **Nigerian Exports of Cocoa and Cocoa Products to the EU in Tonnes**

	1995	1996	1997	1998	1999	Trend
1801000 Cocoa Beans	100203	108555	89969	121566	131200	↗
1803100 Cocoa Paste	353	1175	1190	682	381	→
1803200 Cocoa Paste wholly or partly defatted	1219	1599	2347	2691	2136	↗
1804000 Cocoa Butter	4358	6511	9596	6651	8527	↗

Cocoa beans are purchased by local buying agents and consolidated by cocoa merchants. Graded beans are sold to exporters and processors. Cocoa growers in Nigeria obtain the highest prices in the region and yet the Nigerian export prices are the lowest. Nigeria beans trade at a discount to Ivorian of between 2 to 5% of the London price. This reflects the lower fat content of Nigerian beans. The high grower prices reflect both the advantages of the liberal marketing system but also foreign exchange benefits. This has attracted businessmen who have little feel for, or understanding of the cocoa market. Contract reliability is said to have declined with the quality of the beans. Trade has become more concentrated into fewer, better organised businesses. Some European trading houses have established buying operations of their own in Lagos. The price differential between Ivorian and Nigerian has diminished, although both are sold at a significant discount against Ghanaian.

Nigeria at present has 17 processing factories, of which only 6 are said to be in operation. Around 22,000 tonnes of beans are processed in Nigeria to butter, liquors and cake. This amounts to only 10% of the national installed capacity (at 220,000 tonnes bean capacity per year). About 2/3 of all processed products are exported. Production has switched from cocoa butter to liquor in response to improved demand and prices. Liquor exports are projected to reach 10,000 tonnes in

2001/2, up from 4,000 tonnes in the previous year – butter exports will fall from 16,000 tonnes to 12,000 over the same period.

The Government of Nigeria is implementing a National Cocoa Development Project, which aims to lift cocoa bean production from about 175,000 tonnes in 2001 to 320,000 tonnes, and finally aim for 600,000 tonnes. The programme aims to persuade growers to replant by supplying cocoa seedlings capable of improved yields, with early bearing and disease resistant seedlings. The uptake appears to be poor because growers cannot afford to absorb the reduction in income and the costs of planting that they have to incur until the replanted cocoa bush starts to yield and eventually outperform the old bush that it replaces. Cocoa production is unlikely to increase massively.

Further detail on Cocoa and Cocoa products are found in Annex 1.

## **4.2. Marine Products: especially Shrimps and Prawns**

### **4.2.1. Supply, Projected Demand and Prices**

The world production of fish, crustaceans and molluscs amounts to some 126 million tonnes, of which about 93 million are captured and 30 million raised using aquaculture. Shrimps and prawns are the most important commodity, accounting for about 19% in value terms of international trade. This share has remained stable over the past 20 years.

Shrimp production, both capture and aquaculture, stands at some 3.8 million tonnes (up from 2.5 million tonnes in 1990). China produces about 25% of the world's prawns, but significant increases have occurred from Indonesia, India and Thailand.

Landings of wild shrimp have hovered around 2 million tonnes p.a. since the early 1980's. Virtually all the world's major stocks of wild shrimp are considered to be either fully or over-exploited.

Since the early 1980's, shrimp farms have developed rapidly, with global production standing at 80,000 tonnes in the early 1990's and reaching 800,000 tonnes in 1999. Today more than ¼ of shrimps consumed are produced by aquaculture. This proportion is predicted to rise to 50%.

In some countries, such as India, Bangladesh and Thailand, there has been a tradition of rice/shrimp rotating system. The yields are low from these natural ponds, but sustainable over long periods. The dominant trend in the last decade has been the development of semi-intensive and intensive farming systems. The more intensive the production the greater the environmental impact.

Giant Tiger prawn is the main species produced, representing about 19% of total production. This species mainly originates from aquaculture.

Approximately 1.1 million tonnes are processed to frozen shrimps. India has recently overtaken the USA as the largest producer of frozen shrimps. Prepared and preserved shrimps (mainly cooked and peeled) amounts to some 210,000 tonnes, an increase of over 100,000 tonnes from the 1990 figure, with Thailand (100,000 tonnes) as the largest producer.

The world trade in shrimps amounts to 1.4 million metric tonnes, worth over \$10 billion. Thailand is the world's leading shrimp exporter (250,000 tonnes) and the USA at \$ 2.3 billion its largest market. Thailand's shipments have more than doubled during the 1990's and its major markets are the USA 37% and the EU 14%.

The major import markets for shrimps are the USA (275,000 metric tonnes) and Japan (240,000 tonnes) - (a market which has declined due to the country's economic difficulties). The EU imports some 370,000 tonnes, mainly from Ecuador. Major destinations include France and Spain.

In the US, shrimp competes with tuna as the most popular seafood. The US imports about ½ of the total world production of farmed shrimp. Sales are particularly made through restaurant trades such as Red Lobster, Bubba Gump, Shoney's, Long John Silvers and Sizzler. Red Lobster alone sells almost 5% of the total world production of farmed shrimp and its advertising is thought to be largely responsible for the 250% increase in shrimp consumption in the United States. Shrimps are also an important ingredient in ready-made meals, with peeled frozen prawns being particularly demanded.

It is projected that because of the high profile of shrimps in the American market, supported by advertising and promotion, that demand will grow significantly. Europe should experience the most substantial long-term growth. Europeans are more familiar with the temperate shrimp species and the Ecuadorian farmed shrimp. However, due to disease problems in Ecuador and constraints on the supply of captured shrimp, there is an increase in demand in the EU for the tropical farmed shrimps.

Wholesale prices of prawns normally stand at between \$7 and \$15 per kilo, depending on size and type. The price paid to prawn farmers ranges between \$4.5 and \$8.5 per kg. In real terms, the price of prawns has only marginally fallen, despite the massive increase in volumes, reflecting the strong international demand (see Table 4 of the main Report).

#### 4.2.2. Nigerian Prawn and Marine Product Sector

The bulk of Nigeria's marine products are exported to Europe. There has been slow growth in all sectors, but easily the most important are frozen shrimps. According to the statistics the most important sector is frozen cooked 'Penaeus' prawns. Typically, tropical prawns are sold either headed or de-headed, green, after blast-freezing. The business is believed to be in the hands of large scale trawler fleets, a proportion of which are believed to be foreign-owned.

**Table Nigeria's Exports of Marine Products to the EU in Tonnes**

Code	Product	1995	1996	1997	1998	1999	Trend
030420	Frozen Fish Fillets	274	134	331	463	393	↗
030613	Frozen Shrimps	5841	6587	7079	6892	6557	↗
030614	Frozen Crabs	217	290	304	385	486	↗
030749	Cuttle Fish	167	228	275	323	325	↗
Frozen Shrimps & Prawn							
03061350	Frozen Cooked 'Penaeus' Prawns			3770	4852	4620	↗ ↗
0306138	Frozen Other Cooked Prawns			3309	2040	1891	↘
03061390	Frozen Cooked Prawns	5815	6550				
Frozen Crabs							
03061490	Frozen Cooked Crabs	217	286	304	365	479	↗
Frozen Cuttle Fish							
03074911	Frozen 'Sepiola' Cuttle Fish		23	48	114	74	→
03074918	Sepolia Offinalis + 'Rossia Macrocosma'	166	204	226	209	226	↗

### 4.2.3. Prawn/Shrimp Farming

Prawn farming built up gradually from the mid 1970's to the mid-'80's, when output stood at some 225,000 tonnes. Output rapidly expanded during the late 1980's reaching some 700,000 tonnes in 1988. The output figures have been broadly static during the early 1990's, mainly due to disease issues in the main production locations. During the latter part of the 1990's farmed shrimp production is estimated at some 800,000 tonnes. Thailand is the world's top farmed shrimp producer with some 225,000 tonnes. China and Indonesia stand at about 85,000 tonnes each. Production in Latin America, however, has been hit by the White Spot virus, which has particularly affected Ecuador.

In some countries, there has been a tradition of rice/shrimp rotating system. The yields are low from these natural ponds, but sustainable over long periods. The trend in the last decade has been the development of semi-intensive and intensive farming systems. Most farms are based in tropical and sub-tropical coastlines. Shrimps are farmed in large ponds of at least 1 metre depth. The site is normally on an estuary to provide brackish or salt water. A shrimp pond can be a converted, extensive coastal fish pond, a large rice paddy, salt flats or a newly excavated site on clear felled mangrove forest.

More recently, production has become more intensive. This more industrialised process involves the manual stocking of ponds with either wild caught or hatchery produced "post-larvae". Stocking rates are 100 times greater than the lower yield sustainable systems. Ponds are "fertilised" with urea and phosphate to stimulate algal growth, which the shrimp feed on. Increasingly, supplementary foods are used. To maintain oxygen levels, ponds must be frequently flushed, involving pumping the polluted effluent. This can easily contaminate lands and coastal waters. In addition to this, some 1 million hectares of mangrove has had to be sacrificed for shrimp farming. The loss of this important resource, the build up in disease in existing producer countries and the increasing demand, particularly in Europe and the States, is leading investors to seek out new production locations, particularly in South America and Africa.

Shrimp farming is an industry with high potential profits. In some situations the investment costs have been paid off in one year. One report claimed that a hectare of prawn ponds could generate a profit of \$32,000 if a high quality product is exported to the American and Japanese markets. Shrimp farms, however, generally cause the destruction of important habitats, such as mangrove. The more intensive the system and the greater the concentration of prawn farms, the deeper the ecological impact of the resultant pollutants and the sustainability of intensive systems is limited. Prawn farms generally last only 5 to 10 years.

In the Nigerian context, prawn farming may offer the potential of a new industry with a strong demand, but even if best practices are introduced, there is grave danger of significant long-term environmental impact.

Prawns are a product for which there is buoyant demand. Europe is a market which is predicted to have particularly strong expanding demand. Aquaculture provides the only realistic opportunity for satisfying the increasing world demand. Output is projected to double to reach some 1.4 million tonnes over the next decade. This could provide an additional income of some

\$7 billion per year for tropical countries. The shrimp farming industry is currently looking for new locations to expand production. New production industries are being considered on the east coast of Africa and in Brazil. Correctly planned and designed, shrimp farming could provide additional income for the artesian fishermen of the delta. Developing an environmentally sound, sustainable and socially responsible prawn industry in Nigeria would be extremely challenging. This industry would provide an opportunity for Nigeria to participate in this projected increase in trade from the Tropics to developed markets.

Further detail on Shrimps and Prawns are found in Annex 2.

### **4.3. Skins: Raw and Tanned**

#### **4.3.1. Supply, Projected Demand and Prices**

Hides and skins are primarily produced as the bi-products of the meat industry. The international trade in skins, hides and leather is more valuable than that of meat. Hides come from bovine animals, e.g. cattle and oxen, while skins are from sheep and goats. Nigeria is only an exporter of the skins of sheep and goats.

Bovine hides and leather dominate the world trade, accounting for some 88% of the total trade in hides and skins. Skins from goats and sheep account for about 12% of world trade.

During the last two decades the international hides, skins, leather and leather products industry has gone through a period of great change. There has been a considerable shift in the location of tanning and leather manufacture to developing countries, where costs are lower.

Output of skins and hides is generally inelastic, dependent as it is on the demand for meat. Imbalances between supply and demand result in considerable price fluctuation.

World production of sheep skins and goat skins is projected to rise at 1.9% annually to reach 700,000 tonnes by the year 2005. Developing countries will account for almost 70% of world supply, with the Far East region as the main supplier.

The world demand for leather and leather products is projected to continue to expand, primarily as a result of growing incomes and, to a lesser extent, through improved access as part of the Uruguay Round. Growth in demand is expected to accelerate. Globally, footwear is the major end use, accounting for approximately 56% leather. Developing countries are projected to have a faster rate of growth than the developed world at 1.1% and 0.6% respectively. Developed markets account for 54% of global consumption. Consumers in more affluent societies are placing more emphasis on purchasing high quality leather products. The strongest growth in demand is expected to be in those developed countries with long established tanning and leather industries, e.g. Italy, UK and USA. The market in developing countries is changing. Because of difficulties of supply from the USSR that countries like China are determinedly seeking new sources of supply. Traders from East Asia are aggressively seeking skins and leathers to purchase from West Africa.

Leather as a product has good long term market prospects. There is no suitable synthetic replacement for leather in footwear. In the developed markets consumers are looking for higher quality shoes and changing fashions ensure continued sales. Within the developing world very significant increases in leather sales are likely as the population demands shoes as their economies improve and they can afford footwear.

#### 4.3.2. The Nigerian Skins & Leather Sector

Nigeria primarily exports its skins and leathers to Europe. There has been a decline in the trade of raw skins, i.e. pre-tanned, from some 10,000 tonnes to 4,500 tonnes from Nigeria into Europe. As set out in the table below, the fastest expansion has been in tanned goat leather, followed by tanned sheep leather. The trade in raw skins has fallen.

Nigerian raw skins are primarily traded in the traditional form of dry salted. It is understood that all the resources for tanning are available in Nigeria. The quality of skin from Nigeria is however said to be poor. This is a common complaint in Africa. Poor livestock husbandry and branding result in the wastage of considerable amounts of skins and hide. The main quality complaint is caused when the skin is removed from the body. One strategy for improving quality has been to provide training courses and proper knives for staff that carries out the skinning (flaying) in slaughterhouses. There are problems with the storing of the dry salted raw skin and the cost of salt is a key issue in the profitability of the exercise. Much improved machinery is now available for the splitting of skins and developing countries have often not yet made this investment.

**Table Exports of Nigerian Exports of Skins and Leather to the EU in Tonnes**

Code	Product	1995	1996	1997	1998	1999	Trend
4105	Sheep Leather and Hides	4524	5363	5124	3629	2982	↘ ↘
4106	Goat Leather and Hides	7171	7944	9290	7117	4936	↘ ↘
41051210	Pre-tanned, unsplit Sheep's leather	3936	4235	4346	2898	1859	↘ ↘
41052000	Wool less tanned Sheep's leather	172	274	201	263	636	↗
41061200	Dehaired Goat pre-tanned leather	6420	6502	7135	5255	2488	↘ ↘
41061900	Dehaired tanned Goat leather	198	854	1550	1303	1985	↗
41062000	Dehaired tanned prepared Goat leather	344	428	425	448	394	→

#### 4.4. Rubber & Rubber Products

##### 4.4.1. Supply, Projected Demand and Prices

During the past decades both production and consumption of natural rubber has significantly increased. The growth figures have been about 4% per annum in developed countries, but 7 per cent in Asia. The EU and the USA account for 46% of world imports. In total some 6 million tonnes of dry rubber equivalent are traded internationally. The major suppliers are all located in South East Asia. Three suppliers account for 70% of world trade. These are Thailand (2.5 million tonnes), Indonesia (1.6 million) and Malaysia (1 million tonnes) Africa is a minor supplier with a total output of some 350,000 tonnes. Production is expected to continue to expand especially in Asia, although in Malaysia production is declining as producers shift to Oil Palm.

The demand for rubber is driven by the demand for vehicles and the increased use of rubber in non-tyre products. Growth is projected at 1.2% per annum, mainly due to slackening demand for cars.

Rubber prices were severely depressed following the Asian economic crisis. Indonesia, Thailand and Malaysia devalued their currencies making their product more competitive on the world markets as compared with West Africa. Product is now being traded at less than US cents 50 per kilo. Although there may be some recovery in costs, it is expected that West Africa will still receive prices which are below cost in the near future.

##### 4.4.2. The Nigerian Rubber Sector

Nigeria's exports of Natural Rubber have been falling according the International Rubber Trade Association. Export volumes stood at some 100,000 tonnes in 1995 and reportedly only 43,000 tonnes in 2000. The country is said to have surplus processing capacity but has not invested in new plantings. The trade feels that, because Nigeria has low credibility due to poor reliability in contracts and inconsistent quality, prices are discounted.

##### Nigeria's Exports of Rubber and Rubber Products to the EU in Tonnes

Code	Product	1995	1996	1997	1998	1999	Trend
4001	Natural Rubber	75647	86843	74951	38439	13727	↘
4001100	Natural Rubber Latex	4173	10845	4039	2662	881	↘
40012100	Smoked Sheets of Natural Rubber	2705	3328	984	1213	198	↘
40012200	Technically Specified Natural Rubber	19583	19076	21543	10897	8926	↘
40012910	Crepe Sheets of Rubber	3975	8471	13245	5052		→
40012990	Natural Rubber in Primary form	45211	45123	35140	18615		↘

Further detail on skins and leather are found in Annex 3.

#### 4.5. Wood and Wood Products

##### 4.5.1. Supply, Projected Demand and Prices

Tropical timber has been one of the few commodities that have seen real prices rising over the past two decades. Prices of Asian tropical timbers did fall following the Asian crisis as demand weakened, but have been recovering. African tropical timber prices held up rather better as it is mostly exported to the European markets. Prices are expected to increase as tropical timbers become scarcer, environmental regulations tighter and demand continues to increase.

There has been a shift in developing countries towards added-value wood products. The EU is the world's largest importer of wooden furniture, accounting for nearly half the total imports. Eastern Europe and Asia are increasing their market share of the wooden household furniture market. Exporters looking for market niches should avoid kitchen furniture and concentrate on products for the bedroom and other household furniture. Consumer preferences include quality, durability, functionality and comfort. Quality is especially important if exporters seek long term relationships with importers. Top-end buyers are demanding more quality for the same price. In general, consumer taste is moving towards lighter coloured woods, however, some dark woods continue to be in vogue, reflecting trends in nostalgia and warmth. There is a move away from laminates and veneers, and towards solid woods. Rubberwood (properly known as Heveawood) is the main source for wooden furniture, accounting for 70% of EU imports. Its popularity is based on its even texture and light colour, and can be stained to match the appearance of other woods. Rubberwood is also likely to meet the EU's increasingly stringent environmental requirements. The world trade is becoming increasingly conscious of sustainability. Products increasingly need to have the FSC Certificate. Africa has so far failed to be able to deliver certified wood. The African Timber Organisation is trying to develop a certificate that is appropriate to Africa.

Africa as a tropical timber source has difficulty competing with Asia. The transport links are not as good. Certification is not available. And the efficiency of sawmills and secondary product factories is low, undermining the profitability of such operations.

#### **4.5.2. The Nigerian Wood and Wood Products Export Sector**

The table below sets out Nigeria's exports in tonnes of wood and wood products to the EU. The volume product is sawn wood, with annual volumes fluctuating but with no particular trend. Sales of veneers fluctuate with the fastest growth in semi-prepared woods and, in particular, of parquet flooring – a product line in which sales have increased from less than 700 tonnes to nearly 9,000 tonnes in the years '95 through to '99.

Charcoal sales have been static at 17,000 tonnes per year.

## Nigerian Exports of Wood and Wood Products to the EU in Tonnes

Code	Products	1995	1996	1997	1998	1999	Trend
4403	Tropical wood		284	6383	418	3848	→
4407	Sawn Wood	47256	32920	24001	32268	38251	→
440799	Cut wood less than 6 mm thick	29989	15200	9517	7660	17479	↘
440920	Semi prepared wood - moldings, beading	1463	2768	4845	6760	9792	↗
4402000	Charcoal	17775	10815	17369	16192	17322	→
44034990	Rough cut Tropical wood		284	6383	418	3848	→
440724	Specific tropical woods less than 6 mm		857	438	337	755	→
440725	Meranti less than 6 mm		3534	1330	994	310	↘
44072969	Specific tropical woods less than 6 mm		4461	5566	6352	4809	→
44072999	Specific tropical woods less than 6 mm		5229	5414	14146	12846	↗
44079998	Specific tropical woods less than 6 mm		14712	9431	7589	17459	→
44092091	Blocks for Parquet flooring	673	1895	4406	6293	8912	↗↗

### 4.6. Sesame Seed

#### 4.6.1. Introduction

Sesame seed (or sesamum or benniseed) is the seed of the tropical annual *Sesamum indicum*.

The plant is deep rooting and well adapted to withstand dry conditions. It will grow on relatively poor soils in climates often unsuitable for other crops and so it is widely valued for its nutritional and financial yield from otherwise inclement areas. Sesame is now cultivated around the dry tropics between the latitudes of 40° N and S. It is scarcely cultivated in the USA or Europe, not only because of climate but also because of the low returns per unit area. Non-shattering varieties have been bred in order to mechanise the crop but the great majority of the world's output is still harvested by hand.

The primary use of the sesame is as a source of oil from its seed. No other parts of the plant are used. Mostly the oil is extracted and used locally and only a small proportion of the global harvest enters international trade.

Amongst the producers, the oil is used in cooking and this is the main use of the oil around the world. The oil, with a distinctive nutty flavour, is particularly established in the far eastern cuisine but is also used in Europe and North America for cooking or as a salad oil.

The oil is also useful in the industrial preparation of perfumery, cosmetics (skin conditioning agents and moisturisers, hair preparations, bath oils, hand products and make-up), pharmaceuticals (vehicle for drug delivery), insecticides and paints and varnishes. However, all these uses are comparatively insignificant in terms of the quantities used.

The dehulled seeds, where the seed coat has been removed, are extensively used in a ground form where they comprise the base material of *tahini*, a paste popular in many recipes of the Middle East, and in *halvah*, a confectionery popular around the Mediterranean.

The seeds, hulled or dehulled, roasted or raw are now widely used in the European and North American bakery industry as a garnish on bread products.

#### 4.6.2. Supply, Demand and Prices

Global production of sesame seed is estimated by FAO at 2.4mn tonnes per year (1999) and production rose from 1.4m tonnes in the early 1960s to a peak of 2.8m tonnes in 1996, with supplies falling back in the last four years.

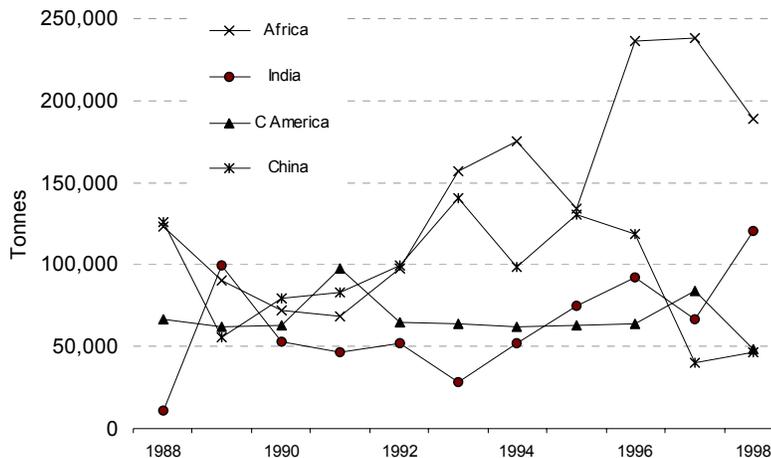
The largest producers are China and India, each with an annual harvest around 550,000 tonnes followed by Sudan and Myanmar with crops of 200,000 to 220,000 tonnes per year. These figures are only rough estimates of the situation as sesame is a smallholder crop and much of the harvest is consumed locally, without record of the internal trade and domestic processing.

Global exports of sesame seed are estimated to have reached 540,000 tonnes in 1998, having risen from 427,000 in 1988. The 1998 exports were valued at \$386mn of which African exports represented \$110mn. Figure 2 shows the rise of Africa over the last ten years as a supplier of sesame seed and also the growth of Indian output.

India is now the single largest exporter of sesame seed, with exports of some 120,000 tonnes, with Sudan lying in second place exporting just over 100,000 tonnes per year. In 1988 China was the principal exporter in the world, but has declined.

The changing pattern of supply from individual producers is shown in Figure 2. India, China and Sudan are clearly the most important suppliers to international trade, but the decline in Chinese output has been dramatic. Simultaneously, Indian exports have grown strongly, notably with the development of an advanced hulling industry, while Sudanese sendings have stayed level.

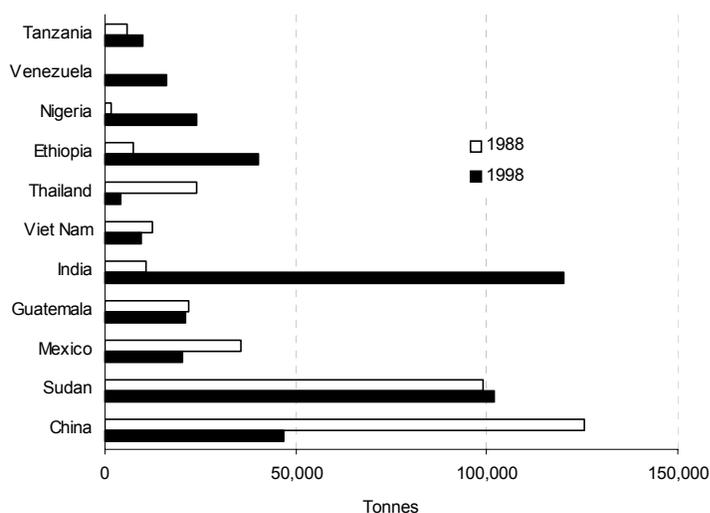
**Figure 1 Exports of Sesame Seed**



Other African exports, from West Africa, and Nigeria in particular and East Africa (Ethiopia, Sudan, and Tanzania), can be seen to be increasing.

Nigeria now exports some 24,000 tonnes of sesame up from a few thousand tonnes in 1988. 90% of Nigeria's sesame exports are made to Japan, where the seed is processed to sesame oil. Sales have been static over the last three years.

**Figure 2 Exports of Sesame Seed from the Major Suppliers**



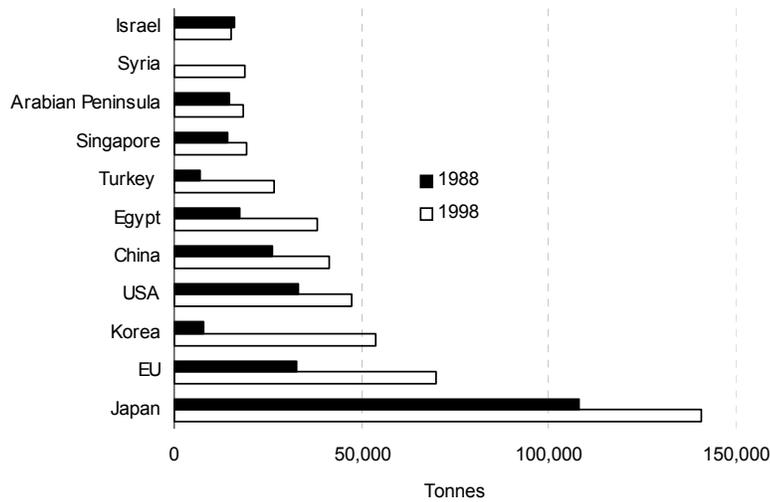
Source : FAOSTAT

In vegetable oil terms the international trade in sesame is very minor (23,000 tonnes) although of high unit value (approximately \$2,450/tonne), with an estimated export value of some \$57mn. After strong growth in the 1980s the increase in volume has levelled off in the 1990s. The leading exporter is China, exporting around 6,000 tonnes per year, with the EU and Japan following with annual exports of some 3,000 tonnes per year

Figure 3 shows the major importers of sesame seed. The rise in international trade in sesame seed noted above is also shown in the increased imports in Figure 3. All the major importers show strong increase in consumption over the past 10 years.

**Figure 3 Major Importers of Sesame Seed**

Source: FAOSTAT



Japan dominates the trade, with an annual requirement approaching 150,000 tonnes. Sesame oil, particularly from roasted seed, is an important component of Japanese cooking and traditionally this is the principal use of the seed. However, much of the recent increase seems to have come from expanding demand for sesame in other forms, either whole or processed. The trade estimates that 30% of imports are used in other forms than for crushing, as a powder, a paste, a roasted condiment or whole. The increased consumer concern for healthy eating, and the beneficial image of sesame in this sector, is held responsible for this development in the market.

The EU lies in second place in the ranks of importers and has also shown good growth over the past 10 years. Europe is a heterogeneous market and sesame uses quite varied with a strong demand for bakery and confectionery products. Further discussion follows in the next section.

The most rapid rise in imports has been seen in South Korea, where the inability of local production to keep pace with demand, and the liberalisation of imports, has allowed trade to increase dramatically. Korea now lies in third place as an importer. This is principally an oil user.

Finally, the increase in imports to China is notable given its position as one of the world's major producers.

No reliable sources of historical price information have been located. Sesame prices are published in *The Public Ledger* but are not considered by the trade to be consistent. Discussions with the trade, both at origin and in Europe suggested the following current prices.

**Sesame Seed Prices**

Origin	Price US \$ /tonne	Basis
Guatemala	1400	Fob

Venezuela	1280	Fob
Uganda	550	Fot
India hulled	940	Cif
India natural	700	cif
Sudan natural	600	Fob
China	1100	C&f

Prices in the Autumn of 2001 have fallen significantly as a result of excellent harvests throughout the world. Sudanese white is now attaining prices of around \$490 per ton, down \$200 a ton from Autumn 2000. West African is trading at \$365 per ton, down from \$550 per ton in the Autumn of 2000.

#### 4.6.3. Nigerian Sesame Seed Export Sector

The figures show that Nigeria exports some 22,000 tonnes of sesame seed to Japan, while exports to Europe have fluctuated from 1,000 to 4,000 tonnes, but average some 1,200 to 1,500 tonnes per year. Sales are mainly made into the Netherlands. In Japan sesame is mainly crushed to produce sesame oil.

#### Exports of Nigerian Sesame Seed in Tonnes

Code	1995	1996	1997	1998	1999	2000	Trend
Sesame seed exports to Japan				21650	21771	23140	→
012740 Sesame Seed exports to the EU	1048	4087	1579	1650	1821		→

#### 4.6.4. Market Prospects

Nigerian product clearly is acceptable to the Asian markets. Opportunities could exist in exploiting the expanding import market in Korea, as well as the Japanese market.

The data presented above indicate that there is a good market in the European Union for sesame seed. Mostly the seed is used for bakery products and, around the Mediterranean, for ground products such as *Tahini*.

There is only a limited requirement for oil.

The bakery industry generally requires a bold white seed such as the style available from Central America or Sudan, or in hulled form from India. The premier grades are Central American. There is some requirement for other African origins, such as Nigeria, which may be sold after cleaning to the health food sector.

The Greek market requires a large white sweet seed, which it sources mainly from Sudan and Ethiopia. This market is clearly harder to penetrate than the North European sector. Greek processors were not willing to discuss their suppliers. Some are large enough to buy direct while others apparently rely on brokers and the European traders.

The demand in Europe for sesame seed is expected to grow: the burger sector alone is growing at some 10% per year, and traders supplying this market with sesame seed note the expansion in their own trade. The bakery trade and the paste processors will remain the primary consumers of imported sesame.

On the organic sesame side, the demand European the health food sector., bakery trades and *tahini* processors, is expected to be exceeded by the expansion in of certified organic sesame seed. There maybe opportunities for organic Sudanese style of product.

## **4.7. Gum Arabic**

### **4.7.1. Introduction**

Gum arabic is defined as “the dried exudate from the trunk and branches of *Acacia senegal* or *Acacia seyal*, of the family Leguminosae”, which consolidates the position of gum from *Acacia seyal* as a food additive. Gum arabic is produced for the market by the countries of the “gum belt” in the dry parts of sub-Saharan Africa at a latitude of between 12° and 14° North, where trees of the genus *Acacia*, and more particularly the *senegal* and *seyal* species, grow.

The uses of Gum Arabic are related to two of the main characteristics of the gum: its high solubility in water and its low viscosity. These qualities make it an excellent emulsifier, stabiliser, thickener and adhesive. It is non-toxic and has a low calorific value, making it useful in health-food applications.

Gum Arabic is a food additive (E414) used in confectionery, pastries, and wine. It is used for coating and encapsulating flavours, as a stabiliser in fizzy drinks and, more recently, in organic foods.

Gum Arabic is used in pharmaceuticals or para-pharmaceuticals, e.g. cough pastilles and encapsulating medicines. When prices increased modified starches were used as a substitute, but more recently, because of perceived health risks posed by the synthetic products, there has been an increase in the use of Gum Arabic.

Gum Arabic is used as an additive in the printing, paint and textile-printing industries, in adhesives (for postage stamps) or in moulds in foundry ceramics, a booming industry in which gum arabic has many advantages

### **4.7.2. Supply, Demand and Prices**

World supply of Gum Arabic is dominated by Sudan, which produces a high quality product attaining premium prices. Export sales from Chad have been expanding. This is partly due to direct exporting, the liberalisation of trade, imposition of national quality standards and the certification of some of the supply as organic. Nigeria’s exports have been fluctuating, but it has lost its position as the second largest exporter to Chad (since late 1977).

### **Major Exporters of Gum Arabic in Tonnes**

	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>Trend</b>
Sudan	13,475	23,341	18,143	17,671	17,342	24,261		↗
Chad	3,701	4,558	7,001	7,365	8,527	12,584		↗ ↗
Nigeria	7,042	9,822	9,914	12,164	10,199	9,873	10,403	→
Others	2,999	4,435	3,635	3,784	5,997	2,698		→
Total	27,217	42,156	38,693	40,984	42,065	43,731		↗

Source: International Trade Centre, augmented by trade statistics

## Import Markets of Raw Gum in Tonnes

	1993	1994	1995	1996	1997	1998	1999	2000	Trend
France	10,560	12,009	10,675	12,450	15,931	20,075			↗ ↗
U.K.	4,724	4,653	4,247	4,079	4,836	5,137			↗
U.S.A.	2,035	6,916	5,364	6,454	6,078	9,028	6,768	7,600	↗
India	2,573	3,763	7,547	8,334	6,095	9,391	9,900	10,466	↗ ↗
Germany	2,957	4,371	4,518	2,528	3,252	3,058			→
Italy	2,058	5,201	2,169	1,735	699	644			↘
Japan	782	1,447	1,072	1,220	1,379	1,599			→
Other	1,746	3,362	2,740	3,987	3,371	4,081			↗
Total	27,435	41,722	38,322	40,787	41,641	53,622			↗

Source International trade Centre augmented by Indian Trade Data

The consumption of Gum Arabic peaked at some 70,000 tonnes per annum. Shortages in supply led to massive price hikes in the early 1990s, when typical prices reached as high as \$4,600/tonne, four and half times the more usual prices. At these prices end users sought substitute products, depressing world demand to some 30,000 tonnes. Now demand is expanding again, reaching some 50,000 tonnes.

In 1998, France alone accounted for more than half (61%) of world trade in re-exported gum arabic, worth US\$ 30 million out of a total of US\$ 49 million. Together, the United States (14%), the United Kingdom (8%) and Germany (8%) accounted for almost a third of trade in the re-export market, worth US\$ 15 million out of a total of US\$ 49 million. The other European countries accounted for 4% of the value of the trade and the rest of the world, including Switzerland and Japan, for 5%.

France's imports have been increasing. The German and UK markets have been flat. The USA and India have been expanding, as have developing country markets like Brazil and Mexico.

Indian imports have been expanding rapidly, reaching over 10,000 tonnes making it the second largest market in the world. Nigeria is the most important supplier with 80% of the import market. The import statistics suggest that India is the lowest value market, with a calculated unit value of about \$ 450 per tonne. This figure is believed to reflect under invoicing and a high proportion of the lower priced friable Gum Arabic being demanded.

The prices in dollars per ton of gum arabic for the 1998-1999 season were, according to the sources cited each week in the *Marchés Tropicaux* magazine, as follows:

<b>Product</b>	<b>1998-99</b>	<b>Sept 1999</b>	<b>Oct 2001</b>
Kordofan gum arabic from the Sudan i.e. hard gum from <i>Acacia senegal</i> , cleaned and sorted	US\$ 1,800 / ton FOB	US\$ 1,500 / ton FOB	US\$ 1,250 / ton FOB
Grade 1 gum arabic from Nigeria – i.e. hard gum from <i>Acacia senegal</i> , cleaned but not sorted	US\$ 1,500 / ton CIF	US\$ 1,000 / ton CIF	US\$ 1,200 / ton CIF
Grade 2 gum arabic from Nigeria – i.e. friable gum from <i>Acacia seyal</i> , cleaned but not sorted	US\$ 1,000 / ton CIF	US\$ 550 / ton CIF	US\$ 850 / ton CIF
No. 1 or Kitir gum arabic from Chad		US\$ 1,000 / ton FOB	US\$ 1,285 / ton FOB

Kordofan gum arabic, named after a province at the heart of the country's gum belt, is the typical gum exported by the Sudan. It is the exudate of *Acacia senegal*, cleaned and sorted by the Gum Arabic Company.

The grade 1 gum arabic exported by Nigeria is also the exudate of *Acacia senegal*, but it has only been cleaned, not sorted mechanically. The Kitir gum arabic from Chad is a similar kind of product.

The grade 2 gum arabic exported by Nigeria is the exudate of *Acacia seyal*, cleaned only: a price is only available for deliveries outside Nigeria. The Talha gum arabic from Chad is a similar kind of product.

The price of friable gums (grade 2, Talha, etc.) has fluctuated only a little in recent years, ranging between US\$ 750 and US\$ 850 per ton CIF (source: *Marchés Tropicaux*) in a market where supply and demand are well matched. The product is quite plentiful, and is harvested without bleeding from trees found in dips in the terrain where the soil is well irrigated; the harvest is therefore far less sensitive to climatic variations than that of the hard gums, as the exudate of gum arabic is heavily dependent on the water stored in the soil on which the gum acacias stand. However, since 1998-1999, the price of friable gum arabic has risen, showing a clear increase in demand. The price rose to US\$ 1,000 per metric ton during the last marketing campaign.

The price of hard gums (Kordofan, grade 1, Kitir, etc.) depends on a much tighter market. Their price peaked at over US\$ 4,400 a ton for batches traded in 1994-1995 (source: *Marchés Tropicaux*). The market began to ease up in 1996, a trend that continued into 1999. The price data in the Autumn of 2001 shows that prices have firmed on both friable and hard gum arabics and the price differentials between Nigerian and Sudanese gum arabic have diminished.

#### **4.7.4. The Nigerian Gum Arabic Export Sector**

The table below identifies the export destinations of Nigerian Gum Arabic in tonnes. Nigeria has expanded its exports to the USA, Brazil and especially India, while exports to the EU have declined.

### Nigeria's Exports of Gum and Gum Arabic in Tonnes

	1995	1996	1997	1998	1999	2000	Trend
130120 Natural Gum Arabic to the EU	3683	4314	5506	3214	2173		→
130190 Other Natural Gums to the EU	108	185	198		638		↗
Gum Arabic to the USA				569	1036	904	↗
Gum Arabic to Brazil				286	394	555	↗
Gum Arabic to India	4297	NA	NA	5804	NA	7862	↗↗

In terms of prices Nigerian gum and Gum Arabic trades at a discount in terms of price to both product from Sudan and Chad. The price differential has declined.

#### 4.7.5. Processing and Added Value for Gum Arabic

There are three basic stages to adding value to gum arabics:

- Cleaning and sorting the raw gum,
- Filtering and sterilising the gum arabic (it is dissolved in water, purified and then given brief ultra-heat treatment to pasteurise it) so that it is perfectly safe from a phytosanitary point of view;
- Spray-drying the gum arabic solution to turn it into an easy-to-use solid (for use as a stabiliser in liquid foods, to be dissolved as necessary, for coating, etc.).

The industrial crushing processes have become obsolete, as they no longer meet the phytosanitary requirements in the industrialised countries. These “dry” processes are losing ground every year to “wet” processes, which require a much more complex manufacturing system (dissolving, mixing, multiple filtration, pasteurisation and, lastly, spray-drying using the same kind of equipment as that used to make powdered milk). Private exporters in the producing countries are investing in semi-automated sorting and crushing facilities so that they can offer cleaned gum arabic with a standardised grain size. These investments make it possible to raise by about 10% the value added in the producing country and to reduce the transport of waste (bark, wood, sand, etc.), as well as the rejection of goods for non-compliance.

#### 4.7.6. Market Opportunities

Although it is threatened by recent discoveries related to the development of cereal by-products such as corn bran, gum arabic is in a better position today than it has been for the past quarter of a century, with:

- An expanding, and stable, demand for both hard gum arabic and friable gum arabic;
- Consumer concern with food quality propelling a demand for high quality natural ingredients instead of for synthetic and less safe products,
- Fairly abundant supply from several countries, including Nigeria;
- Stocks in the Sudan providing cover for a few bad harvests;
- Prices for hard gum arabic back to a reasonable level;

- The expansion in the western economies during the 1990s
- The growth in demand in the large developing economies such as India, Mexico, Brazil etc.
- The emergence of countries developing their own user industries.

All these factors point to a good outlook for the development of the world export market for gum arabic in the next 10 years. If a target were to be set, it could be to reach again the apparent consumption levels of the 1970s, of 70,000 tons by the year 2010, or an increase of 5% a year from 1997 onwards in the flows of gum arabic onto the market.

For Nigeria, possible interventions, which can help propel increased exports of gum arabic and provide improved incomes for the harvesters in Northern Nigeria, are:

- forge closer links with the processors in India. Nigeria is the most important supplier of raw materials to this expanding market. Nigeria needs to cement this relationship and aim to build a partnership in growing the relationship with the Indian industry. By providing proper servicing to the Indian market, Nigeria has the potential to dominate the supply of gum arabic into the rapidly expanding market into the future.
- Positioning itself to do the same in other expanding markets such as South Africa, Korea, Brazil and eventually China
- Look for opportunities for added value, with the aim to reach parity in prices, at least with Chad by refining/improving the grading specifications, improving grading and quality assurance, grinding and size sorting, investment in Filtering and sterilising the gum Arabic (it is dissolved in water, purified and then given brief ultra-heat treatment to pasteurise it) so that it is perfectly safe from a phytosanitary point of view; and eventually progressing into spray-drying the gum arabic solution to turn it into an easy-to-use solid (for use as a stabiliser in liquid foods, to be dissolved as necessary, for coating, etc.).

## 4.8. Vegetable Oils

### 4.8.1. Introduction

Palm oil grows exceptionally well in Nigeria. In the past, palm kernel oil was mainly exported and palm oil was used as a local foodstuff.

### 4.8.2. Supply, Projected Demand and Prices

**Global Exports of Various Vegetable Oils**

	Quantity (tonnes)					Value	Implied unit value /tonne
	1961	1970	1980	1990	1998	'000 US \$	
Oil of Cotton Seed	229,859	240,202	431,135	309,055	260,467	168,564	\$647
Oil of Groundnuts	290,094	429,753	476,593	347,615	310,827	295,111	\$949
Oil of Palm	629,181	906,260	3,616,636	8,071,864	10,401,595	6,370,579	\$612
Oil of Palm Kernels	81,792	164,799	379,155	917,878	987,113	658,663	\$667
Oil of Sesame Seed	1,311	2,048	7,857	23,780	23,480	57,498	\$2,449

Source: FAOSTAT

Oil seed economy has been growing at 4% per annum for the last 20 years, and has been the fastest growing of the major agricultural food commodities. Increased demand has mainly been from developing countries. The bulk of this growth in demand has been from India, China, and North Africa as a food product, mainly from Oil palm. The buoyancy is also achieved through increased demand for animal feed – mainly with soybeans. Net importers from developing countries of over 500,000 tonnes of vegetable oils include China, India, Pakistan and Mexico. There are also countries like Senegal and Nigeria that have turned from net exporters into net importers. The growth in vegetable oil exports has been from Malaysia and Indonesia for oil palm, and Brazil and Argentina for soybeans.

The longer term prognosis is that global demand for vegetable oil seeds will continue to grow, albeit at a slower rate, i.e. about 1.9% p.a. as compares to 4% p.a. from 1977 to 1997. It is projected that increases in export trade will be from the existing dominant exporters, with Indonesia set to double its output of Oil palm between 1994 and 2005 and annual oil seed crops in China, Brazil and Argentina. Further increases are expected in the demand for oil seeds as an animal feed, especially in China. Imports are expected to increase in Mexico, Turkey, Pakistan, Korea, Iran and Egypt. The underlying international price of oil is expected to increase slightly.

Because of the Asian crisis and the devaluation of currency which has taken place in some of the major export countries in Asia, the international prices of Palm oils has fallen dramatically in the last two years. In 1998 world prices stood at around \$595 to \$640 per tonne. By December 1999 they had fallen to around \$360 to \$375 per tonne. Currently Oil Palm and Oil Palm kernel are being traded at \$265 to \$315 per tonne.

### 4.8.3. Nigerian Vegetable Oil Sector

Nigeria is currently a net importer of vegetable oils. In order to protect the local industry, the 2001 budget banned bulk importation of vegetable oil and now only allows vegetable oil imports branded in cans. Import duties have increased from 35% to 60%.

#### Exports of Nigerian Vegetable Oils to EU in Tonnes

Code	Product	1995	1996	1997	1998	1999	Trend
150810	Groundnut Oil	4134	3695	18561	7384		→
151321	Palm Kernel Oil	3277	11695	28990	2460	2683	→

Nigeria's domestic vegetable oil production leaves a shortfall of around 250,000 tonnes a year. About two thirds of Nigeria's overall vegetable oil requirement is met from the processing of oil palm into red palm oil and to palm olein. An additional 12% is derived from crushing palm kernel into palm kernel oil. Other oil seeds such as peanut, cotton seed and soya beans account for 11% of national vegetable oil consumption. The remaining 17% of total vegetable oil demand have been met by imports.

About 85% of Nigeria's oil palm is sourced from wild groves.

Nigeria's overall vegetable oil consumption is estimated at 1.25m. tonnes (per capita: 10.4 kg.). Total domestic production is less than 1 million tonnes.

Nigeria's combined processing capacity is estimated as being adequate to process all the fresh fruit bunches in the country. However, the mills are old, subject to frequent breakdowns and unevenly distributed in the palm belt. They are also mainly devoted to processing product from the organised estates. The 85% coming from wild groves are processed by cottage style industry with its low extraction rates.

Excess capacity exists in palm kernel crushing and oil refining. Investment in this sector has increased as it is perceived to be of low capital risk and quick return on investment. National installed capacity stands at 600,000 tonnes of kernel, far exceeding total domestic kernel production, which amounts to some 350,000 tonnes. 70% of palm kernel oil is refined into vegetable oil for human consumption. Competition amongst palm kernel processors is high and utilisation capacity below 60%. Several oil producing companies are diversifying their operations by refining red palm oil into palm olein..

The main features of the Nigerian markets are:

- most oil palm grows in wild groves and is processed crudely in village scale operations and sold direct as Red Palm Oil (un-refined) and palm olein (refined)
- palm kernels are refined for domestic use. Collectively these three products amount to 80% of Nigeria's oil usage
- 20% of vegetable oil (palm oil and palm kernel oil) is used for the manufacture of industrial products. This comprises 132,000 tonnes for soap and detergents and 40,000 tonnes in producing baking fats, margarine, etc.

- over 90% of palm kernel meal is exported to Europe, because of low domestic demand for the animal feed industry

#### **4.8.4. Opportunities**

Nigeria is a tiny player in the world market for vegetable oils, and is currently in deficit. The first priority for a country is to supply its own demand. In the international markets, Nigeria will only be a price taker; such is the huge supply of oils from Indonesia and Malaysia.

Nigeria might want to consider niche placement of its product. Red Palm oil is noted for its flavour, attractive colour and high levels of nutrients. It may have a niche product opportunity in Europe. However, it has the downsides of its high saturated fat content and some laxative properties.

Palm oil contains tocotrienol, a particularly potent form of vitamin E, with an anti-oxidant activity of about 50 times that of most forms of vitamin E. The product is denatured by heat. Catoech from Malaysia have developed a novel way of extracting tocotrienol by molecular distillation, plus the carotenoids and phytosterols. The three main benefits of tocotrienols are as a dietary supplement to prevent heart attacks, cancer, and free radical mediated diseases and as a UV protection agent. Its benefits are reducing the risk of arteriosclerosis and strokes, inhibition of breast cancer cells and the lowering of total serum cholesterol.

### **4.9. Oilmeals**

#### **4.9.1. Introduction**

Annually Nigeria exports nearly 200,000 tonnes of oil cake for use as animal feed. The main products are oil cake from palm kernels, cotton seed cake and ground nut oil cake. Oilmeals are used to create livestock feed, particularly for pork and poultry.

#### **4.9.2. Supply, demand and prices**

World consumption of meals stands at some 70 million tonnes. Soy bean meal dominates the market, accounting for nearly two thirds of meal production. The global trade in oilmeal amounts to some 34 million tonnes, implying that as much as 48% of world output of oilmeals enters international trade. Developing countries account for about 60% of this supply.

The global demand for oilmeals expanded at about 3% during the 1990's, but this growth of rate is expected to slow to 2.5% during the early 2000's. This is due to slower growth in the production of livestock and a tendency for the trade to reduce the proportion of relatively high priced oilmeals in feed rations. Demand from developing countries is projected to expand further because of the growth in commercial livestock production and, in particularly, poultry, pig and aquaculture.

The expansion of oilmeal imports is expected to be concentrated in developing countries. Their share of global imports is projected to increase from 32% in 1994 to 44% in 2005. Amongst developing nations the demand will be dominated by countries in south east Asia and, in

particular, China, Indonesia, Korea, the Philippines and Thailand. In Latin America, Mexico is expected to become a major importer, but primarily from the USA. The EU is expected to reduce its demand.

Palm oil cake is a low value product trading at some \$60 - \$75 per tonne.

### 4.9.3. The Nigerian Oilmeal Export Sector

Nigerian exports of oil cake from palm kernels to the EU have fallen from some 170,000 tonnes in 1995 to 150,000 tonnes in 1999. In addition, exports are made to South Africa of cotton seed oil cake and ground nut oil cake. The former has been expanding and the latter falling.

#### Nigeria's Exports of Oil-Meal in Tonnes

		1995	1996	1997	1998	1999	Trend
2306600	Palm Oil Cake to EU	173302	167815	161414	158929	151559	↘
	Palm Oil Cake to RSA			105	4825	5661	↗
23069090	Oil Cake			4155	10434	8159	→
	Cotton seed oil cake to RSA			18515	17923	12484	↘

### 4.9.4. Opportunities

Oilmeal for animal feed is very much a commodity product. There is little opportunity for differentiation and value added to the product. Oilmeals are a useful resource that may have a role in the development of agri-business opportunities within Nigeria.

## 4.10. Cashew

### 4.10.1. Introduction

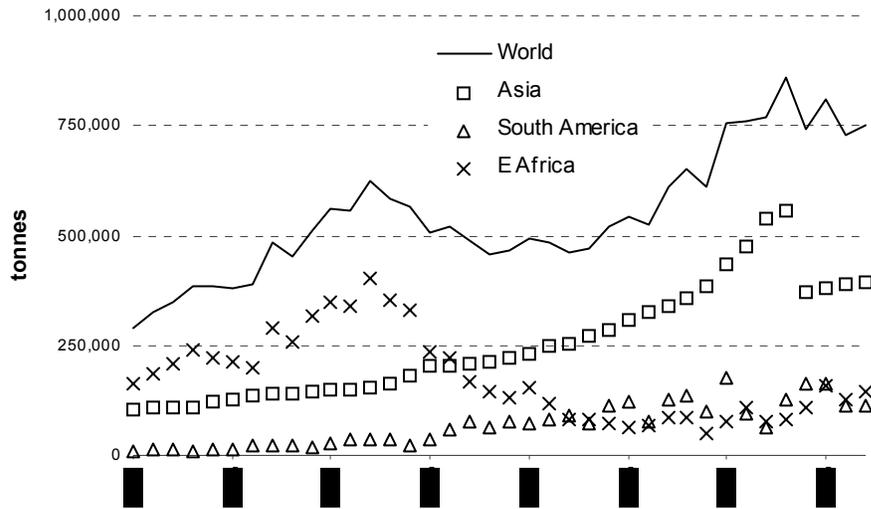
Most African cashews are exported in a raw form to India, where they are processed. In total India imports around 250,000 tonnes of raw cashew. One tonne of raw cashew will produce around 230 kgs of kernel. After shelling, the kernel is graded. Highest prices are obtained for whole cashews. Typically the larger the size of the cashew kernel, the higher the price. Halves and broken pieces receive significantly lower prices. The financial viability of processing is closely linked to the percentage of wholes in the output. Indian hand shelling typically achieves 80% wholes, while mechanised shelling, used extensively in Brazil, and produces about 55% wholes. The price difference between wholes and pieces has reduced somewhat, with the advent of consumer packs containing a mix of wholes and pieces.

### 4.10.2. Supply, Demand and Prices

Cashew is now widely grown across the tropics, but in most countries it remains a smallholder crop. Only Brazil has a significant production of cashew from plantations. Production statistics are difficult to accumulate and only FAO make an attempt at estimating and collating country data. The Figure below illustrates the FAO data by production region since 1961.

Fig 1

Global Production of Cashew Nuts



Source : FAO

Note:

- the growth in global production to an estimated 750,000 tonnes in 1998.
- the development and subsequent decline of East African output and the expansion of Asian production.

Most raw cashes are sold to India. The table below is taken from Indian import figures. These show that India has been increasing its imports of raw cashew nuts at about 4.5% per annum. Africa supplies 90% of the raw material. West Africa has been the fastest growing source. Asia has declined in importance as a supplier as the processing capacity of Vietnam now demands the entire output. Vietnam is believed to have imported raw cashew nuts in 1998. Raw nuts are sold according to size, in counts per kilogram, origin, moisture content and quality. The nuts are usually purchased in 80kg jute bags. At around 9% moisture they can be stored for up to two years.

Until recently this trade was handled exclusively by Indian brokers and dealers. Now other players from Singapore and Europe are developing strengths in this sector.

## India's Imports of Raw Cashew Nuts

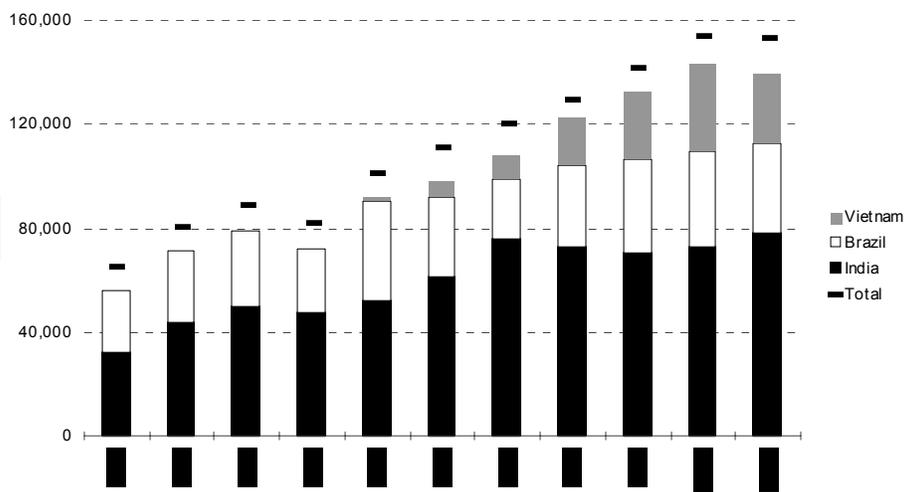
	1993/94	1996/97	1999/00	Trend	P.A %
W Africa	51482	61260	110000	↗ ↗	19%
E Africa	80219	88149	109400	↗	6%
Asia	59000	52155	10760	↘	
Other	621	11288	12523	→	
G Total	191322	212852	242683	↗	4.5%

Prices of Raw Cashew are generally quoted CandF Cochin, the main port for raw nut imports to India, and are usually in the range \$800 - \$1,200 / tonne for Tanzanian raw nuts. Cashew nuts from Guinea Bissau trade in the range \$650 - \$850 / tonne while Nigeria is valued slightly lower at \$600 - \$800 / tonne. The differential indicates the poorer quality reputation of the nuts and the expectation of more waste material within a consignment.

Cashew prices have fallen, having peaked at the end of 1999. At that time, raw cashews from west Africa were obtaining about \$700 per tonne and kernels (320's) \$7226 per tonne (\$3.30 per pound). Prices in October 2001 are about \$400-\$450 per tonne for raw cashew and \$5,000 per tonne for kernels (320's), i.e. \$2.29 per pound.

The Indian trade's explanation for this price fall is that the high prices at the turn of the century has caused consumers to seek out other, cheaper premium nut products as a substitute, hence an overall fall in demand resulting in the drop in prices. (E.g. Walnut \$ 4,200/tonne, Pistachio \$ 3,600/tonne and Brazil \$ 3,100/tonne)

## Exports of Cashew Kernels



p = preliminary f = forecast

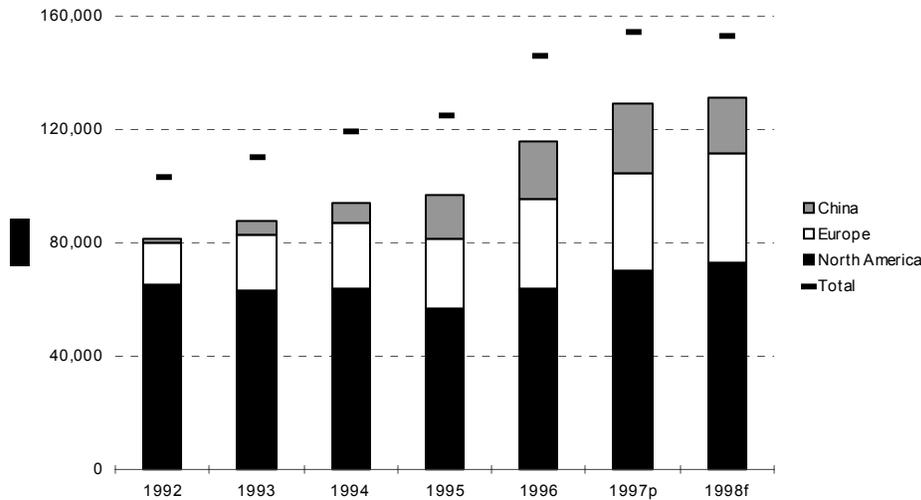
Source: Man Producten - Edible Nut Market Report

The international trade in cashew kernels has grown strongly in the last 10 years. Trade data shows that over 150,000 tonnes are now exported per year as compared to 65,000 tonnes 10

years previously. The figure below charts the growth in this trade, showing the increase in Indian output and the dramatic appearance of Vietnam as a supplier of cashew nut kernels to rival Brazil. These three exporters supply over 90% of the kernels traded internationally.

The figure below shows the world imports of cashew kernels. North America is the largest importer taking over 70,000 tonnes in 1994, up from 45,000 tonnes in 1989. Western Europe and China are the other major importers.

**Fig Net Imports of Cashew Kernels**



*Source: Man Producten & Eurostat*

Consumers consider nuts to be a healthy food, albeit one with a high fat content. Although the sales of basic nut products, such as peanuts, have been static, the premium nut market, i.e. cashews, brazils, pistachios, etc., has been doing well. Cashews are amongst the most popular nuts, but sales are restricted because of its high prices.

#### 4.10.3. The Nigerian Cashew Export Sector

U.S. Aid's sustainable tree crops programme has estimated that raw cashew production in Nigeria stands at some 40,000 tonnes per annum. The major west African producers are Cote d'Ivoire (70,000 tonnes), and Guinea Bissau (70,000 tonnes). Ghana produces around 5,000 tonnes but this is expected to increase. Cashew production in Nigeria takes place on plantations and smallholdings. The plantation sector is believed to be struggling because of the slump in prices, the high costs of labour and problems of fire. Smallholders are believed to be faring better because of their lower cost structures. Their production is traditionally purchased by Olam, an Indian trading house. Nigeria's exports of raw cashew to India have increased from some 10,000 tonnes in 1995 to 14,000 tonnes in the year 2000. Nigeria is understood to have a small processing sector. One factory is said to have been destroyed by the employees, as a result of their anger at not being paid. A second operation claims to have difficulty selling its kernels.

The Indian trade is said not to like Nigerian raw cashews because they are more difficult to shell than other sources.

#### **4.10.4. Opportunities**

West African raw cashews obtain prices below East African sources such as Tanzania. Nigeria's prices are especially low, apparently 30% below those of Tanzania. This could be for a number of reasons, such as under invoicing, difficult to peel, trading conditions, insufficient competition at buying etc. The reasons need to be understood because only then can a sensible view can be taken as how to help Nigerian exporters to realise better prices. There may be good reason to consider supplying other processing nations e.g. Vietnam.

Much has now been written arguing for and against developing cashew processing industries in Africa. The seduction is always the apparent increase in value between raw nuts and kernels, but the potential is far from clear, processing enterprises have had a low chance of success:

1. There are failed attempts scattered across Africa, not just in those areas blighted by war or political interference but also in the relatively stable, freer markets.
2. Cashew nuts are grown widely but there are only three origins where processing is carried out on a large scale, namely India, Brazil and Vietnam, and they have particular attributes, aside from the skills attributed to their processors:

The viability of processing cashew nuts in competition with India is doubtful, however attempts are now being made to introduce low technology, Indian style processing operations in West Africa. These technologies may make the necessary break through.

Cashews are mainly consumer as a snack product. Organic snack products are in strong demand, with sales increasing at over 80% p.a. in the US. The spur to organic sales has been the placement of these products on supermarket shelves by major manufacturers. Discussions with the major brokers in New York of cashew kernel have revealed that there is not at present sufficient volume of organically certified cashew for companies like Planters to develop and promote organic cashews. Both plantation and harvesting from the wild can be certified as organic.

One possible strategy for developing the sales of organic cashews would be to obtain organic certification and to have the products' processing carried out in India on a toll arrangement. In this way, a country like Nigeria could maintain ownership of organic cashews through to the roaster, thereby benefiting from the added value, the premium prices (estimated at 20%) and market position. Processing within Nigeria could be developed at a later date when the market position has been secured.

### **4.11. Ginger**

#### **4.11.1 Introduction**

The pungent rhizomes of ginger are exported from the tropics as a popular flavouring and confection, i.e. for the food and drink industries. This report only covers the dried form as this is the form that is exported from Nigeria. Industrially, dried ginger is either used in a ground form or as an oil or oleoresin.

*Zingiber officinale* is a tropical crop that is tolerant of a wide range of environmental conditions. However, it grows best cultivated as a plantation crop in tropical areas of high rainfall. Currently, India leads the global production of ginger.

Most of the dried ginger that is available to the international trade is simply sun dried over a few days, but artificial drying is also used in areas lacking a defined dry season to coincide with the harvest. The rhizome is dried to 10-12% moisture content.

Dried ginger from the three main origins has the following distinctive characteristics, all of which are important to the end-users:

- Nigerian ginger rhizomes have the highest oil and extract content. The dried ginger is usually sold in split form. No bleaching is carried out and the colour is yellow. The Nigerian flavour is more pungent and has lemony tones
- Indian ginger rhizomes (often designated Cochin or Calicut) are not bleached and usually sold split. The product is pale yellow with a good flavour with a lemon undertone and lacking the pungency of the West African product.
- Chinese ginger rhizomes are sliced. The colour is pale as the product is bleached. The rhizome is often more fibrous.

Dried ginger is used in many different cooking styles. It is an important spice in Asian, Caribbean and African cooking. In Europe, the spice is used in home bakery; within European food manufacturing and catering, it is an important additive to a wide range of ethnic products as well as to processed meats and soft drinks, such as ginger ale. Latterly, the requirement for ginger in teas and infusions has grown due to its reputation as a medicinal plant associated with digestive health.

#### 4.11.2. Supply, Demand and Prices

China, India and Nigeria are the main suppliers of dried ginger to world trade. The largest import markets are North America and Europe. Dried ginger is easily stored for long periods and there is no seasonality to the trade, either in supply or demand.

#### Selected Origins of Dried Ginger Imports into the European Union

	1995	1996	1997	1998	1999	Trend
China	3,330	2,306	809	2,334	2,422	↘
India	371	556	1,044	710	685	→
Nigeria	972	1,051	2,501	2,823	1,934	↗
Total	4,673	3,913	4,354	5,867	5,041	↗

EU Imports of ginger grew during the late 1990s; however, following some difficulties of availability from China in 1997, traders report a stable and quiet market.

Demand for ginger is influenced by a number of drivers in the flavouring market. For example, an increased requirement for authentic flavours in oriental-type meals is offset by reduced demand from the processed meats industries. Another example is the association of supposed therapeutic properties with ginger, an important opportunity for several sectors such as the drinks industry, to expand demand in the medium term.

### Main Destinations of Dried Ginger Imports into the European Union In Tonnes

	1995	1996	1997	1998	1999
France	246	246	337	479	307
Germany	1,184	756	880	1,051	926
Netherlands	941	1,073	1,128	1,622	1,177
UK	2,074	1,533	1,832	2,361	2,194
Other	228	305	177	354	436
Total	4,673	3,913	4,354	5,867	5,041

**Source:** EUROSTAT

N.B. data show imports from Nigeria, India and China

The UK is easily the major import destination, with the Netherlands in second place. Two extractors have relocated their ginger processing to India, and this will have an impact on the UK requirement for imports of dried ginger

Annual average unit import values are shown in the table (below). The figures are calculated from EU import data to give an indication of values over time for different origins. They are not real prices, and there may be inaccuracies in reporting, but they do indicate trends.

### - Unit Import Value of Dried Ginger in US\$/kg

	1995	1996	1997	1998	1999
Nigeria	0.86	1.16	1.37	1.13	0.85
India	2.16	1.96	1.90	2.20	2.77
China	1.15	1.40	2.63	1.56	1.29

**Source:** Calculated from EUROSTAT

From 1995 to 1997 the value of Chinese ginger rose substantially. While the trade had been heavily dependent on Chinese suppliers, the price rise provoked an appraisal of alternatives. Imports of Indian and Nigerian ginger increased substantially in 1997 to make up the shortfall of Chinese product. Market suspicion of Nigerian ginger, which had had a poor reputation, was overcome and the traders reported an improvement in Nigerian ginger quality. The increased demand led to a rise in Nigerian values.

From 1998, the availability of Chinese ginger improved, leading to a decline in value, and the Chinese exporters regained some market share. Pressure of supplies from both China and Nigeria from 1998 onwards forced Nigerian prices down again, which continued to trade at a discount to the Chinese product.

Lately, traders reported a continuing demand for Nigerian ginger, particularly from the distillers and extractors, where the improved quality on the market and the discount to the Chinese product, have led to a preference for this type. Import statistics to confirm this point have not yet been released.

The table below is compiled from market prices in November of each of the past three years. The series shows that the decline in values of the Nigerian and Chinese gingers, noted above continued into 2000. Nigerian values fell particularly low, but were reported by traders as rising again by the first quarter of 2001.

#### - Importer Selling Prices for Dried Ginger in US\$/tonne

	1998	1999	2000
Nigeria	1100	550-800	525-700
India	1600	2100-2200	2000
China Sliced	1650-1750	1200-1300	1100

Source: Market News Service Bulletin

#### 4.11.3. The Nigerian Ginger Export Sector

Nigerian exports to the EU have been increasing, mainly due to the products lower prices than other sources. EU importers based in London, Rotterdam and Hamburg handle the major part of the dried ginger trade. Some grinders also import directly but they usually prefer to leave the risk and the stock holding with trading companies.

Very recently exports to India have increased to over 1,000 tonnes, up from only 130 tonnes in 1998 and no exports in 1995. This reflects the two extractors who have relocated their ginger processing to India.

#### Nigerian Exports by Market in terms of Tonnes

Code	Product/Destination	1995	1996	1997	1998	1999	2000	Trend
091010	Ginger to EU	972	1051	2501	2833	1934		↗
	Ginger to USA				664	265	330	↘
	Ginger to India	0	NA	NA	134	NA	1042	↗↗

It is understood that at least one oleoresin plant has been built in Nigeria, in Kafanchan. No commercial production is said to have found its way onto the international market.

#### 4.11.4. Market Opportunities

Traders describe the market for ginger as stable and quiet. There is some background growth evident in the import statistics, but this is a complex market with end users responding to different drivers. On the up side, an increase in demand is claimed in the food preparation sector,

as the consumer becomes more adventurous in seeking new flavours. Thai food for example, which uses ginger, is gaining popularity. Similarly, there is an increasing demand for ginger from the drinks industry in the form of teas and also health drinks where ginger is considered to have a role.

On the down side, the suppliers to the processed meats industries, particularly in Germany, report a slack demand for meat spices – typically pepper, nutmeg but also ginger – caused by consumer fears over meat consumption and safety. The German processed meat industry has suffered drastically over fears in the market of BSE (Mad Cow disease) and also the current outbreak of Foot and Mouth disease - this may have an impact on the German demand for ginger. The recent move to processing ginger in India for oil has yet to show any effect in the import statistics, but relocation by two UK extraction companies will have an impact on the UK import requirement for dried ginger.

The net result is a stable market in Europe for dried ginger showing some background growth. Any new exporters to the market must aim at providing a quality and service that will distinguish them from the existing players in order to compete successfully.

The development of the Indian market may signal a major shift in ginger processing. European processors have been switching their extraction to India to take advantage of the large volumes of raw materials available in the country, the high standards of food engineering and the low costs of labour.

Ginger has been a basic component of Chinese herbal medicine for 5,000 years. There is now work being done to develop these characteristics for use in the nutraceutical market. An Australian company, Buderim Ginger, has a pilot plant which extracts ginger's active components, i.e. gingerols and citrols – of which there are believed to be seven – at around 6°C, as opposed to the normal methods where the process is carried out at 70°C. For nutraceutical use, the ginger is harvested when its oil is at its peak. Nigerian ginger is known for its high oil content and could be a very suitable raw material for this use. Ginger oils are known for their anti-emetic effect (control of nausea and vomiting), and recent scientific research suggests other health-boosting properties including reduction of platelet aggregation, reduction of biosynthesis of cholesterol, easing of arthritic conditions and stomach ulcers. In addition, ginger has been shown to be effective against tumour growth, migraine and have antioxidant qualities. Buderim is also experimenting with the use of extracting an enzyme from ginger to be used as a meat tenderiser.

## 4.12. Cotton –

### 4.12.1. Supply, Demand and Prices

Cotton demand is determined by the demand for textiles. This has grown steadily, driven by the growth in population and world economy. Under the Uruguay Round, all quotas restricting textile and clothing trade are to be terminated at the end of 2004. The implementation of this policy is expected to have a significant impact on cotton trade. Volumes are expected to increase and prices to fall. This in turn will stimulate consumption, particularly in developing countries.

By 2005 it is expected that consumption will stand at over 50 million tonnes, 30% higher than the 1992 level. Total fibre consumption is expected to grow at 1.9% in the US, 1.3% in western Europe, 1.1% in Japan and 3% in Australia. Developing countries are expected to have an annual growth rate of about 2.9% and hold 50% of the world market by 2005. The fastest growths are projected in Asian countries, such as China, India, Indonesia, Malaysia, Pakistan, the Philippines and Thailand. Cotton's competitiveness has declined during the 1990's, particularly compared with man-made fibres. As yields have been stagnant and the costs of production are going up, it is expected that the growth in cotton consumption will not match the total growth in fibre consumption. World cotton consumption is expected to increase by 1.1% annually compared with a total fibre consumption increase of 2.1%. Asia is the major cotton producing region in the world, accounting for about 40% of world output. Africa accounts for about 8% of world production and Nigeria about 1/10<sup>th</sup> of Africa's output. It is expected that world cotton trade will reach about 6.5 million tonnes by 2005, about 9% above the 1995 level. Developed countries supply over half the world's cotton exports, particularly the United States. Developing country exporters are projected to increase their volume. Africa is projected to expand at over 3% p.a., but the fastest growth is expected from countries like Argentina and Turkey. Because of increased internal demand, countries like Pakistan are expected to export less. The fastest growing sector for cotton imports are developing countries, manufacturing textiles. The world's major textile exporters are Brazil, Mexico, China, India, Indonesia, Korea, Pakistan and Thailand.

International cotton prices rose 66% from 1993 to 1995 reaching 216 cents per kg, but fell back to 117 cents/kg in 1999. Consumption of cotton increased during the 80's, as cotton was fashionable. Consumption has stagnated during the 1990's. Global production has been erratic and consequently cotton prices have been volatile. In real terms, cotton prices have fallen from the peak in the 1980's when they were 206 cents/kg, but are projected to increase again during the 2000's. Cotton prices in the current season 2000 stand at around about 100 cents/kg, some 11% lower than the previous season.

Cotton prices have fallen into line with those of synthetic fibres. Cotton production has been affected by advances in technology and the emergence of new low cost producers. This has forced prices down and enabled the product to compete with synthetics. Informed opinion suggested that the break-even cost of production was 132 cents per kilo. Major producers like Turkey, combining relatively low labour costs with large scale production, are reported to have break-even costs of fewer than 85 cents per kg. Africa as a region is primarily a price taker. The

long term prognosis of cotton is that prices will not offer major rewards for growers. Developments are expected in textile production in developing countries.

#### **4.12.2. The Nigerian Cotton Sector**

Cotton production is focussed on the northern region, with Katsina state accounting for two thirds of local cotton production. Gombe and Bauchi states are currently planning large scale integrated cotton farming projects.

The area planted is increasing, with total production amounting to some 100,000 tonnes. Staple length of locally produced cotton is 1 and 1/16th inch, compared with longer staple cotton of 1 and 1/8 inch, elsewhere in west Africa. Nigerian textile manufacturers use locally produced cotton lint with some long staple cotton imported for blending into finer count cloths. Polypropylene bags are said to contaminate cotton lint with bag fibre. This creates problems for spinning and dyeing. Persuading farmers to use jute instead of polypropylene bags has not yet been successful.

There are 51 cotton ginneries in Nigeria with an installed processing capacity of 700,000 tonnes. Capacity utilisation stands at between 30% and 40%. Most cotton gins operate on a toll basis due to inadequate working capital and high interest rates.

Nigeria has a fairly large and well developed textile industry capable of producing 1.4 billion metre of cloth per year. Capacity utilisation stands at less than 25%. Cotton processing is said to be the single largest manufacturing sector in the economy and the second largest employer of salaried labour. It is estimated that smuggled lint imports account for 20% of domestic cotton consumption. Longer staple cotton is imported from Benin, Cameroon and Chad. Textile manufacturers pay a premium of up to 20% for this longer staple. Nigeria's cotton lint exports amounted to some 30,000 tonnes in the year 2000 from 16,000 tonnes in the previous year. In the late 80's textile exports have lost market in West Africa. Textile manufacturers are reported as repositioning themselves to take advantage of the US government's African Growth and Opportunity Act (AGOA). Textile manufacturers may opt to import US yarn, process into garments and re-export to USA.

#### **4.12.3. Opportunities**

The primary opportunities is for Nigeria to develop longer staple cotton to substitute for imports currently being made.

## 4.13. *Prunus africana* or *Pygeum africanum*

### 4.13.1 Introduction

*Prunus africana* is an evergreen tree, 10-24 (36 max.) m in height, with a stem diameter of 1 m; bark blackish-brown and rugged; branchlets dotted with breathing spots, brown and corky; twigs knobbly. Its common names include; rooistinkhout (Afrikaans); bitter almond, iron wood, red stink wood (English); kiburraburra (Swahili);

*Prunus africana*, a highland forest tree, grows in the humid and semi-humid highlands and humid midlands. It occurs in Angola, Benin, Botswana, Burkina Faso, Cameroon, Chad, Comoros, Cote d'Ivoire, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Sao Tome et Principe, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Togo and Uganda. The tree grows at altitudes of 900-3,400 m and mean annual rainfall of 890-1 400 mm

The tree grows at a moderate rate and responds well to cultivation. It is able to withstand severe bark removal to exhibit complete bark regrowth, but poor harvesting of bark may lead to tree death.

Liquid extracts from *P. africana* bark are used in the treatment of benign prostatic hyperplasia and prostate gland hypertrophy.

### 4.13.2. Supply, Demand and Prices

Prostate gland hypertrophy and the closely related but more serious condition benign prostatic hyperplasia (BPH) are common diseases affecting older men worldwide. They are expected to become more common amongst the ageing male population of western Europe and the USA. One out of every two men in western countries will live longer than 80 years, with the result that 88% have the chance of developing histologic evidence of BPH.

Although surgery is common and effective, it is expensive, can cause impotence and is potentially dangerous, with a 1-3% post-operative mortality. For this reason, medical therapy and phytotherapy are popular alternatives.

Nearly thirty years ago, *Prunus africana* bark extracts were identified and patented as active in the treatment of benign prostatic hypertrophy. Bark extracts contains fatty acids, sterols and pentacyclic terpenoids. The sitosterol glucoside content of *Prunus africana* bark is 11 mg 100g<sup>-1</sup> bark. Extracts of *Prunus africana* bark have been shown to be effective in recent clinical trials conducted in Austria. Capsules containing bark extracts have been marketed in Europe (mainly Austria, France, Italy and Switzerland) for over 20 years..

In recent years, the annual harvest of *Prunus africana* bark has risen from 200 tons in 1980 to approximately 3500 tons today of which the majority comes from Cameroon (2000 tons) and Madagascar (600 tons). The rise in the annual quantities harvested has been most marked in Cameroon where, according to official figures, only 200 tons were harvested in 1980, but by

1991 this had peaked at 3100 tons. Most worrying is that a large proportion of this comes from destructive harvesting of the entire bark of a tree through felling. Today, thousands of sites on the Internet advertise pygeum as a remedy for prostate disorders, most in the form of capsules of bark powder. And its demand is expected to double or triple in the coming decade as the population in the North ages.

At least four European companies have interests in *Prunus africana* bark for medicinal purposes: Laboratoires Debat (France) and its subsidiary company Plantecam Medicam in Cameroon; Madaus (Germany, Spain); Prosynthese (France); Invemi della Beffa and Indena Spa (Italy). Villagers typically earn US \$0.20 to \$0.40 per kilogram of bark harvested. Bark is sold for 150-170 CFA kg<sup>-1</sup> (US\$ 0.6-0.7) in Cameroon and for 11 French francs kg<sup>-1</sup> (US\$ 2) from Kenya. Capsules containing the bark extract are marketed in Europe, a 15 tablet box costing US\$ 7-8. The market value of this trade has been roughly estimated at US\$ 150 million a year. One kilo of product is worth US \$ 60/kilo after it is made into an extract. The Italian companies import bark extract from Madagascar and the other European companies import processed or unprocessed bark from Cameroon, Kenya, Uganda and Zaire. Extract in tablets or capsules are marketed under two main trade names: "Tadenan", produced by Laboratoires Debat (France) and "Pygenil" produced by Indena Spa (Italy).

#### 4.13.4. Opportunities

When people first started to collect bark from *Prunus africana*, they did so in a sustainable way. Small pieces or panels of bark were removed and the standing trees could easily regenerate the removed portion. The recommended procedure is to remove bark from opposite quarters of the trunk from about 35 centimetres above ground level to the height of the first branch. After 7-8 years, the bark regrows to allow the alternate quarters to be removed. This provides a mean bark yield of 55 kilograms per tree with a range from 38-74 kilograms. As larger quantities of bark are sought, however, sustainable practices of harvesting pygeum are often overlooked or ignored. At Mount Kilim in Cameroon alone, researchers have observed that 80 percent of mature trees die as a result of poor harvesting techniques.

The long term demand of natural medicines for prostate problems is assured. The trade is only interested in sustainable supply from reliable organisations.

The opportunities are for Nigerian small holders on the slopes of Mount Mayo Dogu in southern Gongola to harvest the bark from trees in the forest. In the longer term there may be an excellent opportunity to establish an industry involving propagating elite cultivars with a high content of active ingredients in the bark and the establishment of plantations of *Prunus africana* trees.

## 5. SUMMARY & CONCLUSIONS

### 5.1. Introduction

5.2.

The purpose of this report has been to consider the mega-trends in international agricultural trade and the trade in natural products and to extrapolate from this the potential market opportunities

that businessmen in Nigeria should consider further. This analysis has primarily been focussed on Nigeria's existing product range and export experience. This has been done purposely. Most export businesses are built upon existing products, under-utilised resources and existing expertise. This does not preclude new products or new crops, but attempting to build a new industry without existing foundations is a high risk exercise.

### **5.3. Developed Markets**

#### 5.4.

The major export markets are the developed countries and, in particular, the USA, the EU and Japan. Prices are typically high, but these are counterbalanced by the high costs of servicing these exceptionally demanding markets. Overall, market growth is small (i.e. 1-2% p.a.) and highly competitive. The majority of products are verging on over-supply and prices of raw commodities have fallen in real terms to between ½ and 1/3 of their values in the 1970's. Nevertheless, with careful identification there are export sectors and products where the growth in sales exceeds 10% p.a., premium prices are obtained and long-term growth is expected. This offers the export country, which can ride this boom, the chance to take a share of an expanding market opportunity. Consumers, short of time, but cash rich, are increasingly purchasing ready-made meals. They are eating out more often – with particular growth in fast food restaurant chains. Snacking or eating on-the-move is another growth sector. These all provide a demand for food ingredients. Possible Nigerian examples include ginger oleoresin, gum arabic and peeled cooked and frozen prawns.

Fast growth is being experienced by organic products, vegetarian products, ethnic and ethical products. The ethnic food market can be conveniently divided into two, providing ethnic products for immigrant communities in developed markets, e.g. yams and cassava, or supplying the ingredients for exotic dishes for sale as ready meals or through restaurants. Typically, the first sector is low priced and low volume, whereas the second sector has in the past mainly been focussed on Asian cuisine, e.g. Chinese, Indian and Japanese. Ginger may have an expanding role, particularly in ethnic ready-made meals.

Often the market is combining two or more trends for the fastest growth. For example, in the USA the fastest growth in the organic sector has been in organic snacks. Ethnic ready meals are highly popular. Some developing countries have already started to target these niche markets, for example, Chad is selling organically certified gum arabic. There is, as yet, an insufficient supply of certified organic cashews for the development of organic cashew products, for sale through the major retail chains. This might create an opportunity for Nigeria, if its production is primarily grown without recourse to agro-chemicals.

Ethical and organic products must match specified international standards and have to be inspected and certified as such. They do provide opportunities to access rapidly expanding markets and, at least at present, obtain premium prices. As the volume of certified supply increases, these premiums are likely to diminish. The market for African ethnic foods is small in Europe and is not developed, in terms of food service sector and ready-meals.

Food hygiene and health are critical issues in the developed world. There is a resistance to accepting processed products from developing countries, for fear of contamination.

Supermarkets have to protect themselves from legal action by showing due diligence in the selection of their suppliers. The consequence is that they are only accrediting top quality, large scale companies with highly professional management and quality assurance programmes. This has led to a reduction in the number of companies involved and provides a major hurdle to the entry of new players.

The consumers' concern about health has led to a marked development in self-medication and the selection of food products which are perceived as being healthy. Product examples from Nigeria which would fit this category include ginger oils as a natural medicine, the presence of a super vitamin E in palm oil with anti-oxidant properties up to 60 times more potent than normal vitamin E, and the bark of *Prunus africana*, which is used for prostate problems.

In general, the growth in trade has been in value-added products. This is a sensible strategy as it helps avoid the trap of only supplying diminishing value commodities and it helps an export company build on any comparative advantage to create a competitive advantage by servicing the export market with high quality, fairly priced, value-added products which match the ever changing demand of the consumer. Nigeria has been responding in terms of its increased sale of tanned rather than raw skins, and of secondary wood products like parquet flooring as opposed to sawn logs.

### **5.3. Developing Country Markets**

The most rapidly expanding market sector is imports by developing countries. In particular, these are highly populated countries with transition economies. Examples are China, India, Mexico, Brazil and Korea. In terms of volume these are not major importers, but they are expanding. In the long term growth is likely to be strong and steady and could take off. These markets are not high priced, but are far less demanding in terms of product specification, market servicing and food hygiene standards. Nigeria is well positioned to take advantage of the Indian market. It has traditionally supplied raw cashews, but in recent years sales of ginger and gum arabic have increased. The question is raised as to what other products Nigeria can supply to India. For example sesame seed is occasionally sold when India is short of its own supplies. India also imports about 30,000 tonnes of Cowpeas annually – mainly from Myanmar (Burma) and yet Nigeria is the world's largest producer. Nigeria has developed the sales of sesame seed to Japan where it is processed. Market diversification opportunities for sesame may exist in Korea and Greece. China and Korea have traditionally been dependent on the USSR for their supplies of leather. As this source has dried up Asian traders have increasingly been looking to West Africa as a source of hides and skins. Again, this could be an opportunity for Nigeria.

### **5.5. Perception of Nigeria as a Supplier**

In conducting this survey many traders have complained about the difficulty of doing business with Nigerian products. Complaints are made about quality and, especially, product contamination and contract unreliability. The insistence by some Nigerian exporters on under-invoicing is off-putting to honourable businesses running legitimate accounts. The consequence is not only that trading often has to occur between more dubious companies, it also leads to Nigerian products being discounted in terms of price and to a higher level of scepticism about new processed products. It is suggested that Nigeria, with improved quality, could sell more raw

and tanned skins. Nigerian ginger is often the cheapest ginger traded internationally, despite the fact that it is a product with special qualities.

Although the consensus of strategic thinking on development is for investment in added value and processing operations at source, in practice, these investments can be highly problematic. Importers in the developed countries, who traditionally process commodities, will want to continue to utilise their investment in manufacturing. End users are more comfortable with raw product, because of the fear of contamination. In addition, product is often blended to produce a product with the correct specifications for further processing, e.g. cocoa butters.

Nigeria's record in agri-business investment has been poor. Investment is rarely the problem. The problems are more often attributed to poor management, marketing and product quality.

In Nigeria there is believed to have been more investment in cotton processing than in any other agri-business sector. The existing installed capacity, in cotton ginning, the production of textiles, vegetable oil extraction and cocoa processing, is chronically under-utilised. Investments have been made in high value export operations, but rarely have these succeeded. A vegetable export farm near Kano closed through its failure to generate sufficient profit and the changing interest of its owners. Two horticultural export operations were started in Jos: a vegetable farm failed because of the failure to supply fuel for irrigation pumps; and a rose operation near Jos also closed down shortly after its start. Near Lagos, investment was made in a chrysanthemum farm, but the location is too hot for the quality demanded by Europe. Logistical difficulties prevented a palm nursery from succeeding with its export plans. A joint venture investment between Israelis and Nigerians near Port Harcourt in tropical fruit processing failed. Similarly, a joint Yugoslav and Nigerian investment in an oleoresin plant near Kafanchan is understood not yet to have produced any commercial product.

## 5.5. Opportunities

The table below sets out by major product sectors some preliminary product developments to stimulate agricultural exports and agri-business development.

Product	Comments
Cocoa	Major export product, programmes already underway to increase production.
Rubber	Tiny player on world market; commodity in over supply.
Prawns	Already an exporter of caught prawns which are cooked and frozen before being exported to Europe. Strong market opportunities for farmed shrimps – especially in EU and USA. Intensive Prawn farming can be damaging environmentally and socially. The farms typically have a short life of 5-10 years. There is scope for and indeed a need to help a new industry establish itself using best modern practices being developed by the World Bank and FAO.
Leather	Good long term demand likely from developed and developing markets. Opportunities for improved quality and increased output. Some suggestion that the greatest improvement in quality will be through improved flaying as well as opportunities for investment in modern machinery for splitting leathers. Encouragement of tanning to take place in Nigeria.
Wood products	Move to secondary wood products, e.g. cut blocks for parquet flooring. Needs are for added value/manufacture in Nigeria and certification as wood from

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	sustainable sources.
Oil Seeds	Nigeria a net importer of vegetable oil. The immediate need is for the industry to become self-sufficient, which is outside the scope of this project. We could explore niche product marketing in Palm oil e.g. the super vitamin E content, red palm oils.
Cotton	Much under-utilised capacity, imports being made of long staple cotton – focus would be on supplying local gins and thread factories. Export development could be considered later
Ginger	The high oil content of Nigerian ginger makes it particularly suitable for extraction as an oleoresin or for use as nutraceuticals. Explore links to supply product to the natural health market and to consider why the oleoresin plants in Nigeria are not active.
Gum Arabic	Growth opportunities, especially in developing countries - India, China, Mexico, etc. Quality control, added value, i.e. grading, grinding and possibly spray drying, as well as improved trading practices.
Sesame	New market development, e.g. Korea, India, Greece.
Cashew	Explore possibilities of lifting export prices, developing greater competition between purchasers and gaining organic certification from semi-wild harvest and toll processing in India, with direct marketing to New York as a shelled organic product - possible linkages with other USA Aid projects - i.e. Ghana, Tanzania, Mozambique
<i>Prunus africana</i>	Believed to grow in the highland areas near Cameroon. Opportunities involve sustainable harvesting and introduction of propagation techniques and modern and new plantings with sales to the herbal medicine sector.

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In summary, Nigeria's way forward may involve diversifying its products for sales into new and expanding markets. In specific products, it may be able to create a premium price through certification as organic or through Fairtrading. Lifting quality standards can raise prices and improve volumes. The demand for healthy eating and prepared food is leading to increased sales of prawns. This demand can only be satisfied by prawn farming. Given Nigeria's existing exports of prawns and its processing capacity, prawn farming would be a natural progression, albeit one with important environmental and social considerations which need to be addressed. Nigeria, as a major producer of commodities, needs to place itself so that it can best exploit the newer market opportunities in developing countries. The exact range of products that these markets demand is difficult to predict, but trade is often best stimulated by inward buyer missions. Product possibilities include raw and tanned leather, sesame, cow peas, gum Arabic, etc. Targeted markets might India, China, Korea, Brazil and Mexico.