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Market Prospects for Groundnut in West Africa

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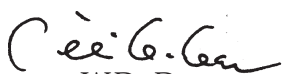
Foreword

Groundnut production, marketing and trade are major sources of employment, income and foreign exchange in many West African countries. Groundnut products are of central economic importance to millions of smallholders in this region. It generates 60% of the rural cash income and accounts for about 70% of the rural labor force in Senegal and Gambia. However, the groundnut trade remains heavily distorted, and this has affected the competitive position of various players in world markets.

Previous investments by CFC and ICRISAT in groundnut research and development have concentrated on providing technology options to increase yields and tolerance to abiotic and biotic stresses. While this has been highly successful in developing good varieties, attention needs to be devoted to factors of market demand. There is now clear evidence that the incentives or opportunities for market surplus production provides the necessary pull for adoption of new varieties. This shift in paradigm for technology development and dissemination requires the identification of partners and market linkages beyond the common belief that markets are easily available if production is done well. The results of this study are meant to facilitate this process.

A range of factors explains the limited competitiveness of groundnut in the domestic, regional and international markets. These include low production and strict rules on grades and standards, which most West African producers often find difficult to meet. Domestic policies have also limited trade. This study has provided background information on groundnut production in West Africa, constraints to groundnut production, processing and commercialization. Additionally, study also presents some market prospects for groundnut and groundnut products, and explores ways to increase groundnut competitiveness in the domestic, regional and international markets.

It is our hope and expectation that this report will be valuable in the promotion of groundnut production and trade not only in West Africa but also in all sub-Saharan Africa countries where the economies are still agriculture-dependent.



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Executive Summary

Groundnut trade in international markets accounts for a mere 4-6% of total world production, while the majority of world groundnut production serves subsistence needs and requirements of domestic market. In general, recent decades have seen an increase in the consumption of groundnut for all uses. There has been a shift away from its use for oil and meal (for which there are substitutes, notably soya) and toward confectionary groundnut, for which there are no exact substitutes. However, as product quality standards are far higher for edible groundnut, this trend implies a corresponding increase in product quality (particularly in terms of *Aspergillus*, the source of aflatoxin).

In general, the European groundnut market has become less diversified and more concentrated over the past decade. It is said that until the late 1990s, large and small origin shellers/suppliers provided products to a range of large and small dealers, to serve a range of large and small consumers ie, from end-use manufacturing industries to supermarkets.

Since the early 1970s, groundnut consumption patterns have shifted in West Africa as in other parts of the world. While total consumption in eastern and southern Africa has declined, groundnut utilization in West Africa has increased significantly due to a shift toward edible applications. Since the late 1980s, groundnut in West Africa has become primarily a food crop rather than oilseed. Between 1972 and 2000, the proportion of West African groundnuts consumed as food grew by an astonishing 209%, even as exports declined precipitously during the same period.

The decline of African groundnut exports is related to the trend toward production of edible groundnut, which was poorly timed in respect to increasing aflatoxin restrictions as well as increasing industrial substitution by other oils, particularly soybean.

Though all the countries which produce groundnut are prone to aflatoxin infestation, Africa is considered particularly problematic by international buyers, as the production chain in each country (with the exception of South Africa) is fragmented, production systems insufficient to address the problem, aflatoxin monitoring by crop virtually nonexistent, and pre-shipment inspection services perceived as lacking in reliability.

Unfortunately, international trade in groundnut is based on confidence and reliability in terms of supply as well as product quality. The current EU regulations on aflatoxin have certainly contributed to an increasingly

conservative tendency among European buyers, who are unlikely to take any unnecessary risks as regards aflatoxin.

An unfortunate and direct economic consequence is that for West Africa to re-enter the world groundnut market (and particularly the European market, which offers perhaps the greatest potential), export prices would have to compete favorably with Chinese groundnut, which is abundant, cheap and enjoys a favorable reputation in terms of reliable supply and reliable quality.

Recent prices for Chinese groundnut are on the order of \$650 per MT – the same price as production of a ton of edible groundnut (arachide de bouche or ARB) under irrigation in Senegal. This means that the current and foreseeable margins of return are not in any case favorable to the re-entry of West African exports on to the world market, even without regard to product quality and perceptions of international buyers.

On the other hand, though the trade linkages are not as established (or cheap) as between West Africa and Europe, the South African market does represent a significant potential opportunity for West African producers. Due to a poor harvest in 2003, South Africa has been importing groundnut from southern Africa and even Argentina at premium prices – over \$700 per MT (unsorted and CIF) in Malawi. There may be scope for entry into the South African market once aflatoxin has been addressed by improved management and monitoring of product quality at the crop level.

The primary conclusion of this study is that resources should be devoted to improvement of the production chain of the groundnut sector in each producer country, with initial emphasis on production to satisfy national, sub-regional and even regional demand.

While the structural details of such a program would be negotiated on a country-by-country basis – and state intervention is in any case likely to remain limited – common features might include the establishment of public warehouses and/or buying points, at which production would be sorted, graded and tested for aflatoxin contamination and other parameters of product quality.

In assessing the current and foreseeable market opportunities for groundnut of West African origin, it will be crucial to build slowly and deliberately on existing strengths (including the availability of improved seed through the current project). It needs specific and focused attention to the production chain – specifically cultivation, harvest and postharvest methods

which prevent infection of the product by *Aspergillus*, and thereby ensure product quality.

It is thus strongly recommended that the project and ICRISAT consider the establishment of a harmonized sub-regional program to address the specific technical constraints of smallholder groundnut farmers of West Africa. These constraints currently stand as an obstacle to export development, and put national populations at risk of serious health problems through consumption of groundnut infected with aflatoxin.

With such a program in place, a system of product quality certification may be developed over time, in collaboration with national and international analytical laboratories.

In the meantime, the project could help to build national and regional trade opportunities for producers by monitoring groundnut supply and price information on local and national markets, and facilitate the diffusion of such crucial information to sector stakeholders via rural radio and other locally appropriate means. The SIMA market survey form included in the Niger country profile might serve as a working prototype for the establishment such a market information system.

1.0 Introduction

This study was commissioned by ICRISAT, with financial support from the Common Fund for Commodities. The study was implemented in the United States, Africa and in Europe from 16 June to 15 December 2003. It will be presented to ICRISAT in Bamako at the annual project meeting for the CFC-funded project *Development of sustainable groundnut seed systems in West Africa*.

1.1 Groundnut and groundnut products in trade

Groundnut (also known as peanut) or *Arachis hypogea* is a domesticated pulse, a leguminous oilseed rich in protein and related to wild *Arachis* species indigenous to Brazil, Bolivia, Uruguay and northern Argentina. World trade in groundnut began with industrial extraction of groundnut oil in Marseilles in the mid-19th century (Purseglove 1968,1988).

Groundnut is traded in a number of forms and the major markets have different patterns of consumption for each. Groundnut is designated by its type or variety (used in this sense as a generic term descriptive of a physical type, rather than a synonym for 'cultivar'), and the size of the seeds, which must pass through a set of screens calibrated by the number of nuts in an ounce. Groundnut known as '40/50' (the most common, medium-sized groundnut on the world market) would consist of between 40 and 50 seeds per ounce.

The three basic groundnut types are the Virginia (the largest variety, used in the roasted snack industry), Runner (medium-sized, common in confectionary and as peanut butter) and Spanish/Valencia (smallest, high in oil content and also used in peanut candy, confectionary and as peanut butter).

The most basic form of groundnut traded is groundnut in-shell, which accounts for the majority of transactions both within the producer countries and internationally. Second in terms of volume of trade is shelled groundnut.

Groundnut products may be divided into edible groundnuts and oilseed groundnuts. The former are also known as confectionary groundnuts (ARB), and are traded whole for further processing while the oilseed variety lends itself to extraction of edible oil. About two-thirds of the world's groundnut production goes toward oil production. The main groundnut oil exporting countries in any given year are Senegal and Argentina. India has recently re-entered the market in response to unusually high prices in 2003, discussed further in Section 3.5 below.

As the oil content of the seed varies between 38-47% for confectionary and 47-55% for the oilseed varieties, the yield of oil is roughly equal to the yield of groundnut cake or meal. Quality standards for oilseed groundnut are much lower than those for edible groundnut, and groundnut meal may be chemically de-toxified of aflatoxin residues by a simple industrial process (R Kettlewell 2003). While groundnut oil prices have remained fairly level over the past 25 years, groundnut meal prices have steadily declined, largely in response to competition from soya (Freeman et al. 1999). During 1999-2000, 30% of world groundnut oil originated from Africa (of which 14% was from Senegal), as did 40% of world groundnut cake, of which 15% originated from Senegal (Ntare et al. 2003).

The protein content of groundnut ranges between 24-35% to that of the meal 40-50% (Rehm and Espig 1991). Alongside the industrial production of groundnut oil in Niger, Senegal and Nigeria, household or artisanal extraction remains an important economic activity, particularly for rural women. After oil is extracted, the groundnut meal is used formulating animal feeds. It may also be processed into human foods, such as *kulikuli* made from groundnut paste (the by-product of traditional extraction) by women in Niger and Nigeria. This is both for household consumption as well as for sale.

Edible groundnuts may be blanched by immersion in water. Most edible groundnuts are roasted and some are processed further. For example, the snack industry adds additional coatings, which requires a particularly consistent size and shape, and extra processes are needed to make peanut butter, which is also traded (and regulated) as a commodity. About 25% of the groundnut consumed on the world market is roasted, salted and eaten as a snack and more than half the groundnut consumed in the US is in the form of peanut butter (Onwueme and Sina 1991). On the international market, poor quality groundnut is used in the manufacture of animal feed and birdfood.

In the groundnut-producing countries, green groundnut (*arachide vert*), fresh groundnut (*arachide frais*) and groundnut seed are also traded.

Groundnut is commonly exported in 50 kg sacks, in minimum shipments of 18 to 22 MT (a container load of in-shell and shelled groundnut, respectively). Buyers usually require a general phytosanitary health certification from a reputable laboratory, and possibly further certification that the product has been fumigated with an insecticide such as aluminium phosphide. This requirement has been identified as a major constraint to the development of an international trade in organic groundnut, for which the profit margins have not yet become compelling (Kettlewell 2003).

In general, recent decades have seen an increase in the consumption of groundnut for all uses. There has been a shift away from its use for oil and meal (for which there are substitutes, notably soya) and toward confectionary groundnut, for which there are no exact substitutes. Indeed, world imports of confectionary groundnut grew by an astonishing 83% from 1979-81 to 1994-96 (Freeman et al. 1999). However, as product quality standards are far higher for edible groundnut, this trend implies a corresponding increase in product quality (particularly in terms of *Aspergillus*, the fungal source of the carcinogen aflatoxin (see Appendix 7, Quality Aspects of Groundnuts in Trade)).

2.0 West African Groundnut Markets

2.1 Recent trends in production and consumption

Since early 1970s, groundnut consumption patterns have shifted. While total consumption in eastern and southern Africa has declined, groundnut utilization in West Africa has increased significantly due to a shift toward edible applications. Since the late 1980s, groundnut in West Africa has become primarily a food crop rather than an oilseed, as indicated in the table below. Between 1972 and 2000, the proportion of West African groundnuts consumed as food grew by an astonishing 209%.

Table 1. West African utilization of groundnut by five-year average, 1972-2000

	1972-75	1976-80	1981-85	1986-90	1991-95	1996-2000
Groundnut consumed (MT)	2,520,000	2,498,000	2,498,000	2,722,000	3,050,000	4,215,000
Proportion as food	29.9%	36.0%	43.3%	44.5%	51.0%	55.3%
Proportion crushed	61.3%	53.4%	43.2%	45.1%	37.3%	32.5%
Seed, feed and waste	8.9%	10.7%	13.5%	10.5%	11.7%	12.2%

Source: Revoredo and Fletcher 2002.

Trade patterns have also shifted significantly during the same period. From 1972-75, the four project countries had a significant profile on the international market, together holding 14.5% of world exports (Nigeria had 7.3%, Senegal 4.6%, Mali 2.1% and Niger 1.6% of total world exports). By the 1996-2000 period, only Senegal remained on the international market, with a mere 0.6% of world exports during that period (Revoredo and Fletcher 2002), 90% of which was destined for the European Union.

The decline of African groundnut exports is related to the trend toward production of edible groundnut, which was poorly timed in respect to increasing aflatoxin restrictions as well as increasing industrial substitution by other oils, particularly cottonseed and soya.

2.2 Market characteristics of the study area

As the Senegal market operates according to its own structures and procedures, with an overall net demand given its industrial base, and that of

Gambia as well, Mali and Niger serve as net providers of groundnut to the excess demand of the Senegalese and Nigerian markets. This is not to oversimplify the complex trade relationships discussed further in this section. The market is still based largely on the oilseed and meal, but the trend in the last 30 years has been increasingly toward edible groundnut.

In each of the countries studied, groundnut quality is determined by condition (especially moisture content) in addition to characteristics (oil content and nut size).

Results of the West Africa study indicate that national markets serve a diversity of buyer preferences, nationally and on the part of sub-regional traders, eg, Nigerian traders buying on the Maradi and Niamey markets.

A high oil yield was the most favored characteristic cited by buyers, but other attributes of certain 'traditional' varieties are known to appeal to regional traders. Buyers seem to show a general preference for larger nuts (1-2 per pod) rather than the early-yielding varieties, though others expressed a preference for the small reddish (Spanish) types, which are perceived as lower in humidity.

Given global trends (discussed above and in greater detail in Section 4) show broad displacement of groundnut as an oilseed crop, toward edible products of a wide variety of trade and consumer preferences. Though oilseed groundnut still dominates national markets in each of the countries studied, country data shows a price lead above oilseed groundnut, but the significance of this 'premium' is not strongly remunerative given higher production costs.

Trends toward edible groundnut are reflective (or symptomatic) of market gains made by soya on the global market over a 30-year period, as a competitor to groundnut both as an oilseed and source of meal (Revoredo and Fletcher 2002).

In West Africa, increasing competition is highest from cottonseed, production of which is rising in Mali and Nigeria, though palm oil and soya are also strong competitors. Production of sesame is also on the increase in Niger and Nigeria (Ndjeunga, Ntare and Schilling 2002). Like groundnut, and to a greater extent than soya, sesame has a great potential to meet nutritional needs as well as market potentials as an oilseed and source of meal.

Unfortunately, West Africa is poorly situated to meet demand for edible groundnut unless a commitment is made to address supply chain issues of postharvest processing and product quality.

Table 2. Transaction costs analysis.

Transaction Cost	Percentage of total transaction cost	
	Domestic	Export
Sack	16%	3%
Market tax	0.08%	-
Storage	9%	2%
Loaders	-	38%
Vehicle	73%	17%
Subtotal transport	73%	55%

Transaction Cost	Percentage of average product value	
	Domestic	Export
Sack	1%	1%
Market tax	0.05%	0.05%
Storage	0.60%	0.60%
Loaders	-	10%
Vehicle	4%	4%
Subtotal transport	4%	14%

The sub-regional market is constrained by high transaction costs, of which the highest is clearly transport accounting for more than half of transaction costs: 55% for regional or cross-border trade, and over 70% of domestically-traded groundnut. These estimates are consistent with Camara 1992, Gaye 1992, Savadogo et al. 1992 and Gabre-Mahdin et al. 1992, as cited in Barry et al: “transportation costs represent more than half of total transfer costs of agricultural products in West Africa.”

Transport costs for the Dosso region of Niger were also calculated in a previous study to be between 6 and 20 fCFA/dt*km (Abele 2000). Though most respondents expressed a strong desire to avoid storage for anything more than the required minimum (due to moisture content and related product quality considerations), storage costs were not found to be significant as compared to transport and related costs.

The cost of trading groundnut nationally and regionally was considered in Niger, where the most detailed market information was obtained and corroborated. A model was established on the basis of interviews with traders

on the national markets. A mid-level trader of Niamey moves 5,000 sacks of groundnut (in shell) each year, at an average value of fCFA 9,500. Based on the costs of transportation, storage, market dues and other costs, the transaction costs of a domestically-procured bag of groundnut total fCFA 615 above the farm-gate price, whereas the transaction costs of a sack obtained across the border rise to fCFA 2,615, a factor of more than 4.

Transaction costs and their estimates, as both an element of total transaction costs, and as a percentage of total product value, is provided in the table below:

On the whole, transaction costs comprised roughly 7% of the value of a sack of groundnut (in-shell). However, on the regional market (with a single border crossing), this figure rises to more than 27%.

It is important to note that the figures above represent aggregate transaction costs and not necessarily those borne by a single party (ie, the trader himself). While national market transport costs are commonly borne by sellers (ie, by primary buyers, or by the producers themselves), regional trade is undertaken by specialists who hold strong preferences based on their consumers; for instance, in Ivory Coast variety 47-10, known for its high oil content is much preferred.

A lack of reliable information on price and supply (as well as exchange rates) compounds risk and adds to transaction costs for both producers and traders.

2.4 Conclusions

Faced with competition from other oilseed crops and increased demand for edible groundnut (on a global scale as well as within West Africa), market trends favor a diversity of market applications, including oilseed and edible nuts (ARB).

Oilseed and meal

As an oilseed and meal crop, groundnut has steadily lost ground to its main competitors, cottonseed and soya, and there is no immediate prospect of a reversal of this trend. However, despite a largely unremunerative market for producers, comparative advantages of groundnut are the existence of well-established formal and informal market outlets and steady (mostly unmet) industrial demand, as well as the significance of groundnut in the West African diet, which is not the case for cottonseed or soya.

Cottonseed represents a by-product of a more remunerative crop than groundnut, and as such, it is well-positioned to compete as an oilseed. As meal it is less valued given its lower protein content and trace amounts of the toxic polyphenol gossypol, to which chickens in particular are sensitive.

Though soya contains higher protein content than groundnut, its use as a foodstuff in West Africa is not well-established. Though it may find acceptance on urban markets, soya oil does not satisfy the local market's taste preferences, which favors groundnut oil. Sesame remains more of a food crop than an oilseed crop, with fewer product and market applications than groundnut.

Given the subsistence status of most West African farmers, groundnut offers more versatility as a well-established food crop (unlike cottonseed and soya) with a diversity of market applications (unlike sesame).

The strong 'traditional' role of groundnut both in the kitchens and the markets of West Africa is likely to preserve the considerable market share for groundnut as an oilseed and meal in addition to the growing market share of edible groundnut.

Edible groundnut

While the West African oilseed and meal groundnut sub-sector is beset by competition, as an edible product groundnut has no direct competition – it is a very specific commodity in confectionery and other applications, has high protein content, and is prevalent in West African diets.

However, despite its great potential, the edible groundnut markets are constrained by quality concerns with regards to infection by *Aspergillus*. This entails increased risk as well as postharvest labor inputs by the producer, both of which are difficult to quantify.

Aflatoxin not only represents a barrier to export, but considerable concern to public health, as groundnut provides a greater share of dietary protein than does meat. In managing supply-chain quality issues related to aflatoxin, the challenge will be to persuade producers to invest in improved postharvest processing methods, improved seed and other inputs, despite the fragile economic position of most groundnut farmers.

In general, farmers in each of the four countries studied are highly risk-averse, serving subsistence needs more than market demands. That the vast majority of sales in each county takes place immediately after the harvest

(when prices are lowest) partly reflects payment of credit arrangements and other accumulated debts, including those accrued through purchase of food crops to supplement those grown by the household. Transaction costs are high, particularly as regards transport and border formalities in the case of regional trade.

A major reason for high transaction costs is a general lack of information on price and supply for producers and small traders. While this aspect is problematic enough on national markets, the high cost of crossing borders and transport greatly multiplies the cost of a poorly-timed purchase or sale.

2.5 Strategies for West Africa

Though all the countries that produce groundnut are prone to aflatoxin infestation, Africa is considered particularly problematic by international buyers. The perception is that production chain in all countries (with the exception of South Africa) is fragmented, production systems insufficient to address the problem, aflatoxin monitoring by crop virtually nonexistent, and pre-shipment inspection services lack reliability.

Unfortunately, international trade in groundnut is based on confidence and reliability in terms of supply as well as product quality. The current EU regulations on aflatoxin have certainly contributed to an increasingly conservative tendency among European buyers, who are unlikely to take any unnecessary risks as regards aflatoxin.

An unfortunate and direct economic consequence is that for West Africa to re-enter the world groundnut market (and particularly the European market, which offers perhaps the greatest potential), export prices would have to compete favorably with Chinese groundnut, which is abundant, cheap and enjoys a favorable reputation in terms of reliable supply and quality.

Even without these perceptions, the current and foreseeable margins of return do not favor the re-entry of West African exports in world market: recent prices for Chinese groundnut are on the order of \$650 per MT – the same price as production of a ton of edible groundnut (ARB) under irrigation in Senegal.

On the other hand, though the trade linkages are not as established (or cheap) as those between West Africa and Europe, the South African market does represent a significant potential opportunity for West African producers. Due to a poor harvest in 2003, South Africa has been importing groundnut

from southern Africa and even Argentina at premium prices – over \$700 per MT (unsorted and CIF) in Malawi. There may be scope for entry on to the South African market once aflatoxin has been addressed by improved management and monitoring of product quality at the crop level.

The primary conclusion of this study is that resources should be devoted to improvement of the production chain of the groundnut sector in each producer country, with initial emphasis on production to satisfy national, sub-regional and even regional demand.

While the structural details of such a program would be negotiated on a country-by-country basis – and state intervention is in any case likely to remain limited – common features might include the establishment of public warehouses and/or buying points, at which production would be sorted, graded and tested for aflatoxin contamination and other parameters of product quality.

In assessing the current and foreseeable market opportunities for opportunities for groundnut of West African origin, it will be crucial to build slowly and deliberately on existing strengths (including the availability of improved seed through the current project), with specific and focused attention to the production chain – specifically those cultivation, harvest and postharvest methods which prevent infection of the product by *Aspergillus*, and thereby ensure product quality.

The following recommendations are made on the basis of interviews with a wide variety of stakeholders, from the groundnut farmers of the focus countries to European buyers and brokers in groundnut:

- In terms of potential export of West African groundnut to Europe, as specifically addressed by the Terms of Reference for this assignment (Appendix 1), it is important to note that pre-shipment inspection and certification is *not* universally accepted by European buyers – including certification both by governmental inspection bodies and by private companies contracted to importers. The great importance of reputation – of a proven track record of responsible performance – cannot be over-estimated.
- In order to initiate an export relationship to a European buyer, for instance, it may thus be necessary for an exporting entity to first assemble a minimum order of one container of groundnut – typically 18 MT of in-shell or 22 MT of shelled product – and pay for the transit shipment of the product to the port of the purchaser (probably Rotterdam). If, on analysis in

transit, the shipment is proven to be 'clean', the purchase price and transport costs will happily be borne by the buyer – and an important precedent will have been established.

- First, the exporting entity must seek to identify aflatoxin-free groundnut. This may be the produce of a given locality, cooperative or even of an individual farmer. The advantages of being able to offer aflatoxin-free groundnut even in smaller quantities (minimum 18/22 MT) may entice importers to take the risk and purchase from an as-yet unproven point of origin.
- There is considerable advantage to providing hand-picked and selected (HPS) groundnut, as would be the case from West Africa. Production standards can slip when mechanical grading technologies are employed, as recently happened in South Africa.
- If aflatoxin-free groundnut cannot be found in sufficient quantities to assemble a minimum shipment of 18/22 MT, it may be more sensible to aim for a different sub-sector of the international market – either animal feed, birdfood or oil-stock, each of which allows for successively greater levels of aflatoxin contamination.
- Given the great importance of the 'track record' of the various points of origin as regards reliability of quality, it is more important for a given exporter to deal responsibly with the issue of product quality than to try to push an inferior product on the importer. Given the great stringency of transit inspection services (particularly in the European ports), one can be quite certain that any quality problem will indeed be noticed – and if this comes as a surprise to the buyer, it is most unlikely that the seller will ever be availed a second chance under current and foreseeable market conditions.
- It is thus strongly recommended that the project and ICRISAT consider the establishment of a harmonized sub-regional program to address the specific technical constraints of the smallholder groundnut farmers of West Africa. These currently stand as an obstacle to export development, and put national populations at increased risk of serious health problems through consumption of groundnut infected with aflatoxin.
- With such a program in place, a system of product quality certification may be developed over time, in collaboration with national and international analytical laboratories.

In the meantime, the project could help to build national and regional trade opportunities for producers by monitoring groundnut supply and price information on local and national markets, and facilitate the diffusion of such crucial information to sector stakeholders via rural radio and other locally appropriate means. The SIMA market survey form included in the Niger country profile might serve as a working prototype for such a market information system.

3.0 Main producing countries on the international market

3.1 Introduction: Groundnut and Groundnut Products in Trade

Groundnut trade on international markets accounts for a mere 4-6% of total world production; the vast majority of world groundnut production serves subsistence needs and domestic market requirements.

Moreover, exports of edible groundnut are concentrated among only a few countries of origin – most notably China, the United States, Argentina and India – between which relative market shares have changed considerably over the past 30 years (see Figure 1).

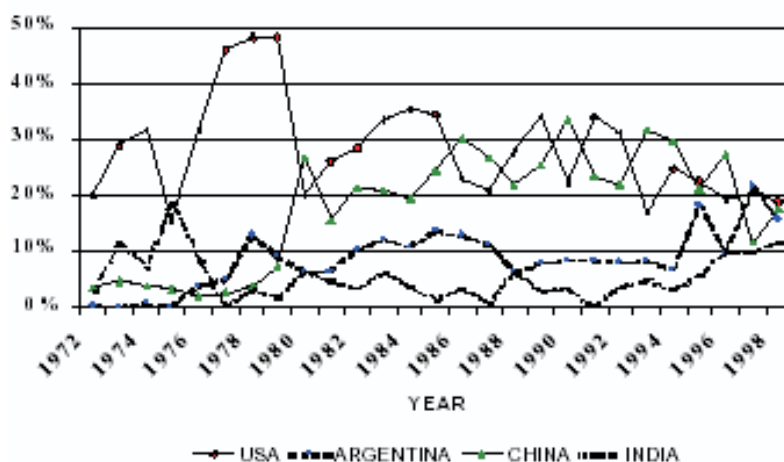


Figure 1. Trend in the world edible peanut export market share, major exporters, 1972-98.

Source: Peanut Trade and the World Trade Organization

By Stanley M Fletcher and Nathan Smith, Department of Agricultural and Applied Economics, University of Georgia.

This section briefly describes the recent and current export production of these four main countries of origin, as well as South Africa. Of these countries, Argentina and South Africa may be considered as particularly export-oriented, while the domestic market share is generally first priority for China, the US and India.

While the role of trade regulations including tariffs, duties and quotas will be touched upon, a concise summary of regulatory trade policies may be found in Appendix 4, Current Trade and Domestic Policies on Groundnut (2003).

3.2 China

With a production base of over 15 million tons (MT) of groundnut in 2002, China produces close to half of the total world crop (this dominance is rather graphically illustrated on the FAOSTAT database, where Chinese groundnut production figures are actually situated *above* the world total – all other producing countries being strictly relegated to alphabetical order!).

Accounting for over 26% of shelled groundnut exports and 34% of in-shell exports over the past decade, China is by far the world's largest producer and exporter of groundnut.

China is generally considered to be a responsible country of origin in terms of aflatoxin containment, though problems have been known in recent years – particularly in the production areas of Henan and Liaoning. In the 1999 crop – which was problematic for all world origins – high moisture levels and fungal contamination were noted in the Hsuiji variety, and the Virginia affected both by fungal contamination and by aflatoxin. Nonetheless, China is still recognized as consistently reliable in terms of quality.

Chinese groundnut is among the most competitively priced of the three 'reliable' origins in terms of aflatoxin – the other two are Argentina and the USA. Prices for groundnut of Chinese origin typically range between \$600 to \$650 per ton, and occasionally higher. The Chinese origin has been described by one importer as a "click fund," which can supply a nearly unlimited volume of product once a certain market price is reached.

Chinese producers are highly responsive to market conditions, with a magnitude of response that can be very impressive. Between the 1999 and 2000 crops, production of groundnut increased by about 15%, in response to low maize prices in 1999. Fortunately for the producers, the 2000 Chinese groundnut crop was much less affected by aflatoxin contamination than was the 1999 crop, so most of this increased production was sold.

Domestic demand in China is quite a considerable factor, particularly for crushing to serve the groundnut oil market, which takes up approximately 60% of the Chinese groundnut crop. Groundnut oil prices are currently at a

staggering (and, most agree, unsustainable) high of \$1,400 per MT, up from the usual \$900. This factor is currently pushing up the price of all groundnut types and applications, and is not expected to continue.

3.3 United States of America

Having supplied over 17% of the world's shelled groundnut exports and over 22% of in-shell exports over the past decade, the United States is the second largest exporter of shelled groundnut in the world. However, the US share of the world groundnut market has declined precipitously over the past two decades, from approximately 32.9% between 1981 and 1985 (corresponding to a trade volume of 354,000 MT) to 19.8% between 1996 and 2000, corresponding to a trade volume of 294,000 MT (Revoredo and Fletcher 2002).

Export of US-origin groundnut has historically been strongly regulated by the US government, linked directly and legislatively to the domestic market. Perhaps the clearest synopsis of the former US government regulation of the groundnut sector is provided by the American Peanut Coalition, as put forward on their website:

“The [US] federal peanut program consist[ed] of a system of restrictive production quotas, high price supports and severe import restrictions. Together, these features fix the domestic price for peanut quota owners well above the world market price. The program mandates by law the amount of peanuts that can be grown for domestic consumption, fixes the excessive price that quota holders receive for peanuts and fixes the quantity of imported peanuts that are eligible for access to the US market”.

American Peanut Coalition, 'www.go-peanuts.org'

Given the grand scope and Byzantine intricacies of US government intervention in the groundnut sector, it would be easy to become lost in a tangential history, which would ultimately be of little practical use here. What follows is a very brief account of this history and current US production and market conditions as they may specifically relate to the assignment.

Government regulation of the US groundnut market in general, and exports in particular, began with the Agricultural Adjustment Act of 1933, a piece of classic 'New Deal' legislation which initially provided commodity

loans and set marketing quota limits on groundnut, tobacco, sugar and milk. Section 22 of the 1933 Act authorized the US president to set quantitative import restrictions on agricultural products for which price support programs were administered by the United States Department of Agriculture (USDA). The 1933 Act effectively established what was to become the 'peanut program' of the USDA.

Following a 1936 ruling that certain aspects of production control in the 1933 Act were unconstitutional, the US Congress responded with the Agricultural Adjustment Act of 1938, under which the peanut program was further developed by price supports in addition to quota limits. The peanut program would eventually go well beyond this, to set crop financing arrangements, and even to determine areas of groundnut production.

Groundnuts are currently the sole food product for which the US federal government controls domestic supply. It determines the specific volume of groundnut to be sold during a given year, and by whom through restrictive annual quotas, which also establish what proportion of the US crop will be allowed to enter the export market during any given year, and at what price.

The effect of this intervention was essentially to make groundnuts and groundnut products artificially 'scarce' – and correspondingly more expensive than they would otherwise be according to the supply and demand of a free and unregulated market. The US (Government) General Accounting Office estimated in 1997 that American consumers are obliged to spend as much as \$513 million more each year for groundnut products protected under the peanut program.

In recent years, and specifically with the reforms brought to the US groundnut sector under the 2002 Farm Act, the US groundnut sector has been liberalized.

Perhaps the most concise account of these changes comes from Beghin, Diop, Matthey and Sewadeh 2003:

"The 2002 farm bill eliminated production quotas with a quota buyout and converted the former peanut price support program to a system of direct and countercyclical payments and a price floor *cum* production subsidy (non-recourse loans with marketing loan provisions). The key features of the new program are as follows:

1. All groundnut producers now have equal access to a marketing

loan program, under which producers can pledge their crops as collateral to obtain a marketing loan rate (\$355/short ton). Producers may repay the loan at a rate that is the lesser of the repayment rate set by the US Department of Agriculture (USDA) plus interest or the marketing loan rate plus interest, or they can forfeit the loan (Revoredo and Fletcher 2002).

2. Producers with a history of groundnut production during the 1998-2001 period receive a fixed “decoupled” payment and a countercyclical payment. Eligible production is the product of average yield in the base period and 85 percent of base-period acres. The countercyclical payment kicks in when market prices fall below an established target price of \$495 net of the direct payment (\$36/short ton). The payment rate is the difference between the target price net of the fixed payment and the higher of the 12-month national average market price for the marketing year for groundnuts or the marketing assistance loan rate.
3. Former owners of groundnut quotas receive compensation payments for the loss of quota asset value (see Revoredo and Fletcher 2002 for details).

The elimination of production quotas decreased the price paid by US food processors and thus increased domestic use of peanuts. It also took away the logic of importing confectionery peanuts to lower the cost of processing food items intensive in peanuts. The US TRQ scheme is still in place but is redundant and the TRQs remain underfilled (Fletcher and Revoredo 2003). The lower cost of production of peanut butter/paste in the United States follows the same logic. The incentive to import cheaper peanut butter/paste from Argentina or Mexico has thus been seriously mitigated by the recent changes in the farm program. Production incentives created by the 2002 farm bill vary among different types of producers but the net effect is likely to be an increase in production. The fixed and countercyclical payments provide some incentives to increase production and can be viewed as supply-inducing subsidies (Adams et al. 2001).”

Groundnut of US origin consistently sets the upper price limit of the international market, with export prices from \$600 to as high as \$950 per ton.

US groundnut enjoys an envied reputation for quality as well as reliability of supply.

This is not to imply that the US crop is always a reliable source of supply, nor that it is always uniformly free of aflatoxin, which has indeed proven to be a serious problem in recent years. The most notable aflatoxin infestation of the US crop was seen in the 1999, particularly in the southeastern US production areas (including Georgia and Virginia) – which suffered 60-70% rejection according to European aflatoxin standards. Of the lots certified as ‘aflatoxin-free’ by the USDA during that year – purchased at a premium of \$30-40 per ton by a Dutch importing company – about 60% were subsequently found to exceed EU standards for aflatoxin. In that year, only the southwestern US production areas could supply aflatoxin-free Virginia and Runner grades in shells.

3.4 Argentina

Argentina accounts for over 16% of world shelled groundnut exports over the past decade, making it the third largest exporter of shelled groundnut. Approximately 28.3% of the Argentine crop was exported in 2001.

Argentine origin is considered ‘the first replacement’ for the USA origin. Argentine groundnut is commonly priced between \$600 and \$900 per ton; prices are largely determined by the US groundnut crop and Argentina provides an important ‘backup’ supply for the US domestic market.

Given its extensive domestic requirements of about 43,000 MT per year as well as its international quality profile, world demand for Argentine groundnut commonly exceeds available supply, and contracts may thus be made far in advance. However, this is not to say that aflatoxin is not a problem in Argentina – it certainly proved so in 1999 – and even (competitively-priced) China can compete quite favorably with Argentina in terms of product quality.

The 2001 national economic crisis had severe consequences for Argentine groundnut exporters, despite a good harvest and a clean crop. Export duties of 10% were enforced (and remain in place today), which – together with the cancellation of the 5% export subsidy – led to a total 15% net reduction in income. Even the devaluation of the Argentine peso to the dollar could not mitigate the damage, as many Argentine exporters hold investment loans in US dollars, and could thus not fully benefit from an apparently beneficial exchange rate.

3.5 India

India supplied 9.1% of world shelled groundnut exports over the past decade, and nearly 7% of in-shell exports as well. Price-wise, groundnut of Indian origin India is consistently below that of China, at the bottom of the 'big four' countries of origin, a reflection of what might charitably be called quality concerns.

Considered an 'aflatoxin-prone' country of origin, India is currently uniformly shunned by European importers. The Indian groundnut export market was largely devastated by the adoption of the EU regulations for aflatoxin. According to statistics from the Indian Oilseeds & Produce Exporters Association (IOPEA), from 1997/98 to 2001/02, Indian groundnut exports fell by nearly 50%; FAOSTAT figures are consistent with this estimate. Exports of Indian groundnut to the EU are now limited to bird food usage (IOPEA 2003).

Prospects for rehabilitation (or development) of the international reputation of Indian groundnut, and its re-entry into the European market are not very promising in the foreseeable future. In the meantime, Indonesia currently absorbs much of the Indian export crop, as it is less expensive than groundnut of Chinese origin.

Regardless of the international demand for Indian groundnut, production has increased significantly in recent years, most recently in response to opportunities on the world market for groundnut oil, which peaked at \$1,500 in August 2003.

It is estimated that as much as 92% of the Indian groundnut crop is crushed for oil, mainly to serve the domestic market. With the bumper groundnut harvest in 1993, and after an interregnum of 40 years, India re-entered the world market as a supplier of groundnut oil, in direct competition with Senegal and Argentina, both of which suffered significant crop losses during the current (2003/2004) harvest.

Though the world groundnut oil price re-adjusted itself rapidly with the re-emergence of India as a supplier (down to \$1,170 by January 2004), this level is still significantly better than the domestic price. Fortunately for Indian producers, the export of over 50,000 MT of oil effectively protected the domestic price structure from crashing in response to the 2003 bumper harvest (Ganguli 2004).

3.7 Vietnam

Vietnam accounts for 8.2% of world shelled groundnut exports, most of which are destined for Indonesia, Malaysia, the Philippines and Japan. Although some groundnut of Vietnamese origin has recently reached the US market under Pacific Rim trade agreements, it is rather scarce on the European market.

3.8 South Africa

Accounting for 2.2% of shelled groundnut exports over the past decade, South African groundnut is considered to be among the best quality in the world, and is commonly priced on a par with Argentina, ranging from \$600 to as high as \$870 per ton.

A very high domestic demand also tends to float South African groundnut prices, a factor that will be discussed further under the section 'Groundnut Demand'. South African groundnut is prominent on the European market, and has recently gained a reasonable foothold on the US market as well.

However, overall quality of South African groundnut has slipped a bit in recent years, as the uniformity of varieties present in any given lot is not as assured as it was previously. This decline in consistency is blamed on the recent introduction of machine grading technologies, as opposed to the former reliance on hand-picked and selected (HPS) lots.

The production and marketing of South African groundnuts is facilitated by a well-organized network comprising producer cooperatives, trade associations and other private sector stakeholders, including Groundnut International and Safrinut. The quality of the South African groundnut crop is certified by the Perishable Products Export Control Board (PPECB), a parastatal body with great international credibility within the groundnut sector.

Aflatoxin can be a problem, however, particularly in the drier production areas. The South African groundnut crop has been devastated by aflatoxin contamination twice in recent years – in 1999 and again in 2002. In spite of this, South Africa is still considered a reliable supplier of groundnut on the international market, largely due to the reliability of the pre-shipment inspection services of the PPECB, to the quality control activities of its (European-certified) shelling plants, and to the active and reliable monitoring

of crop conditions by commercial bodies such as Safrinut and Groundnut International.

According to Dutch importers, over half of the 2002 South African groundnut crop has been estimated to be contaminated with aflatoxin above EU standards.

3.9 Other African origins

Other African countries, which export groundnut – most notably Gambia, Senegal, Sudan and Zimbabwe – are generally considered highly aflatoxin-prone countries of origin. In most cases the European importers will not trust pre-shipment inspection from these countries, even by national affiliates of international firms such as Société Générale de Surveillance (SGS). This negative bias is entirely supported by current EU regulations, and reinforced by the conclusions of a 2001 expert panel analysis of EU aflatoxin regulations (see Appendix 9, the Enforcement of Mycotoxin Legislation in Europe).

Limited quantities of Gambian and Guinean groundnut have recently gained access to the US market under the Africa Growth and Opportunities Act (see Appendix 5, US Groundnut Imports under AGOA, 2002).

4.0 World Market Trends and Quality Requirements

4.1 Introduction

As noted above, the lion's share of the groundnut export market is taken by just a few countries. Groundnut import patterns, on the other hand, are considerably more fragmented. Nonetheless, only a few large markets offer much promise for groundnut of West African origin. Chief among them is the European market, although recent quality standards have greatly impeded access to this market for groundnut of all origins.

The chart below indicates price trends for the most common size of shelled edible groundnut, 40 to 50 count per ounce ("40/50s"), from the three major countries of origin, on the Rotterdam market:

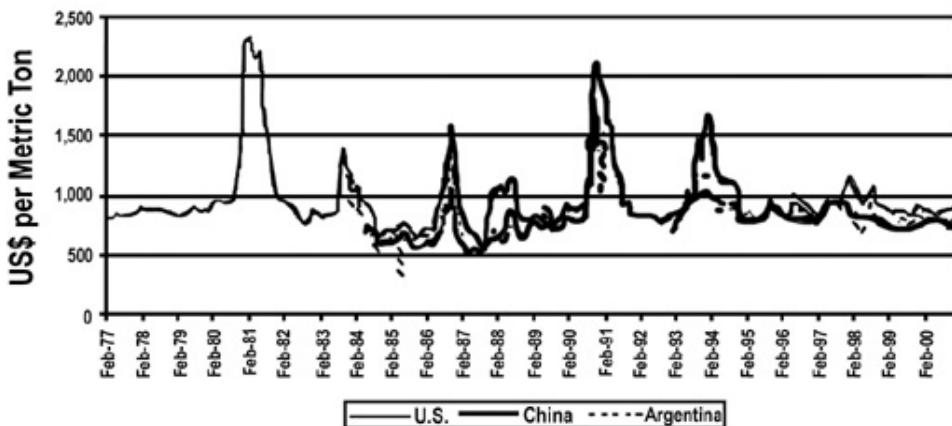


Figure 3. Shelled Peanuts, International Prices, size 40/50, Standard Edible Grade

Source: Revoredo and Fletcher 2002.

As noted by Revoredo and Fletcher, the two major spikes represent scarcity of groundnut from the US crop, which in the second case had clear international repercussions. A price premium for US groundnut is clearly indicated – \$50 above that of Argentine origin, and \$53 above that of Chinese origin.

The characteristics of the major international groundnut markets as export destinations will be discussed below.

4.2 Europe

The European groundnut market is centered on two trading hubs, ie, Rotterdam and London. While Rotterdam is the center of the edible groundnut trade, and France the center of the European groundnut oil market (of particular reference to Senegal), the UK market includes buyers of groundnuts for the formulation of animal feed and birdfood, both of which have significantly lower quality requirements than those for edible groundnut.

In general European demand for groundnut has been increasing in recent decades, shifting from an oilseed-dominated market toward increased demand for edible groundnut, about 80% of which is roasted for further processing into snack foods or peanut butter. Whereas peanut butter accounts for as much as about 35% of total groundnut consumption the continental markets, the figure is closer to 5% for the UK market (R Kettlewell 2003).

The decline of the groundnut oil market due to competition from sunflower, soya and rapeseed has brought the European demand for oilseed groundnut down from about 500,000 MT per year in 1883 to about 200,000 MT today (R Kettlewell 2003). The main European processors and refiners of groundnut oil are Cereol (France), Romi (Netherlands), Anglia (UK) and Karlshamns (Sweden and UK).

In general, the European groundnut market has become less diversified and more concentrated over the past decade. It is said that until the late 1990s, a range of large and small origin shellers/suppliers provided products to large and small dealers to serve large and small consumers – from end-use manufacturing industries to supermarkets. In recent years, the pattern has shifted toward large origin shellers/suppliers providing products to a few small dealers serving a few large consumers, with an increasing market share taken up by supermarket chains.

There is a corresponding overall trend toward mergers between the larger importing houses, resulting in the absorption or disappearance of the smaller trading companies (which formerly traded large volumes), in favor of fewer, larger trading companies, which tend to trade in (paradoxically) smaller volumes, due in part to quality problems of supply. The merger between Cargill and the Golden Peanut Company in March 2000 is seen as evidence

that in the new market environment, even the larger suppliers are not immune from the problems affecting smaller players.

With their diminished presence in the market, the financing formerly provided by the trading houses has largely dried up, to the detriment of smaller suppliers and, ultimately, end-users, who must chase diminished stocks of reliable quality product.

Where the larger dealers formerly held great quantities of stock in Europe, resulting in a more reliable and predictable market supply, stocks are now held increasingly by the origin suppliers – who must bear the inherent costs (and risks) of holding such stock. As the risk and transaction costs have increased, the overall liquidity of the market has diminished, and return on investment has declined.

In addition to these constricting factors, increased access to communications technologies in recent years, including Internet-based sources of market information and electronic commerce, also serve to ‘shrink’ the supply chain in ways that may ultimately increase the competition faced by smaller suppliers, even as these technologies afford increased access to distant markets.

The logical conclusion of these combined trends is an increasingly direct interaction between suppliers (eg, shellers and exporters of groundnut) and the end-users (eg, manufacturers and, increasingly, supermarket chains). The implications of these emerging market trends will include increased competition among suppliers, in terms of both product quality and price.

As it stands, smaller suppliers, larger traders and small end-users are all ‘feeling the pinch’. This is evidenced by the disappearance in recent years of both the smaller suppliers and the larger trading and brokerage houses, the absorption of small end-use manufacturers into large companies. There is also the emergence of an increasingly merciless market in terms of quality, in which origins perceived as ‘unreliable’ – such as India – are for all practical purposes consigned to oblivion.

In addition to these recent trends, the European (and world) groundnut markets were drastically affected by the adoption of European Commission Regulation EC No. 1525/9 on 16 July 1998 (amending Commission Regulation No. 194/97 of 31 January 1997), which set maximum levels for aflatoxin in certain foodstuffs. A separate Commission Directive (98/53/CE) was adopted the same day to harmonize methods of sampling and analysis for aflatoxin levels in foodstuffs. Both regulations were effective as from 1

January 1999 (Official Journal of the European Communities of 17 July 1998, L 201/93 and L 201/101).

European Commission Regulation EC No. 1525/9 set maximum permitted levels of aflatoxin B₁ at 2 µg/kg (or parts per billion, ppb), and the limits for total aflatoxins (B₁ + B₂ + G₁ + G₂) at 4 ppb in groundnuts intended for direct human consumption or as an ingredient in foodstuffs. The limits for groundnuts to be subjected to further processing by sorting or some other physical treatment prior to human consumption were set at 8 ppb for aflatoxin B₁ and 15 ppb for total aflatoxins (B₁ + B₂ + G₁ + G₂).

In general, the new EU aflatoxin standards are seen as having greatly increased the risk inherent in an already “hazardous” industry – risk, which is not well borne given the additional pressure it puts on a market of inherently low profitability.

Price implications have followed accordingly, only adding to the risk borne by the various market stakeholders. Since the EU code was established, it has become clear that the quality of a given crop has become much more important than its total size in determining prices, causing great difficulty in the prediction and forecasting of market trends based on crop development, as was the case in the past. Since in some cases reliable testing is only performed with the arrival of a given shipment in port, potential price distortions may create havoc along the supply chain, as prices calculated well in advance might prove insufficient to guarantee specified quality in required volume.

As a partial result, European end-users are primarily and increasingly interested in minimizing their risk by obtaining ‘aflatoxin-free’ (or ‘afla-negative’) groundnut. Importers have come to share this concern, pointing out that where any aflatoxin exists, one cannot be confident that any method of analysis will adequately safeguard the buyer.

Despite Commission Directive (98/53/CE), the practical difficulties of adequate and representative sampling, and the variability and inconsistency of analytical methods – particularly by pre-shipment inspectors – only add to these quality-related insecurities.

One major importer provided a graphic example, of a hypothetical case in which 20% of the lots of a given shipment are found to be contaminated above EU regulations – say 20 containers out of a total shipment of 100. Following this initial analysis, if the remaining 80 containers of ‘approved’ groundnuts are analyzed a second time, it is most likely that 20% of these will be found to be contaminated with aflatoxin above EU regulations – and so on.

Aflatoxin-free stock carries a price premium of up to \$50 per ton, which is acceptable to purchasers, given the risks involved in accepting groundnut with any titre of aflatoxin.

Given the priority of aflatoxin-free product for European importers and end-users, the purchase of any groundnut involves a certain quality risk, regardless of pre-shipment inspection and the resulting documentation of analysis. As one buyer pithily put it, "This is not a paper business – this is a *product* business!"

While international pre-shipment inspectors in one country may be considered 'reliable' due to their particular track record, inspectors affiliated to the same company in another country may not be trusted by the importer. Like any other international franchise, quality and reliability of pre-shipment inspection services can and does vary considerably by country, with implications of untenable risk for importers considering new, unproven origins – much less those that may have proven unreliable in the past.

One of the few options available to smaller or unproven suppliers is to build and cultivate long-term relationships with a few importers, and work through the difficult initial period of building trust, reputation and a 'track record' of proven performance, in terms of product quality and its consistency, as well as reliability of supply.

At present, only three countries – the USA, Argentina and China – are considered to be consistently reliable suppliers to European importers. Other countries of origin are trying to gain entry to the European market, however – notably Sudan, Brazil, Paraguay, Nicaragua, Israel and Australia.

4.3 United States of America

Though the quality standards of the US import market for groundnut are considerably less stringent than EU specifications – allowing for total aflatoxin levels of 15 ppb in edible groundnut, consistent with the *Codex Alimentarius* regulations – entry into the US market has for many years been blocked by a complex barrier of price supports, import quotas and other protectionist legislation.

Recent years have seen considerable erosion of these trade barriers, but it remains to be seen how promising the US market may prove for groundnut of West African origin. The 'allowability' of groundnut imports as commodities to receive special duty-free status as imports from selected African countries

(including the four of concern here) under the current Africa Growth and Opportunities Act (AGOA) is not very clear.

Several published sources indicate (and lament) that both raw groundnuts and peanut butter are excluded as duty-free imports under AGOA. However, the US Trade Commission 2003 Tariff Database indicates that a number of commodity (HTS) classes of both in-shell and shelled groundnut – raw, blanched or otherwise treated – are indeed eligible for duty-free import under AGOA, as is crude and refined groundnut oil (though peanut butter is specifically excluded).

However, according to US Trade Commission statistics, very few African countries have yet taken advantage of the apparent duty-free status for groundnut granted under AGOA – including South Africa, Gambia and Guinea – and the volume of groundnut imported from these countries since AGOA began in 2000 remains quite negligible. South Africa has also exported a modest volume of peanut butter to the US since 2000, though this is excluded for duty-free importation to the US under AGOA.

From these recent statistics, prospects for West African groundnut exports to the US under AGOA does not seem particularly promising *per se*, but further enquiry will be conducted, and clarification sought, directly from US AGOA trade officials in the course of the remainder of this study.

A brief history of regulation

As noted above, the history of US government intervention in the groundnut sector dates back to the Agricultural Adjustment Acts of 1933 and 1938, Section 22 of which put in place what was to become the Peanut Program of the USDA. Groundnut imports were initially one of a number of basic commodities to be proscribed by a set of restrictive quotas and tariffs, but those for groundnut have proven far more enduring (and involved) than those for any other commodity.

In 1953, during a decline in commodity prices linked to the US Korean War, additional trade restrictions on groundnut were initiated under Section 22 of the 1933 Act, but were contested under the General Agreement on Tariffs and Trade (GATT). From 1956, in response to the GATT action, import quotas for groundnut were determined on an annual basis, and slowly grew in response to increasing domestic requirements, as well as successive international trade agreements.

With the 1996 US Freedom to Farm Act (Farm Act 1996), under the Uruguay Round Agreement of GATT (now the World Trade Organization, or WTO), Section 22 of the Agricultural Adjustment Act of 1933 was eliminated, and groundnut import quotas were ultimately replaced with an *ad valorem* tariff fixed by import tariff rate quota (TRQ). The 1996 Farm Act is considered the first serious step in the deregulation of the US groundnut market (after a false start in 1981).

The purpose of the USDA peanut program is primarily to protect the price of raw in-shell groundnut meant specifically for direct human consumption, and groundnut to be utilized for oil or meal or other uses, whereas the groundnut TRQ covers raw in-shell groundnut and also shelled groundnut, blanched and 'others'. An exception to this is peanut butter, which is regulated by a separate and additional TRQ. The full, formal specification of the US groundnut TRQ is put forward in the US Harmonized Tariff Schedule of the United States (HTSUS), Chapter 12, Note 2(b).

Considerable upward adjustments to US groundnut TRQs have been brought about under the North American Free Trade Agreement (NAFTA), and are likely to rise further under the Free Trade Area of the Americas (FTAA), which will afford greater access to the US market for currently minor (but upcoming) countries of origin, such as Nicaragua and Brazil. From the original import quota of 775 MT set for 1933, by 1995 the quota (as TRQ) had risen to 33,871 MT, and upto 56,938 MT five years later.

Under NAFTA, the US has granted preferential US market access to groundnuts and groundnut products of Canadian and Mexican origin, resulting in a dramatic rise in US groundnut imports from these countries.

Having effectively replaced the import quota for groundnut, even the US tariff rate is steadily decreasing. From initial rates of 192.7% for in-shell groundnut and 155% for shelled groundnut in 1995, by 2000 the *ad valorem* tariff for US groundnut imports had been reduced to 163.8% for in-shell groundnut and 131.8% for shelled groundnut under WTO.

Under NAFTA, however, the 2000 *ad valorem* tariff for shelled groundnut was 93%. Under NAFTA quotas, the import of Mexican peanuts grew by 1400% between 1993 and 2000, to a value of \$1.8 million, while the import of Canadian peanuts grew by a more modest 10% to \$289 million. From an initial (1994) TRQ of 3,377 MT, groundnut of Mexican origin will be allowed to enter the US market freely, in unlimited supply and free of tariff as of 2008. Already, Mexican peanut butter is permitted to enter the US market freely and without quota, tariff or any other restrictions.

In addition, a bilateral trade agreement was reached between the US and Argentina in 1994, allocating to Argentina upto 78% of the US groundnut tariff-rate quota over the following five years, from 26,341 MT in 1995 to 43,901 MT in 2000. A similar tariff-rate quota allocation was given under the agreement for Argentine peanut paste and peanut butter, with an in-quota amount of 3,650 MT during 1995, with an in-quota tariff rate identical to, and fixed for reduction at the same level as that of Canada under NAFTA.

Until recently, Argentina, Mexico and Nicaragua accounted for over 90 percent of US groundnut imports (USDA/FAS 2000), with Argentina providing 75 percent. In 2000, however, China has recently surpassed Nicaragua to provide the third largest share of US groundnut imports, with a trade volume of 4,900 MT during 2000.

This volume is foreseen to increase, as China – already a ‘Most Favored Nation’ (MFN) under US trade concessions – is expected to negotiate for a larger share of the US groundnut TRQ under bilateral trade agreements, and in future meetings of the WTO.

Given the costs involved in ‘rent’ to maintain the US groundnut tariff quota, there is some recent speculation that the groundnut TRQs have outlived their usefulness, and that their elimination would only benefit domestic consumers and would have little impact on producers.

4.4 South Africa

While not specifically mentioned in the terms of reference for this assignment, the South African groundnut market is highly significant in international terms, and it may prove useful to consider recent developments in the task of building an increased presence for West African groundnut producers in international trade.

In addition to its productivity and reliability as a source of high-quality groundnut to serve international markets (as discussed above), domestic demand for groundnut in South Africa rides consistently higher than supply. Because groundnut quality standards for the domestic market are considerably less stringent than those governing the export market (particularly to Europe), domestic demand serves as a market buffer, absorbing stocks that are affected by lower levels of aflatoxin.

Even during a normal year, groundnut is required to serve domestic market demand, and is imported from southern African countries (notably

Zimbabwe and Malawi), and even from further afield. One European importer speculated that Senegalese groundnut has probably entered the South African market.

In a year of serious aflatoxin contamination such as this, groundnut may be even imported from the United States or Argentina. This year, Dr Juan Estrada of ICRISAT-Malawi reports purchase offers of up to \$750 per MT, FoT Lilongwe for ungraded farmer stock – a previously unheard-of price level for Malawian producers.

4.5 Asian countries

The main buyers of groundnut in Asia include Indonesia, the Philippines, Malaysia and Japan. Normally these countries buy the bulk of their product from China, but as of last year – with Chinese groundnut sold at relatively high prices – Asian buyers sought alternatives from Indian, South African and Vietnamese origins.

5.0 West Africa: Market profiles of Senegal, Mali, Niger and Nigeria

5.1 Introduction

This section will provide a summary of groundnut market patterns in the four focus countries, in a sub-regional context.

As described in the Methodology section above, a variety of investigative methods, contact persons and documentary resources, including published and unpublished reports, were used as a basis upon which the following country profiles were developed.

The following is a brief account of the four focus countries using available data. Since it was not possible to access precisely the same data for each country, and given that some of the official data appears contradictory in places, this should not be read as a strict comparison of the four national groundnut sectors based on identical criteria, but rather as a general account using all information available.

While the country profiles provide an accurate summary of each of the four project countries, the regional picture is more difficult to ascertain. Although fragments of the whole have been gleaned during each country study, specific data on actual volumes traded remains patchy and contradictory; in some cases the official figures run directly against the most elementary economic logic.

Nonetheless, the significance of regional trade in groundnut products for each of the countries studied cannot be missed, and regional trade patterns between the four producer countries are clear.

Price cycle comparisons

Comparison of groundnut prices between the four producer countries is facilitated by the fact that three of the four share a common currency, the Franc CFA (fCFA). In the case of Nigeria, data has been presented in both Nigerian Naira and in fCFA for comparison. It should be noted that during the period studied (January 2002 to December 2003) the Naira lost over 41% of its value to the CFA. However, the implications of a highly fluid official exchange rate between Naira and CFA cannot be fully addressed here; however, the running monthly exchange rate has been included for illustrative reference.

A secondary (though perhaps more significant) obstacle to comparison of the annual price cycles between markets lies in the lack of reliable figures indicative of volumes traded at each particular price. That is, if one month (at price 'a') accounts for a large preponderance of groundnut sales, and another month (at price 'k') a tiny fraction, it would be inaccurate and misleading to accord both prices the same weight by averaging them together (along with the other prices/months) for which data was available for that particular market. In view of this uncertainty, annual price averages are denoted as 'averages,' and are included for "rough and dirty" comparison of the markets studied.

Finally, the reliability of the price data is not entirely assured. The absence of figures for a particular month (as denoted by the '–') may indicate a lack of documentation, and not necessarily a lack of product actually on offer at the time. Some data here seems contradictory, as well; on several markets the price of a particular product *drops* in the month before it (apparently) disappears, contrary to the simple notion that scarcity drives price. However, given the fact that product quality declines over time, it is possible that this lower price represents the 'dregs' of the harvest, hence the lower price, as all of the 'quality' groundnut had been sold first.

Nonetheless, the differences between price cycles does appear pronounced enough to provide an indication of the pattern of remuneration, with prices tending to be higher with proximity to demand, particularly the processing industries which purchase groundnut, or national borders *en route* to regional centers of demand.

5.2 Senegal

Production

Groundnut production in this country is historic in every sense, and Senegal was the entry point from which the crop introduced to West Africa nearly two hundred years ago. As of 1998, an estimated one million people (a tenth of the population) were involved in groundnut production and processing (Akobundu 1998). In recent years, however, cultivation patterns in the Senegalese 'Groundnut Basin' have shifted away from groundnut, toward maize and other food crops, as well as cotton (Afrol March 2002).

Groundnut production has historically been very largely devoted to the oilseed sub-sector (a recent CIRAD estimate puts it to a factor of 95%). On

the world market, Senegal and Argentina are the two main exporters of groundnut oil, mainly to Europe, the US and China. Of the four project countries, Senegal has led in groundnut exports, particularly to Europe – though with the adoption of the current EU aflatoxin regulations, these exports have been drastically reduced.

The French applied research organization CIRAD has invested in development of the edible or confectionary groundnut sub-sector (ARB) based on improved varieties and irrigated cultivation. CIRAD and the Institut de Technologie Alimentaire (ITA) are undertaking to establish a quality control and quality certification system, and thus revive the Senegalese ‘brand’ through an internationally-recognized quality label (Dimanche and Kane 2002). However, the limiting technical factor in developing an export market for edible groundnut remains the need for uptake by producers of improved production and postharvest techniques in order to address the threat of *Aspergillus* for product quality control.

During the 2003 groundnut harvest, huge heaps of whole groundnut plants drying in the sun were observed lying in the middle of open fields across the ‘Groundnut Basin’ as they have been during harvest for many decades, open to the elements and susceptible to infection by *Aspergillus* with any unseasonable rainfall – as indeed was the case in 2003.

Groundnut production during the 2003 harvest has been relatively poor (4,800,000 MT was originally expected, and less than 4,650,000 MT was realized) resulting in an enthusiastic commercial response by Indian producers to seize an opportunity to rejoin the international market in groundnut oil with anticipated export of 50,000 MT this year, after a 40-year interregnum (Times of India 2004).

Groundnut sector survey

A total of 228 households were studied, of which 216 produced groundnut. Production patterns within this sample were strongly biased toward oilseed or *arachide huilerie* (97% of the producers). Only 21% of the producers studied produced the more profitable edible variety (ARB), and only 4% produced seed, of which none was the N1 seed required by a commercial seed multiplication program.

Over 78% of respondents felt that they did not have sufficient access to groundnut seed. 89% of respondents relied on their own (‘ordinary’) seed, only 72% purchased any seed at all, and only 25% were using improved (N2) seed.

In reflection of their higher value, over 90% of the ARB producers and all of the seed producers purchased seed, while only 60% of the oilseed growers invested in seed to supplement their own.

Production and marketing

The groundnut trade in Senegal has been characterized by strong state intervention and control, with annual prices fixed in advance and ‘pan-territorially’ (Gray 2002), ie, consistent across the country without relevance to proximity to the production areas or industry. The vast bulk of the harvest was sold to state-owned oil mills, which are still in operation.

Unlike the other three countries, in which the groundnut sector was liberalized and privatized by the early 1990s, with subsidies and protective tariffs abolished, the Government of Senegal has persisted in an interventionist approach to the groundnut sector. This has only come apart in a series of abrupt (yet limited) steps since 1997, involving very direct and concerted pressure from the multilateral institutions, in particular the World Bank and EU.

While a full account of the process of liberalization and privatization of the West African groundnut sector lies beyond the scope of this study, Beghin, Diop, Matthey and Sewadeh 2003 propose a model for understanding of the effects of protectionist tariffs, subsidies and other forms of state intervention and control of the groundnut sector. Looking at Africa, they observe:

“Taxation of groundnut farmers was high in the 1970s, but since the early 1990s when world prices declined the situation has reversed in most African countries (Badiane and Kinteh 1994). In Senegal and Gambia, the main rationale for state intervention in the groundnut sector has been to safeguard the viability of state-owned processing mills. Consequently, groundnut farmers’ share of the export price has been consistently lower than 60 percent in these two countries (Badiane and Gaye 1999). This policy has been counterproductive, since it has led farmers to bypass large public processing companies, leading to increased excess capacities and financial difficulties. Trade policies vary widely among African traditional groundnut exporters.

Senegal and Malawi apply tariffs to processed groundnuts and oil to encourage in-country processing of groundnuts (oil production in the case of Senegal). In contrast, Gambia and Nigeria have a liberal trade policy with no border intervention. South Africa’s tariff structure exhibits a slight escalation;

processed groundnuts are subject to a tariff of 6% while unprocessed groundnuts enter duty free. State trading occurs in several countries, allowing enforcement of duties on oil imports (eg, Senegal)."

Appendix 4, Current Trade and Domestic Policies on Groundnut (2003) shows the various tariff rates applied by African countries on processed products (from Beghin, Diop, Matthey and Sewadeh 2003).

Under pressure from the World Bank and the EU, the Government of Senegal has in recent years begun to liberalize the groundnut sector, including the dissolution of the former state monopoly on produce marketing, and the currently-anticipated privatization of the oil mills still operated by the state corporation SONACOS.

However, the process has not met with uniform success; producers were initially slow to embrace the 'free market,' and have spread their risk by moving cautiously toward open market sales, while maintaining a strong tendency to sell through parastatal organs at the formerly mandated (fixed) price. This conservative commercial tendency on the part of the producer has been explained as a strategy of minimizing risk, since producers endure a very precarious existence – compounded by erratic rainfall, environmental degradation and population pressures on the land – which does not in strict economic terms pay for itself (Gray 2002).

In November of 2001, Sonagraines, the parastatal organizing most of the collection and transportation of the Senegalese groundnut through the official market, was forced to abruptly dissolve in response to World Bank and EU pressure, in order to allow for the development of private alternatives which were, however, slow to develop. Farmers were reportedly confused as to how to market their products and there were reports of private transport operators taking rough advantage of the situation by buying up groundnut stocks at steeply discounted prices (Afrol April 2002).

Though the oil mills themselves still belong to SONACOS at the time of writing, the sale of SONACOS has been imminent for the past year, and the critical question remains whether it will be sold as a unit (as the Government of Senegal seems to prefer) or broken up (as the World Bank is said to favor).

Meanwhile, the market has not stood still for SONACOS, which set up 600 receipt and collection marketing points for the 2003 harvest production of 400,000 MT. As this figure is well below the capacity of the SONACOS oil mills, the entire amount is expected to be purchased by SONACOS this year.

Product pricing

This section of the country profile will draw heavily on a recent PhD thesis (*The Groundnut Market in Senegal: Examination of Price and Policy Changes*) by Dr James Katon Gray, which has already been cited twice above. The study upon which the thesis is based is beautifully suited to a (statistically valid) analysis of the Senegal groundnut sector as it stands today, and as such its timing was most favorable to the objectives of this study. Dr Gray also kindly consented to communicate with the author in response to specific questions raised by the Senegal study (Gray 2004, personal communication).

In his thesis Gray examines the recent (and current) micro-economic impacts on the producer – and thereby the production economy itself – resulting from the first steps toward ‘liberalization’ of the Senegal groundnut sector. He proposes that the abolition of the pan-territorial price system “will have an overall benefit to Senegalese society,” though producers distant from the oil mills would be faced with lower prices in reflection of transport costs.

The official market

Liberalization of the Senegal groundnut sector began in 1995, two years prior to the survey. As indicated below, producers chose not to wander far from the previously-mandated state marketing channels.

Groundnut sales on the official circuit as a % of production: First two trading years following liberalization

Department	1995/96	1996/97
Kaolack	77%	72%
Fatick	70%	72%
Foundiougne	84%	82%
Gossas	63%	46%
Nioro	65%	76%
Kaffrine	69%	50%
Total average	72%	65%

Source: Gaye, March 1998 in Gray 2002

Although about 25% of respondents chose to enter the open market with their produce, nearly 75% of the producer households continued to sell on the official market. The oil mills were still owned by the parastatals – as they

remain today, if only just – and the purchasing agents continued to buy farmers' production at the official price (1997) of fCFA 150 per kg.

Prices and official marketing channels for the three types of groundnuts vary, with a heavy predominance of lower-value oilseed, as noted above. Some farmers invest further in production of higher-value ARB, and some are contracted to multiply N1 seed to produce improved N2 seed, with the necessary inputs of fertilizer and fungicide.

In the survey, over 77% of officially marketed production was oilseed, 20% ARB, and less than 3% was seed. Of the 169 households that sold groundnut, 86% sold oilseed (average 2.3 MT per household); 35% sold ARB (average 1.5 MT per household) and 4% sold seed (average 1.5 MT).

Product pricing shows a distinct – though not strong – differentiation by product type, with little variation within these price categories. While 97% of the 302 producers who sold oilseed obtained the official price of fCFA150 per kg, three sellers obtained *less than* the official price, with prices of 102, 109 and 110 fCFA per kg respectively.

Remuneration from ARB was not found to be as commensurate with the investment required as might be expected; nearly half of those who sold ARB received only the official market price of 150 fCFA per kg, and nearly a quarter more again received only 151; only 12% received 20% more than 155, and only 6% received more than 160 fCFA per kg for their produce. The prices reflected minimal returns on the extra investment of ARB production, even in terms of seed alone.

The economics of ARB production in Senegal, and interventions by CIRAD, have been studied in depth by Louis Boakye-Yiadom, 2003, in *An Economic Surplus Evaluation of Aflatoxin-Reducing Research: A Case Study of Senegal's Confectionery Groundnut Sector*.

Official groundnut sales prices in 2002.

Mean	SD	n	
<i>Arachide huilerie</i>	149.7	4.4	75
<i>Arachide de bouche</i>	151.7	4.6	302
<i>Arachide semence</i>	157.5	4.5	12

Source: Gray 2002

The open market

Although nearly 25% of the respondent households sold some groundnut on the open (parallel) market, more than three quarters of these continued to sell most of their production on the official market. While a total of 45 MT were sold by respondents on the open market, this represented only 35% of the total marketed (128 MT), and only 27% of total production.

On the open market, 95% of the groundnut was sold in-shell (*coque sèche* or CS). Groundnut sold in all other forms – shelled and treated (*décortiquée et triée* or D&T), green groundnuts (*vert* or VERTE), and as peanut butter (*sax-sax triturés* or SST) – amounted to just over 2 MT, of a total 404 MT surveyed.

Price differentials between these products reflect both the weight of the shell and value added in processing. Prices for groundnut products on the open market were averaged 168 fCFA per kg for groundnut in shell (CS), 223 fCFA/kg for shelled groundnut (D&T), 168 fCFA/kg for green groundnuts, and 350 fCFA/kg for peanut butter.

5.3 Mali

The following section presents a summary of applied research on groundnut production and trade in Mali. The study was undertaken by the Institut d'Économie Rurale (Kondio 2003), with specific reference to case studies in each of the three the main production zones: Kita in the southwest production area, which produces a third of the total crop, Kolokani (Bamako area) and San (southern production zone).

Groundnut production in Mali began around 1840, and production rose steadily except for the period of the Second World War, when production slumped sharply for a few years. Though production grew rapidly during the 1960s, the volume traded through official channels began to decline. The Government of Mali responded in 1971 with *Operation Arachidière* ('Operation Groundnut') to promote groundnut cultivation, organize the official marketing system and diffuse improved production methods. Thus began a series of bilateral and multilateral projects aimed at increasing groundnut production and productivity, which continue to the present day.

Unlike Senegal, prices in Mali are negotiated between buyers and sellers at each market without regard to officially-mandated rates. Prices vary between markets, and over time throughout the year, linked to the relative

abundance or scarcity of groundnut depending on the seasonality of the crop and its trade.

Production and marketing

Groundnut markets have been studied in the four main producing areas of Kita, Bougouni, Kolokani and San from 1995 to 2003. Initial data was collected by the Cellule de Planification et de Statistique, Ministère du Développement Rural et de l'Eau (Diagnostic de la Filière Arachide au Mali, 1998). Additional data was compiled by the Institut d'Economie Rurale (Kondié 2003).

Improved groundnut varieties currently grown in Mali include Mossi-tiga (CN94-C), Saméké (JL 24), Kolofa (TS 32-1), 55-437, Niakhali-tiga (GH119-20), Samakho (73-28), Waliyar-tiga (ICG 7878), ICG (FDRS) 10, Kaarta-tiga, 47-10, 28-206, Flower 11 and 47-10.

An estimated 60% of production reaches the market, mostly in-shell groundnut. According to IER, in-shell groundnut represented 65% of the marketed volumes (more than 90% in Kita, Bougouni and San). Only in Kolokani did most producers invest further processing to market a shelled product, comprising 83% of marketed volumes.

The seasonality of groundnut marketing and the corresponding seasonal price cycle vary between the four production areas studied. In Kita, Kolokani and San, product sales are well distributed throughout the year, with most volumes traded from December to June, January and June and December to August, respectively.

In Bougouni, however, irrigated production allows producers to cultivate off-season, in order to sell 80% of their produce fresh during August and September, when other markets are dry and demand is highest. The remainder is sold from October to April. The highest prices for in-shell groundnut are obtained during June and July during the planting season, when groundnut is scarce on most markets.

In the producer areas, groundnut trade is conducted primarily by farmers looking for secondary income during the dry season following the harvest, under contract to wholesalers based in the towns in production areas, who provide pre-financing or guaranteed purchase of produce collected for a price negotiated in advance. Transport costs vary considerably from area to area, depending on the condition of the roads.

Generally these 'primary wholesalers' buy only when they have as well been pre-financed, or have a trustworthy guarantee for purchase from a secondary level of wholesalers based in Bamako and Kayes, the centers of consumption and export. This commercial system is based on personal confidence and trust, and thus is difficult for newcomers to enter. Most of these secondary wholesalers do not trade exclusively in groundnut, rather in a range of agricultural commodities (including millet, sorghum and maize) as a strategy to minimize risk.

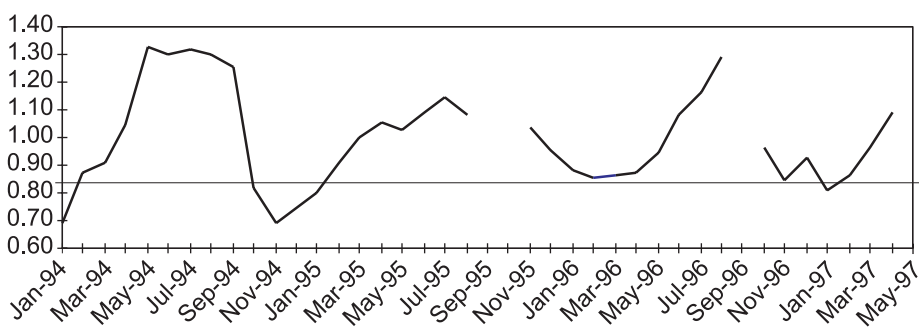
Although storage times vary somewhat between the production areas, in general the market favors movement of produce as quickly as possible, and little investment is made in storage treatments and facilities. There is thus no speculative stocking to speak of, partly reflecting limited access to capital.

Product pricing

In general, the producers have very limited powers of negotiation as regards price formation. Prices are fundamentally negotiated between the primary and secondary wholesalers not in the production areas, but rather in the centers of consumption and export.

Lack of access to market information greatly hampers the negotiating ability of the producers. As the wholesalers are relatively few, urban and in communication with each other, they have the ability to set prices between themselves, while the producers – though many – are generally scattered and poorly organized, with the exception of Kita.

As in Niger and Nigeria, prices are neither consistent across the country ('pan-territorial' as in Senegal), nor are they 'fixed' for the year; they vary widely throughout the year as a function of their availability, according to the annual production cycle (see graph below).



Seasonal producer price fluctuations on Kita market, January 1994 - May 1997

While the harvest extends from October through December, marketing takes place in most areas from December through May, to the beginning of June. From April through August, prices steadily rise as the product becomes scarce. Prices fall to their lowest point from September through November in anticipation of the new harvest, due to the high moisture content and perishability of the new harvest as it dries, and probably in response to declining product quality of whatever remains of the previous harvest.

In Mali, there is a price differential between groundnut shelled manually and that shelled by a machine. Groundnut shelled by hand obtained a premium of between fCFA 10 and 25 per kg as compared to the machine-decorticated product, which is more prone to damage ie, cracking of the kernels.

Market profiles

Kita

One of the first production areas, Kita is considered 'the Groundnut Basin of Mali,' contributing 21% of the total groundnut production of the country.

Popular varieties in Kita are the early variety 47-10 in the northern areas of Didjian, Sébécoro and Toukoto, and the late-yielding 28-206, which requires more water (800-1000 mm) in the southern areas of Kokofata, Sagabari and Sirakoro. In general, the only crop inputs purchased are fungicides, as fertilizers and insecticides are commonly seen as too expensive by producers.

As noted above, marketing of groundnut takes place throughout the year, with about 60% of the crop sold between January and May. Stocking of groundnut on farm is limited one or two months. Recent production trends in Kita indicate a greater willingness on the part of the producers to invest in transport from production areas in order to obtain better market prices in Kita.

The costs of transport and handling have been calculated by IER at fCFA 12.4 per kg of shelled groundnut. Farmers do not usually invest their time in shelling, which is done mainly by the collectors. Collectors, in turn, sell to primary wholesalers in order to reduce transport costs, which are calculated by the bag rather than by weight (Kondié 2003).

Primary wholesalers of Kita moved between 190 and 1,000 MT of shelled groundnut during the year of the study, rarely leaving Kita as transport

has become the responsibility of the farmers or collectors. Stocking times are limited, from a week to a month, partially reflecting limited working capital.

Trading links extend from Kita to Bamako as a center of consumption (of over half the annual crop), and Kayes (25-30%) as a gateway to Senegal and beyond. Guinean and Ivorian exporters also operate in Kita, but only during harvest and immediately afterwards. Some production also finds its way to Mauritania, either through Senegal or directly via Nioro. The foreign exporters generally do not pre-finance what they buy, and are thus obliged to purchase in cash whatever the primary wholesalers have in stock upon their arrival in Kita, without investing in longer-term commercial arrangements.

According to the *Système d'Information du Marché Céréalière (SIM)*, product prices in Kita reflect a differential of fCFA 10.2 between the price paid to the producer and the selling price to the secondary wholesaler or exporter.

The annual price cycle of Kita shows a full cycle (difference between lowest and highest annual price) about a factor of 2.3, ranging between 150 to as high as 250 fCFA per kg according to the season.

Interestingly, the early-yielding variety 47-10 is appreciated in Ivory Coast for its high oil content, and it thus obtains a price premium of fCFA 5 to 25 over the late-yielding variety 28-206. High levels of impurities or moisture will often result in a reduced price paid to the producer or collector.

Kolokani

Like Kita, Kolokani is one of the oldest groundnut-producing areas of Mali. Groundnut is grown mainly in the northern areas of the region, while cotton is grown in southern Kolokani. Yields in Kolokani are about 700 kg per hectare, as compared with an average of 1,000 kg per hectare in Kita. Despite this limited yield, groundnut is the main source of income in the producer areas of Kolokani.

The only improved variety used in Kolokani is 47-10 (early yielding variety), as it is better adapted to the pluviometry of the area. As in Kita, fungicides are the only inputs used by most farmers in Kolokani. Animal traction is an important means of cultivation.

The costs of transport and handling of groundnut in Kolokani is estimated by IER at fCFA 5.8 per kg. Transport to market is normally undertaken by collectors, as producers cannot afford to transport their produce. The primary wholesalers of Kolokani move between 140 and 910

MT of shelled groundnut annually, along with other types of agricultural produce.

Wholesalers of Kolokani make a significantly greater investment in stock, storing produce from 4 to 6 months for purely speculative purposes, in order to increase profits according to the annual groundnut price cycle. Stocks are sold by September in order to avoid the annual price slump, which arrives with the new harvest.

About 52% of the annual harvest is destined for Bamako, 36% for Nara (one of two gateways to Mauritania), and some to Nioro (the second gateway). Some Ivorian buyers also frequent Kolokani. A minimal proportion of the annual production of Kolokani is bought by manufacturers of peanut butter.

Wholesalers will sometimes transport their stocks to Nara, though prices there are not particularly favorable despite strong demand in Mauritania. Wholesalers will not transport their produce directly to Mauritania because of security concerns – which may explain the price pressure in Nara, as it is the Mauritanian buyers who must undertake the security risk of getting there and back.

Market prices for shelled groundnut in Kolokani range between fCFA 250 and 350 kg.

San

A traditional (if somewhat neglected) area of groundnut production, San has begun to focus on the crop. This has occurred under a recent government program for income diversification in areas unfavorable to cotton production. Yields in San are lower than in Kita or Kolokani, limited to 640 kg per hectare due to limited rainfall. San produces an estimated 5% of the national total groundnut crop.

In addition to the collectors who serve the primary wholesalers of San, traders or ‘half-wholesalers’ also operate in the weekly markets of the production areas, notably Téné and Tominian.

For the wholesalers of San, groundnut is a product of secondary importance, as most specialize in trading the millet bound for the northern towns of Mopti and Gao, rice, sorghum and beans. Volumes of groundnut traded by these wholesalers are limited to between 0.6 and 2.5 MT per year.

Buyers of groundnut from the San wholesalers are mainly wholesalers from Mopti and Gao, though Ivorian buyers come to San seeking *Tigadièni*, a local groundnut variety which is highly esteemed in Cote d’Ivoire.

Reliable market price data for San is not available.

Table 3. Production figures for groundnut in shell (2000-2003)

Department	Planted (HA)	Yield (Kg/HA)	Production (MT)
2000-2001			
Agadez	0	0	0
Diffa	157	39	6
Dosso	21,006	498	10,461
Maradi	175,819	339	59,603
Niamey	71	113	8
Tahoua	19,830	296	5,870
Tillabery	7,300	144	1,051
Zinder	136,155	266	36,217
NIGER	360,338	314	113,216
2002-2003			
Agadez	0	0	0
Diffa	215	426	92
Dosso	33,379	668	22,283
Maradi	142,255	372	52,901
Niamey	-	-	-
Tahoua	81,409	546	44,434
Tillabery	8,279	399	3,302
Zinder	69,018	445	30,717
NIGER	334,555	460	153,729

Source: *Résultats Définitifs de la Campagne Agricole 2000/2001*

Groundnut Trader/Trade Association Questionnaire (CONFIDENTIAL)

Name of respondent:

Date:

Name of enterprise:

Address:

Place:

Tel/fax:

Email:

1. Which products do you trade in (seed, grain, oil, other)?
2. If seed and/or grain, which types (varieties) do you prefer?
3. Are preferred varieties priced differently than others (if so, how)?
4. Where are the main production areas (that you buy from)?
- 4b. Do you buy from the market, from traders, from individual farmers or from farming associations? Do you have any long-term buying arrangements?
5. How does the product reach you? Who is responsible for transport, and at what cost?
6. How do you determine product quality?
7. How do you determine the buying price?
8. At what price do you buy during each month (estimated and CONFIDENTIAL)?

	'Average' price	Range (lowest price – highest price)
a) July		
b) August		
c) September		
d) October		
e) November		
f) December		
g) January		
h) February		
i) March		
j) April		
k) May		
l) June		

9. Who buys your products (where)? How many buyers do you trade with?
10. How do you determine your selling price?
11. Does the buyer prefer a certain variety (of seed or grain)?
12. Are preferred varieties priced differently from others (if so, how)?
Does the buyer require a certain quality (if so, how is this determined)?
13. How do you find the buyer (or how does the buyer find you)?
14. How does the product reach the buyer (who is responsible for transport, and at what cost)? Are there any costs of marketing besides transport?
15. At what price do you sell during each month (estimated and CONFIDENTIAL)?

	'Average' price	Range (lowest price – highest price)
a) July		
b) August		
c) September		
d) October		
e) November		
f) December		
g) January		
h) February		
i) March		
j) April		
k) May		
l) June		

16. What volume of (each) product did you trade this year?
17. What volume of (each) product did you trade last year?
18. What volume do you estimate you will trade this year?
19. Where is the final destination of your product(s)?
20. Have you been able to export your product(s) outside of Niger?
21. Do you foresee more exports in future (if not, why not)?
22. What are the greatest obstacles to your business? (What are the limits to the amount you buy and sell? What might make your selling price lower than you had anticipated)?
23. What steps can you (or other parties) take to increase your business?

Bougouni

The groundnut producing area of Bougouni is divided between the moist Sudan and dry Guinea savanna zones. As in San, groundnut yields in Bougouni are limited to 760 kg per hectare.

The producers of Bougouni specialize in the production of fresh groundnut for which Bamako provides high demand. Up to 80% of sales are made during August and September, just before the price drops.

As Bougouni is favored by available transport to Bamako, producers and collectors tend to market their produce in the city; the role of wholesalers in Bougouni is minimal, accounting for only an estimated 18% of traded volumes. Transport costs from production areas are estimated at fCFA 8.7 to Bougouni, and fCFA 13 to Bamako (IER 2003). Accordingly, the wholesalers are obliged to move around the production areas seeking product, for which they must cover transport costs to Bougouni.

The volumes traded by the wholesalers of Bougouni ranged between 16 and 300 MT per year. About 90% of the trade takes place between October and April.

While wholesalers of Bamako buy the first (in-shell) harvest during August and September, exporters (from Cote d'Ivoire, Guinea, Mauritania and even Algeria) favor the high oil-yielding improved variety 47-10 in particular. Other buyers include producers of peanut butter to satisfy local demand.

5.4 Niger

Fifteen respondents – farmers, collectors, traders, artisanal and industrial processors – were interviewed using a formal questionnaire from June to September 2003 (see following pages). Three respondents were interviewed in Dosso, ten in Maradi, one in Dan Issa, and one in Niamey. Additional statistical information was obtained from the Système d'Information sur les Marchés Agricoles (SIMA) of the Ministry of Agriculture. The SIMA market monitoring form is reproduced following this country profile.

This market profile is based on the actual data collected, while government price statistics are also presented for comparison. In most cases, they are consistent with the data collected.

Results of the Survey

Niamey

Niamey is a national center for consumption and a transit point and trade center between the Nigerien 'Groundnut Basin' of Dosso, Maradi and Zinder regions and the trade routes to northern Mali (Ayorou to Gao) and Burkina Faso (Torodi to Fada N'Gourma).

As in Senegal (but not Mali), industrial centers are closer to production areas than to the capital (Maradi in particular), so the bulk of volume traded does not necessarily pass through Niamey, as it does in the case of Bamako.

The bulk of regional trade involves import and export between production areas, markets and industrial centers of demand in Nigeria – Sokoto, Katsina, Kano and Maiduguri. Groundnut is traded with Nigeria, and with Benin, Burkina Faso, Ghana Cote d'Ivoire and possibly Chad and Libya, in all forms – in-shell, shelled, as oil and as meal.

One wholesaler interviewed in Niamey trades between 100 and 133 MT per year to buyers from Niger, Burkina Faso and Benin. This trader pays fCFA 25,000 in storage rent per month, which would imply overhead storage costs of fCFA 2.25 to fCFA 3.00 per kg. Generally, transport is provided by both the seller and the buyer. Transport costs are at least fCFA 6.67 per kg for groundnut in-shell.

Groundnut prices in Niamey (in-shell, by 45 kg sacks) do not vary by a wide margin, ranging from fCFA 155 per kg during the harvest to fCFA 267 per kg in July and August – a factor of only 1.7.

Dosso

Dosso region extends south of Niamey to the Benin border at Gaya/Malanville. Groundnut production here is primarily a women's activity, as is the household processing of oil and *kulikuli* for household consumption and for sale. Income from sales of groundnuts, groundnut oil and *kulikuli* is commonly used to support household requirements including children's healthy and education.

The seasonality of production and marketing is consistent with Senegal and Mali, with harvest starting in October, and the bulk of trade occurring from October through January when prices are lowest.

A woman farmer in Boboye sells between 450 and 675 kg of shelled groundnut per year locally, while a cooperative of 20 farmers sells between

54 and 90 MT of in-shell groundnut each year. A woman farmer who produces both oil and *kulikuli* sells 200 to 300 liters (180-270 kg) of groundnut oil locally each year, though she does not keep track of how much *kulikuli* she sells.

Groundnut prices in Dosso (in-shell, in 45 kg sacks) ride a wide range throughout the year, from only fCFA 67 per kg during the harvest (October and November) to 267 fCFA per kg from May to September – a factor of 4.

Groundnut oil prices range between fCFA 500 per liter (September and October) and fCFA 1,000 per liter (May) – a factor of two.

Maradi

Maradi is the center of the ‘Groundnut Basin’ in geographic as well as commercial and industrial terms. The OLGA Oil company, the preeminent (private) oil processing company is based in Maradi.

OLGA buys groundnut only two or three times a year, in minimum lots of 90-175 MT, from production areas in Maradi, Tahoue, Zinder, Konni and as far away as Nigeria, Dosso and Gaya. From 2002 to 2003, OLGA increased its production and sales from 495 MT to 1,080 MT of groundnut oil, sold to buyers in Niamey, Nigeria and Burkina Faso.

A male farmer in Dan Issa hires labor and sells between 1.8 and 2.7 MT of in-shell groundnut per year locally, and to buyers from Maradi and Nigeria. Storage on-farm is kept to an absolute minimum.

In-shell groundnut prices in Maradi are comparable to those of Niamey, a direct result of high (and currently unmet) industrial demand in Maradi and across the border in Katsina, Kano and Zaria. While trade in groundnut products flows in both directions, Niger is currently a net importer of groundnut (shelled and unshelled), groundnut oil and meal.

Prices for in-shell groundnut (by 45kg sacks) range from fCFA 133 during the harvest (September through November) to fCFA 267 per kg during July and August – a factor of 2.0.

Wholesalers in Maradi make a premium of between fCFA 11 per kg and fCFA 33 per kg of in-shell groundnut. Interestingly, the profit margin is highest from September to November, just as the harvest comes in and the main trading season, when prices are lowest. These returns (profits) thus account for up to 20% of their selling price during the peak trading season. Wholesalers interviewed in Maradi traded between 6.7 and 1500 MT, selling to OLGA Oil and to buyers in Nigeria, Cote d’Ivoire and Ghana.

For groundnut imported from Nigeria, transport costs (of fCFA 500 per sack) are fCFA 11 per kg for in-shell groundnut, or fCFA 5.3 per kg for shelled groundnut, since costs are calculated by volume and not by weight. Customs costs are fCFA 1,000 per sack or fCFA 10.5 per kg of shelled groundnut. Prices for shelled groundnut range between fCFA 263 per kg (October through December) to fCFA 347 (June through August) – a factor of 1.3. However, this high price actually seems low according to the standard conversion factor of 0.507 from in-shell to shelled groundnut (Danguioua 2000), while the lower price is spot-on.

Prices for artisan-produced groundnut oil range between a low of fCFA 575 per liter (October through January) to fCFA 1,000 per liter from July to September – a factor of 1.7 – while the price of industrially-produced OLGA oil remains constant at fCFA 955 per liter.

Prices for groundnut meal in the form of *kulikuli* (25 kg *sac*) range from fCFA 55 per kg during the harvest to fCFA 100 per kg to the producer or collector – a range of 1.8.

One cooperative interviewed in Dan Issa produced 1,966 liters of groundnut oil last year, and expects a slightly larger turnover this year, selling to consumers in Maradi, Niamey, Nigeria, Ghana and (formerly) Ivory Coast – though the latter is no longer an active market due to the war. The cooperative also sold some 5,000 kg of processed meal (as *kulikuli*), to buyers on the local market, in Maradi and to Nigeria.

5.5 Nigeria

Formerly the largest exporter of groundnut in the world at 500,000 tons a year (Purseglove 1968), the decline of groundnut sector in Nigeria has become much lamented, though according to recent FAOSTAT figures Nigerian groundnut still accounts for 41% of the total West African groundnut production.

As in Senegal, most production is destined for the oil mills, to serve a huge domestic demand for groundnut oil (Kettlewell 2003). Major producing states are Kano, Katsina, Kaduna, Sokoto, Jigawa, Kebbi in the northwest; Bauchi, Yobe, Borno in the northeast; and the Jos Plateau, Benue and Niger states in the central part of the country.

Production and marketing

Groundnut cultivation in Nigeria began in earnest around 1912, when producers in northern Nigeria were encouraged to plant groundnut in response to high world prices. The city of Kano became the heart of the Nigerian 'Groundnut Basin,' being situated as the railhead to the port of Lagos. At the peak of the groundnut boom in the 1960s, productivity outran the rolling stock on the Nigerian railway, and harvested groundnut was stored in huge pyramids of sacks, which grew to cover a large area of the Kano city skyline, awaiting rail transport to Lagos and export to Europe. The proud groundnut pyramids of Kano have disappeared, though they remain a source of nostalgia, surfacing occasionally in political appeals to restore the productive glory of northern Nigerian agriculture.



*The famed (and former)
groundnut pyramids of Kano*

Internet Source

The Nigerian groundnut sector was once well structured and organized, more or less consistent with the parastatal structures of Senegal, with fixed prices and a state marketing board to facilitate export. In 1964, the inter-governmental African Groundnut Council (AGC) was founded at Lagos, comprising Nigeria, Senegal, The Gambia, Mali, Niger and Sudan to advise producing countries on marketing policies and administer a compensation fund on behalf of member states. Nominally still in existence, the mandate of the AGC describes a regional body which “ensures remunerative prices for groundnut and its by-products in the world market; promotes groundnut consumption, organizes exchange of technical and scientific information on research relating to the production, marketing and possible uses of groundnuts, and promotes solidarity among member States”. Nigerian groundnut production reached a peak of 1.6 million MT in 1973, just before

the oil boom transformed Nigeria into a different country, nearly overnight. At a critical time in the development of the groundnut sector, the agriculture sector came to be neglected in the rush for oil revenue and city jobs for youth who might otherwise have gone into farming.

Nature did not help. Drought conditions in 1974/75 have been blamed for an infestation of aphids, which spread the deadly rosette virus, an outbreak that destroyed nearly 750,000 hectares of the 1975 harvest amounting to a loss of \$250 million. There were further epidemics in 1983, 1985 and 1988 (Ntare 2002). Within little more than a decade from the 1973 peak, groundnut production had dropped by over 50%, to a mere 0.7 million MT.

Liberalization of the groundnut sector came about in 1986, with the rather sudden abolition of the marketing boards by the Government of Nigeria. Jason Lovelace (2002) sharply criticizes the transition, which he refers to as indicative of

... 'worst practice' in terms of managing [such] a transition.... These changes were made rapidly and with little planning. The roles to be played by the private sector were not clearly defined, and steps were not undertaken to ensure that major functions being carried out by the marketing board were adequately transferred to the private sector. Also, administratively determined prices were liberalized 'overnight', but indicative prices were not provided.

(Lovelace 2002, with reference to Shepherd and Farolfi 1999).

Since liberalization, the groundnut marketing structure was dismantled, and the private sector has taken over. Farmers are no longer assured a ready market, and they must struggle to obtain market information across a promising yet fluid (and sometimes volatile) market.

After more than a decade of "dormancy," the AGC was apparently revived last year and its headquarters shifted from Lagos to Kano. In a speech read for him by the Minister of Commerce, the Vice President of Nigeria, Alhaji Mustapha Bello, lamented

"... the unfortunate period of dormancy [of the AGC]. This largely had to do with lack of political will on the part of members. In realization of this unwholesome trend and the renewed determination to reverse same, the President of Nigeria president graciously granted approval to the current chairman of the AGC and the Commerce Minister to convene this session.... I appeal to

member states to show more commitment; I also enjoin the AGC to reciprocate the efforts of members states by developing sufficient high quality disease and drought resistant seeds for distribution to member states". (quoted in Musa 2002).

These strong statements are reflective of a renewed commitment on the part of the Government of Nigeria to revive the Nigerian groundnut sector. ICRISAT reports that the state of Kano has recently imported "large quantities" of the improved variety 55-543 to improve access to seed for producers (Ntare 2002). These indications are indeed promising for the groundnut producers of Nigeria, and the groundnut sector in general.

Groundnut prices and markets

Government statistics show no export of groundnut from 1998-2002, and no export of groundnut oil since that year (NESG 2003). By the mid-1980s significant quantities were being imported from Gambia to keep the oil mills running. However, regional trade is known to be very extensive. Unfortunately, accurate trade figures are not available, and thus this critical regional market is very difficult to document and quantify.

Despite the official figures, which seem to indicate that Nigerian official exports have dropped to nothing, sub-regional trade is thriving, particularly between Nigeria and Niger, with trade flows extending in both directions. Some groundnuts may cross the border several times before they are processed, as supply and demand fluctuate against a highly fluid official exchange rate between the Naira (NGN) and CFA Franc (fCFA), to be discussed in further detail below.

Market prices vary significantly between markets, as indicated by price data obtained by the IFDC-DAIMINA Field Survey, and by SIMA of the Niger Ministry of Agriculture.

Table 5. Regional trade implications: Conversions from Naira to Francs CFA

	Official rate of exchange	NGN	fCFA
	(1 NGN = fCFA)		
January	6.64478	50.6	336
February	6.51265	65.26	425
March	6.58105	73.7	485
April	6.54534	82.5	540
May	6.46675	74.8	484
June	6.08639	82.5	502
July	5.61795	103.18	580
August	5.31989	96.8	515
September	5.30174	65.27	346
October	5.36387	62.33	334
November	5.27338	65.63	346
December	5.07839	65.45	332
January	4.95308	-	-
February	4.79496	39.25	188
March	4.84814	74.8	363
April	4.76005	77	367
May	4.51303	81.58	368
June	4.26804	105.23	449
July	4.61345	101	466
August	4.67757	104.5	489
September	4.50353	68.2	307
October	4.32417	73.48	318
November	4.12404	91.3	377
December	3.88865	99	385

*Official exchange rates (as at mid-month) from 'www.oanda.com'

Groundnut product prices, August 2003.

Product	State		
	Kano	Bauchi	Oyo
<i>In Naira (NGN)</i>			
Groundnut In-shell per kg	100	95	130
Shelled Groundnut per kg	80	100	80
Groundnut Oil per L (0.9 kg)	195	160	150

Source: IFDC-DAIMINA Field Survey

Exchange Rate: US\$1 = NGN 128

Market prices for Zaria from January 2002 through December 2003 were obtained from the IAR-Samaru:

Table 4. Groundnut prices for Nigeria: Zaria, Kaduna State 2003 - 2004
[Prices by month in Nigeria Naira (NGN)]

Month	2002	2003	Average
January	50.6	-	51
February	65.26	39.25	53
March	73.7	74.8	74
April	82.5	77	80
May	74.8	81.58	78
June	82.5	105.23	94
July	103.18	101	102
August	96.8	104.5	101
September	65.27	68.2	67
October	62.33	73.48	68
November	65.63	91.3	78
December	65.45	99	82
Average	74	83	

Source: IAR

However, the picture becomes more complicated as we consider the exchange rate between Naira and fCFA during the same period (see [Table 4](#)).

Groundnut price figures for Zaria market seem unrealistically high, when converted to fCFA at official rates of exchange (which are highly fluid). However, it is very unlikely that official rates are used to make informal deals across the border, although the implications of a fluid official exchange rate are not clear, as accurate data on such transactions is not available (Danguioua 2000).

Some deductions can be made, however, based on a regional exchange rate analysis conducted by LARES, a collaborative sub-regional program between Benin, Niger, Nigeria, Cameroon and Chad. The LARES study examined actual exchange rates on a number of sub-regional markets, based on the data and analysis of the DAEEFP (Minister of Finances and Economy) Niger, the DSCN of Cameroon, the Nigerian universities of Zaria and Maiduguri, and OBADA (Chad).

Although the sub-regional average was relatively close to the official (national) rates – showing a 4.5% fall during the first quarter 2003, from 4.9

fCFA in January to 4.6 fCFA in March – significant differences were noted between the different markets surveyed. A -1.5% fall was evident in Igolo, while the rate fell by 8.8 in Konni and 9.7% at Gaya – more than twice as severe a drop as the official figures would indicate.

The complexity of the situation on the ground and the challenge of accurately documenting these regional trade indicators for analysis is illustrated by the fact that during the same period, the Naira actually *appreciated* by 0.7% in Ndjamena, with an average level of fCFA 5 when selling and fCFA 5.7 when buying.

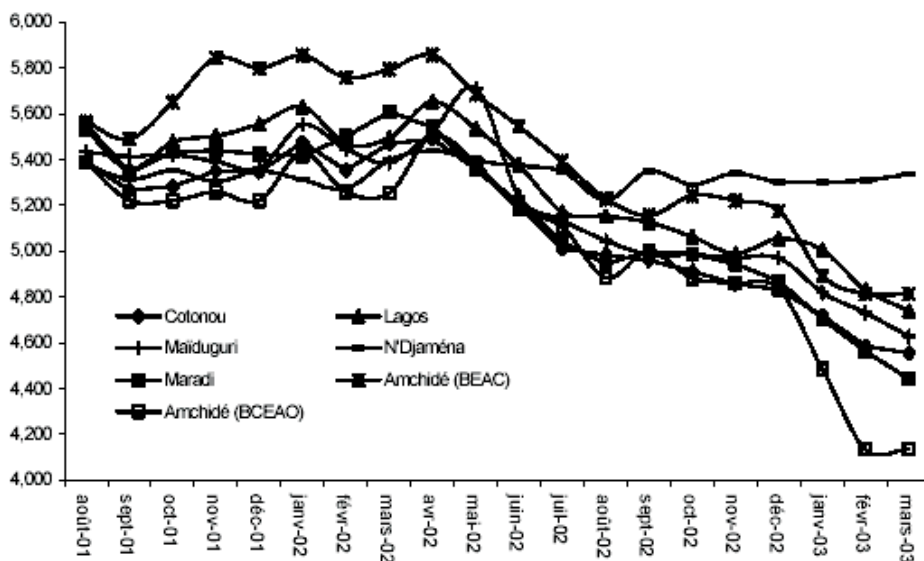


Figure 3. Evolution of the fCFA/Naira exchange rates in the sub-region, August 2001 through March 2003

Source: LARES, L'Echo des Frontières: Regional bulletin of cross - border trade monitoring; www.refer.org/benin/eco/lares.5.6

As the Government of Niger records trade in groundnut products as far east as Diffa (just across Lake Chad from Ndjamena, there are certainly implications on the groundnut sector from this large exchange-rate gradient along the common frontier that cannot readily be assessed with any confidence of reliability.

Thus, the market Nigerian market prices reported in fCFA by SIMA in Niger might possibly be considered more accurate and useful in terms of understanding trade flows between the two countries, though even at official rates, the Zaria figures in CFA are comparable with those given for Sokoto.

5.6 Sub-regional market price data: Mali, Niger and Nigeria (2002-2003)

Table 6. Mali groundnut price statistics: Producer prices for shelled groundnut on regional capital markets, October 1995 through September 1997

Year	Months	Market					
		Kayes	Sikasso	Ségou	Mopti	Gao	Bamako
1995	10	275	252	320	272	325	
1995	11	275	205	347	293	325	263
1995	12	275	236	377	322	300	255
1996	1	275	242	390	419	300	269
1996	2	275	225	322	229	313	284
1996	3	275	215	308	302	300	297
1996	4	275	228	313	292	325	279
1996	5	275	245	408	340	354	324
1996	6	275	261	462	343	350	350
1996	7	289	279	462	363	378	342
1996	8	437	311	467	404	432	350
1996	9	475	336	308	413	469	350
1996	10	450	272	349	412	483	340
1996	11	287	267	337	392	438	278
1996	12	275	284	413	364	397	300
1997	1	300	292	308	370	400	300
1997	2	287	309	355	377	400	300
1997	3	379	353	425	394	450	400
1997	4	400	325	325	458	469	400
1997	5	375	408	420	425	488	450
1997	6	400	450	407	436	467	450
1997	7	550	479	415	442	500	457
1997	8	500	488	341	466	500	410
1997	9	-	-	-	-	-	428
Average for 1995/96		321	255	376	344	361	309
Average for 1996/97		375	366	375	412	451	379

Sources: DNSI, monthly market reports, collected by IER.

Table 7. National Market Prices (cost to consumer) in 2003 in CFA/Kg.

	Niamey		Agadez		Diffa		Dosso	
	In-shell	Shelled	In-shell	Shelled	In-shell	Shelled	In-shell	Shelled
January	295	532	404	468	-	483	321	-
February	298	548	269	454	-	446	343	-
March	282	675	215	411	-	438	346	-
April	287	547	318	389	-	476	-	-
May	287	537	259	365	-	443	-	-
June	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-	-
Average	290		293		-		337	

	Tilabery		Tahoua		Maradi		Dosso	
	In-shell	Shelled	In-shell	Shelled	In-shell	Shelled	In-shell	Shelled
January	311	327	376	-	250	281	204	336
February	294	322	376	-	283	291	214	296
March	294	344	351	-	223	298	219	303
April	294	331	401	-	250	318	229	308
May	275	343	181	-	236	321	227	301
June	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-	-
Average	294		337		248		219	

Table 8. Regional groundnut trade in Niger (documented) for 2001-2003. (Quantities in Mt)

Regional destination	Border post	2001-2002		2002-2003	
		Imports	Exports	Imports	Exports
Benin	Adare	0.25	0	23.82	3
Malanville	Gaya	0	0	6	0
Burkina Faso					
Fada / Ouaga	Torodi	0	0	0	0
Mali					
Gao	Ayorou	0	0	4.2	0
Nigeria					
Kano	Magaria	9	0	32.5	0
Kano	Sassoubroum	0	0	4.2	0
Katsina	Dan Issa	0	191	129.5	0
Katsina	Matamaye	0	0	36.15	4
Sokoto	Dioundjou	2.3	0	0	0
Sokoto	Konni	977.48	0	204.8	0
Sokoto	Bangui	1.7	0	0.5	10.8
Maiduguri (and Chad)	Diffa	0	0	34	0
Total		990.48	191	441.65	14.8

Table 9. Regional market prices in 2003 for Benin, Burkina and Nigeria. (Prices in CFA/Kg)

	Benin		Burkina		Nigeria		
	Malanville	Kantchari	Illela (Sokoto)	Jibia (Katsina)	Mai adua	Damssack (Maidugiri/Chad)	Zaria**
January	189	130	405	271	285	185	-
February	220	137	444	192	277	198	188
March	233	148	423	233	281	187	363
April	245	150	416	308	320	182	367
May	238	160	400	299	316	400	368
June	248	170	397	316	312	380	449
July	245	-	400	324	304	392	466
August	-	-	-	-	-	-	489
September	-	-	-	-	-	-	307
October	-	-	-	-	-	-	318
November	-	-	-	-	-	-	377
December	-	-	-	-	-	-	385
Average	231	149	359	278	299	275	370

Sources: Système d'Information sur les Marchés Agricoles (SIMA) Ministry of Agriculture; from NGN by official exchange rates (www.oanda.com)

** IAR/Samaru

5.7 Additional observations

Distinguished by its history of strong state intervention in the groundnut sector, followed by the current (and incremental) process of liberalization, Senegal still stands distinct from Mali, Niger and Nigeria, though this may not be the case for much longer.

Lamenting the uncertainties of the open market, respondents in Mali actually suggested that a fixed, pan-territorial price for groundnut would benefit producers – precisely the system that Senegal has been moving away from over the past decade – but it seems this wish goes against the tides of history.

Nonetheless, given Senegal's progress, and the fact that increased state intervention in the groundnut sector is historically unlikely, the four countries studied will probably have more in common in the foreseeable future. Given the importance of regional trade, there is every reason why efforts should be made at the policy level to favor facilitation of this trade and perhaps aid a more reliable and (thus sustainable) market level than the international.

Constraints to production identified by respondents in Mali include low availability of quality (improved) seed in the producing areas. Lack of access to credit at all levels has also tended to discourage groundnut production.

According to IER, producers identify the annual price cycle as a constraint, and would prefer to have a fixed annual price, as in Senegal. Other constraints identified included the poor state of the roads from the production areas to the centers of consumption and export, and market distortions caused by the scarcity of buyers during certain periods of the year. Among the wholesalers surveyed, the main constraints identified were a lack of access to capital, and a strong indictment of the road infrastructure, particularly during the rains.

The groundnut sector profile for Niger is largely consistent with the data from Mali in terms of market structure, price differential by product and seasonal price fluctuations, though the fluctuations noted seemed generally slightly less than in Mali.

Farmers and traders alike expressed little preference or awareness of improved varieties. Notable exceptions were OLGA Oil (with a preference for high oil content varieties from ICRISAT), a farmer of Maradi who preferred a smaller local variety (known in Hausa as *Guia Mai Go Ga Wa*), and a trader of Maradi who preferred another smaller local variety favored by his buyers known in Hausa as *Kam Kodan Kwaya*.

While some respondent farmers expressed an unwillingness to store their groundnut, preferring to move it as fast as possible despite the lowest prices predominant during the harvest season, other farmers (and traders) mentioned access to good (dry) storage facilities as a constraint.

Both farmers and traders identified their lack of book-keeping and basic business skills as a major constraint to their marketing activities, as well as lack of access to market information. Both farmers and traders identified limited access to credit as a further constraint.

Due to the fluid and highly variable exchange rate of the Naira to CFA Franc, it is difficult to draw conclusions regarding the actual flows of trade between Niger and Nigeria. Only through prompt and accurate monitoring and exchange of market price and informal exchange rate information can the scope and potential of the regional market be assessed.

6.0 Background and methodology

The study began with collection of all available non-proprietary information on groundnut markets in each of the four focus countries, as well as the international markets. Production and trade data was collected from FAOSTAT. Groundnut market data from ICRISAT was collected at the Bamako regional office from Dr Bonny Ntare, and from the ICRISAT country office for Niger from Dr Jupiter Ndjeunga.

Further contacts and ideas were gathered at the ICRISAT regional office at Nairobi from Dr Said Silim and Dr Richard Jones, who had earlier (at Bamako) provided a list of relevant issues for consideration during the course of the study. Trade contacts and other information were helpfully provided by Dr Juan Estrada of ICRISAT Malawi. Dr Alain Mayeux of CIRAD, Senegal, also provided background information on the CIRAD groundnut market study for the country.

Preliminary field visits were made in Niger, and a semi-structured interview format and questionnaires were developed for a Niger country study, implemented during July and August in Niamey, Dosso, Maradi and Zinder. Results from this study are now being compiled, as a basis for further work in Mali, Senegal and Nigeria.

A diagnostic questionnaire has been sent to the national NARS partners and other national stakeholders of each of the project focus countries, in order to provide a baseline of commercial and market data in support of the country market case studies for Senegal, Mali and Nigeria. In the case of Niger, the objective was to provide triangulation of market data collected during the country market case study. The only response to the questionnaire received from the NARS partners and other national stakeholders was that of the IAR-Samaru, Nigeria.

A list of trade contacts in Europe was compiled, and prioritized according to recent trade statistics. Contact was made with five of the key European commercial firms purchasing and trading in imported groundnut. Interviews were conducted with three of these companies in the Netherlands, and further interviews have been scheduled for September in the United Kingdom.

West Africa

Niger

A Niger country market study was implemented during July and August in Niamey, Dosso, Maradi and Zinder, including structured and semi-structured interviews with farmers, traders and other private sector stakeholders, NGOs and government bodies. Results from the study are currently being compiled. A questionnaire has been sent to the national NARS partner, INRAN, in order to triangulate data from the country market case study.

Senegal

A diagnostic questionnaire sent to the national NARS partner, ISRA/CNRA, to UNIS, and to CIRAD, in order to provide a baseline of commercial and market data in support of the country market case study for Senegal. A very useful and applicable study of the Senegal groundnut sector, with extensive price information and analysis, was recently published as a PhD thesis by Dr James Gray of the University of Vermont, USA (Gray 2002). Communication was made with the author in order to bring the results of the study up to date. Interviews were conducted with Dr Oumar Chiekh Ba, director of the ISRA Bureau (BAME), and Dr Alain Mayeux of CIRAD, who has already conducted extensive market research on the European market for confectionary groundnut (ARB) of Senegalese origin. A follow-up visit to the Groundnut Basin (during the groundnut harvest) and to Dakar was made in November - December 2003.

Mali

A diagnostic questionnaire sent to the national NARS partner, IER/CRRRA, in order to provide a baseline of commercial and market data in support of the country market case study for Mali. Reference materials on the Mali groundnut sector included a 1998 country study by the Ministry of Agriculture, and a follow-up country study of the Mali groundnut sector by Mr O. Kodio of IER. This collaborative support of the market study by IER was most helpful to the purposes of the study. A follow-up visit to Mali was made in November 2003.

Nigeria

The progress of the market study in Nigeria was dealt a blow by the untimely demise of Dr Joshua of the Premier Seed Company, who was perhaps best situated to inform the study regarding groundnut production and marketing in Nigeria. A country profile for the Nigerian groundnut market was eventually developed with the collaborative support of the IAR-Samaru, for Zaria market. Market information including regional trade figures and groundnut price cycles for several other Nigerian markets was obtained in the course of the Niger market survey.

Europe

The Netherlands and the United Kingdom were identified as the most significant countries in the European groundnut trade, as they are by far the largest importers – accounting for 35% and 15% respectively of shelled groundnut imports to the 27 European countries in 2001. They imported 225,265 and 101,895 MT, respectively, of a total 638,699 MT imported.

The Netherlands is also by far the largest exporter in Europe, accounting for over 76% of European exports of shelled groundnut during 2001 (43,303 of 56,951 MT exported). As is the case with many commodities, the port of Rotterdam is the epicenter of the groundnut trade in Europe.

Interviews were conducted with trade representatives of two of the larger European firms importing groundnut, Mr Menno van der Pijll of Aldebaran Commodities BV, and Mr Anton Hendriks of Bohemia Nut Company BV, both based in Rotterdam. Each of these companies has an annual turnover of 25-30,000 MT of groundnut per year.

An interview was also conducted with Mr Paulo Bello, Purchase Director of The Nut Company (Arnhem, Netherlands), identified as the largest European end-user of groundnut, with an annual turnover of over 100,000 MT. According to an informant, the Nut Company has been buying up European groundnut businesses for the past decade, in a European groundnut market trend described in further detail in Section 4.2.

These initial interviews were highly informative, shedding light on the current trade climate, and affording several different perspectives as to how West African producers might best situate themselves to negotiate an enhanced profile in the international groundnut trade.

Communication was undertaken, and trade interviews sought with the major UK importing companies including Barrow Lane and Ballard. Mr Richard Kettlewell, a consultant to the Fair Trade company Twin Trading, and a groundnut broker with long years of experience in West Africa, kindly consented to a long and very detailed interview in September 2003, which rounded out the contours of the European and world markets. Mr Kettlewell further provided some thoughtful and well-informed suggestions as to potential market strategies for the West African groundnut producers.

Appendices

Appendix 1: Statistical analysis of world trade in groundnut

Top eight in-shell groundnut exporting countries, 1992 – 2001 (Exports quantity in Mt)												
	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998	Year 1999	Year 2000	Year 2001	Average per year	
World	127,675	153,262	163,101	141,432	128,962	154,455	150,681	170,390	192,726	231,447	161,413	
China	33,340	38,598	67,744	37,021	50,485	46,371	66,284	54,625	69,091	85,598	54,916	
United States of America	63,751	56,394	33,468	44,565	29,885	41,865	28,194	22,743	24,295	14,065	35,923	
Gambia	-	-	-	45	-	-	-	17,578	25,818	25,818	17,315	
India	257	6,439	2,226	3,071	4,227	8,830	6,386	14,504	20,333	44,657	11,093	
Israel	7,853	11,111	10,933	9,861	9,681	8,493	9,951	8,314	7,448	8,000	9,165	
South Africa	97	200	5,111	7,774	7,374	7,666	6,757	8,592	10,666	17,189	7,143	
Netherlands	5,514	17,053	11,856	7,211	4,150	3,061	1,430	1,506	1,255	458	5,349	
Brazil	3,618	3,331	3,553	2,569	1,180	241	882	2,619	645	1,546	2,018	
Source: FAOSTAT												

Top Twelve Shelled Groundnut Exporting Countries, 1992 – 2001 (Exports quantity in Mt)

	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998	Year 1999	Year 2000	Year 2001	Average per year
World	957,023	1,041,670	1,164,072	1,282,840	1,198,298	1,122,828	1,019,945	1,029,636	1,167,786	1,078,148	1,106,225
China	270,266	277,308	413,191	351,983	300,583	125,103	148,577	286,419	330,881	407,856	291,217
United States											
of America	291,466	191,760	140,226	246,815	180,817	197,806	155,497	160,928	211,604	125,670	190,259
Argentina	134,479	119,314	104,432	165,097	197,967	179,224	300,148	208,910	212,402	159,717	178,169
India	4,086	86,843	48,897	115,837	144,399	236,300	51,877	143,605	116,732	68,156	101,673
Vietnam	62,824	105,000	119,200	115,000	127,000	86,428	87,000	55,500	76,200	78,163	91,232
Netherlands	57,486	100,879	146,742	108,820	81,499	90,739	70,813	54,660	52,870	43,303	80,781
South Africa	15,719	20,900	44,493	19,073	27,774	43,657	21,227	13,536	17,873	23,603	24,786
Nicaragua	2,789	5,403	13,532	19,974	19,034	22,088	15,198	12,801	44,797	41,410	19,703
Gambia	9,263	20,000	17,600	28,414	23,000	28,414	28,400	0	0	24,000	17,909
Singapore	24,301	22,637	26,857	19,939	19,068	13,759	13,685	10,672	4,496	2,935	15,835
China, Hong											
Kong SAR	24,232	23,808	12,075	7,973	1,884	2,492	4,692	9,790	696	154	8,780
France	12,496	9,960	12,702	18,755	8,422	4,448	2,205	1,881	1,543	2,845	7,526
Senegal	11,912	2,808	6,549	6,617	20,000	5,723	5,290	7,415	2,794	2,786	7,189

Source: FAOSTAT

A 10-Year Profile of European Imports of Groundnut In-Shell, 1992-2001 (Exports quantity in Mt)

	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		
Europe	97,374	99,225	118,262	142,558	98,013	107,256	107,919	94,174	103,905	107,565		
Albania	-	-	-	-	146	51	201	66	10	1		
Austria	2,322	2,453	2,437	936	1,901	930	2,390	2,249	1,695	1,290		
Belarus	-	-	-	-	-	-	62	48	292	253		
Belgium-												
Luxembourg	764	1,550	1,112	38,949	894	1,775	3,261	3,861	-	-		
Belgium	-	-	-	-	-	-	-	-	2,906	3,482		
Bulgaria	7	248	31	290	35	372	536	-	-	-		
Croatia	4	48	352	452	276	256	307	269	352	460		
Czech Republic		1,476	1,186	2,264	1,799	1,550	981	833	1,319	1,232		
Denmark	58	14	110	99	259	519	159	197	510	448		
Estonia	-	18	112	40	164	77	265	281	295	135		
Finland	530	5	64	1	53	34	91	397	70	37		
France	6,154	5,674	5,493	4,782	3,303	5,019	4,302	4,888	4,941	7,738		
Germany	21,707	20,425	20,447	13,433	14,321	19,265	18,560	16,605	14,946	10,614		
Greece	585	835	1,586	1,327	1,377	1,806	1,360	1,125	1,021	1,242		
Hungary	2,133	2,752	3,399	4,373	2,711	2,432	2,259	2,018	2,182	1,936		
Iceland	5	3	2	1	3	-	1	1	0	-		
Ireland	244	209	86	157	31	123	87	124	78	183		
Italy	15,526	15,662	19,999	22,336	18,331	19,608	20,814	16,959	20,027	21,094		
Latvia	-	2	6	171	24	205	118	251	238	114		
Lithuania	-	-	141	78	120	107	30	58	9	69		
Luxembourg	-	-	-	-	-	-	-	369	2,779	2,215		

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	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998	Year 1999	Year 2000	Year 2001
Macedonia,										
The Fmr Yug Rp	-	40	35	467	42	-	-	339	720	2,000
Malta	364	238	267	486	262	230	287	-	201	324
Moldova,										
Republic of	-	-	55	1	-	90	78	-	0	42
Netherlands	13,849	12,361	17,392	13,278	12,066	8,696	10,940	12,346	8,597	6,979
Norway	70	64	248	236	163	265	221	146	128	278
Poland	5,115	5,876	4,806	5,893	6,468	7,013	5,092	3,860	3,993	4,466
Portugal	6,492	4,827	6,137	3,318	4,476	4,541	5,444	2,621	4,066	4,586
Romania	174	429	712	4,436	877	582	1,804	459	839	1,733
Russian										
Federation	368	523	-	-	2,405	4,275	1,653	1,757	792	2,340
Serbia and										
Montenegro	164	-	-	-	107	98	105	105	49	34
Slovakia	-	792	607	751	1,321	1,239	1,548	1,508	2,361	2,361
Slovenia	191	418	140	103	132	95	110	5	1,892	125
Spain	13,558	14,089	20,604	15,752	15,856	16,975	15,605	11,935	14,338	13,102
Sweden	43	41	48	69	87	73	160	131	86	78
Switzerland	4,029	3,467	4,339	3,767	2,702	3,696	2,818	3,487	2,372	2,213
Ukraine	-	-	100	46	86	98	103	98	546	1,759
United Kingdom	2,918	4,686	6,209	4,266	5,215	5,161	6,167	4,778	9,255	12,602

Source: FAOSTAT

A 10-Year Profile of European Imports of Shelled Groundnut, 1992-2001 (Imports quantity in Mt)

	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		
Europe	503,662	472,919	601,371	570,196	583,575	614,204	623,635	534,868	576,745	638,699		
Albania	-	-	-	-	145	169	199	264	202	1		
Austria	3,537	3,222	3,309	1,251	1,034	910	858	774	1,015	803		
Belarus	-	-	-	-	-	-	938	1,125	2,000	1,542		
Belgium (2000-2001)	-	-	-	-	-	-	-	-	4,848	6,148		
Belgium-Luxembourg (-1999)	3,551	3,402	4,082	8,957	5,017	5,052	6,105	4,782	-	-		
Bosnia and Herzegovina	65	90	35	40	230	100	155	320	80	150		
Bulgaria	22	1,118	225	1,366	494	1,653	4,760	3,000	1,800	1,800		
Croatia	711	595	638	711	750	293	462	1,123	1,140	914		
Czechoslovakia	4,763	-	-	-	-	-	-	-	-	-		
Czech Republic	-	3,656	3,070	2,739	14,906	16,763	14,397	9,500	10,952	10,528		
Denmark	1,734	2,937	2,746	2,939	3,042	3,304	3,314	1,514	1,908	3,875		
Estonia	-	33	42	47	220	233	200	304	1,172	579		
Finland	1,350	1,635	2,495	1,784	2,035	1,814	2,315	2,066	2,415	2,004		
France	67,889	27,989	52,910	66,097	50,000	32,714	53,013	25,466	25,702	22,691		
Germany	81,766	85,826	77,851	64,281	67,581	83,205	78,827	80,373	92,616	57,803		
Greece	8,643	8,635	10,803	13,885	14,633	13,837	13,935	12,565	12,936	12,602		
Hungary	2,582	1,544	1,896	2,336	2,729	3,718	4,607	4,912	5,645	5,509		
Iceland	8	7	13	7	7	5	6	5	5	5		
Ireland	356	680	641	365	405	416	390	478	177	592		
Italy	7,026	7,655	9,122	11,581	9,660	14,144	13,517	14,438	16,087	16,183		
Latvia	-	80	405	386	592	882	1,483	1,312	1,374	1,257		
Lithuania	-	-	682	1,272	2,091	2,759	2,946	2,010	777	2,538		

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	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		
Luxembourg	-	-	1,735	-	-	-	-	-	3	1		
Macedonia, The Fmr Yug Rp	896	1,541	286	1,658	1,627	1,272	1,272	4,173	3,936	3,485		
Malta	285	293	45	255	285	344	324	152	272	246		
Moldova, Republic of	-	-	-	260	269	279	248	258	325	543		
Netherlands	165,094	180,771	251,263	212,600	194,718	203,333	182,935	140,549	161,296	225,265		
Norway	4,335	3,912	3,620	3,747	3,410	3,608	3,523	5,677	3,533	3,824		
Poland	3,901	4,538	12,858	13,034	14,210	18,031	19,384	17,684	18,330	19,797		
Portugal	2,073	1,827	1,932	1,593	1,868	1,713	1,553	1,302	1,569	1,535		
Romania	828	604	939	1,800	4,258	2,583	3,769	2,992	5,313	4,268		
Russian Federation	238	1,365	34,074	28,222	33,692	44,636	37,608	46,610	56,479	78,872		
Serbia and Montenegro	1,461			315	1,826	2,350	2,967	790	1,803	1,200		
Slovakia		972	1,859	2,115	2,564	2,148	2,514	2,595	2,726	2,726		
Slovenia	33	14	46	61	126	157	141	270	2,458	80		
Spain	14,069	15,449	15,869	19,003	31,301	20,641	21,454	19,212	21,924	25,901		
Sweden	3,026	2,456	2,893	2,767	2,481	1,956	2,586	2,241	1,949	2,466		
Switzerland	7,915	357	470	526	750	652	1,105	747	1,427	935		
Ukraine	-	900	1,610	3,700	6,400	10,000	15,550	10,200	14,968	18,136		
United Kingdom	115,505	108,816	100,907	98,496	108,218	118,530	124,275	113,085	95,582	101,895		

Source: FAOSTAT

A 10-Year Profile of European Exports of Shelled Groundnut, 1992-2001 (Export Quantity in Mt)

	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Year
Europe	80,332	118,720	175,395	144,960	102,193	105,340	86,569	68,687	62,662	56,951	Year
Austria	519	365	139	65	58	55	45	22	53	107	2001
Belarus	-	-	-	-	-	-	7	95	19	22	Year
Belgium	-	-	-	-	-	-	-	-	488	2,350	2001
Belgium-Luxembourg	73	129	462	4,041	1,927	369	1,191	653	-	-	Year
Bulgaria	-	226	388	154	1,728	134	83	80	40	40	Year
Croatia	61	1	7	27	10	21	14	10	5	6	Year
Czech Republic	-	61	141	59	46	470	325	384	752	461	Year
Denmark	32	86	80	62	119	71	51	94	46	39	Year
Estonia	-	-	-	-	-	74	96	-	191	42	Year
Finland	54	15	22	16	8	26	87	57	74	58	Year
France	12,496	9,960	12,702	18,755	8,422	4,448	2,205	1,881	1,543	2,845	Year
Germany	5,078	3,777	8,515	8,877	4,253	4,073	4,701	4,707	2,493	2,154	Year
Greece	48	146	110	1,281	1,437	1,238	2,343	3,206	1,500	1,675	Year
Hungary	785	321	1	23	-	-	-	81	-	-	Year
Ireland	9	-	5	2	-	1	9	-	-	-	Year
Italy	581	177	764	105	77	104	381	481	6	822	Year
Latvia	-	-	3	-	-	30	62	134	441	47	Year
Lithuania	-	-	163	307	31	164	98	106	179	250	Year
Macedonia,	-	-	-	-	-	-	-	-	-	-	Year
The Fmr Yug Rp	7	-	-	13	12	-	-	18	104	4	Year
Netherlands	57,486	100,879	146,742	108,820	81,499	90,739	70,813	54,660	35	43,303	Year
Norway	79	11	11	17	40	130	43	47	52,870	69	Year
Poland	235	48	131	291	33	175	173	175	157	340	Year

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	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998	Year 1999	Year 2000	Year 2001
Portugal	-	-	-	1	-	1	19	1	211	34
Romania	-	4	-	-	28	-	3	-	22	22
Russian Federation	-	-	751	397	513	140	128	12	211	39
Serbia and Montenegro	-	-	-	-	50	23	5	20	-	-
Slovakia	-	45	46	28	24	2	49	254	23	-
Slovenia	-	12	-	1	24	59	59	-	48	-
Spain	24	71	28	129	37	93	950	150	291	1,882
Sweden	186	11	43	33	10	34	78	96	202	18
Switzerland	-	-	-	-	21	6	99	-	70	6
United Kingdom	2,579	2,375	4,141	1,456	1,786	2,660	2,452	1,263	587	316

Source: FAOSTAT

African Exports of In-Shell Groundnuts, 1992-2001 (Export Quantities in Mt)

	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998	Year 1999	Year 2000	Year 2001
Africa	3,965	7,673	12,054	13,357	10,533	24,772	19,666	33,217	46,957	52,579
Botswana	-	22	20	-	-	-	-	-	-	1
Burkina Faso	-	-	-	2	8	41	470	241	1,046	400
Cameroon	-	19	16	70	45	1	4	4	1	4
Côte d'Ivoire	-	-	-	10	3	1	11	54	309	309
Egypt	1,431	5,315	3,106	3,440	2,469	3,994	5,616	1,499	2,308	2,725
Gambia	-	-	-	45	-	-	-	17,578	25,818	25,818
Ghana	-	-	-	-	104	46	6	6	968	149
Kenya	5	317	1	5	-	-	45	-	8	8
Libyan Arab Jamahiriya	-	-	-	-	-	-	1,143	1,122	1,286	1,286
Madagascar	25	64	22	156	90	137	103	92	162	94
Malawi	-	-	-	1,000	-	-	-	-	-	-
Mauritania	3	-	-	-	-	-	-	-	-	-
Mauritius	1	-	-	-	-	-	-	-	-	14
Morocco	-	115	-	-	-	-	-	-	-	-
Namibia	-	-	-	-	-	-	-	-	1	-
Niger	-	-	12	234	366	537	215	1,010	546	357
Nigeria	-	-	-	20	10	10	31	31	44	44
Senegal	1	3	-	-	-	56	-	6	-	159
South Africa	97	200	5,111	7,774	7,374	7,666	6,757	8,592	10,666	17,189
Sudan	500	430	460	-	-	11,936	4,129	1,201	2,452	2,452
Swaziland	-	-	-	-	-	250	45	85	153	108
Tanzania, United Rep of	1,000	-	-	-	-	66	1,025	527	1,108	1,454
Togo	-	-	12	-	-	-	-	5	-	-
Tunisia	-	343	2,907	342	-	-	-	-	-	-
Uganda	84	625	191	139	30	1	36	167	5	-
Zambia	756	50	-	-	-	30	20	989	77	9
Zimbabwe	62	170	196	121	34	-	10	9	-	-

Source: FAOSTAT

African Exports of Shelled Groundnuts, 1992-2001 (Export Quantities in Mt)

	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		
Africa	56,549	83,729	101,432	84,455	89,667	129,825	138,603	56,772	73,281	102,015		
Botswana	2	-	-	15	5	67	21	21	2	1		
Burkina Faso	500	400	400	327	400	400	187	978	813	813		
Burundi	-	-	-	-	-	-	-	-	5	5		
Cameroon	200	201	31	128	128	431	157	254	1,398	418		
Central African Republic	-	-	781	879	191	500	500	500	500	500		
Côte d'Ivoire	-	-	-	773	473	3	5	703	837	837		
Egypt	2,303	7,044	4,229	6,278	3,088	7,149	9,196	2,917	1,076	1,301		
Ethiopia	-	-	-	70	-	80	69	4	30	35		
Gambia	9,263	20,000	17,600	28,414	23,000	28,414	28,400	-	-	24,000		
Ghana	-	-	-	-	96	-	-	37	230	28		
Guinea-Bissau	436	-	400	60	420	420	430	430	430	430		
Kenya	116	232	246	101	68	26	250	444	157	157		
Libyan Arab Jamahiriya	1,200	7,600	4,400	5,220	4,500	8,200	8,200	8,200	21,300	21,300		
Madagascar	50	78	147	128	86	503	386	32	377	98		
Malawi	-	-	1,000	111	970	2,628	4,335	1,300	210	825		
Mali	5,000	6,300	7,800	7,000	3,200	4,600	3,200	3,800	3,000	3,000		
Mauritius	2	-	-	-	-	-	13	11	10	24		
Morocco	35	160	-	-	-	18	-	-	-	-		
Mozambique	300	300	300	700	300	300	310	300	300	300		
Namibia	-	-	-	-	-	-	-	-	-	37		
Niger	-	-	-	96	1,248	2,131	4,131	785	1,023	251		
Nigeria	100	140	250	201	367	1,074	5,142	96	-	-		
Senegal	11,912	2,808	6,549	6,617	20,000	5,723	5,290	7,415	2,794	2,786		
South Africa	15,719	20,900	44,493	19,073	27,774	43,657	21,227	13,536	17,873	23,603		

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	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998	Year 1999	Year 2000	Year 2001
Sudan	2,650	14,432	6,213	4,642	2,176	14,782	21,224	5,000	10,028	17,250
Swaziland	-	-	-	-	-	3,056	10,667	7,443	6,854	2,490
Tanzania, United Rep of	6,000	-	-	170	510	695	231	848	367	973
Togo	-	-	6	62	45	44	44	23	196	221
Tunisia	-	115	-	118	-	-	-	-	2	-
Uganda	-	-	224	252	5	11	47	150	10	-
Zambia	28	50	45	57	8	337	460	113	185	332
Zimbabwe	733	2,969	6,318	2,963	609	4,576	14,481	1,433	3,273	-

Source: FAOSTAT

Appendix 2: Sample pricelist, Aldebaran Commodities, Rotterdam

	Quantity	Price in US\$	Condition
Goods available on a FOT Rotterdam basis			
ARGENTINA			
1	Argentine Runner count 40/50, crop 2002	36.000 kgs	Fot Rotterdam
2	Argentine Runner count 40/50, crop 2002, blanched	25.000 kgs	Fot Rotterdam
4	Argentine Runner count 38/42, crop 2002, blanched	18.000 kgs	Fot Rotterdam
BRASILIAN			
4	Brasilian Runner count 40/50, crop 2002	36.000 kgs	Fot Rotterdam
5	Brasilian Runner count 40/50, crop 2002, blanched	18.000 kgs	Fot Rotterdam
6	Brasilian Runner count 38/42, crop 2002	36.000 kgs	Fot Rotterdam
7	Brasilian Runner count 38/42, crop 2002, blanched	36.000 kgs	Fot Rotterdam
CHINA			
8	Chinese Virginia Shandong count 24/28, crop 2002	18.000 kgs	Fot Rotterdam
9	Chinese Virginia Shandong count 28/32, crop 2002	18.000 kgs	Fot Rotterdam
10	Chinese Virginia Shandong count 38/42, crop 2002	25.000 kgs	Fot Rotterdam
11	Chinese Hsuji type count 40/50, crop 2001	36.000 kgs	Fot Rotterdam
USA			
12	Usa Medium Runner count 40/50, crop 2001	40.000 kgs	Fot Rotterdam
13	Usa Jumbo Runner count 38/42, crop 2001	40.000 kgs	Fot Rotterdam
14	Usa Medium Runner count 40/50, crop 2001, blanched	20.000 kgs	Fot Rotterdam
15	Usa Jumbo Runner count 38/42, crop 2001, blanched	40.000 kgs	Fot Rotterdam

Continued

Appendix 2. Continued.

		Quantity	Price in US\$	Condition
SOUTH AFRICA				
	2001 and 2002 crop sold out			
SUDAN				
16	Sudanese Ashford count 50/60 p.oz., crop 2000/2001	Sold out		Fot Rotterdam
17	Sudanese Ashford count 70/80 p.oz., crop 2000/2001	Sold out		Fot Rotterdam
Goods available on a C+F/CIF Rotterdam basis				
18	Argentine Runner count 40/50, crop 2002		U\$ 770,00	December 2002/January 2003
19	Argentine Runner count 40/50, crop 2002, blanched		U\$ 930,00	December 2002/January 2003
20	Argentine Runner count 38/42, crop 2002		U\$ 780,00	December 2002/January 2003
21	Argentine Runner count 38/42, crop 2002,Blanched		U\$ 940,00	December 2002/January 2003
22	Brasilian Runner count 40/50, crop 2002		U\$ 770,00	December 2002/January 2003
23	Brasilian Runner count 38/42, crop 2002		U\$ 780,00	December 2002/January 2003
24	Usa Medium Runner count 40/50, crop 2001		U\$ 900,00	December 2002/January 2003
25	Usa Jumbo Runner count 38/42, crop 2001	Sold out		

Appendix 3: Current trade and domestic policies on groundnut trade (2003)

Country	Commodity	Description	Unit	Current
Argentina	Peanuts	Export tax	% of border price	4%
Argentina	Peanut meal	Export rebate	%	3%
Argentina	Peanut oil	Export rebate	%	2%
EU	Peanut oil	Import tariff	%	6%
EU	Peanut oil	Import subsidy for oil from Senegal	%	10%
China	Peanut raw	Import tariff	%	10%
China	Peanut processed	Import tariff	%	30%
China	Peanuts	Value added tax	%	17%
China	Peanut meal	Tariff	%	5%
China	Peanut oil	Tariff	%	10%
China	Peanut oil & meal	Value added tax	%	17%
India	Peanuts	Tariff	%	45%
India	Peanut meal	Tariff	%	45%
India	Peanut oil	Tariff refined oil	%	85%
Canada	Peanuts	Tariff	%	0%
Mexico	Peanuts	Tariff	%	0%
Senegal	Peanuts	Tariff	%	5%
Senegal	Peanuts	Tariff on processed	%	20%
Senegal	Peanut meal	Tariff	%	0%
Senegal	Peanut oil	Tariff refined oil	%	20%
Nigeria	Peanuts	Tariff	%	0%
Nigeria	Peanut meal	Tariff	%	0%
Nigeria	Peanut oil tariff refined oil	Tariff	%	0%
South Africa	Peanuts	Tariff	%	0%
South Africa	Peanuts	Tariff processed peanut food	%	6%
South Africa	Peanut meal	Tariff	%	0%
South Africa	Peanut oil	Tariff refined oil	%	20%
Malawi	Peanuts	Tariff	%	5%
Malawi	Peanuts	Tariff processed for consumption	%	25%
Malawi	Peanut meal	Tariff	%	0%
Malawi	Peanut oil	Tariff refined oil	%	20%
Gambia	Peanuts	Tariff	%	0%
Gambia	Peanut meal	Tariff	%	0%
Gambia	Peanut oil	Tariff refined oil	%	0%

Continued

Appendix 3. Continued.

Country	Commodity	Description	Unit	Current
United States	Peanuts	Out-of-quota tariffs		
United States	Peanuts shelled	Out-of-quota tariffs		132%
United States	Peanuts in-shell	Out-of-quota tariffs		164%
United States	Peanuts	Duty-free imports from Mexico	1,000 mt	4.15
United States	Peanuts	Mexico above-quota tariffs		
United States	Peanuts shelled		\$/mt	592
	peanuts			
	(Port price<652\$/mt)			
United States	Peanuts shelled		%	99%
	peanuts			
	(port price>652\$/mt)			
United States	Peanuts in-shell		\$/mt	391
	peanuts			
	(port price<284\$/mt)			
United States	Peanuts in-shell		%	150%
	peanuts			
	(port price>284\$/mt)			
United States	Peanuts			
GATT Schedule of US Peanut Imports (shelled basis)				
United States	Peanuts Argentina		1,000 mt	43.9
United States	Peanuts Mexico		1,000 mt	4.2
United States	Peanuts Others		1,000 mt	9
United States	Peanuts Total TRQ		1,000 mt	57.1
United States	Peanuts Domestic		\$/lb	0.2475
	target price			
United States	Peanuts Domestic		\$/lb	0.234
	producer price			
	at calibration			
United States	Peanuts Domestic		\$/lb	0.018
	fixed payment			
	(fully coupled)			
United States	Peanuts			
Domestic loan rate scaled up 1.1 for annual average			\$/lb	0.1775
United States	Peanut meal	Tariff	%	0%
United States	Peanut oil	Tariff	%	0%

Source: Beghin, John C, Diop N, Matthey H and Sewadeh M. 2003.

Appendix 4: US groundnut imports under AGOA, 2002

US imports for consumption at Customs value for HTS8 12022040 (Peanuts (groundnuts), not roasted or cooked, shelled, subject to add. US note 2 to Ch.12):

	2000	2001		2002	2003		Percent change
Source		US\$ '000		Percent of total	January-July US\$ '000		YTD2002- YTD2003
All sources	\$35,962.8	\$41,925.1	\$35,114.5	100.0%	\$35,114.5	\$5,301.8	-84.9%
Argentina	\$30,429.7	\$37,132.2	\$29,927.4	85.2%	\$29,927.4	\$4,665.0	-84.4%
Nicaragua	\$3,012.9	\$2,269.2	\$4,003.8	11.4%	\$4,003.8	\$636.9	-84.1%
Republic of							
South Africa	\$2,363.1	\$2,485.5	\$893.9	2.5%	\$893.9	\$0.0	-100.0%
The Gambia	\$0.0	\$28.2	\$217.7	0.6%	\$217.7	\$0.0	-100.0%
Brazil	\$0.0	\$0.0	\$51.5	0.1%	\$51.5	\$0.0	-100.0%
Italy	\$0.0	\$0.0	\$20.1	0.1%	\$20.1	\$0.0	-100.0%
Australia	\$157.1	\$0.0	\$0.0	0.0%	\$0.0	\$0.0	
Zambia	\$0.0	\$0.0	\$0.0	0.0%	\$0.0	\$0.0	
Saudi Arabia	\$0.0	\$0.0	\$0.0	0.0%	\$0.0	\$0.0	
Mexico	\$0.0	\$0.0	\$0.0	0.0%	\$0.0	\$0.0	
Netherlands	\$0.0	\$0.0	\$0.0	0.0%	\$0.0	\$0.0	
Malawi	\$0.0	\$0.0	\$0.0	0.0%	\$0.0	\$0.0	
El Salvador	\$0.0	\$0.0	\$0.0	0.0%	\$0.0	\$0.0	
Ethiopia	\$0.0	\$10.0	\$0.0	0.0%	\$0.0	\$0.0	
(By sources, in descending value of 2002 imports)							

Appendix 5: Quality aspects of groundnuts in trade

From: FAO webpage http://www.fao.org/inpho/compand/text/Ch21sec1_5.htm

Requirements for export and quality assurance

Export requirements

The quality attributes defined for groundnut end products vary among the developed and developing countries. Groundnut is mainly used for making peanut butter and consumed roasted or in confectioneries in developed countries. Meanwhile, in several developing countries it is mainly processed for its oil. Most developing countries have not given much attention to the quality. They are obliged to meet quality parameters fixed by the importer countries for international trade of groundnut kernels and cake. For example, the general guidelines for the quality of groundnut pods and kernels formulated by the Natural Resources Institute of the United Kingdom Ministry for Overseas Development are:

- Pod color and type, size, pod texture, cleanliness, freedom from damage and absence of blind nuts for in-shells and,
- Grading for size or count, shape, ease of blanching, skin color and conditions; resistance to splitting, moisture content, cleanliness, oil content and flavor for kernels.

Quality guidelines specify that the groundnut lots must be free from aflatoxin contamination. This is the most important consideration for export quality today. Aflatoxins are the toxic metabolites produced by some strains of fungi of the *Aspergillus flavus* group. Users may demand certain additional attributes, requirements and salient technical specifications. A large groundnut-processing factory makes its purchase based upon:

- **Size/grade:** medium runners graded between 83 mm and 71 mm must have a count of 155 to 170 kernels per 100 g.
- **Aflatoxin:** five parts per billion maximum. However, the European Union has recently modified the aflatoxin B₁ limit to 2-1/4g kg⁻¹ for the consumption of groundnuts by human beings.
- **Moisture:** between 6 to 8 percent. Determination is done by air oven by drying ground samples at 130°C for 2 h)

- **Oil quality:** the acid value of cold pressed oil from kernels must not exceed 1.5, while the peroxidase value should normally be zero and not exceed 1.0 mille equivalents kg^{-1} .
- **Edibility:** groundnut must be free from pathogenic organism (eg, *Salmonella*, *Escherichia coli*) and also free from insect infestation, live or dead and viable eggs.
- **Other conditions:** factors such as odor and flavor, splits, damaged kernels and unshelled groundnuts, foreign matter and discoloured/mouldy nuts are also considered.

Inspection and diversion of aflatoxin contaminated lots

To ensure that groundnut utilized for food or feed contain less than 20 ppb aflatoxin, various agencies in developing countries, eg, IOPEA in India and the AGC in Africa, are regulating the export quality of groundnuts and groundnut products.

AGC agreement with the FAO

At the 18th Session of the FAO Intergovernmental Group on Oilseeds, Oil and Fats, 20-24 February 1984, in Rome, the AGC was part of the delegation, which discussed the proposed modifications to the EEC Directives regarding tolerance limits of undesirable substances (especially aflatoxin B_1) in cattle feed. After detailed discussion, the group finally declared that “all legislative regulatory measures in this field should necessarily be based on data which can be verified through reliable means, in order to prevent any unjust harm to the concerned parties and to the liberty of international standardization of norms so the Joint Committee FAO/OMS of the “Codex Alimentarius” could fix aflatoxin limits which are internationally recognized, uniform and reasonable. Considering the significance of aflatoxins, several countries including the FAO (Codex Alimentarius Committee) have set the tolerance limits for groundnuts and its extractions. India and the United States of America have set 20 $\frac{1}{4}\text{g kg}^{-1}$ of seed meant for human consumption as tolerance limit. As of the year 2000, European Union has formulated the following limits of aflatoxins for various categories of groundnuts (see Table 1).

Table 1. Tolerance limits for aflatoxins as set by European Union.

Purpose	Tolerance limit ($\mu\text{g kg}^{-1}$)	
	B_1	$B_1 + G_1 + B_2 + G_2$
Groundnut for direct consumption	2	4
Groundnut for further processing	5	10
Milk and milk products	0.05	-

The key attributes for the export of groundnuts are piece count referring to the number of seeds per ounce, aflatoxins and physical properties such as broken and admixtures. The seed size expressed as piece counts is crucial to determine commodity value. Until now, there have been no limits for the pesticide residues in the seed and cake. The increasing interest in healthy eating has initiated the concept of organic farming in developing countries. Groundnuts grown without synthetic pesticides and fertilizers would fetch a premium.

Aflatoxin limits fixed by importer countries

Many groundnut-importing countries have placed limits on the levels of aflatoxins permissible in groundnuts and groundnut products (Table 2). Countries depending on export of aflatoxin-susceptible commodities eg,

Table 2. Maximum possible levels of aflatoxin in imported groundnut for human consumption and livestock and poultry feeds.

Country	Aflatoxin type	Maximum permissible level (ng g^{-1}), 1995	
		Foodstuffs	Livestock feed
Belgium	B_1	5	20
France	B_1	1	20
Germany	B_1	2	20
Ireland	B_1	5	20
Italy	B_1	5	20
The Netherlands	B_1	0	20
Sweden	B_1, B_2, G_1, G_2	5	10
UK	B_1, B_2, G_1, G_2	4	20
USA	B_1, B_2, G_1, G_2	20	20

Source: Freeman et al. 1999, ICRISAT

groundnuts are obliged to establish export limits that meet importers' requirements. This leads to economic loss, if the requirements are unnecessarily strict. Where a local food is also an export item, exportation of the most wholesome food may lead to local consumption of more contaminated foods. In part, this augments the risk of toxic effects in the indigenous population.

Consumer preferences

Groundnut quality and consumers preference may be judged by the following parameters:

Flavor: The flavor of roasted groundnuts plays important role in its acceptance by consumers and other users. Flavor also plays an important role in the acceptability of groundnut products such as peanut butter. Samples of several high yielding genotypes showed that their flavor quality needs improvements. A method of evaluating the cooking quality of groundnuts by boiling them in shell has been standardized at ICRISAT (ICRISAT Report 1990). More than 300 compounds have been detected in roasted groundnut. Sugars in groundnut also play an important role as precursors in the production of the typical roasted groundnut flavor. Thus it is important to standardize the test used to evaluate the acceptability of roasted groundnut by conducting sensory evaluation and relating the findings to the presence or absence of various volatile compounds and the concentrations in which they are present. Studies indicate that hexanal concentration is one of the eight compounds that gives an objectionable flavor to groundnut and correlated with a professional flavor profile panelists' evaluation. Characterization of flavor compound by gas chromatography would enable breeders to identify those cultivars that have a good flavor profile for further development (Ahmed and Young 1982).

Texture: Crunchy and crisp are textural attributes that are important and desirable sensory qualities of groundnuts. Crisp food is one that is firm (stiff) and snaps easily when deformed emitting a crunchy/crackly sound. Based on consumer study, crispness has been reported to be the most versatile single texture parameter. A number of instruments have been developed for measuring mechanical properties of nuts, which can be related to texture of the kernels.

Sensory quality: Mechanical force and work usually have strong inverse correlation with sensory crispness and crunchiness scores. Sensory evaluation

of texture in foods belongs to the domain of psychology known as psychophysics. Psychophysics directly concerns the correlation of sensory experience with physical measures. Two measures of classification of sensory tests are: i) affective and ii) analytical. Affective tests are used to evaluate preference and/or acceptance of products. This method, however, cannot provide a proportional relationship between sensory scores and physical measures. Analytical tests are used for quantification of sensory characteristics. Evaluating the textural quality of groundnuts, a sensory panelist can either bite or chew those groundnut kernels. The physical property differences between raw, blanched and oil roasted groundnuts was distinguished best by a compression test (Vivar and Brennan 1980). When groundnuts are exposed to high relative humidity environment they absorb moisture and become soggy, the consumers do not prefer such products.

Color: The color of raw groundnut kernels is attributed to both the testa and the oil. Tannins and catechol-type compounds are responsible for imparting the color to the testa. The color of cotyledons is due primarily to the oil color present in the cells of the cotyledons. The measure carotenoid pigments present in oil are β -carotene and lutein. Maximum concentration of these pigments occurs in the immature kernels ie, $60 \mu\text{g}$ of β -carotene and $138 \mu\text{g}$ of lutein per litre of oil and diminishes as the groundnut advance to maturity. Consumer preference is light colored groundnut oil. The characteristic color of roasted groundnut is due primarily to the sugar-amino acid reactions with subsequent production of melanins. Caramelization of sugars may contribute to brown coloration of roasted groundnut. Consumers reject soft or mushy roasted groundnuts even though they exhibit attractive color and good flavor (Hodge 1953).

Indian groundnut is very popular in the international market for the table purpose, due to its characteristic natural flavor, nutty taste and crunchy texture and also has relatively longer shelf life. Therefore, with the growing consumer taste the world over for organic food with natural flavor, Indian groundnut has better export opportunity. Consumption of groundnuts as nuts and in the manufacture of peanut butter is based on the use of roasted groundnut kernels. Roasting time has a significant influence on the strength of the odor and flavor. Raw and roasted groundnuts should be free of foreign material, unadulterated with toxic or noxious substances such as pesticides and microorganisms. The Food and Drug Administration (1969) issued guidelines for food manufacturers who produce wholesome food items

including groundnuts and groundnut products. The “Official Methods of AOAC” gives methods (36.020 to 36.024) for the determination of adulterants in food.

Appendix 6: Aflatoxin in groundnuts

Aflatoxins are toxic, carcinogenic, teratogenic and immunosuppressive substances produced when toxigenic strains of the fungi *Aspergillus flavus* Link. ex Fries and *A. parasiticus* Speare grow on groundnuts, maize, cotton, chili and many other agricultural commodities. It is reported that blood tests have shown that very high percentages of the populations of several countries in Asia and Africa have been exposed to aflatoxins. Maize and groundnuts are important in the diet of peoples both in Asia and Africa and are likely to be the main sources of these toxins. Aflatoxins B₁ and G₁ are the forms most commonly produced in groundnut. They are highly toxic among livestock and are being implicated in human diseases. Aflatoxin M₁ (AFM1) is a major metabolite of Aflatoxin B₁ found in the milk of animals that have consumed contaminated feed with aflatoxin B₁ (Polan et al. 1974). The relatively high levels of primary hepato-cellular carcinoma may reflect interactions between hepatitis B and C (which are related to protein deficiency in children) and aflatoxin. It is not surprising that aflatoxin contamination is the most important quality problem in many commodities worldwide.

Infection of groundnut by *Aspergillus* occurs under both preharvest and postharvest conditions. Preharvest infection by *A. flavus* and consequent aflatoxin contamination is more important in the semi-arid tropics, especially when end-of-season drought occurs. (Waliyar et al. 1994). There is also evidence that damage to groundnut by soil pests such as termite increase aflatoxin contamination. Postharvest conditions are also important. Favorable conditions for infection during harvesting and storage may lead to rapid development of the fungi and higher production of the toxin (Mehan et al. 1991). Studies in Africa have shown that groundnut is often stored in the form of pods where insects can easily damage the pods and facilitate penetration of the fungi.

Aflatoxin limits

Many importing countries have placed limits on the levels of aflatoxins permissible in groundnut and groundnut products. A few countries including Cuba, Malaysia and Portugal have a zero tolerance limit. The European Union have set a limit of 2 µg kg⁻¹ of B₁ and total aflatoxins 4 µg kg⁻¹, while most of the other countries have set practical limit of 10 to 30 µg kg⁻¹, including Australia (15 µg kg⁻¹), Canada (15 µg kg⁻¹), India (30 µg kg⁻¹) and USA (20 µg kg⁻¹)

According to the US Food and Drug Administration, the level of aflatoxin M₁ in milk should not exceed 0.5 µg kg⁻¹ but the level is set at 0.05 µg kg⁻¹ in most of the European countries and Codex Alimentarius. In Austria and Switzerland, the maximum level is reduced to 0.01 µg kg⁻¹ for infant food. Thus the differences in tolerance levels among countries and many have no legal limit for aflatoxin M₁ in milk and dairy products.

References

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- Waliyar F, Reddy SV, Subramanyam K, Reddy TY, Ramadevi K, Craufurd PQ and Wheeler TR. 2003. Importance of mycotoxins in food and feed in India. Aspects of Applied Biology 68:147-154.

Appendix 7: World Health Organization on Mycotoxins

From: <http://www.inchem.org/documents/ehc/ehc/ehc011.htm>

Environmental Health Criteria 11: Mycotoxins *International Programme on Chemical Safety*

Published under the joint sponsorship of the United Nations Environment Programme and the World Health Organization

Mycotoxins

Sources and occurrence

Aflatoxins are produced by certain strains of *Aspergillus flavus* and *Aspergillus parasiticus*. These fungi are ubiquitous and the potential for contamination of foodstuffs and animal feeds is widespread. The occurrence and magnitude of aflatoxin contamination varies with geographical and seasonal factors, and also with the conditions under which a crop is grown, harvested and stored. Crops in tropical and subtropical areas are more subject to contamination than those in temperate regions, since optimal conditions for toxin formation are prevalent in areas with high humidity and temperature. Toxin-producing fungi can infect growing crops as a consequence of insect or other damage, and may produce toxins prior to harvest, or during harvesting and storage.

The chemical structures of aflatoxins have been elucidated, and analytical techniques are available for their identification and determination in foodstuffs and body tissues at the $\mu\text{g/kg}$ level and lower. Four aflatoxins (B_1 , G_1 , B_2 , G_2), often occurring simultaneously, have been detected in foods of plant origin including maize, groundnuts (peanuts), and tree nuts as well as many other foodstuffs and feeds.

In animals, ingested aflatoxins may be metabolically degraded. Aflatoxin B_1 may be converted into aflatoxin M_1 which may occur in milk. The concentration of aflatoxin M_1 in the milk of cows is about 300 times lower than the concentration of aflatoxin B_1 consumed in the feed. In certain experimental animals, only small amounts of administered aflatoxins have been found in tissues, 24 h after injection.

In studies on pigs, aflatoxin residues were detected in the liver, kidney, and muscle tissues after being given aflatoxins in the feed for several months.

There do not appear to be any published works on aflatoxin residues in the tissues of slaughtered animals.

The use of resistant varieties of seed and of pesticides, and careful drying and storing procedures can reduce fungal infestation and thus diminish food contamination by aflatoxins. The toxin is not eliminated from foodstuffs or animal feeds by ordinary cooking or processing practices and, since pre- and postharvest procedures do not ensure total protection from aflatoxin contamination, techniques for decontamination have been developed. The toxin is generally concentrated in a small proportion of seeds that are often different in color.

Segregation of discolored seeds by sorting can significantly reduce the aflatoxin levels in some crops, such as groundnuts. Visual inspection for mold growth before processing can serve as an initial screening technique but toxin-producing fungi can be present without detectable aflatoxins and vice versa. Because aflatoxin distribution in a contaminated, unprocessed commodity is uneven, adequate sampling is essential for effective monitoring. As aflatoxins can be chemically degraded in vitro by several oxidizing agents and alkalis, hydrogen peroxide and ammonia are currently used for the chemical decontamination of animal feeds.

Effects and associated exposures

Outbreaks of aflatoxicosis in farm animals have been reported from many areas of the world. The liver is mainly affected in such outbreaks and also in experimental studies on animals, including nonhuman primates. The acute liver lesions are characterized by necrosis of the hepatocytes and biliary proliferation, and chronic manifestations may include fibrosis. A feed level of aflatoxin as low as 300 $\mu\text{g}/\text{kg}$ can induce chronic aflatoxicosis in pigs within 3-4 months.

Aflatoxin B₁ is a liver carcinogen in at least eight species including nonhuman primates. Dose-response relationships have been established in studies on rats and rainbow trout, with a 10% tumor incidence estimated to occur at feed levels of aflatoxin B₁ of 1 $\mu\text{g}/\text{kg}$, and 0.1 $\mu\text{g}/\text{kg}$, respectively. In some studies, carcinomas of the colon and kidney have been observed in rats treated with aflatoxins. Aflatoxin B₁ causes chromosomal aberrations and DNA breakage in plant and animal cells, and, after microsomal activation, gene mutations in several bacterial test systems. In high doses, it may be teratogenic. The acute toxicity and carcinogenicity of aflatoxins are greater in male than in female rats; hormonal involvement may be responsible for this

sex-linked difference. Nutritional status in animals, particularly with respect to lipotropes, proteins, vitamin A, and lipids (including cyclopropanoid fatty acids), can modify the expression of acute toxicity or carcinogenicity or both.

There is little information on the association of acute hepatotoxicity in man with exposure to aflatoxins but cases of acute liver damage have been encountered that could possibly be attributed to acute aflatoxicosis. A recent outbreak of acute hepatitis in adjacent districts of two neighboring states in north-west India, which affected several hundred people, was apparently associated with the ingestion of heavily contaminated maize, some samples of which contained aflatoxin levels in the mg/kg range, the highest reported level being 15 mg/kg.

Liver cancer is more common in some regions of Africa and south eastern Asia than in other parts of the world and, when local epidemiological information is considered together with experimental animal data, it appears that increased exposure to aflatoxins may increase the risk of primary liver cancer. Pooled data from Kenya, Mozambique, Swaziland, and Thailand, show a positive correlation between daily dietary aflatoxin intake (in the range of 3.5 to 222.4 ng/kg body weight per day) and the crude incidence rate of primary liver cancer (ranging from 1.2 to 13.0 cases per 100 000 people per year). There is also some evidence of a vital involvement in the etiology of the disease.

In view of the evidence concerning the effects, particularly the carcinogenic effects, of aflatoxins in several animal species, and in view of the association between aflatoxin exposure levels and human liver cancer incidence observed in some parts of the world, exposure to aflatoxins should be kept as low as practically achievable. The tolerance levels for food products established in several countries should be understood as management tools intended to facilitate the implementation of aflatoxin control programs, and not as exposure limits that necessarily ensure health protection.

Appendix 8: European buyers and brokers of groundnut

The United Kingdom

Abacus Trading Co. Ltd

International trader in peanuts

1278 High Road, Whetstone

London N20 9HH

Tel: +44 (0)20 8343 9900

Fax: +44(0)20 8343 9227

Email: abacus@nuts.netkonect.co.uk

Afrika Produkte (UK) Ltd

Broker of edible nuts, seeds and pulses

12/14 Moor Lane, Crosby

Liverpool L23 2UE

Tel: +44 (0)151 9313221

Fax: +44 (0)151 9315491

Email: afrikapr@btinternet.com

Barrow Lane & Ballard Ltd

International distributors of peanuts, tree nuts and dates

(bulk packed/processed)

52/54 Southwark Street

London SE1 1UN

Tel: +44 (0) 20 7357 8775

Fax: +44 (0) 20 7357 8905

Email: blb@barrow-lane.co.uk

Bond Commodities Ltd

Import range of edible nuts for further manufacture

New Loom House, 101 Back

Church Lane

London E1 1LU

Tel: +44(0)20 7488 1949

Fax: +44(0)20 7488 1953

Email: info@bondcommodities.demon.co.uk

Canon Garth Limited

Traders of edible nuts

Alexander House

31-39 London Road

Sevenoaks, Kent TN13 1JY

Tel: +44 (0)1732 743434

Fax: +44 (0)1732 743444

Email: cgl@ctcs.demon.co.uk

Carrex International Ltd

Import/export of edible nuts and dried fruit

Haslington Hall, Haslington

Crewe, Cheshire CW1 5RX

Tel: +44 (0)1270 588722

Fax: +44 (0)1270 255050

Email: info@carrexint.co.uk

Web Address: www.carrexint.co.uk

CJ Wildbird Foods Ltd

Manufacturers of wildbird food
The Rea, Upton Magna
NR. Shrewsbury
Shropshire SY4 4UB
Tel: +44 (0)1743 709545
Fax: +44 (0)1743 709504
Email: info@birdfood.co.uk
Web Address: www.birdfood.co.uk

Community Foods Ltd

Micross, Brent Terrace
London NW2 1LT
Tel: +44 (0)20 84509411
Fax: +44 (0)20 82081803

Demos Ciclitira Ltd

International traders in peanuts
and nuts
Capitol House, 60-62 Leman Street
London E1 8EU
Tel: +44 (0)20 7626 1121
Fax: +44 (0)20 7702 0560

F Duerr & Sons Ltd

Peanut butter manufacturer
Prestage Street, Old Trafford
Manchester M16 9LH
Tel: +44 (0)1612 262251
Fax: +44 (0)1612 263058
Email: info@duerrs.co.uk
Web Address: www.duerrs.co.uk

Greenangle Ltd

Importation and distribution of nuts.
Linton House, 164-180 Union
Street
London SE1 0LH
Tel: +44 (0)20 7928 2428
Fax: +44 (0)20 7928 9997
Email: greenangle@mail.com

Imperial Snack Foods Ltd

Eastern flavour flavored snack
food products
Unit 5, Culwell Trading Estate,
Woden Rd. Wolverhampton
West Midlands W10 0PG
Tel: +44 (0)1902 351104
Fax: +44 (0)1902 351375
Email: impsnacks@aol.com
Web Address:
www.imperialsnackfoods.co.uk

J & J B Traders Ltd

Commodity trader
Hamilton House, 1 Temple Avenue,
Victoria Embankment
London EC4Y 0HA
Tel: +44 (0)20 73532123
Fax: +44 (0)20 75838823
Email: jjbtl@btinternet.com

Richard Kettlewell

Broker in groundnut and Consultant
on groundnut trade
Email: RGWK@aol.com

Markbeech Products Ltd

Importers, processors and
distributors of groundnuts, treenuts,
coconut and dried fruits
Station Road, Rowley Regis
West Midlands B65 0LJ
Tel: +44 (0)1215 613366
Fax: +44 (0)1215 592429
Email: enquiries@markbeech.co.uk
Web Address:
www.markbeech.co.uk

Meridian Foods Ltd

Producer of speciality oils, peanut
and speciality nut butters
Corwen, Denbeighshire LL21 9RJ
Tel: +44 (0)1490 413151
Fax: +44 (0)1490 412032
Email: info@meridianfoods.co.uk
Web Address:
www.meridianfoods.co.uk

Murcott (UK) Ltd

The Arnold Business Park,
Branbridges Rd
East Peckham Kent TN12 5LG
Tel: +44 (0)1622 872929
Fax: +44 (0)1622 873221

Nestle (UK) Ltd

Food and confectionery
manufacturers
St George's House
Croydon Surrey CR9 1NR
Tel: +44 (0)20 86675257
Fax: +44 (0)20 86675413
Web Address: www.nestle.co.uk

Pacific Foods Ltd

Trader
2nd Floor, 10 Minories, London
EC3N 1BJ
Tel: +44 (0)20 7702 1939
Fax: +44 (0)20 7702 9597
Email: info@pacificfoods.co.uk

**Percy Dalton's Famous Peanut Co.
Ltd**

Traders and manufacturers of
peanut, nut and dried fruit products
Old Ford Works, Dace Road
London E3 2PE
Tel: +44 (0)20 89859241
Fax: +44 (0)20 89863028
Email: enquiries@percyclaltons.com
Web Address:
www.percyclaltons.com

The Paragon Food Co Ltd

Importing, packing and distribution
of peanuts and nuts
1 Westborough Road
Westcliff On Sea, Essex SS0 9DR
Tel: +44 (0)1702 390999
Fax: +44 (0)1702 344377
Email: info@paragonfoods.com
Web Address:
www.paragonfoods.com

George Payne & Co Ltd

Confectionery manufacturers
P O Box 113, Croydon Surrey CR9
4BU
Tel: +44 (0)20 86887744
Fax: +44 (0)20 86860082
Email: info@paynes.co.uk

Premier Fruit & Nut Ltd

Premier House, 325 Streatham High
Road
London SW16 3NT
Tel: +44 (0)20 86798226
Fax: +44 (0)20 86798823

Readifoods Ltd

Packers and blenders of dried fruit
and nut mixes
Station Road, Heckington
Sleaford Lincolnshire NG34 9JH
Tel: +44 (0)1529 461551
Fax: +44 (0)1529 461454
Email: readifoods@btinternet.com
Web Address: www.readifoods.com

Southwaves Ltd

Edible nut traders
18 Broad Robin
Gilligham, Dorset SP8 4PJ
Tel: +44 (0)1747 822088
Fax: +44 (0)1747 822838
Email: southwvs@aol.com

Sunscoop Products Ltd

Peanut and nut processor.
Units K1/K3, Coedcae Lane
Industrial Estate,
Pontyclun, Mid. Glamorgan
South Wales CF72 9HG
Tel: +44 (0)1443 229229
Fax: +44 (0)1443 228883
Email: nuts@sunscoop.co.uk

Sun Valley Ltd

Processors and packers of peanuts
and nut products
Georgia Avenue, Bromborough
Wirral L62 3RD
Tel: +44 (0)151 3347788
Fax: +44 (0)151 3347789
Email: info@sun-valley.co.uk
Web Address: www.sun-valley.co.uk

RS Tinsley (Liverpool) Ltd

Peanut and nut broker
Cunard Building - 2nd Floor,
Water Street
Liverpool L3 1DS
Tel: +44 (0)151 2360797
Fax: +44 (0)151 2364556
Email: rstinut@aol.com
Web Address:
www.rstinsleynutbrokers.com

Trigon Snacks Ltd

Manufacturer of snack nuts
Atherton Road, Aintree
Liverpool L9 7AQ
Tel: +44 (0)151 5238700
Fax: +44 (0)151 5215370
Email: enquiries@trigon-snacks.com

TRS Wholesale Co Ltd

Wholesalers of ethnic foods and
distributors of nuts, lentils, rice
and spices
Southbridge Way, The Green
Southall, Middlesex UB2 4BY
Tel: +44 (0)20 85713252
Fax: +44 (0)20 85741716
Email: mail@trs.co.uk

Twin Trading Ltd.

Third Floor, 1 Curtain Road
London EC2A 3LT
Tel: +44 (0) 20 7375 1221
Fax: +44 (0) 20 7375 1337
Email: info@twin.org.uk
Website: www.twin.org.uk

United Biscuits Food Division/KP

Manufacturer of savoury snack
nut products
Eastwood Trading Estate,
Fitzwilliam Rd.
Rotherham, South Yorkshire S65 1TD
Tel: +44 (0)1709 828101
Fax: +44 (0)1709 835912
Web Address: www.kpnuts.com

Voicevale Ltd

Supplier and distributor of nuts and
dried fruit globally
Dove House, Arcadia Avenue
London N3 2JU
Tel: +44(0)20 8371 3600
Fax: +44(0)20 8371 0208
Web Address: www.voicevale.com

Netherlands**Aldebaran Commodities BV**

Maasstraat 17, NL-3001 KB
Rotterdam
Tel: +31-(0)10-436-4900
Fax: +31-(0)10-436-4865
Email: jpvelzen@aldebaran.nl

**Alimenta Commodities BV, Golden
Peanut Co. LLC**

Verkaade 9, NL-3016 Rotterdam
Tel: +31-(0)10-404 4600
Fax: +31-(0)10-411 1319

Bohemia Nut Company BV

Westerstraat 46, NL-3016
Rotterdam

Tel: ++31-(0)412 6099
Fax: ++31-(0)10-412-91 09
Email: info@bohemiaanutcomp.nl

FC Elfferich Trading BV

Hooipolderweg 8
NL-2635 AZ Den Hoom
Tel: ++31-(0)-15-2511-660
Fax: ++31-(0)-15-214 22 00
Email: elfferich@elfferich.etrade.nl

Handelsveem BV

Parmentierplein 1, NL-3088 GN
Rotterdam
Tel: ++31-(0)10-487 95 46
Fax: ++31-(0)10-487 95 50
Email:
P.Kommene@NL.Steinweg.com

Jas Trading BV

Haspelslaan 11, NL-1181
Amstelveen
Tel: ++31-(0)20-643-64 12
Fax: ++31-(0)20-643-21 27
Email: info@jastrading.nl

The Nut Company BV

Bedrijvenpark Ijsseloord 2
Meander 601 6825 ME Arnhem
Tel: ++31 (0) 26 384 0156
Fax: ++31 (0) 26 384 0151
Email: p.bello@thenutcompany.com

Olam Europe BV

P.O. Box 29051, NL-3001 GB
Rotterdam
Tel: ++31-10-404 4014
Fax: ++31-10-4044010
Email: rene@olameurope.com

Van Maurik

International peanut broker
"Gravenlust", Buizenwerf 207, 3063
AE Rotterdam
Tel: +31 (10) 4110716
Fax: +31 (10) 4144170
Email: rikma@wxs.nl

**Vebero Eastwood Upgrading
Blanching BV**

Rederijweg 30, NL-4960 Oosterhout
Tel: ++31-(0)162 437 777
Fax: ++31-(0)162-437 711
Email: info@vebero-eastwood.nl

Germany**HD Cotterell**

Ellerholzdamm 29-35
D-20457 Hamburg
Tel: ++49-(0)40-3178 7535
Fax: ++49-(0)40-3179 0816
Email: M.Lembke@cotterell.de

CSTS Internationale Spedition

Grüner Deich 110, 20097 Hamburg
Tel: ++49-(0)40-23 69 800
Fax: ++49-(0)40-23 19 78
Email: csts@csts.cargolink.de

Eichholtz & Cons. GmbH

Müggenburger Strasse 7-15, 20539
Hamburg
Tel: +49-(0)40-780946-0
Fax: +49-(0)40-780946-21
Email: r.kraupner@eichholtz.de

**Felix The Nut Company GmbH &
Co. KG**

Binnerheide 28, D-58239
Tel: ++49-(0)2304-472 13
Fax: ++49-(0)2304-472 40
Email: burkhard.feldhaus@felix.de

**Ernst-Georg Göck Fruchtagentur
GmbH**

Elbchaussee 84, D-22763 Hamburg
Tel: ++49-(0)40-32 56 520
Fax: ++49-(0)40-32 65 76
Email: egg@eggoeck.de

Max Kiene GmbH

Oberhafenstraße 1, D-20097
Hamburg
Tel: ++49-(0)40-30 96 550
Fax: ++49-(0)40-30 96 55 20
Email: maxkiene@maxkiene.de

Kunz Consulting

Tannenweg 11, D-59939 Olsberg
Tel: ++49-(0)2962-841 66
Fax: ++49-(0)2962-843 64

**The Lorenz Bahlsen Snack-World
GmbH & Co.**

Siemensstrasse 10, D-63263 Neu-
Isenburg
Tel: ++49-(0)6102-293 112
Fax: ++49-(0)6102-293 151
Email: Alfred.
Pawlowski@LBSnacks.com

Nuts Consult and Public Relations

Basaltweg 60, D-22395 Hamburg
Tel: ++49-(0)40-602 47 49
Fax: ++49-(0)40-602 97 14

**OMNITRADE Handelsgesellschaft
mbH**

Große Straße 2, D-22926

Ahrensburg

Tel: ++49-(0)4102-88 620

Fax: ++49-(0)4102-886 288

Email: info@omnitrade-hamburg.de

Primex Trading GmbH

Holzbrücke 7, 20450 Hamburg

Tel: ++49-(0)40-36 90 580

Fax: ++49-(0)40-36 90 58 58

Email: primex.hamburg@t-online.de

Peter Riege

Alter Elbdeich 23, D-21217 Seevetal

Tel: ++49-(0)40-769 21 60

Fax: ++49-(0)6102-293 151

Email: peter.riege@t-online.de

Ludger Wehry GmbH

Lärchenweg 5, D-49413 Dinklage

Tel: ++49-(0)4443-96 320

Fax: ++49-(0)4443-963 220

WEJ GmbH

Stenzelring 14b, D-21107 Hamburg

Tel: ++49-(0)40-7527 0929

Fax: ++49-(0)40-7527 0920

Email: lothar.boers@wej.de

Switzerland

**Alimenta S.A., Golden Peanut
Co.LLC**

154 Route de Suisse, CH 1290

Versoix-Génève

Tel: ++41-22-7750 200

Fax: ++41-22-7750 292

Email: tfrangie@alimenta.ch

Appendix 9: Groundnut contacts in the USA

From the American Peanut Council

From: <http://www.peanutsusa.com/index.cfm?fuseaction=home.page&pid=9>

Equipment manufacturers (Blanchers)

Ashton Food Machinery Co., Inc.

Neumunz Division
1455 MCCarter Highway
Newark, NJ 07104
USA

Tel: (201) 483-8518

Fax: (201) 483-2756/0200

Blaw-Knox Food And Chemical Equipment Company

PO Box 1041
Buffalo, NY 14240
USA

Tel: (716) 895-2100

Fax: (716) 895-8263

Krispy Kist Company

120 S. Halsted Street
Dept. 9P
Chicago, IL 60661
USA

Tel: (312) 733-0900

Fax: (312) 733-3508

Wolverine Proctor & Schwartz, Inc.

251 Gibraltar Road
Horsham, PA 19044
USA

Tel: (215) 443-5200

Fax: (215) 443-5206

Web Site:

www.wolverineproctor.com

Peanut Butter Processing Equipment Manufacturers

Ashton Food Machinery Company, Inc.

Neumunz Division
1455 McCarter Highway
Newark, NJ 07104
USA

Tel: (973) 483-8518

Fax: (973) 483-2756/0200

Cantrell International

Division of AC Horn
1269 Majesty
Dallas, TX 75247
USA

Tel: (800) 657-6155

Fax: (214) 630-0130

Krispy Kist Company

120 S. Halsted Street
Department 9P
Chicago, IL 60661
USA

Tel: (312) 733-0900

Fax: (312) 733-3508

**Union Standard Equipment
Company**

801-825 E. 141st Street
Bronx, NY 10454
USA
Tel: (718) 585-0200
Fax: (718) 993-2650

Urschel Laboratories Inc.

2503 Calumet Road
Valparaiso, IN 46383
USA
Tel: (219) 464-4811
Fax: (219) 462-3879

Wolverine Proctor & Schwartz, Inc.

251 Gibraltar Road
Horsham, PA 19044
USA
Tel: (800) PROCTOR
Fax: (215) 443-5206
www.wolverineproctor.com

Roasting Equipment Suppliers

**Ashton Food Machinery Company,
Inc.**

Neumunz Division
1455 McCarter Highway
Newark, NJ 07104
USA
Tel: 973-483-8518
Fax: 973-483-2756
Contact: Peter Isler

**Blaw-Knox Food and Chemical
Equip. Co.**

PO Box 1041
Buffalo, NY 14240
USA
Tel: 716-895-2100
Contact: JP Newell

Cantrell International

1269 Majesty
Dallas, TX 75247
USA
Tel: 214-630-3311
Fax: 214-630-0130

Heat & Control Inc.

2111 Cabot Blvd.
Hayward, CA 94545
USA
Tel: (510) 259-0500
Contact: Don Giles

Krispy Kist Company

120 S. Halsted Street
Dept. 9P
Chicago, IL 60661
USA
Tel: 312-733-0900
Fax: 312-733-3508

Specialties Appliance Corp.

715 South 25th Avenue
Bellwood, IL 60104
USA
Tel: 708-544-6500
Fax: 708-544-6505
Contact: Keith Smith

Wolverine Proctor & Schwartz, Inc.

251 Gibraltar Road
Horsham, PA 19044
USA
Tel: 215-443-5200
Fax: 215-443-5206
www.wolverineproctor.com
Contact: Chuck Kovacs

***Used & Rebuilt Equipment
Dealers*****Madison Equipment Company**

2950 West Carroll
Chicago, IL 60612
USA
Tel: 312-533-5800
Fax: 312-533-5820

Union Standard Equipment Co.

801-825 E. 141st. Street
Bronx, NY 10454
USA
Tel: 718-585-0200
Fax: 718-993-2650
email: salesla@unionstandard.com

US Peanut Butter Supplier List**Cargill Peanut Products***

PO Box 272
North Main Street
Dawson, GA 31742
Tel: (912) 995-2111
Fax: (912) 995-3268
Contact: Mike Boyd
*Private Label Processor

The Carriage House Companies, Inc.*

196 Newton Street
Fredonia, NY 14063
Tel: (716) 673-1000
Fax: (716) 679-7702
Contact: Mike Hackbarth
*Private Label Processor

Con-Agra Grocery Products⁺

3353 Michelson Drive
MS 1-A55
Irvine, CA 92612-0650
USA
Tel: (949) 437-1172
Fax: (949) 437-3339
Contact: Bob Fortmeier
⁺Maker of Peter Pan Brand

**George Washington Carver Food
Products, Inc.***

420 Williamson Avenue
Peanut Product Division
Opelika, AL 36804
Tel: (334) 741-4100
Fax: (334) 741-4117
Email: gwcfoodprod@msn.com
Contact: RJ Lewis
*Private Label Processor

JM Smucker Company^ä

One Strawberry Lane
PO Box 280 Orrville, OH 44667-0280
Tel: (330) 682-3000
Fax: (330) 684-3115
www.smucker.com
Contact: Gary Rasor
^äMaker of Jif and Private Label
Processor

Once Again Nut Butter, Inc.*

12 South State Street
PO Box 429 Nunda, NY 14517
Tel: (716) 468-2535
Fax: (716) 468-5995
Contact: Jeremy Thaler
*Private Label Processor

Tara Foods*

1900 Cowles Avenue
Albany, GA 31705-1514
Tel: (229) 431-1330
Fax: (229) 439-1458
Contact: Roger Templeton
1014 Vine Street
Cincinnati, OH 45202
Tel: (513) 762-1236
Fax: (513) 762-1342
Contact: Mary Egnor
*Private Label Processor

Unilever Bestfood

Export Division
800 Sylvan Ave
Englewood Cliffs, NJ 07632
USA
Tel: (201) 894-4943
Fax: (201) 894-2702
Contact: Walter Taylor

Universal Blanchers

800 Commerce Drive
Suite 201
Peachtree City, GA 30269
Tel: (770) 487-1230
Fax: (770) 487-3828
www.universalblanchers.com
Contact: Kevin Gaines
Email:
mmckee@universalblanchers.com

US Peanut Processors

Ferrara Pan Candy Company

7301 W. Harrison Street
Forest Park, IL 60130-2083
Tel: (708) 366-0500
Fax: (708) 366-5921
Contact: James S. Buffardi

John B Sanfilippo & Son, Inc.

2299 Busse Road
Elk Grove Village, IL 60007-0057
Tel: (847) 593-2300
Fax: (847) 593-9608
www.fishernuts.com
Contact: Mike Valentine

Kroger Foods

1014 Vine Street
Cincinnati, OH 45202
Tel: (513) 762-1236
Fax: (513) 762-1342
Contact: Mary Egnor

Lincoln Snacks Company

4 High Ridge Park
Stamford, CT 06905
Tel: (203) 329-4545
Fax: (203) 329-4555
www.lincolnsnacks.com
Contact: R Scott Kirk

Morven Partners, LP

PO Box 465
Edenton, NC 27932
Tel: (252) 482-2193
Fax: (252) 482-7857
Contact: Hal Burns

Nature Kist Snacks

6909-D Positas Rd.
Livermore, CA 94550
Tel: (925) 606-4200
Fax: (925) 606-7183
Contact: Ron Mozingo

Peanut Processors, Inc.

PO Box 160
Dublin, NC 28332-0160
Tel: (910) 862-2136
Fax: (910) 862-8076
Contact: Lyn Shaw
www.peanutprocessors.com

Tom's Foods, Inc.

900 8th Street
PO Box 60
Columbus, GA 31994-0001
Tel: (706) 323-2721
Fax: (706) 596-9772
Contact: Ben Smith

Universal Blanchers

800 Commerce Drive
Suite 201
Peachtree City, GA 30269
Tel: (770) 487-1230
Fax: (770) 487-3828
Contact: Kevin Gaines
Email:
mmckee@universalblanchers.com
Web site:
www.universalblanchers.com

US Blanchers**Tidewater Blanching Corp.**

160 County Street
PO Box 219
Suffolk, VA 23439-0219
Tel: (434) 384-7098
Fax: (434) 384-9528
Contact: Jerry D Canaday

Universal Blanchers

800 Commerce Drive
Suite 201
Peachtree City, GA 30269
Tel: (770) 487-1230
Fax: (770) 487-3828
Contact: Kevin Gaines
Email:
mmckee@universalblanchers.com
Web site:
www.universalblanchers.com

The Clint Williams Company

Hwy. 199 East (Shipping)
PO Box 310
Madill, OK 73446
Tel: (580) 795-5555
Plant Tel: (580) 795-7368
Fax: (580) 795-5802
Plant Fax: (580) 795-7518
Contact: Alan Ortloff

US Broker List

Ba-Com Commodities, Inc.

3500 Virginia Beach Blvd.

Little Neck Towers

Suite 211

Virginia Beach, VA 23452

Tel: (757) 631-8775

Fax: (757) 430-3428

Contact: David Bacon

Charles R Hood Brokerage Co., Inc.

PO Box 13948

1282 Timberlane Commons, Suite C

Tallahassee, FL 32317

Tel: (850) 668-4996

Fax: (850) 668-3608

E-mail: hoodcr@aol.com

Contact: Charles R Hood, President

Hofler Brokerage, Inc.

124 Clay Street

PO Box 1603

Suffolk, VA 23439-1603

Tel: (757) 539-0291

Fax: (757) 539-3291

Contact: Thomas Hofler, President

International Service Group

22 Ramsey Street

Suite B

Roswell, GA 30075

Tel: (770) 518-0988

(770) 518-0299

Contact: Robert N Kopec, President

JR James Brokerage Company, Inc

PO Box 1801

Tel: (912) 888-7395

1208 N. Madison Street

Fax: (912) 888-3738

Albany, GA 31702

Email: i-jrjame@bellsouth.net

Contact: Robert S Johnson

Lovatt And Rushing, Inc.

6075 The Corners Parkway

Suite 110

Norcross, GA 30092

Tel: (770) 446-1113

Fax: (770) 446-7056

Contact: George I Lovatt

Mazur and Hockman, Inc.

PO Box 991

1501 Third Avenue

Albany, GA 31702

Tel: (229) 883-3456

Fax: (229) 883-3525

E-mail: eatpnuts@surfsouth.com

Contact: Richard Barnhill

O'Connor and Company, Inc.

PO Box 1679

314 W. Washington Street

Suffolk, VA 23439-1679

Tel: (757) 539-0296

Fax: (757) 539-9074

Contact: Thomas J O'Connor, III,
President

RB Wolff & Company, Inc.
3 Cotesworth Place
Savannah, GA 31411-2876
Tel: (912) 598-0022
Fax: (253) 595-4240
E-mail: ru medium@aol.com
Contact: Ronald B Wolff, President

SGL International LLC
PO Box 720124
6065 Roswell Road
Suite 730 Atlanta, GA 30358-2124
Tel: (404) 252-6887
Fax: (404) 256-4097
Contact: Sid Levy, President

US Shellers

Anderson's Peanuts
A Division of Alabama Farmers
Cooperative, Inc.
603 South Maloy Street
PO Drawer 810
Opp, AL 36467-0810
Tel: (334) 493-4591
Fax: (334) 493-7767
Export Contact: John Reed, Sales
Manager
Runner-shelled

Birdsong Peanuts
612 Madison Avenue (23434)
PO Box 1400
Suffolk, VA 23439
Tel: (757) 539-3456
Fax: (757) 539-7360
E-mail: dperry@ birdsong-
peanuts.com

Export Contacts: Warren Birdsong,
Vice President
David Birdsong, Sales Representative
Runner-shelled, Spanish-shelled,
Virginia-shelled and in-shell

Borden Peanut Company, Inc.
PO Box 28
620 East Lime Street
Portales, NM 88130
Tel: (505) 536-8545 Fax: (505) 359-
0072
Export Contact: Bill Owen, Vice
President/General Manager
Valencia-shelled and inshell

Golden Peanut Company
Suite 400
100 North Point Center East
Tel: (770) 752-8200
Fax: (770) 752-8306
Alpharetta, GA 30022
www.goldenpeanut.com
Export Contacts: Alexandre
Izmirlian, Vice President,
International Sales;
Jean-Paul Bodourian, Vice-President,
Export Sales
Runner-shelled, Spanish-shelled,
Virginia-shelled and inshell,
blanched peanuts
Export Contacts for Specialty
Products: Bruce Kotz, Manager,
Specialty Products
Processed peanuts, peanut butter,
flour, oil

Lee County Peanut Company, Inc.

136 South Caldwell
Giddings, TX 78942
Tel: (979) 542-3453
Fax: (979) 542-0991
www.alphal.net/~lcpnuts
Export Contact: Jonathan Socha,
President
Spanish-shelled

McCleskey Mills, Inc.

PO Box 98
Highway 118 West
Smithville, GA 31787
Tel: (229) 846-2003
Fax: (229) 846-4805
Export Contact: Jerry M Chandler,
President
Runner-shelled

Morven Partners, LP

Edenton Division
PO Box 465
Edenton, NC 27932
Tel: (252) 482-2193
Fax: (252) 482-7857
Export Contact: Hal Burns, Vice
President, In-shell Group
Runner-shelled, Virginia-shelled and
inshell, blanched peanuts, processed
peanuts including salted inshell

Reeves Peanut Company

340 East Broad Street
PO Box 565
Eufaula, AL 36072-0565
Tel: (334) 687-2756
Fax: (334) 687-9126
www.mr-macs-peanuts.com

Export Contact: Ben C Reeves,
President
Runner-shelled

Sessions Company, Inc.

PO Box 31-1310
801 N. Main Street (36330)
Enterprise, AL 36331-1310
Tel: (334) 393-0200
Fax: (334) 393-0240
E-mail: pnutsouth@aol.com
www.peanutsouth.com
Export Contact: William T Ventress,
Jr., President
Shelled peanuts

Severn Peanut Company, Inc.

PO Box 710
Severn, NC 27877
Tel: (252) 585-0838
Fax: (252) 585-1718
Export Contact: Carl Gray, Jr.,
Secretary-Treasurer, Sales
Virginia-shelled and inshell

Tom's Foods, Inc.

900 8TH Street
PO Box 60
Columbus, GA 31994-0001
Tel: (706) 323-2721
Fax: (706) 596-9772
Export Contact: Ben Smith,
Manager, Peanut Operations
Runner-shelled

Wilco Peanut Company

PO Drawer B
Highway 281 North (Physical)
Pleasanton, TX 78064-0060
Tel: (830) 569-3808
Fax: (830) 569-2743
Export Contact: Byron Warnken,
President
Runner-shelled, Spanish-shelled

Clint Williams Company

A Division of Texoma Peanut
Company
433 East Main Street
PO Box 310
Madill, OK 73446-0310
Tel: (580) 795-5555
Plant Tel: (580) 795-7368
Fax: (580) 795-5802
Plant Fax: (580) 795-7518
Export Contact: Jim Bull,
Operations Coordinator & Sales
Manager
Runner-shelled, Spanish-shelled,
Virginia-shelled and inshell,
Valencia-shelled and inshell,
blanched peanuts

US Manufacturers**The Carriage House Companies,
Inc.**

196 Newton Street
Fredonia, NY 14063
Tel: (716) 673-1000
Fax: (716) 679-7702
Contact: Mark M Miller, Director of
Purchasing

Ferrara Pan Candy Company

7301 W. Harrison Street
Forest Park, IL 60130-2083
Tel: (708) 366-0500
Fax: (708) 366-5921
Contact: James S Buffardi,
Secretary/Chief Financial Officer

Hershey Foods Corporation

PO Box 810
100 Crystal A Drive
Hershey, PA 17033
Tel: (717) 534-6675
Fax: (717) 534-7754
Contact: Dick Barnoski, Manager,
Nut Procurement

Con-Agra Grocery Products*

3353 Michelson Drive
MS 1-A55
Irvine, CA 92612-0650
USA
Tel: (949) 437-1172
Fax: (949) 437-3339
Contact: Bob Fortmeier
*Maker of Peter Pan Brand

JM Smucker Company

Corporate Headquarters of HB
Deviney Co., Inc.
One Strawberry Lane
PO Box 280
Orrville, OH 44667-0280
Tel: (330) 682-3000
Fax: (330) 684-3115
www.smucker.com
Contact: Gary Rasor, Director,
Corporate Purchasing

John B Sanfilippo & Son, Inc.

2299 Busse Road
Elk Grove Village, IL 60007-0057
Tel: (847) 593-2300
Fax: (847) 593-9608
www.fishernuts.com
Contact: Mike Valentine

Kraft Foods Inc. Snacks Division

200 DeForest Avenue
PO Box 1944
East Hanover, NJ 07936-1944
Tel: (973) 501-4788
Fax: (973) 503-2399
www.nabisco.com
Contact: Doug Smyth

Masterfoods USA

P. O. Box 3289
1209 West Oakridge Drive
Tel: (229) 434-4807
Fax: (229) 434-4812
Albany, GA 31706-3289
www.m-ms.com
Contact: Charles Ivy, Commodity
Purchasing Manager

Nestle USA

Chocolate & Confections Division
800 North Brand Boulevard
6th Floor
Glendale, CA 91203
Tel: (818) 549-5033
Fax: (818) 543-7952
www.nestle.com

Contact: Charles Stelmokas, Vice
President, Supply Chain

Tara Foods

A Division of the Kroger Company
1900 Cowles Avenue
Albany, GA 31705-1514
Tel: (229) 431-1330
Fax: (229) 439-1458
Contact: Richard Barnhill, General
Manager

Tom's Foods, Inc.

900 8th Street
PO Box 60
Columbus, GA 31994-0001
Tel: (706) 323-2721

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