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SADC Trade

TRADE INFORMATION BRIEF

SPICES

TRADE & INDUSTRIAL POLICY STRATEGIES

Australian Government
AusAID

Participation in international trade has become one of the most important factors in increasing the prosperity of countries. Yet for many developing countries, perhaps particularly for those in Sub-Saharan Africa (SSA), trade is viewed primarily from a defensive perspective, with a focus on the disruptive effects of imports rather than on the opportunities presented by increased access to world markets. A key reason is the existence of information market gaps that are often associated with trade facilitation and development in developing countries – information on the export performance and potential of many developing countries remains incomplete.

The TRADE INFORMATION SERVICE series of market briefs aims to contribute to bridging this information gap for existing producers in the Southern African Development Community (SADC) who may not have the financial resources to generate a fully fledged market research process. The briefs are not intended to act as the detailed export market intelligence that successful exporting requires, but rather as a basic first-cut analysis of export prospects, to allow enterprises to make the decision on whether to initiate further market research.

Each Trade Information Brief will cover a product cluster of particular interest to members of SADC. The cluster may represent an existing key set of export products with potential for expansion, or a relatively new set where there is an indication of competitive advantage for the region.

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1. Introduction

Herbs and spices hold a special place in world trade. Emperors, kings, senators and the aristocracy of old made them the mostly highly prized commodities of ancient trade routes. The vibrant markets of Babylon and Petra amassed great fortunes by their proximity to the routes used by merchants. The spice trade was so important that it was a catalyst in many historical events, discoveries, wars and inventions. It has even been cited as an important element in the spread of knowledge and culture. Some historians have suggested that the lucrative trade of spices was in large part responsible for many important developments in seafaring and navigation, and the exploration and discovery of many parts of the world, including South Africa. As *The Economist* asserts, "the history of spices is the history of trade".

Spices had many uses, from adding flavour to food to medicinal properties, but only grew in a few places. In the East, nutmeg grew in the Banda Islands and cloves at Ternate and Tidore. Trade was lucrative because demand outstripped supply – spice routes were controlled to restrict supply and raise prices. Merchants grew wealthy and set up networks to acquire and transport spices. Cities and ports that lay along the routes captured revenue from the trade through taxes, tolls and their own flourishing spice markets. Political influence came to bear and wars, conquests and colonial campaigns were waged to control the spice trade. The Dutch East India Trading Company, which can be seen as the first 'multi-national', from the 1600s to the 1800s controlled an empire that generated wealth rivalling many of the world's leading nations of the time. But over time, increased trade saw monopolies fail and the spice trade changed forever.

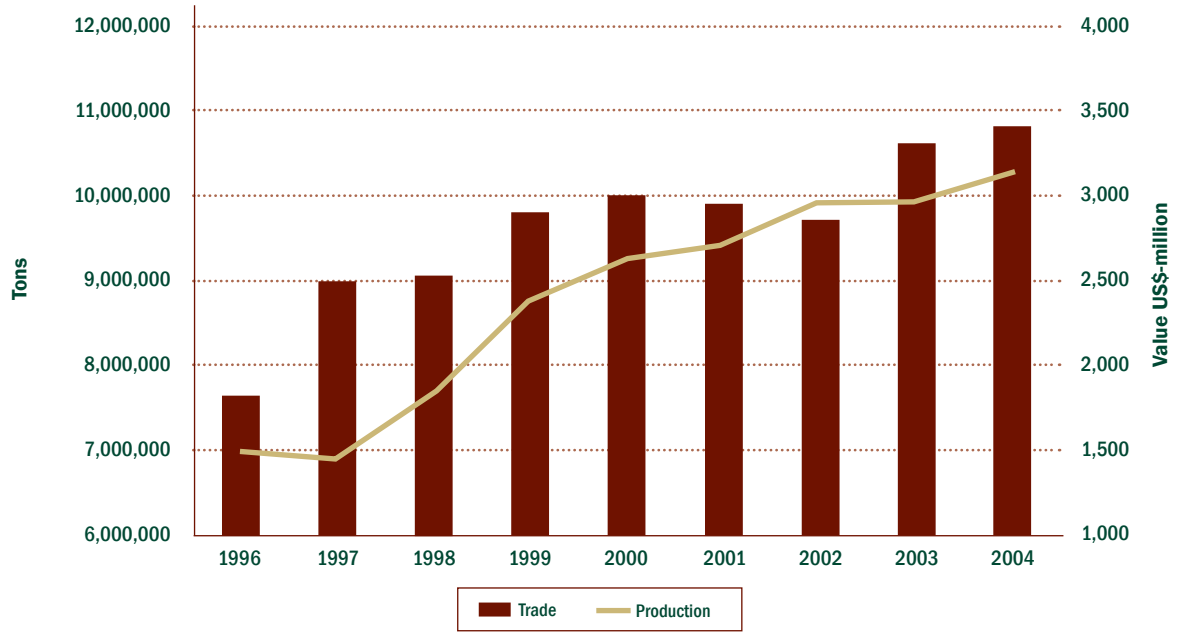
> ...spices that were once limited to tiny islands in hidden archipelagos were now being grown around the world and in large quantities (*The Economist*, 1998, A Taste for Adventure).

Of course, loss in control over the supply of spices and the fact that spices are relatively easy to cultivate and export unfortunately mean that the profits to be made from spice exports these days are not what they once were. Nevertheless, the market for spices is still large and potentially lucrative, and for many varieties, the number of countries engaged in producing them is still relatively small. Examples include the trade in vanilla, cloves, nutmeg and mace, which are all controlled by just a few countries. In 2004, the total world production of herbs and spices was around 6.5-million tons and its value roughly US$2.8-billion. Over the past 30 years, spices have again generated good, with production soaring by 177%, or about 3.5% per annum on average, and trade by 424%, or 5.7% per annum.

References

A full set of references for this report can be accessed at www.sadctrade.org/TIB/spices

Figure 1: World production and trade in spices, 1996-2004



Source: UN Comtrade and Food and Agricultural Organisation Statistics (FAOSTAT)

In the last decade, the annual average growth in spice production was 4.3% and trade in spices grew at an average of 5.8% per year. More sophisticated consumers, health-conscious eating habits (but also the rise in the amount of processed foods that use herbs and spices as inputs), rising incomes, increased world trade and globalisation are driving this new era of profitability. Of particular importance to SADC countries is the fact that most spices are produced in and exported from the developing world – as the developed world incomes continue to rise and its consumer spending on exotic foods, ready-made meals and cuisine from foreign cultures increase, the opportunities for developing countries to export large quantities of spices seem particularly promising.

Herbs and spices are ideal commodities for international trade. They are normally exported in a raw or dried form and are usually easy to store and transport. Consequently they do not need expensive infrastructure such as cold chain management or advanced storage facilities and they are not particularly time sensitive. In addition, they are recognised as high value products that can be produced relatively easily on small farms and do not require investments in advanced technology and machinery.

Climates in SADC, especially along the east coast of Africa, are ideal for cultivating herbs and spices – a potential comparative advantage for the region. Indeed, spices have long been important exports of Madagascar and Tanzania. The island of Zanzibar, which is part of the United Republic of Tanzania, has also been a major spice trader for centuries, especially cloves.

This Brief provides an overview of SADC's main spice products, consumption characteristics and uses. It also provides an overview of SADC's exports to principal markets, its export performance compared to key competitors, potential trade barriers and distribution channels.

The Brief does not analyse any particular spice in depth, but our Brief on Capsicum takes the analysis further to consider the export opportunities of this particular spice product (see www.sadctrade.org/TIB/capsicum).

2. Product characteristics

2.1 Product description

Spices are often referred to as the non-leafy parts of plants which are used for seasoning and flavouring food, whilst herbs are generally considered to be the leafy parts. The Cambridge dictionary defines spice as “a substance made from a plant that is used to give a special flavour to food”. Other dictionaries say spices are “various pungent, aromatic plant substances, such as cinnamon or nutmeg, used to flavour foods or beverages” or “something that adds zest or flavour”. Spices are used as medicines, perfumes, preservatives and even in sacred rituals. They are normally dried and stem from various parts of the plant – the seeds, fruit, roots, bark, stems, rhizomes or the flowers, like saffron.

Herbs are generally considered a sub-set of spices. The Cambridge dictionary defines herbs as “a type of plant whose leaves are used in cooking to give flavour to particular dishes, or which is used in making medicine”. Fresh or dried, they are used in small amounts for flavouring, aroma or colour in cooking. For the purposes of this Brief, spices and herbs are considered together, following the precedent set by the International Trade Organisation (ITO), the UN Commission on Trade and Development (UNCTAD) and the Harmonised System (HS) Code, an international method for classifying products for trading purposes. Spices fall within HS chapter 09, which also includes coffee and tea, and is often considered in international trade terms as particularly important for the prospects of developing countries, as the commodities the chapter contains are considered the preserve of developing country agriculture. Table 1 breaks down the chapter into the HS4 and HS6 codes considered in this Brief (the greater the number of code digits, the greater the level of disaggregation). Note that garlic, fresh capsicum, onions and pimento peppers are classified under vegetables in the HS system, while 090420 records trade in dried or crushed capsicum and pimento products such as chillies and cayenne pepper. Spices’ classification can also be based on the degree of taste, roughly divided as per the International Standards Organisation (ISO) in Table 2.

The product selection we examine is based on spices already exported by SADC countries and where the potential exists for greater export volumes, as well as some that hold potential but are not presently exploited. In our selection we considered the data available, its grouping and classification. For example, in UNCTAD’s Comtrade, spices traded in small volumes are reported under “other spices, not elsewhere classified”. Of course, such disaggregated data pose difficulty in analysing specific spices. Herbs and spices encompass a vast variety of products, both primary and derived, and include dried parts of plants that make up traditionally traded spices and spice mixtures, as well as extracted compounds, such as essential oils, oleoresins and aroma compounds used in the flavouring and perfume industries.

Table 1: Classification of herbs and spices using the Harmonised System

0904	**Pepper of the genus Piper, Capsicum or Pimenta**	
090410		Pepper piper (black/white pepper)
090420		Capsicum or pimenta – dried or crushed (e.g. cayenne pepper)
0905	**Vanilla**	
0906	**Cinnamon (parts of trees or flowers)**	
0907	**Cloves (whole fruit, cloves, stems)**	
0908	**Nutmeg, mace, cardamom**	
090810		Nutmeg
090820		Mace
090830		Cardamom
0909	**Various seeds**	
090910		Seeds of anise or baden
090920		Seeds of coriander
090930		Seeds of cumin
090940		Seeds of caraway
090950		Seeds of fennel and juniper berries
0910	**Ginger, saffron, turmeric, etc.**	
091010		Ginger
091020		Saffron
091030		Turmeric (circuma)
091040		Thyme and bay leaves
091050		Curry
091090		Other spices (including mixtures)

Table 2: Conventional spices classification, based on the degree of taste

Classes	Spices
Hot spices	Capsicum (chilies), cayenne pepper, black and white peppers, ginger, mustard
Mild spices	Paprika, coriander
Aromatic spices	Allspice (pimento), cardamom, cassia, cinnamon, clove, cumin, dill, fennel, fenugreek, mace, nutmeg,
Herbs	Basil, bay, dill leaves, marjoram, tarragon, thyme
Aromatic vegetables	Onion, garlic, shallot, celery

Source: ISO

Table 3: Plant organs as spices: different parts of plants used in producing herbs and spices

Plant organs	Spice crops
Aril	Mace/ nutmeg
Barks	Cassia, cinnamon
Berries	Allspice, black pepper, chilli
Buds	Clove
Bulbs	Onion, garlic, leek
Pistil	Saffron
Kernel	Nutmeg
Leaf	Basil, bay leaf, mint, marjoram, sage, curry leaf
Rhizome	Ginger, turmeric
Latex	Asafoetida
Roots	Angelica, horse-radish
Seeds	Ajowan, aniseed, caraway, celery, coriander, dill, fennel, fenugreek, mustard, poppy seed

Source: ISO

Table 4(a): Spice varieties

	Aniseed	Bay leaves	Black pepper (Genus Piper)
Other names	Sweet cumin.	Wreath laurel, Apollo's laurel.	White pepper, green pepper, "the king of spices".
Origins	Middle East, Egypt.	Asia Minor and Mediterranean – known almost for ever.	Malabar Coast, India (Kerala).
Main production areas	Middle East, North Africa, Mexico, India and Russia.	There are three main varieties: the Mediterranean bay tree, the Californian bay and the Indian bay.	Indonesia, Malaysia, Thailand, tropical Africa, Brazil, Sri Lanka, Vietnam and China.
Form	The seeds of the anise plant (which can be dried) and the oils from these seeds.	Bay or laurel leaves are dried leaves of a large evergreen shrub or more rarely a tree.	The dried single seed of the peppercorn, which is the berry-like fruit of the piper vine; essential oils extracted.
Culinary uses	Flavouring processed foods, Eastern and Northern European cooking and spicing of cakes, cookies and candies. Used in pepperoni and other processed meats, to flavour cough mixtures, soft drinks and sweets (liquorice), as a breath freshener and to make liqueurs (ouzo).	Bay leaves are used to flavour soups, stews, meat, fish, sauces and in confectionaries. Crushed bay leaves are used in many seasoning mixtures.	In almost every cuisine in the world, for flavouring of sauces, gravies, meats, snack foods, etc., at all stages of cooking process and as a table condiment.
Medicinal uses	Anise tea traditionally used to aid digestion, and also as a carminative, antiseptic and antispasmodic. Also used in cough syrups and lozenges.	It has astringent, diuretic and digestive qualities and is often used to treat burns and bruises. Also has anti-microbial and anti-fungal properties.	Black pepper has been used for a variety of medicinal purposes (historically), particularly as an appetite stimulant and to relieve nausea.
Other uses	Soaps and perfumes, flavouring pet foods.	The oils are used in liqueurs, perfume and in veterinary products.	
Time scale	120-130 days	Whilst leaves can be harvested fairly early on (after a couple of years), berries for oil only appear on mature trees/shrubs.	Perennial plant. Berries mature in 5-6 months.
Climate	Temperate and semi-tropical regions, 8°C -23°C. Needs to be frost free and with a pH between 6.3 and 7.3. Deep, friable soils – nitrogen fertiliser	Temperate and Mediterranean, 8°C - 25°C. Can withstand frost. Full sun and deep soils.	Humid tropics: temperature between 25°C and 40°C, thrives in altitudes above 350m and up to 2,400m.
Rainfall	Uniform rainfall over the growing period, but too much rain at harvest ruins yield. 400mm-1700mm	Annual rainfall between 300 and 2,200mm.	Good rainfall – 1,250mm to 2,000mm.

Table 4(b): Spice varieties

	Capsicum	Cardamom	Cinnamon
Other names	Chilli spices, cayenne pepper, paprika, pimento.	Different varieties, "the queen of spices".	Cassia.
Origins	The Americas.	Southern India.	Sri Lanka, Malabar, Coast of India, Burma.
Main production areas	Mainly in Europe and the US.	India, Guatemala, Sri Lanka, Thailand, Laos, Vietnam, Costa Rica, Tanzania.	India, Sri Lanka, Burma, South America, West Indies.
Form	Can be consumed/sold whole (considered a vegetable) but as a spice it is the dried and processed fruits of the Capsicum and Pimenta pepper family. Commercially it is classified by the amount of capsaicinoids in the pepper and not by family.	The dried seeds of the perennial herb (ginger family) and the essential oils thereof.	The dried inner bark of a tropical evergreen tree, mostly sold as a powder, but also as peels (stick cinnamon) and the essential oils thereof.
Culinary uses	Mainly used for flavouring garnishes, pickles, meats, barbecue sauces, ketchup, cheese, snack food, dips, chilli con came, salads and sausages (sweet bell peppers, paprika, pimento and other red pepper products) but paprika (pimento) is also used for colouring.	Used in many oriental dishes, especially curries, for flavouring coffee in Arab countries and in Scandinavian pastries. The oil is very important for use in food preparations, beverages and health foods.	Flavouring food, especially confectionary, in Europe and America, in curries, casseroles, mulled wines, syrups and ciders.
Medicinal uses	Antioxidant properties or used as a carminative, digestive irritant, stomachic, stimulant, rubefacient and a tonic.	Used for various purposes (often chewed) for combating digestive ailments, nausea, etc. The oil is used in many medicines.	Used to treat gastrointestinal problems, sore throats, indigestion and diarrhoea.
Other uses		The oil is an important ingredient in perfumes.	Oils used in perfume.
Time scale	3 months after planting		
Climate	Flourishes in warm sunny conditions, semi-tropics and tropics. Cold sensitive (below 5°C growth is retarded and frost kills plants). Grows in well-drained, sandy or silt-loam soil with a pH range of 4.3 to 8.7.	Grows best at altitudes of 1,000m to 1,200m, in warm climates between 22°C and 24°C.	Tolerates a wide range of soil and climatic conditions, with optimum 27°C to 30°C. However, well-drained soil is very important (waterlogged produces bitter cinnamon).
Rainfall	Annual rainfall between 600mm and 1,250mm. Spoils at flowering stage with heavy rainfall.	Normally cultivated in the monsoon belt, with annual rainfall of 2,500mm to 4,000mm.	Tolerant but optimum between 2,000mm and 2,500mm.

Table 4(c): Spice varieties

	Cloves	Coriander	Cumin
Other names		Chinese parsley, cilantro.	
Origins	Sri Lanka, Malabar, Coast of India, Burma.	Eastern Mediterranean and Southern Europe (ancient herb).	Europe, Western Asia and North Africa (ancient spice – 5,000 years).
Main production areas	India, Sri Lanka, Burma, East Africa, South America, West Indies.	Morocco, Romania, Mexico, Argentina, the People's Republic of China, Bangladesh, Bulgaria, Canada, Egypt, India, Indonesia, Nigeria, Poland, Syria, US, Russia.	Europe, Asia, the Middle East and North Africa.
Form	This spice is derived from the flower bud (a clove) of a large, evergreen tree – whole or ground clove buds, essential oils and oleoresins from bud, stem and leaves.	The seeds and leaves (cilantro) are used.	The seeds (carpels), umbels, leaves and even the roots are used for various purposes.
Culinary uses	For flavouring many processed meats and bakery products, Christmas mince, Indian curries and rice dishes. Also used in pickles and sausages (e.g. Worcestershire sauce) and some European spice cakes. Also found in many spice mixtures.	Used as a flavouring agent in industrial food processing or in home kitchens (ground seeds). Used to flavour gin and other liqueurs, pickling spice, Mexican and Indian food and bread. The leaves can be used to flavour salads, soups and stews.	Used as a flavouring agent in many ethnic products: cheeses, sausages, stuffings, pickles and rice and bean dishes, particularly in Mexican and other Latin American cooking and Indian cooking (curry powders).
Medicinal uses	Contains eugenol which is an effective anaesthetic and can be used as a preservative. Eugenol is also used in germicides, mouthwashes and sweeteners.	Wide variety of uses, in traditional remedies (especially Chinese medicines), pastes for ulcers and skin abrasions, treating of colic, neuralgia, nausea and rheumatism, and is used generally to counteract unpleasant odours in other medicines. Used as an aphrodisiac.	Antibacterial activity, antispasmodic, carminative, sedative and stimulant.
Other uses		The oil is used in soaps and perfumes, and in flavouring cigarettes.	The oil is used in fragrances, perfumes and veterinary medicines.
Time scale	6 to 8 years before harvesting	Annual herb: 145-190 days	Annual plant/shrub
Climate	Humid maritime environment, temperature between 15°C and 30°C.	Is grown in many climates throughout the world. The small fruited type used for oil is grown in more temperate climes, while the large fruited type is grown in tropical and subtropical environments. 10°C - 25°C. Deep fertile loams.	Mediterranean climes with low atmospheric humidity. 10°C - 25°C, with a Ph level of 4.5 - 8.3. Rich, well-drained sandy loam soil. Often a winter crop in the Middle East.
Rainfall	Rainfall with a dry season: 1,750mm - 2,500mm.	Annual precipitation of 300mm to 2,600mm.	Rainfall is not important, it can flourish in dry climes.

According to Douglas et al (2005), there are about 50 spices of global economic and culinary importance, and many lesser known spices used in traditional cooking that have little or no international trade value. Further, some 200 essential oils are traded internationally, with many extracted from herbs and spices. Unfortunately the essential oil trade is not grouped in a way that allows analysis to determine which oils or oil products were obtained from herbs and spices. Similar issues are encountered when trying to estimate world production of essential oils, as domestic production is not recorded in most countries. For the purposes of this Brief, the essential oils derived from spice and herb plants will not be examined in detail, although they will be pointed out as potential downstream products and highlighted in the value chain.

Table 4a) to 4e) summarise the key characteristics of selected spices, including a brief description of the type of climate needed to grow the plant, annual rainfall and time required to harvest. For a more extensive list, see *http://www.fao.org/inpho/content/documents/vlibrary/ad420e/AD420e20.htm*, which also shows whether the plant is consumed whole or as a spice and whether essences, essential oils or resins are extracted from the plant.

Although most of the products described here had their origin in Latin America or Asia – especially India, China, Sri Lanka and Indonesia – they can be grown in most of the SADC region. The ISO has

Table 4(d): Spice varieties

	Ginger	Nutmeg and mace	Pimenta
Other names			Allspice.
Origins	One of the earliest known oriental spices of China and India, subsequently introduced to various colonies the world over.	The Banda Islands (molluccas).	West Indies and Central America.
Main production areas	It is now cultivated in almost every tropical and sub-tropical country in the world.	Indonesia and Grenada (inferior), although Mauritius has some history of production.	Jamaica, Mexico, Guatemala, Honduras, Brazil.
Form	The rhizomes are dug up, scraped, boiled, peeled and then ground, depending on the product desired and the local techniques. Can be fresh, preserved (brine, syrup), dried or used as a powder.	Nutmeg and mace are two different parts of the same fruit of the nutmeg tree. Fruit is only produced 15 years after planting this large tree, although in greenhouse conditions 7 - 9 years have been reported.	The dried berries of the Pimenta tree
Culinary uses	Flavouring many dishes, curries, pickles, soft drinks and bakery products (gingerbread).	Seasoning of milk-based sauces and other delicate flavoured dishes, stewed fruits, processed meats, puddings and cakes. In Indonesia, nutmeg is used to make jam, in Malaysia they make snakes from the crystallised fleshy outer husk.	Pickling, baking (apple pie), condiments (ketchup), chewing gum, ice cream, soft drinks.
Medicinal uses	It has a whole range of scientifically proven medicinal properties, and is also used extensively in traditional healing practices. This is especially true in China, where it is a major ingredient in most dishes andChinese prescriptions.	It is a stimulant, an aphrodisiac and a narcotic in excessive qualities.	Toothache, indigestion, laxative.
Other uses		Its oils are used in perfumes and ointments.	Mouthwash, embalming.
Time scale	It takes 9 months to produce a crop.	Fruit is produced only 15 years after planting.	
Climate	Warm sunny conditions, with temperatures below 30°C. Frost will kill foliage. Wide variety of altitudes.	Hot and moist climate with well-drained soil. Optimum growning temperature between 20°C and 30°C year-round.	Semi-tropical lowland forests with temperatures ranging between 18°C and 24°C. Cultivating it outside of its natural habitat has proven quite difficult.
Rainfall	Well-distributed yearly rainfall of between 2,500mm and 3,000mm, although 1,500mm will suffice.	Annual rainfall between 2,000mm and 2,500mm.	Even rainfall between 1,200mm and 2,500mm, but optimum between 1,500 and 1,750mm.

an alternative list of plant spices, which includes the botanical name, family name, common name and the part of the plant used as a spice (see *http://www.indianspices.com/html/iso_lis_spe.htm*).

One can divide the herbs and spices presented in Table 4 into two broad categories – those grown in humid and tropical regions and those grown in more temperate or Mediterranean climates, although a number of spices can be grown in both. Generally speaking, black pepper, the capsicum family, cardamom, caraway, cloves, cinnamon, nutmeg and mace, pimento, turmeric and vanilla prefer humid tropical climates such as those in Tanzania, Zambia, Mozambique, Malawi, Madagascar and the Democratic Republic of Congo. Black pepper and cardamom enjoy higher altitudes, which means that production in the highlands of Tanzania, Malawi, Zambia and Zimbabwe should be considered. Ginger and coriander have been cultivated in a variety of climates, although ginger requires good, well-distributed rainfall, while coriander tolerates drier climates.

Mediterranean or temperate climates are ideal for aniseed, bay leaves, saffron and cumin, which will tolerate some of the drier regions of SADC as long as temperatures remain at around 25°C. Potentially good farming areas for these spices and herbs could include South Africa's Western Cape Province, parts of Namibia and Botswana. Most of the herbs and spices examined in this Brief can be grown in a number of countries in the SADC region.

Table 4(e): Spice varieties

	Saffron	Turmeric	Vanilla
Origins	Asia Minor, Iran and Kashmir.	One of the earliest known oriental spices of China and India, and subsequently introduced to various colonies the world over.	Guatemala, Mexico and Central America.
Main production areas	Spain, Italy, France, Sicily, Iran and Kashmir.	It is now cultivated in almost every tropical and sub-tropical country in the world.	Madagascar is the world leader, Indonesia, Papua New Guinea, Comoros, Mexico. Uganda has recently started growing the crop.
Form	Saffron is derived from the dry stigmata of the plant Crocus Sativus.	The rhizomes are dug up, scraped, boiled, peeled and then ground depending on the product desired and the local techniques. Can be fresh, preserved (brine, syrup), dried or a powder.	A perennial vine – member of the orchard family. Vanilla is the world's most labour-intensive agricultural crop.
Culinary uses	Used to flavour and colour many Mediterranean (paella) and Oriental dishes, saffron cakes and loaves, milky rice, vermicelli puddings, Indian sweet custard desserts and is also used in liqueurs.	Flavouring many dishes, curries, pickles, soft drinks and bakery products (gingerbread).	The bean (can be transported dried) and the essence derived from it.
Medicinal uses	It is used as a sedative, antispasmodic and for flatulence.	It has a whole range of scientifically proven medicinal properties and is also used extensively in traditional healing practices. This is especially true in China, where it is a major ingredient in most dishes and in Chinese prescriptions.	The world's most popular flavouring essence for food, liqueur, perfumes, etc. Flavours chocolates, ice-cream, candy, soft drinks, cookies, confectionary and even cigarettes.
Time scale	Perennial herb which blossoms for only a few weeks in a year.	7 to 10 months after planting.	1 to 4 years to produce flowers, up to 5 years for the bean.
Climate	Mediteranean climates, cool moist winters, hot dry summers. 6°C - 20°C.	Although originally a plant of forests and therefore shade, recent research has shown that open cultivation yields are higher. High heat (30°C - 35°C) is needed for sprouting, 25°C - 30°C for tilling, 20°C -25°C as rhizomes appear and 18°C - 20°C during enlargement.	Humid tropical climates. 25°C - 30°C. Often grown in greenhouses.
Rainfall	Rainfall is not particularly important. Can be grown in arid regions but irrigation can aid production. 100mm - 1,100mm.	Rainfall of 1,000mm - 2,000mm necessary, with 1,500mm optimum. Moisture of soils affect yield.	Well-distributed rainfall of 1,900mm - 2,300mm, and with no prolonged dry spell.

Source: Table 4a) to 4e) compiled from the following sources: http://edis.ifas.ufl.edu/MV008, www.omafra.gov.on.ca/english/crops/facts/02-049.htm, http://practicalaction.org/?id=technical_briefs_food_processing, www.hort.purdue.edu/newcrop/med-aro/factsheets.html, www.da.gov.ph/tips/blackpepper.html

2.2 Value chains

Figure 2a) and 2b) show the value chain for spice production and distribution. The process starts with the growers, who are divided into three groups: small growers, larger growers (commercial farms and plantations) and wild collectors (only applicable to spices still found in the wild or in common lands in certain countries and regions).

Small growers or wild collectors sell directly to local traders or co-ops, which distribute to processing organisations or process the herbs and spices themselves. Local traders, as middlemen, sell the product to the processors. Production begins with washing, threshing and sifting of the plants, followed by the drying process, then cleaning / storing and grading. Of course, these processes vary according to the particular spice and the preferred technique. Techniques often depend on where the spice is produced (existing climates/conditions), the machinery available, whether the plants have been grown in greenhouses or in the open and the cost of local labour. Techniques vary between developed and developing countries and can result in different end-products, which makes the next step in the process, quality assurance testing, particularly important.

Quality assurance testing is conducted according to country or industry standards by standards bodies, industry associations, plant

health departments and other agricultural departments/institutions. This process is critical because of the market access barriers that developed nation markets impose, which are often based on those countries' phytosanitary and sanitary requirements, including restrictions on the levels of certain chemicals or their residues (such as aflo-toxin) and/or other substances (for example, Sudan red, which is used in some instances to make curry powders red). In addition, the methods used for cutting or grinding of the product, including formulating mixtures and combinations, as well as sterilisation and packaging, have a major impact on the exporting process. Export potential is undermined if these steps are not performed in compliance with international standards.

Figure 2b) shows how production fits into the distribution process. While many spices can be exported whole, most are processed, usually by grinding them into powders. Developing countries generally do not beneficiate spices. Often spices imported by developed nations from developing countries are re-exported after significant value has been added in the form of packaging and blending.

Figure 2(a): Value chain for spice production

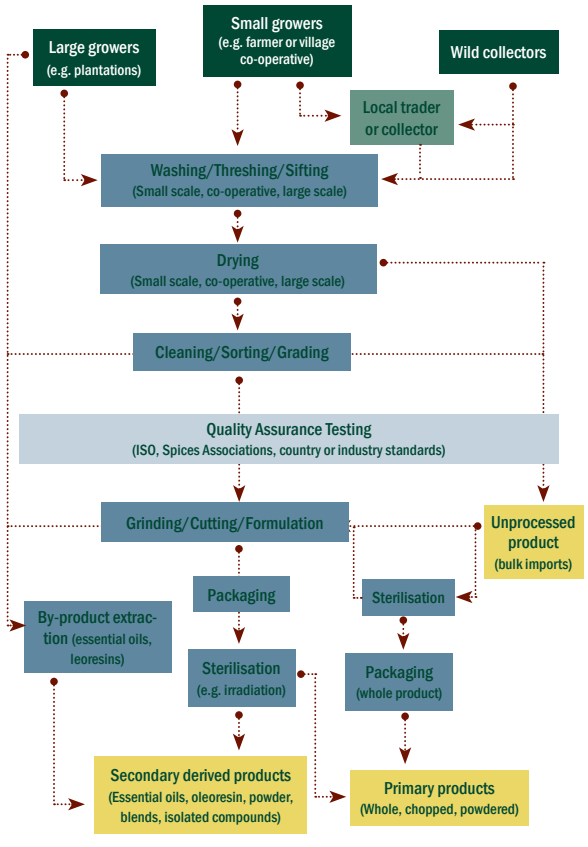
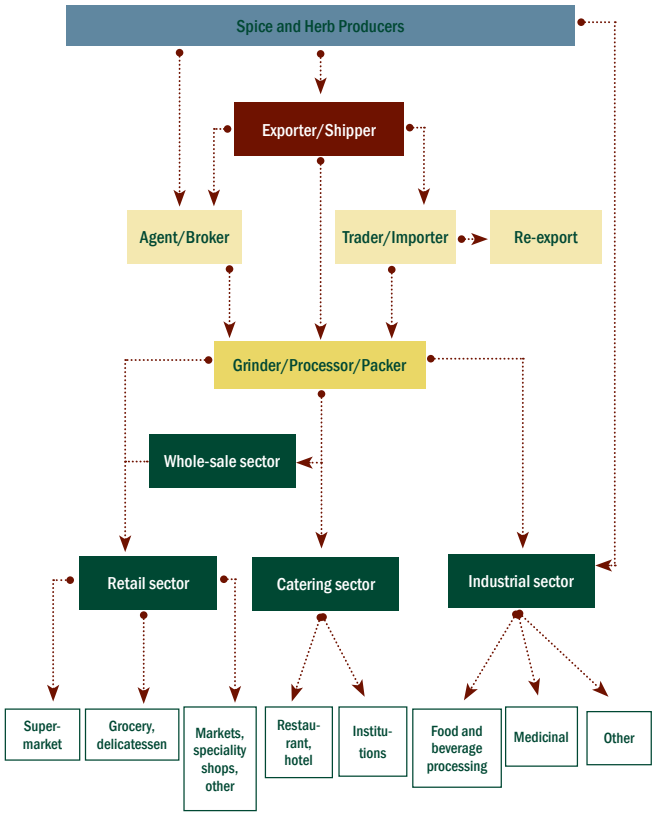


Figure 2(b) Value chain for spice distribution



Source: Douglas et al, 2005

2.2.1 Opportunities within the value chain for high-value products

It is clear from the value chain diagram that a processor has three broad options for selling the final product: retail, catering and the industrial sector. Catering and the industrial sector involve products sold at

higher wholesale volumes and corresponding lower values, with lower mark-ups but also lower expenditure and a reduced emphasis on marketing, packaging, advertising and branding. The retail sector spends more on marketing and packaging and generally demands products of higher quality.

Herbs and spices, along with flowers, fruit and vegetables, have better returns than the so-called 'traditional' agricultural crops, as their demand has been growing much faster and they are generally not as over-produced as some traditional crops, which renders their prices higher. These products are likely to continue earning high revenues, as their consumption shows no sign of declining and they are less associated with lower income groups' consumption patterns than traditional agricultural crops.

On the other hand, many of the constraints that plague small-scale farmers and processors of traditional agricultural commodities in many developing countries also concern farmers of herb and spice products, such as difficulty in accessing long-term finance, frequently due to a lack of collateral/assets or poorly functioning financial markets. They also often experience inadequate infrastructure, poor or non-existent roads/rail to transport the product to ports and inadequate port facilities for timeous export of their product. Other issues include the location of developing countries on expensive transport routes (with lower airfreight or shipping frequencies) and irregular rainfalls and droughts, which impact on crop yields. Challenges include water management issues (such as high costs in setting up irrigation systems or dams), inadequate or expensive pest control, inferior research and development into disease-resistant strains and difficulty in obtaining suitable fertilisers and other chemicals to grow crops. Despite these challenges, there are a number of reasons why spices are well suited to international trade by developing countries.

Spices are less sensitive to storage conditions than most other agricultural commodities, have lower weight to value ratios (with reduced water levels) and can be stored for relatively long periods without a loss in freshness, quality or value. In addition, growing and drying spices can be carried out profitably by relatively small farms without capital-intensive and high-technology equipment.[1] However, whether small farmers can compete in the global value chain depends on whether they can meet international quality standards consistently.

[1] Some of the 'indigenous' growing and drying techniques can also conserve energy, water and other limited resources.

2.2.2 High-value agricultural (HVA) products

The change in the structure of the world's agricultural trade and the rise of commercial farms, vast global retail chains and the disappearance of traditional importers and exporters have led many to question the role that agriculture can play in developing countries in future. There are further concerns about small farmers and whether they can be integrated successfully into global value chains – which is difficult when economies of scale and access to finance, new machinery and technology are crucial to producing the quality and quantity demanded by international markets.

These concerns are particularly pertinent for sub-Saharan Africa, where it is estimated that small farmers account for around 90% of total agricultural output and where almost three-quarters of the rural poor are farmers with small plots of land. While poverty has been reduced relatively successfully in Asia and South America, sub-Saharan Africa has seen the number of people living in poverty double in the last 20 years.

In most sub-Saharan African countries, agriculture still dominates the economy, with little secondary and tertiary sector development. Still, agriculture is likely to be an important source of growth and employment in future, despite urbanisation and modernisation. Growth in the agricultural sector is often seen as the first step towards sustainable development. But declining commodity prices and a lack of beneficiation make it hard to envision how those engaged in small-scale or subsistence farming will be able to leverage themselves out of the survival economy.

Some small farmers have responded to market demands by shifting production from traditional crops to HVA products. Table 5 shows some traditional products produced by developing countries and some of the newer HVA products that are gaining importance amongst

Table 5: Traditional and non-traditional agricultural crops and products

Tradtional crops	Non-traditional (HVA) products
Sugar	Dairy products
Cotton	Meat products
Jute	Vegetables
Tobacco	Fruit
Coffee	Fish
Cocoa	NTF prodcuts: nuts
Tea	Spices and essentail oils
Bananas	Herbs
Cereals, roots and tubers	
Oilseeds	

Source: Davis, 2006

developing country farmers. Herbs and spices are included in the high-value commodities, although the literature on the subject views spices more from the perspective of non-timber forest products (NTFP)[2]. Some of the reasons for a shift from traditional crops to high-value commodities include:

- The failure of international co-operation to stabilise commodity prices and to marry supply with demand, resulting in over-production and stockpiles.
- Volatility of commodity prices, which often results in the undoing of small farmers.
- The effects of market liberalisation, deregulation, the removal of input subsidies (ironically for developing countries) and publicly funded extension services.
- The steady growth in developed country demand for year-round supply of horticultural and other products over the past decade.
- Growing demand in the EU and North America for alternative health products.
- A demand for high-value products in developing country markets, stimulated by large retail and wholesale chains/outlets, which are driven by urbanisation and growing purchasing power.
- Distribution channel dynamics, including retail chain procurement from a few large-scale suppliers, bringing about standardisation and eroding diversity in taste.
- Increasing safety legislation in Europe and North America, resulting in retail chains exerting high levels of control (through, for example, for example, EurepGAP and HACCP[3]) and increasing vertical integration, which result in multinationals operating at lower levels of the supply chain, especially in large-scale agriculture.

Many of the reasons which have prompted the shift from traditional to high-value production are likely to persist, and one can expect more developing country farmers to engage in the production of high-value commodities. It is imperative that SADC governments respond rapidly

[2] This refers to herbs and spices grown on trees, such as nutmeg, cloves and cinnamon, or products originally found in forests like vanilla. It considers those who have domesticated spices and those gathering spices from common lands, as well as spices grown like crops, such as pepper, capsicum, ginger and turmeric.

[3] EurepGAP is a private sector body that sets voluntary standards for the certification of agricultural products around the globe. HACCP (Hazard Analysis and Critical Control Point) is an internationally recognised and recommended approach to food safety that anticipates and prevents hazards associated with ingredients.

to this trend so that their farmers can benefit from the gains to be had from the greater demand for high-value products. For small farmers to compete in a global marketplace, they need the support of organisations, co-operatives, unions and government. The potential multiplier effects from enabling them to export high-value output can be considerable and worth the investment by government or allied organisations. Table 6 illustrates some of these multiplier effects.

One potentially large effect is on employment, since the production of many spices are labour intensive. In the horticultural sector, McCulloch and Ota (2002) estimate that in Kenya, for every two people working on a vegetable farm, an additional job is created in the packing sheds. Similarly for herbs and spices, most of the products need to be dried and ground, which do not necessarily have to happen in large facilities in developed countries, but can be achieved by using traditional techniques – the fact that many of these methods are labour intensive could help to alleviate job hunger in many of these nations.

Table 6: The impact on poverty of growing production of high value commodities

		Impacts on poverty			
		Upstream / downstream effects	**Employment / income effects**	**Poverty outcome**	**Small-scale farmer challenges**
Growth in demand for HVA commodities	➤	Demand for additional/new inputs	Employment/income growth in input sectors	Lower poverty if input sectors are labour intensive	Slow growth in demand from export and/or domestic sector
	➤	Demand for HVA commodities	Higher farm income, but higher risk	Lower poverty if (poor) small-scale farmers participate	Maintaining increasecd productivity and quality
	➤	Demand for labour by large HVA farms and processors	Higher wages/employment	Lower poverty if HVA production and processing is labour intensive	Competitiveness locally and regionally
	➤	Effect of HVA on food prices	Production of HVA commodities may affect stable food prices	Possibly higher urban poverty if staple prices rise	

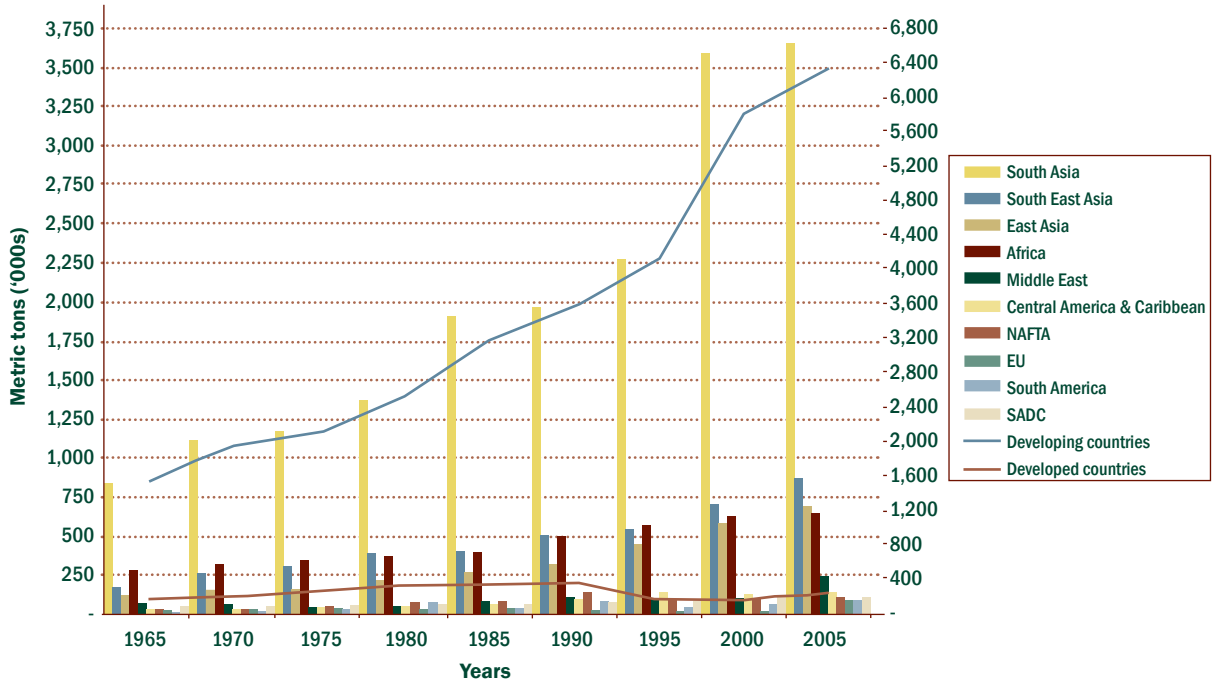
Source: Davis, 2006

3. Global production and consumption

3.1 World production of spices

Total global production of spices has rapidly increased since the 1960s, from 1.7-million metric tons in 1965 to 6.6-million metric tons in 2005 (see Table 7). It shows that production techniques and therefore yields have increased and land cultivated has risen to meet growing global consumption of spices.

Figure 3: World spice production, 1965-2005



Source: FAOSTAT and own calculations

India leads the world in spice production, with some 3.1-million metric tons in 2004, or just under half of world production. China is the second largest producer, with 692,000 metric tons in 2004, or 10.5% of total world production, followed by Indonesia's 448,000 metric tons or 6.8%. However, one must keep in mind that more tons do not necessarily represent greater export earnings; many spices like saffron, which is more valuable per ounce than gold, have high value-to-weight ratios.

South Asia (India, Pakistan and Nepal) is the leading region, producing 55% of world production. South East Asia (Indonesia, Vietnam and Thailand) follows with 13.2% and East Asia (China) produces 10.5%. The EU and the Middle East have been increasing their production of a variety of spices through new production techniques, including greenhouses, drip irrigation and farming technology improvements. Nonethe-

Table 7: World production of spices by region and selected countries

	Years				Average annual growth			
Production (Mt)	**1965**	**1995**	**2000**	**2005**	**00-05**	**95-05**	**65-05**	**World market share (%)**
World	1,731,758	4,306,948	6,005,055	6,578,488	1.8	4.3	3.4	100.0
Developed countries	183,970	175,566	184,233	236,810	5.1	3.0	0.6	3.6
Developing countries	1,547,788	4,131,382	5,820,822	6,341,678	1.7	4.4	3.6	96.4
South Asia	853,101	2,282,477	3,598,914	3,658,421	0.3	4.8	3.7	55.6
South East Asia	177,591	545,449	709,822	870,764	4.2	4.8	4.1	13.2
East Asia	122,441	445,083	588,148	698,350	3.5	4.6	4.4	10.6
Africa	285,788	571,049	623,949	646,319	0.7	1.2	2.1	9.8
Middle East	72,028	109,261	111,643	240,850	16.6	8.2	3.1	3.7
Central America & Caribbean	30,469	143,565	132,609	136,712	0.6	-0.5	3.8	2.1
NAFTA	27,620	88,673	97,875	104,499	1.3	1.7	3.4	1.6
EU	26,586	12,705	13,493	97,020	48.4	22.5	3.3	1.5
South America	11,033	41,244	60,868	94,965	9.3	8.7	5.5	1.4
Oceania	537	3,254	4,869	5,297	1.7	5.0	5.9	0.1
SADC	46,699	89,606	106,960	111,718	0.9	2.2	2.2	1.7
Selected leading countries								
India	653,000	1,822,400	2,986,600	3,104,000	0.8	5.5	4.0	47.2
China	117,941	434,533	584,871	692,380	3.4	4.8	4.5	10.5
Indonesia	52,150	292,102	370,015	447,899	3.9	4.4	5.5	6.8
Bangladesh	121,700	136,670	227,000	234,000	0.6	5.5	1.6	3.6
Nigeria	34,080	130,000	146,500	161,500	2.0	2.2	4.0	2.5
Madagascar	11,845	21,756	23,412	24,890	1.2	1.4	1.9	0.4

Source: FAOSTAT and own calculations

less, only some spices can be grown profitably in these environments (even with the help of technology), while others cannot be grown in developed countries at all. Commodities such as vanilla, cloves and nutmeg (under-represented in Table 8 because of their higher value-to-weight ratios) require specific conditions that cannot be easily replicated elsewhere. This does not mean, however, that spices can only be grown in their lands of origin – many regions with climates similar to those of India, Indonesia and Sri Lanka successfully grow 'foreign' herbs and spices. For example, Guatemala grows cinnamon and Tanzania grows cloves, both of which are not native to those countries.

From Table 7 one can see that developing countries have grown their production levels of spices from 1965 to 2005 by an annual average growth rate of 3.6%, while developed countries had an annual average growth of only 0.6%. However, developed nations tend to have colder climates that are less friendly to spice agriculture. It is therefore worrying that SADC (1.7% market share), with prime potential agricultural climates for spices, is only fractionally ahead of the EU (1.5% market share), which is a novice to spice farming and has to use high technology to grow spices in greenhouses.

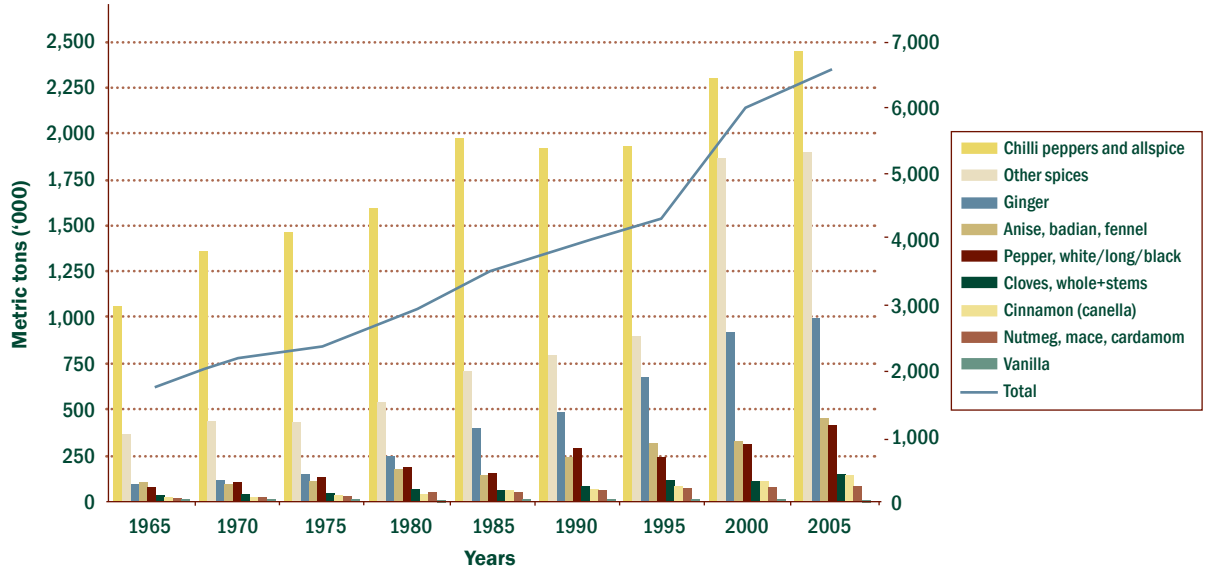
Table 8: World production of spices by variety, 1965-2005

World	Year				Average annual growth			Market share (%)
Production (Mt)	**1965**	**1995**	**2000**	**2005**	**00-05**	**95-05**	**65-05**	
Capsicum and pimento	1,057,777	1,928,688	2,302,879	2,450,336	1.2	2.4	2.1	37.2
Other spices	356,759	900,016	1,863,160	1,899,000	0.4	7.8	4.3	28.9
Ginger	82,283	672,780	916,438	1,004,546	1.9	4.1	6.5	15.3
Anise, badian, fennel	97,260	309,888	325,040	446,296	6.5	3.7	3.9	6.8
Pepper, white/long/black	74,442	236,843	309,667	409,899	5.8	5.6	4.4	6.2
Cloves, whole+stems	26,378	108,157	104,999	145,370	6.7	3.0	4.4	2.2
Cinnamon (canella)	19,692	81,263	108,247	134,410	4.4	5.2	4.9	2.0
Nutmeg, mace, cardamom	15,418	64,946	70,061	81,292	3.0	2.3	4.2	1.2
Vanilla	1,749	4,367	4,564	7,339	10.0	5.3	3.7	0.1
Total	1,731,758	4,306,948	6,005,055	6,578,488	1.8	4.3	3.4	100.0

Source: FAOSTAT and own calculations

Table 8 shows that ginger has been the best performing spice variety for the entire period 1965 to 2005, with an average annual growth rate of 6.5%, followed by cinnamon at 4.9% per annum and pepper and cloves at 4.4% per annum. Although aniseed, cloves and especially vanilla have been good performers recently, vanilla is a rather 'light' commodity, with a small effect on overall spice production figures. When examining spices' production growth, one should also keep in mind the length to maturity of a particular spice. Nutmeg, cloves and cinnamon are from trees which take longer to grow than, for example, anise or pimento, while vanilla, although from a vine, takes five years before its first harvest. Therefore, when assessing production levels, one should

Figure 4: World spice production by variety, 1965-2005



Source: FAOSTAT and own calculations

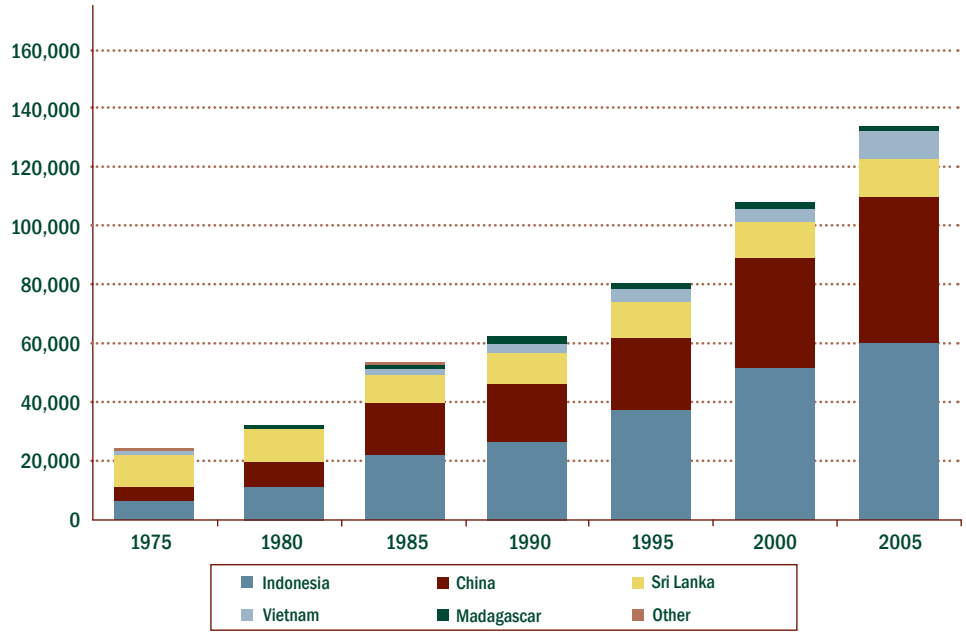
bear in mind the planting that might already have been done and the excess capacity that may already exist. Any response to over- or under-supply is also likely to occur over a longer period than with a spice like pepper, for example.

3.2 Production of particular varieties

The growing and processing of spices depend to a great extent upon the endowments present in a country, and while the preceding tables and figures illustrate the general situation in terms of all spices, this varies greatly between cultivars. If you take cinnamon and cassia, nutmeg, mace, cardamom, cloves and vanilla by country for the period 1975 to 2005, relatively few countries produce the bulk of the world's supply, with Indonesia by far the greatest producer of three of these.

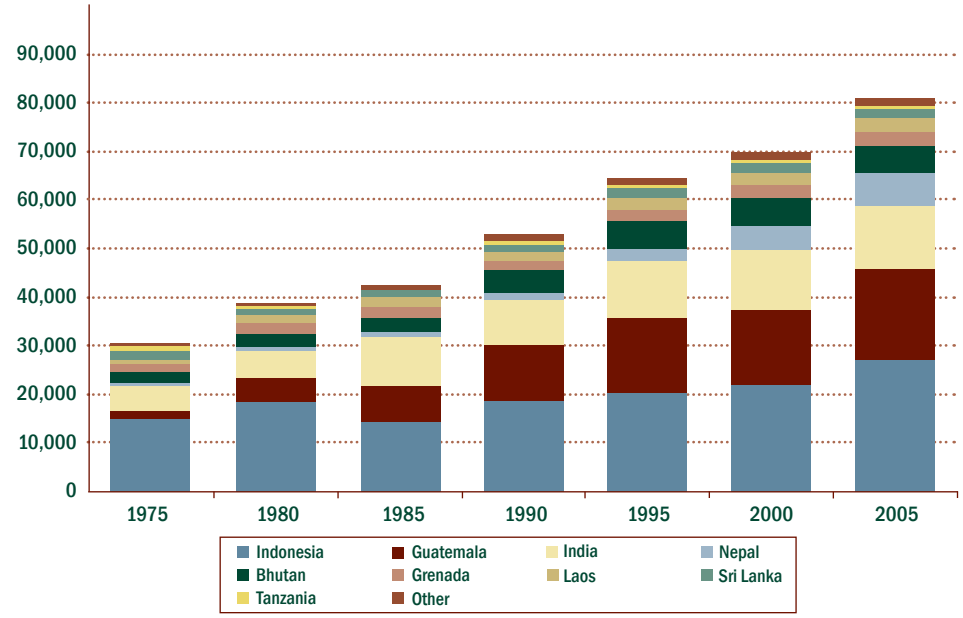
Figures 5a) to 6b) below are useful in illustrating how individual spice commodities or groups of commodities (as classified by the FAO's statistics division) have performed over the last number of years in terms of production growth and which countries have driven that growth. Figure 6b) shows that Madagascar is the leading producer of vanilla, growing more than half of the 10,500 tons produced in 2005. Madagascar is also a leading clove producer, second only to Indonesia, accounting for roughly 11% of total world production by tonnage. For cinnamon and cassia, total world production has increased by 65% over the last decade, driven by increases in Indonesian produc-

Figure 5(a): Production of cinnamon and cassia, 1975-2005 (tons)



Source: FAOSTAT and own calculations

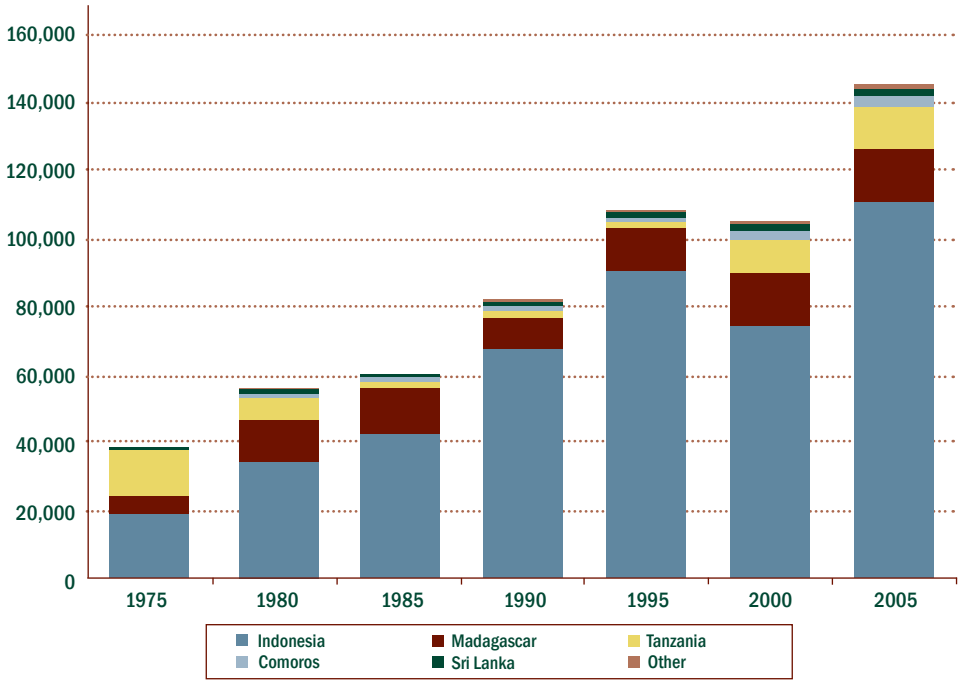
Figure 5 (b): Production of nutmeg, mace and cardamom, 1975-2005 (tons)



Source: FAOSTAT and own calculations

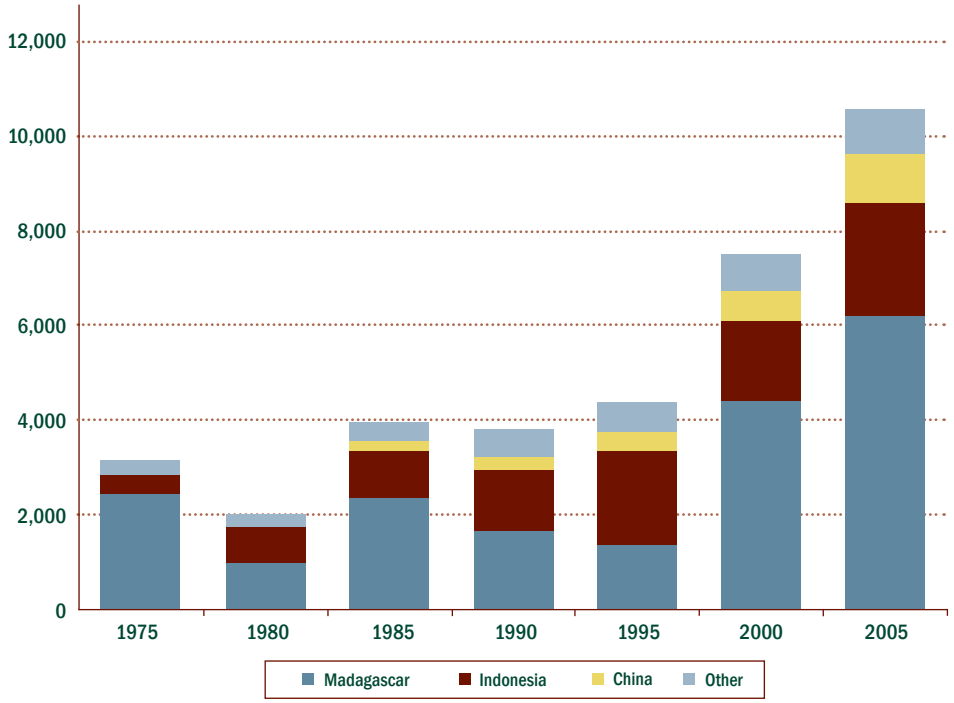
tion, which has risen 60%, Chinese production which has doubled and Vietnamese production which has more than doubled. Madagascar, which produced 1,700 tons in 1995, now only produces 1,500 tons – a decrease of 12%. Indonesia has boosted its production of nutmeg, mace and cardamom by one third, outstripping the world growth rate of 25%, while Guatemala, Nepal and Laos have made earnest efforts to tap into this market. Guatemala, now the second largest producer of nutmeg, mace and cardamom, has grown its production by more

Figure 6(a): World production of cloves, 1975-2005 (tons)



Source: FAOSTAT and own calculations

Figure 6(b): World production of vanilla, 1975-2005 (tons)



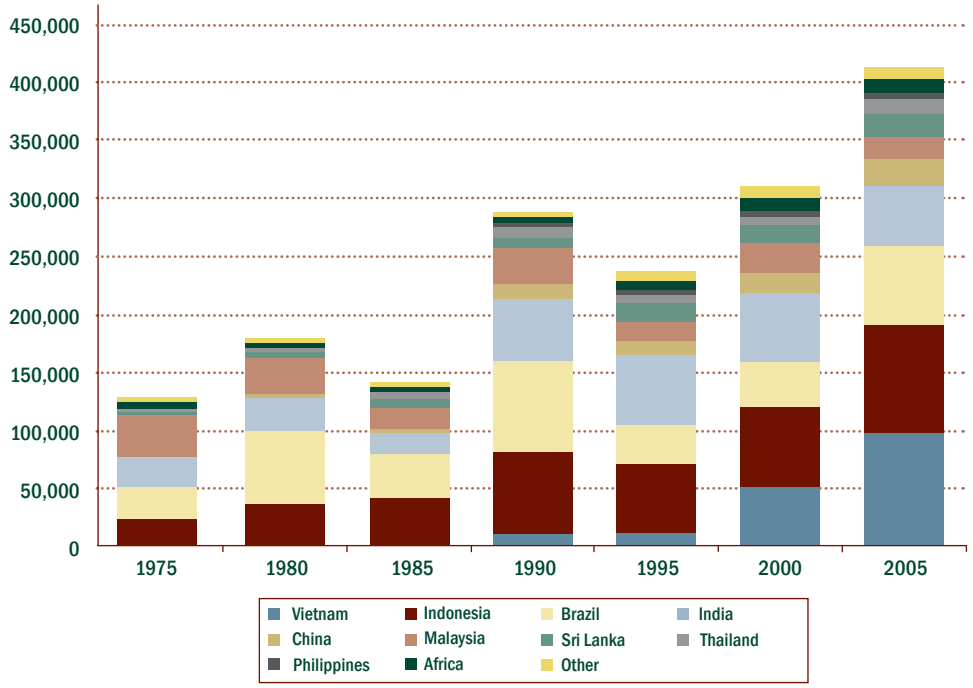
Source: FAOSTAT and own calculations

than 900% from 1,800 tons per annum in 1975 to 19,000 tons in 2005. Indonesia dominates clove production (see Figure 6a), supplying three of every four cloves consumed worldwide. Historically the most important country for clove production, Indonesia has further accelerated its production in the last 30 years. Madagascar, the world's second largest producer, has supplied around 10% of world consumption since 1975, but has not grown its market share significantly since 1980. Tanzania (Zanzibar), the world's third largest producer of cloves, previously the second biggest, has seen its share decline. The reasons for the declining performance of the two African nations are not known.

Madagascar has enjoyed huge success in vanilla production, growing its production base by over 300% in the last decade. In general, vanilla has been one of the fastest growing spices in terms of production, growing by 140% over the last decade. However, it is one of the most labour-intensive crops in the world, needs particular climatic conditions and a great deal of care and maintenance. One of the faster growing producers of vanilla more recently has been China, which makes sense given the labour-intensive nature of the product. Where production processes is concerned, it must be assumed that vanilla in China is grown in greenhouses.

Pepper, a vine, takes only five to six months until its first harvest. It can be grown in a wide variety of climates, from semi-tropical to tropical (25º Celsius - 40º Celsius), and can be grown at high altitudes. It is the most traded of all spices. Figure 7a) highlights some of the countries engaged in producing pepper. Vietnam began producing pepper in significant quantities in 1990 (10,000 tons); by 2005 it was the world's top pepper exporter, producing just under 100,000 tons and exporting $128-million worth of the spice. Indonesia, Brazil, China, Thailand and the Philippines have also grown their market share in the past decade,

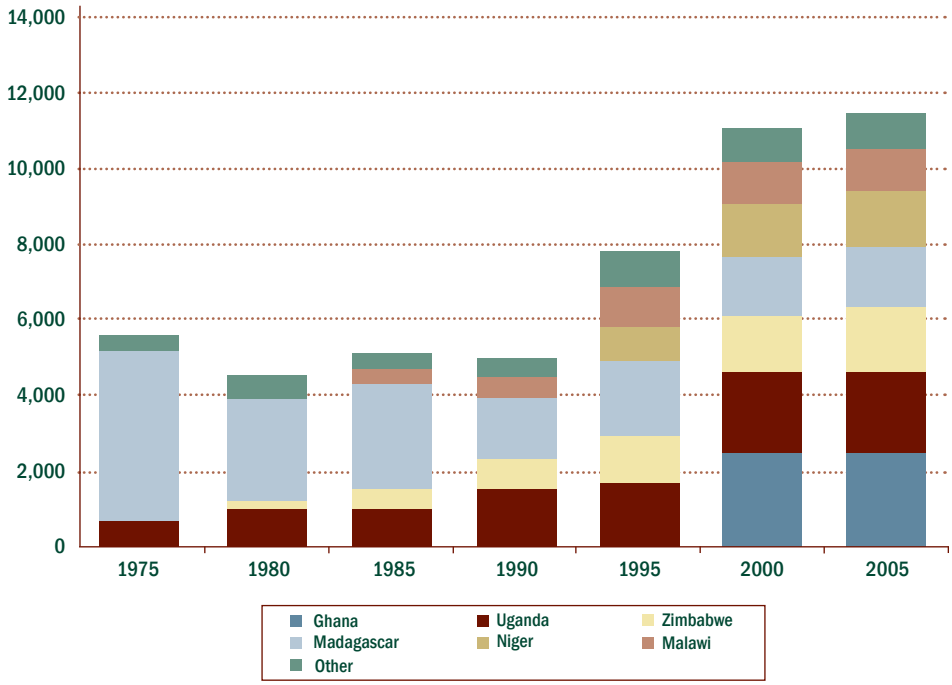
Figure 7(a): World production of pepper, 1975-2005 (tons)



Source: FAOSTAT and own calculations

recording improvements of 60%, 95%, 86%, 87% and 72% respectively, while worldwide production of pepper has increased by over 70% in the last decade. Six African countries grow pepper – Ghana, Uganda, Zimbabwe, Madagascar, Niger and Malawi – but in total the African continent accounts for just over 11,000 tons of pepper (less than 3% of

Figure 7(b): Africa's production of pepper, 1975-2005 (tons)

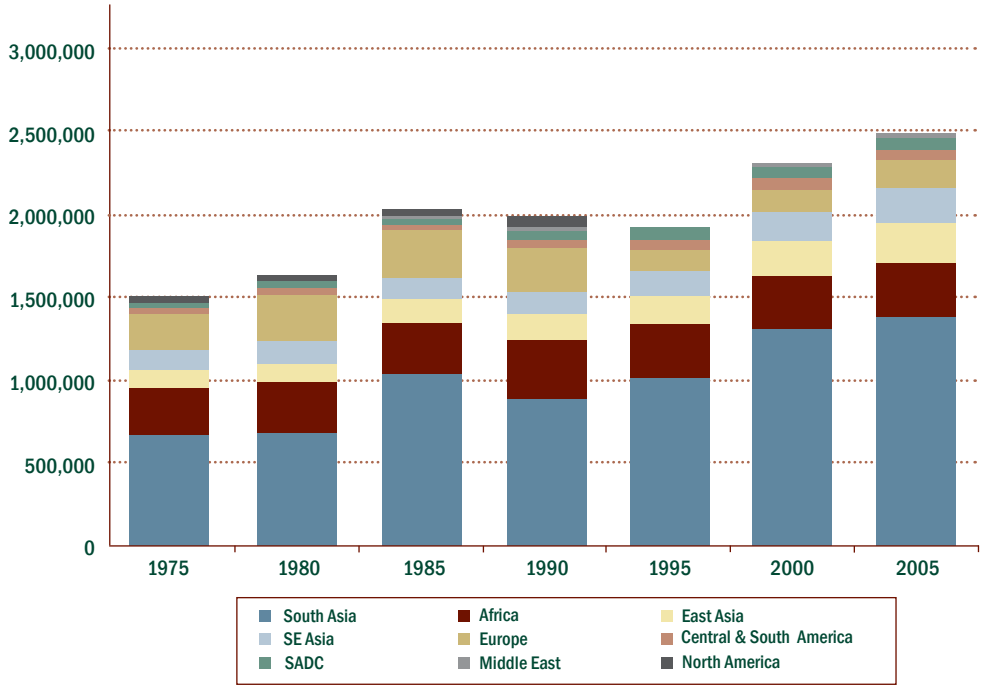


Source: FAOSTAT and own calculations

total world production). African production has grown by only 40% over the decade, far slower than other markets. Currently there are concerns about declining world pepper demand and over-supply from around the world (for more information, visit the International Pepper Association at *www.ap-foodtechnology.com/news/ng.asp?id=55299-high-quality-keeps*).

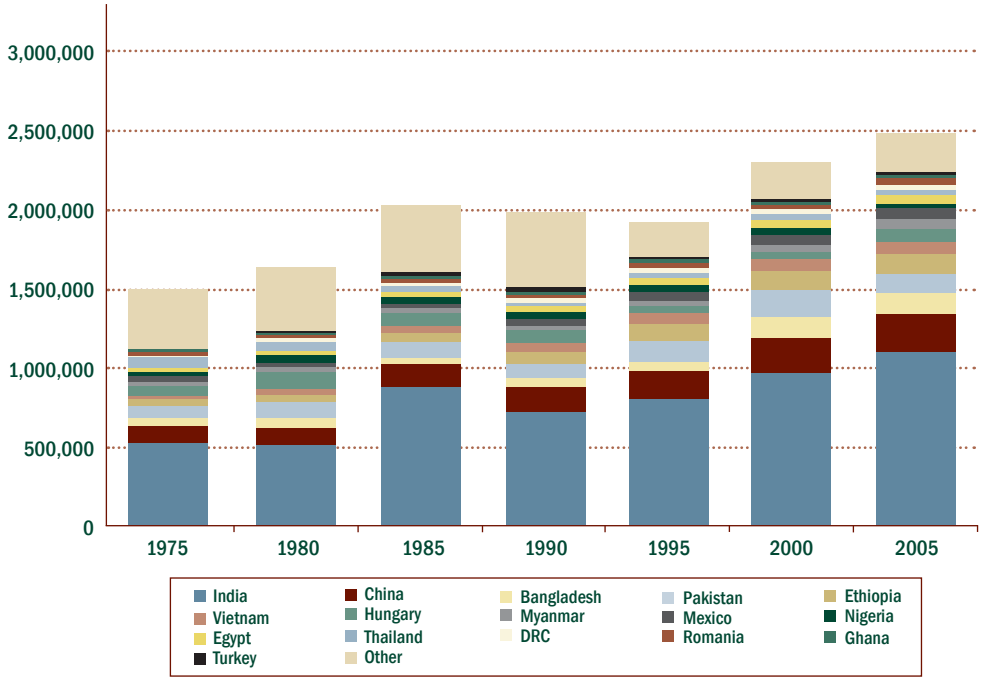
The capsicum family of spices, including chilli peppers, cayenne and paprika, when combined with the pimento family (allspice), ac-

Figure 8(a): World production of capsicum by region, 1975 to 2005 (tons)



Source: FAOSTAT and own calculations

Figure 8(b): World production of capsicum by country, 1975 to 2005 (tons)

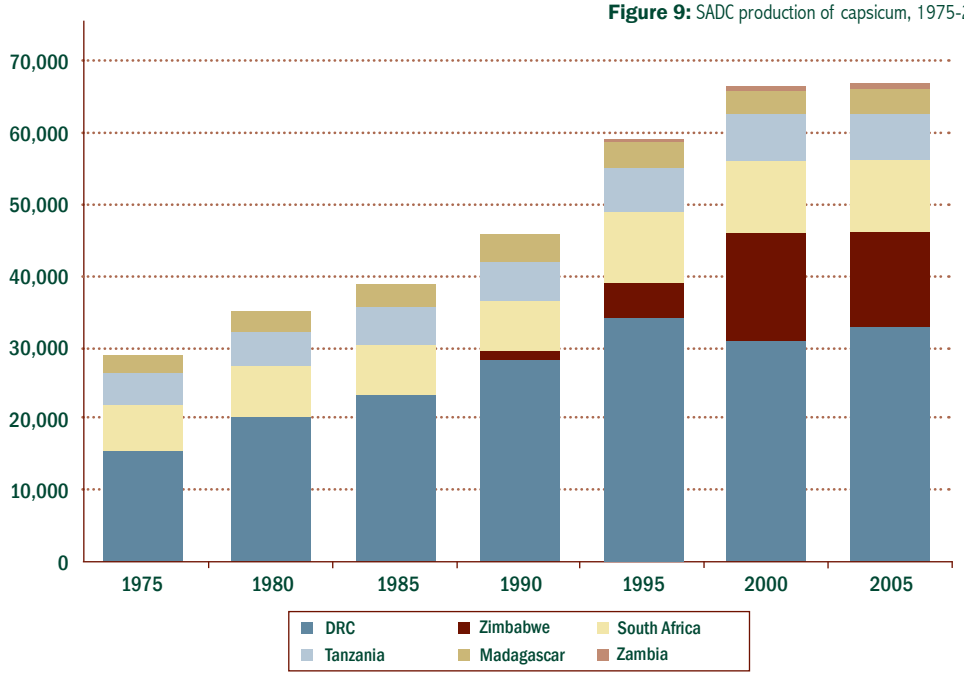


Source: FAOSTAT and own calculations

counts for over 37% of total world spice production in volume terms. Figure 8a) and 8b) illustrate the world production of spices belonging to the capsicum family from 1975-2005. Peppers from the capsicum family are produced by many countries, although India, and consequently South Asia, is the leading producing country and region respectively. World production of capsicum was 2.5-million tons in 2005, of which India produced 1.1-million tons or around 44%. Other major producers include China, Bangladesh, Pakistan and Ethiopia, which produced more than 100,000 tons in 2005.

A number of African countries (Ethiopia, Nigeria and Egypt) produce capsicum peppers in significant quantities, while the largest producers from SADC include the DRC with an estimated 33,000 tons, Zimbabwe (about 13,000 tons), South Africa (10,000 tons), Tanzania (6,400 tons), Madagascar (3,200 tons), Malawi (1,800 tons) and Zambia (550 tons) n 2005 (see Figure 9). Africa is the world's second largest producer, accounting for around 13% of total global output; however, its productive capacity has grown very slowly (by only 3% in the last decade). In contrast, East Asia, South East Asia and South Asia have all grown by over 35% over the same period. The SADC region has grown by 12%. Zimbabwe was the fastest growing producer in the region between 1997 and 2000, but has seen a drop in production since 2000.

Figure 9: SADC production of capsicum, 1975-2005 (tons)



Source: FAOSTAT and own calculations

3.3 Consumption

Table 9 shows the size of various spice markets and illustrates the point that being a large spice producer does not necessarily equate with prominence as a trader. For example, although almost half of the world's spices are produced in India, the country also consumes most of the spices it produces. Indonesia, on the other hand, exports a third

Table 9: World spice supply usage by region and selected countries, 2003 (Mt)

	Production	Imports	Exports	Domestic supply	% of world production	% of world exports	% of world consumption
World	6,440,704	1,554,977	1,543,067	6,461,522	100.0	100.0	100.0
Developed countries	227,220	813,140	248,137	793,233	3.5	16.1	12.3
Developing countries	6,213,484	741,837	1,294,930	5,668,289	96.5	83.9	87.7
South Asia	3,643,742	242,173	265,514	3,620,521	56.6	17.2	56.0
Africa	646,890	77,330	76,375	658,675	10.0	4.9	10.2
South East Asia	794,238	10,187	281,161	517,814	12.3	18.2	8.0
East Asia	663,769	200,527	402,911	461,585	10.3	26.1	7.1
NAFTA	102,909	302,278	53,123	352,064	1.6	3.4	5.4
Middle East	240,713	152,658	131,634	263,737	3.7	8.5	4.1
EU	13,020	299,577	140,296	174,916	0.2	9.1	2.7
Central America & Caribbean	136,569	45,616	59,736	122,234	2.1	3.9	1.9
South America	93,372	29,546	85,030	38,501	1.4	5.5	0.6
Oceania	4,191	13,251	5,027	10,600	0.1	0.3	0.2
SADC	111,343	26,536	45,684	101,905	1.7	3.0	1.6
Selected coutries							
India	3,104,000	93,215	222,000	2,975,215	48.2	14.4	46.0
Indonesia	392,375	14,800	117,412	289,763	6.1	7.6	4.5
China	657,799	24,675	399,836	282,838	10.2	25.9	4.4
US	2,720	244,976	24,277	223,419	0.0	1.6	3.5
Japan	-	144,345	1,073	143,272	0.0	0.1	2.2
Malaysia	27,100	99,206	40,235	81,071	0.4	2.6	1.3
Germany	-	70,356	22,272	48,084	0.0	1.4	0.7
UK	-	46,899	7,447	39,452	0.0	0.5	0.6
The Netherlands	200	58,158	38,394	20,964	0.0	2.5	0.3
Selected SADC countries							
Botswana	-	2,111	10	2,101	0.00	0.00	0.03
Congo, DRC	33,000	107	-	33,107	0.51	0.00	0.51
Lesotho	-	1,200	-	1,200	0.00	0.00	0.02
Madagascar	24,515	41	17,635	10,721	0.38	1.14	0.17
Mauritius	673	1,855	118	2,410	0.01	0.01	0.04
South Africa	10,000	17,398	9,636	17,962	0.16	0.62	0.28
Swaziland	-	1,250	299	966	0.00	0.02	0.01
Tanzania	19,700	158	5,957	17,001	0.31	0.39	0.26
Zimbabwe	15,535	185	9,408	8,367	0.24	0.61	0.13

Source: FAOSTAT and own calculations

of what it produces. Europe, North America and Japan are large spice consumers and importers, and therefore the most promising markets for would-be exporters. Countries like Malaysia, the Netherlands and Germany are particularly important for raw spice producers, as they act as spice trading hubs. Germany is the world's leading importer of unground and unprocessed black pepper and one of the top exporters of processed pepper and mixed spices, mainly to its European neighbours.

Even countries with massive domestic markets like India, China and Mexico are not necessarily able to produce the quantities of spices their markets demand, especially as tastes grow and diversify and more people move to the cities, creating opportunities for other exporting countries to access these markets.

3.4 Supply and demand drivers

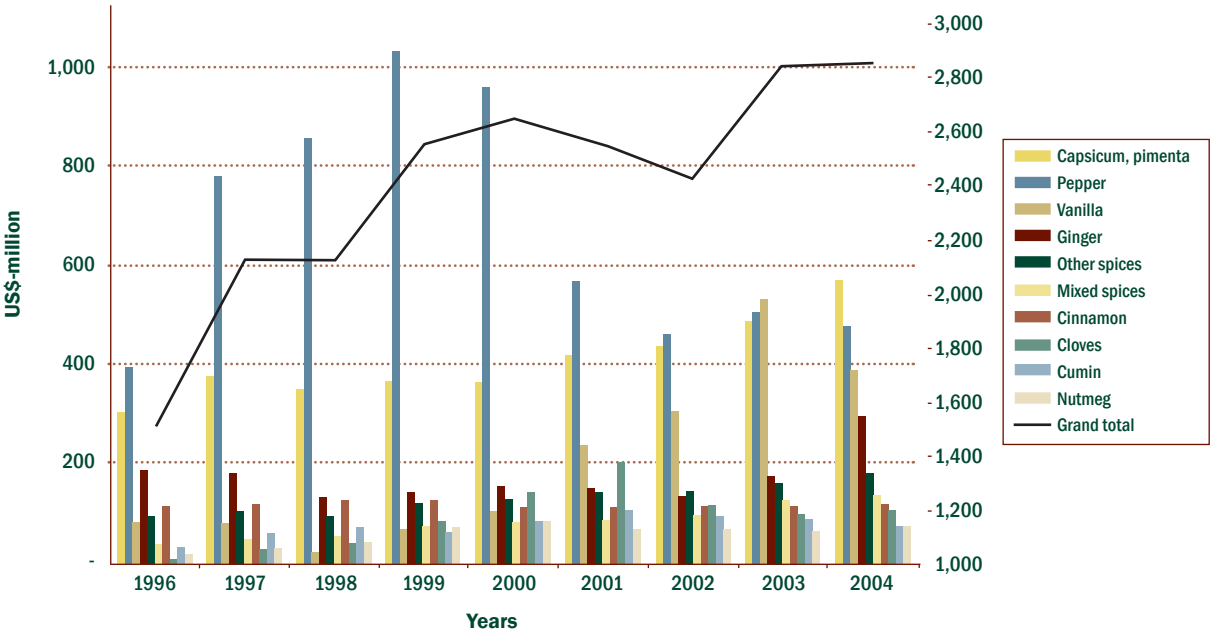
Spices, as noted earlier, are less susceptible to supply-side drivers such as climate, the quality of infrastructure, the availability of human and financial capital and advanced technologies than agricultural commodities in general. However, although spices can therefore be seen as almost 'perfect' export commodities for developing countries, they face other problems when trying to promote their produce for export. For example, since spices in general requires little capital outlay and technology, it is relatively easy for rural farmers to engage in their production. This can, however, result in over-supply of the commodity, declining prices and volatile markets. In addition, the tariff schedules of the developed world tend to encourage the export of raw, unprocessed commodities, with low or non-existent tariffs at the low-value end and higher tariffs for final products. This might initially promote greater production from developing countries, but ultimately it is likely to further depress the price of raw commodities while raising the prices of final commodities such as spice mixtures for the ordinary consumer.

Although food purchasing patterns vary across countries based on income levels, the demand for higher value and processed food products has expanded globally. As such, developing countries are registering rapid increases in retail sales of high-value foods (and the number of supermarkets and other retail chains are increasing), whilst developed countries are seeing a rise in sales of products that meet consumer demands for variety, food safety and quality. To meet increasingly varied food needs, multinational retailers and manufacturers are expanding their presence in developing countries and food retailers are adding value and differentiating their products in developed countries. Spices and herbs are increasingly used in the food industry for flavouring and colouring, while a growing trend for greater variety is fuelling the demand for spices in the production of 'exotic' meals. At the retail level, spice purchases are moving towards 'convenience' spice mixtures that can be used for instant flavouring, colouring and marinating.

4. World trade

4.1 World trends

Figure 10: World trade of selected spices, 1996-2004



Source: UN Comtrade and own calculations

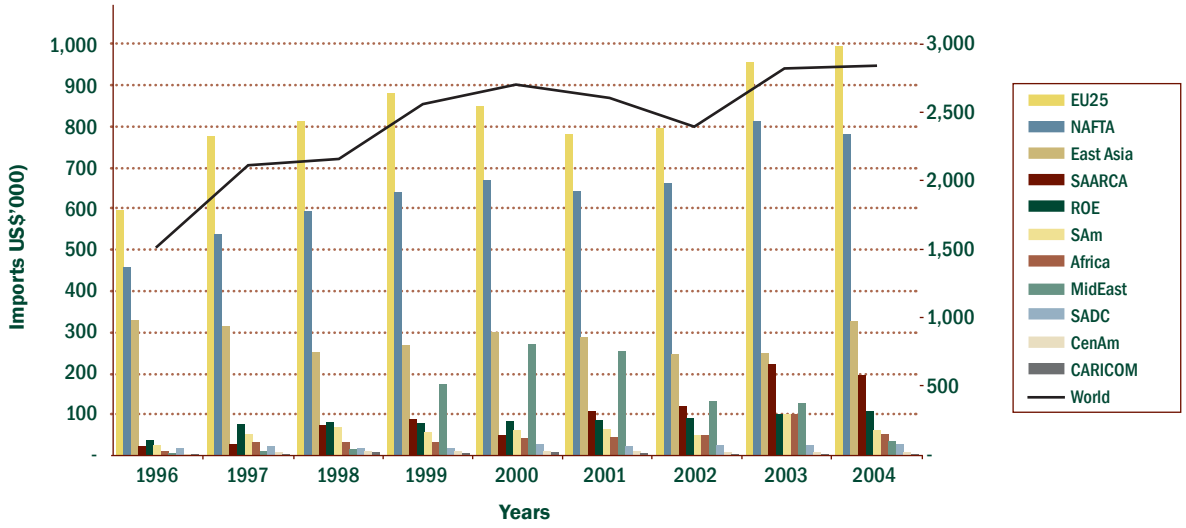
The world market for imported spices and culinary herbs was valued at more than $2.8bn in 2004. The top varieties by value were capsicum and pimento (chilli peppers, cayenne, paprika and allspice) accounting for about 20% of total world trade in spices, followed by black/white pepper (17%) , vanilla (14%), ginger (10.5%), 'other' spices (6.5%), mixed spices (5%), cinnamon (4.4%), cloves (4%), and cumin and nutmeg (2.8% each).

The main importing regions are the EU, North America and East Asia. Although East Asia experienced a decline in imports, mainly due to Japan's recession, demand for spices has recently lifted again. The South Asian region experienced rapid growth which tailed off slightly in 2004. The two biggest importing regions, the EU and North America, following slow-downs in 2000 and 2001, have recovered strongly and posted record figures in 2003 and 2004. Growth for these two regions over the four-year period from 2000-2004 was 4.1% and 3.9% per annum, respectively, while for the eight-year period 1996-2004, imports into the EU grew at an average annual compounded growth rate of 6.6% while the US grew at 6.9% per annum. The import market expanded by 17.3% for the EU and 16.5% for the US from 2000-2004, and by 67% and 70% from 1996-2004.

The Middle East saw a significant decline in spice imports because of large investments in domestic spice production. The fastest growing importing region was South Asia, driven primarily by India, which is interesting given its status as the world's leading producer of spices. Here demand outstrips supply despite the vast amount of spices produced each year.

Table 10 demonstrates trade at an inter-regional level. Importing regions are shown in the far left-hand column, while exporting regions are displayed along the top. The EU imported $53.3m worth of spices

Figure 11: World spice trade by region, 1996-2004



Source: UN Comtrade and own calculations

from East Asia, $68m from South Asia, $91.1m from South America and $91.5m from Africa, of which $66.3m came from SADC. $394m was spent on intra-regional trade. In total the EU imported $994.5m worth of spices in 2004, or 35% of total world imports.

Table 10's final column shows the amount of trade that occurred within the region (that is, the percentage of exports that were destined for countries within the same region, along with the percentage of imports sourced from countries within the same region). At least half of the EU trades with its members. The same level of intra-regional trade is true for East Asia, highlighting the trade in spices between China and Japan and to a lesser extent Korea. Other regions like South and Central America and the Caribbean have less trade within their regions as they export most of their spices to the North American and European markets. North America imports more spices from Africa than from anywhere else in the world. Most of this comes from SADC, with vanilla from Madagascar the most important commodity. This is particularly important given SADC's preferential market access and its barely tapped ability to produce spices. African exporters have not penetrated

Table 10: Exporting countries, 2004 (US$-million)

Exporting regions	EU25	East Asia	South Asia	Africa	SADC	South America	Middle East	Rest of Europe	NAFTA	Central America	Caribbean	The world	% of world imports	% inter-regional trade
Importing regions														
World	536.1	432.7	366.0	365.5	286.2	215.6	135.1	113.0	105.3	45.7	16.8	2,836.9	100.0	100.0
EU25	394.0	53.3	68.0	91.5	66.3	91.1	55.2	48.6	26.3	9.2	10.3	994.5	35.1	56.6
NAFTA	52.0	85.6	109.9	181.7	152.0	94.6	26.9	32.0	58.5	10.6	4.3	778.7	27.4	31.5
East Asia	10.0	190.9	14.7	16.3	11.4	4.6	7.4	4.3	5.6	0.5	0.9	328.5	11.6	51.1
S Asia	1.6	26.5	85.2	7.2	3.8	2.4	7.2	3.0	1.5	4.0	0.1	196.7	6.9	33.3
Rest Europe	58.5	3.5	7.2	3.7	2.5	3.2	4.9	10.1	2.1	1.0	0.3	106.8	3.8	9.2
S America	4.8	1.3	12.4	1.3	0.6	7.8	14.2	4.1	1.8	0.1	0.7	63.1	2.2	8.0
Africa	4.9	4.3	11.5	11.9	7.1	2.7	5.0	1.6	1.1	0.2	0.0	50.2	1.8	13.5
Middle East	1.4	2.3	5.6	0.6	0.0	0.9	6.4	0.3	1.7	11.6	-	37.5	1.3	10.8
SADC	2.3	1.9	8.8	6.1	5.4	0.1	0.9	1.3	0.7	0.1	0.0	26.4	0.9	11.1
C America	0.7	0.0	1.9	0.0	0.0	0.2	0.2	0.0	2.4	2.2	0.0	7.8	0.3	16.6
Caribbean	0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.6	0.0	0.2	1.6	0.1	8.0
% of world exports	18.9	15.3	12.9	12.9	10.1	7.6	4.8	4.0	3.7	1.6	0.6	100.0		

Source: UN Comtrade and own calculations

the lucrative South Asian markets, particularly India, which is by far the world's largest consumer of spices. Many of the spices that India do not produce are imported from Indonesia.

Another useful point is the relative difference between regions concerning their role as either net exporters or net importers. The EU accounts for 35% of world imports but only exports 18.9%, while North America accounts for 27% of world imports and only 3% of world exports. The SADC is a net exporting region, accounting for less than 1% of world imports, but over 10% of world exports of spices in 2004. Almost all of the EU's exports are destined for other EU countries, the rest of Europe or North America, with most of these exports processed or mixed spices. Similarly, more than half of NAFTA's exports, which are largely capsicum, are to its neighbours Mexico and Canada, with the rest finding its way to the European market.

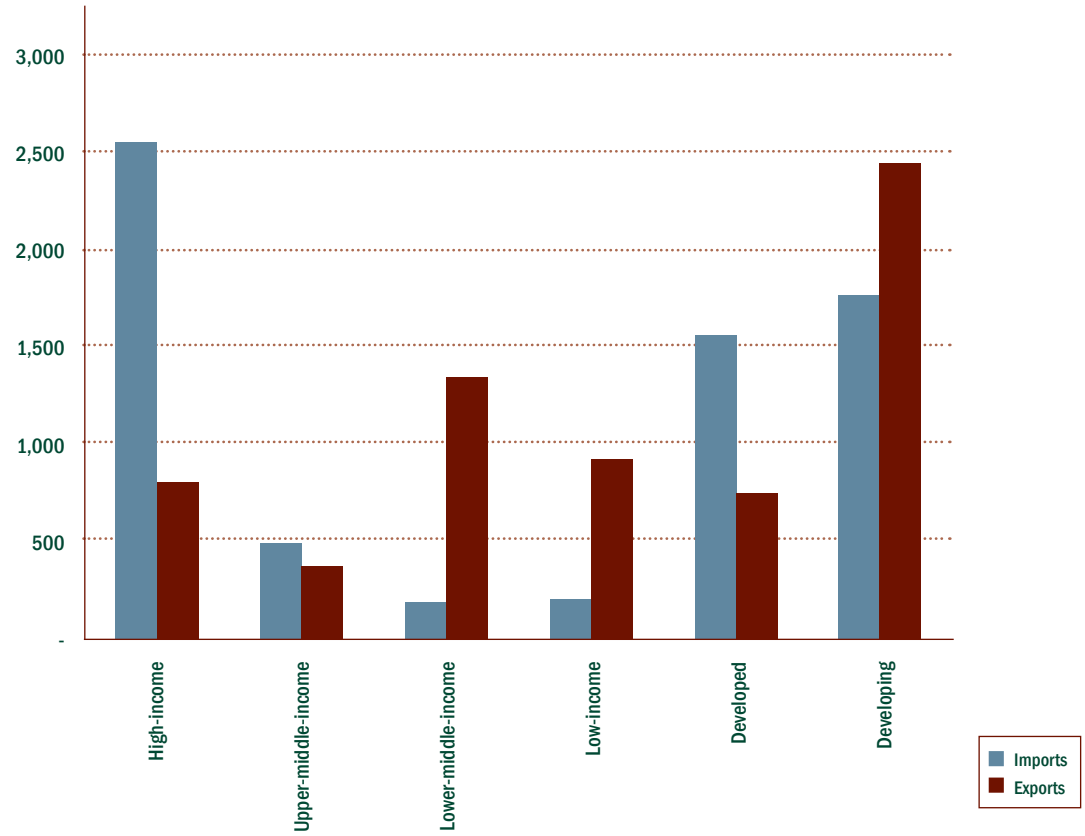
Most spice trade occurs from developing nations to Europe, North America and East Asia, especially Japan. More than a third of developing nations are involved in the spice trade and produce over 95% of the world's spices in terms of raw weight. They account for over 84% of world trade as measured by raw weight. But this does not mean that the value of their share in world trade is as high; the commodities that developing countries trade are most often in raw and unprocessed form and fetch a lower price on world markets. About 72% of the value of spices exported in 2004 originated from developing countries.

According to the World Bank's division of countries by average per capita income, spices exported from high-income countries amounted to 24% of the total value of world spice exports, those from higher-mid-

dle-income countries to 10.6%, those from lower-middle-income countries to 39.3% and those from low-income countries to 26.6%. Between 1995 and 1999, it was estimated that the value of spices traded and originating from farms in the least developed countries amounted to $91.5m, or 5.5% of the total spice trade (ITC, 2001).

Between 1996 and 2004, low-income countries grew their export revenues from spices by an average of 14.5% a year, raising their proportion of total trade from just 16% to over 26%. More recently this growth has been muted, following an over-supply of pepper and vanilla and a resultant loss in export revenue for countries like Madagascar, Indonesia and Vietnam (from 2000-2004, the annual average growth in export revenues of low-income countries was only 5%).

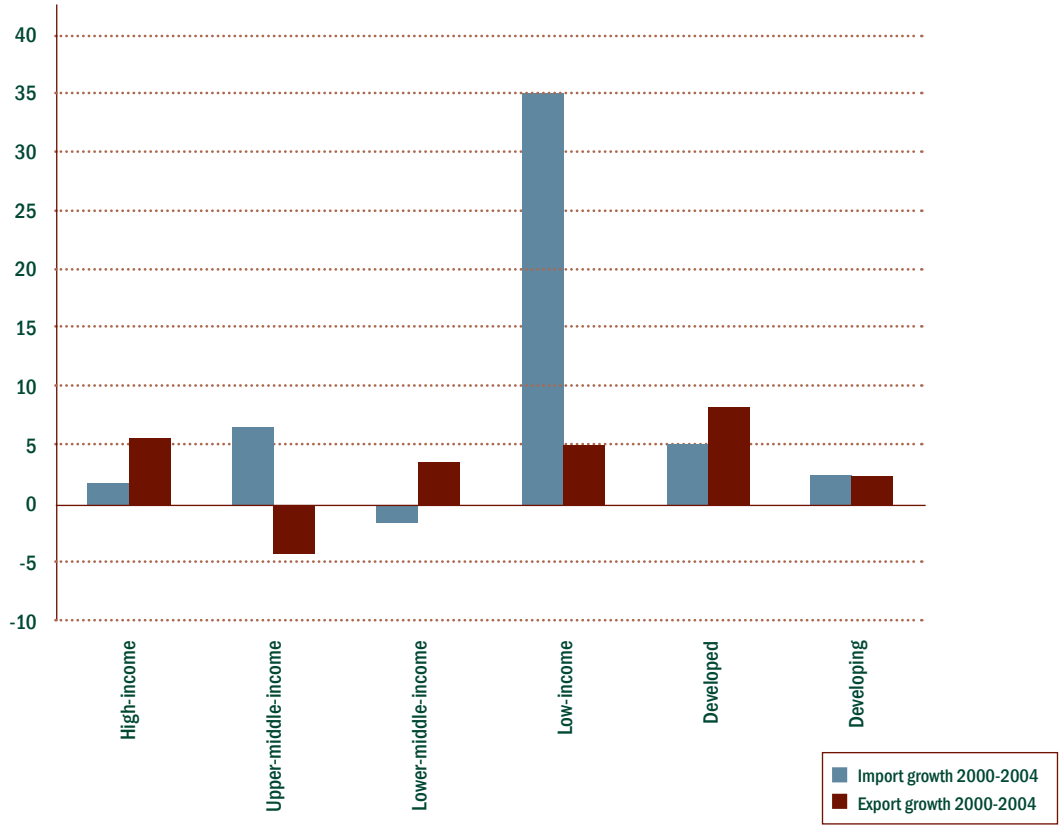
Figure 12(a): Exports and imports of spices by country classification, 2004 (US$-million)



Source: UN Comtrade and own calculations (classifications based on World Bank)

Recently, low-income countries have been growing their imports of spices rapidly, although off a low starting import base, consuming $194m or 5.7% of total world imports. High-income countries, on the other hand, import $2.5bn or 75% of global imports. An important emerging market is the group of countries classified as upper-middle income. Figures 12a) and 12b) show that this group of countries currently imports just under $500m worth of spices, and their consumption

Figure 12(b): Annual average compounded growth in exports and imports by country classification, 2000-2004 (%)



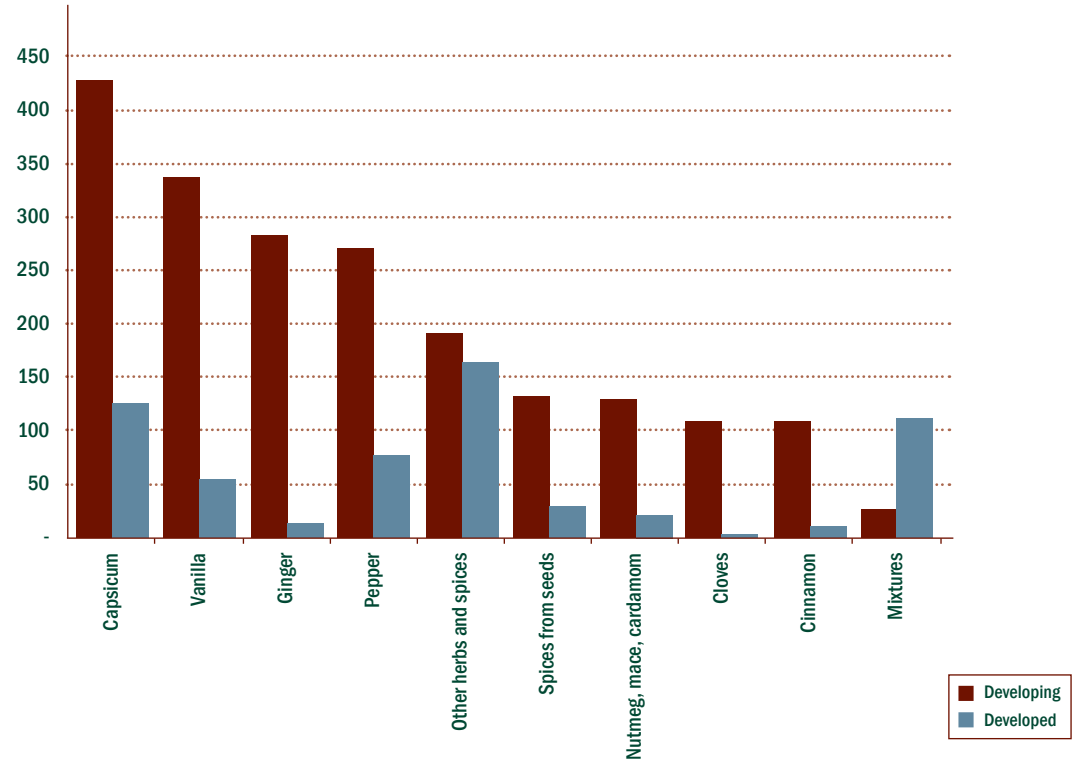
Source: UN Comtrade and own calculations (classifications based on World Bank)

is growing rapidly. Imports from upper-middle-income countries rose by 6.6% per annum for 2000-2004 and by over 20% per annum for 1996-2004. These countries' export figures have been declining by about 4.3% per annum.

When analysing these broad trade flows it is important to not only consider the aggregate flow of spice exports and imports by region, but also trends in the variety of spices. Figures 13a) and 13b) highlights the export and imports of the major spice varieties by developed and developing countries. While developing countries export more spices than developed countries, the differential is much greater for particular groups of spices. For example, vanilla is exported almost entirely by developing countries, whereas mixed spices are exported predominantly by developed countries. In the case of vanilla, developing country dominance is most probably linked to appropriate climatic conditions, the labour-intensive nature of the crop and the relative wage differentials between the developed and developing world. Requirements in terms of processing facilities and capital are higher for mixed spices.

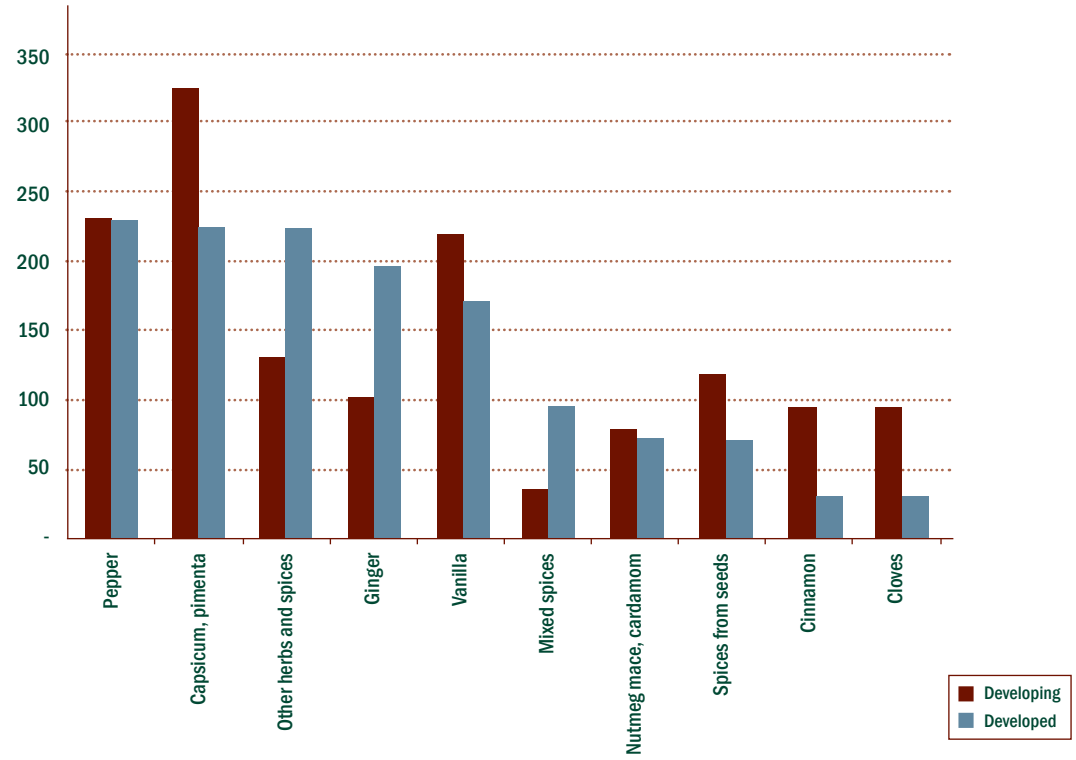
Importing patterns further highlight cultural preferences and taste differences between wealthy and poor countries. Singapore imports almost half of the world's cloves, Japan imports almost 40% of the

Figure 13(a): Exports by variety for developing and developed countries, 2004 (US$-million)



Source: UN Comtrade and own calculations (classifications based on World Bank)

Figure 13(b): Imports by variety for developing and developed countries, 2004 (US$-million)

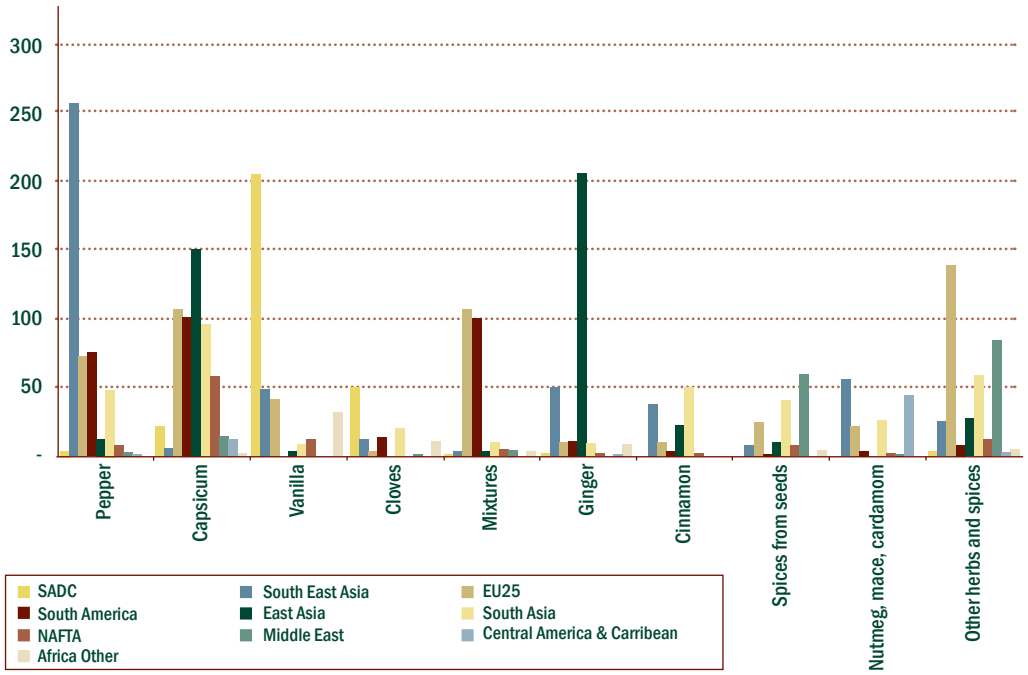


Source: UN Comtrade and own calculations (classifications based on World Bank)

world's ginger (from China), the US imports over half of the world's vanilla, the UK imports mainly curry, India mostly cardamom, Mexico imports cinnamon and Malaysians consume more coriander than any other nation in the world.

SADC's exports are dominated by the activities of Madagascar and Tanzania and feature significantly in only four spice categories: vanilla, cloves, capsicum and pepper. But there is no reason why SADC countries cannot produce and process export more herbs and spices. For example, a company like Robertson's of South Africa apparently has the capacity and technology to expand production to supply processed and packaged herbs and spices to markets other than only domestically.

Figure 14: Export of spices by variety and region, 2004 (US$-million)



Source: UN Comtrade and own calculations

4.2 Leading importers/exporters by country

The world's leading importer of spices in 2005 was the US, with more than $500m worth of spice (see Table 11). Japan (with $216m worth of spice) and Germany (with $200m) were the second and third largest importers. Together these three countries account for roughly a quarter of all spice imports in the world. But despite their large market size, the US, Japan and Germany have all been growing their imports slowly over the past five years, with annual average growth rates over the period 2000-2005 at -1.8%, 1.6% and 2.1%, respectively. The fourth largest importer in 2005 was India, who is also the world's largest producer and consumer of spices.

The majority of the world's top importers are located in North America and Europe. Their imports for 2005 stood at $129.5m, an amount which has shown rapid growth of over 23% per annum over the past five years. Among the leading 20 importing countries were a number of developing countries, including Singapore which imported $110m worth of spices, Mexico ($99m), Saudi Arabia ($93.5m), Malaysia ($90m), Pakistan ($49.6m) and South Korea ($36m). Most of these countries are also large spice producers and their considerable imports demonstrate a high degree of intra-industry trade.

Table 11: Major spice importers by country, 2005

Rank	Importer name	Imports 2005 (us$'000)	Market share (%)	CGAR 2000 - 2005	Rank	Importer name	Imports 2005 (us$'000)	Market share (%)	CGAR 2000 - 2005
-	**The world**	3,405,461	100	6.5	16	Italy	37,434	1.1	-0.8
Top 20					17	Austria	37,261	1.1	8.0
1	US	500,762	14.7	-1.8	18	Korea, Rep.	36,299	1.1	0.9
2	Japan	216,073	6.3	1.6	19	Poland	28,422	0.8	5.5
3	Germany	200,086	5.9	2.1	20	Denmark	27,766	0.8	9.2
4	India	129,592	3.8	23.8	**Selected countries**				
5	The Netherlands	122,527	3.6	-3.3	23	Thailand	24,750	0.7	19.9
6	Spain	111,569	3.3	6.7	24	Russian Federation	24,464	0.7	7.1
7	UK	110,875	3.3	2.8	25	Australia	24,025	0.7	-0.2
8	Singapore	110,311	3.2	-9.8	27	Brazil	20,956	0.6	6.3
9	Mexico	99,335	2.9	11.3	28	South Africa	20,245	0.6	3.4
10	France	97,133	2.9	-0.5	37	China	11,410	0.3	-1.7
11	Saudi Arabia	93,588	2.7	-1.1	48	Argentina	7,156	0.2	-12.3
12	Malaysia	90,313	2.7	7.1	73	Mauritius	2,766	0.1	5.6
13	Canada	66,824	2.0	1.8	85	Zambia	982	0.0	13.3
14	Belgium	64,797	1.9	10.0	90	Mozambique	737	0.0	67.3
15	Pakistan	49,645	1.5	-	101	Malawi	239	0.0	-1.1

Source: UN Comtrade and own calculations

The leading African importer of spices was South Africa, which imported roughly $20m worth of spices in 2005 (see Table 11).

Table 12 illustrates the leading importers of various spice commodities and shows the largest markets by commodity. The US is the leading importer of five spice categories – pepper (unground and ground), capsicum, vanilla, spices from seeds (anise, cumin, caraway, fennel and juniper berries) and 'other spices n.e.s.' (not elsewhere specified).

Table 13 shows the top 20 exporting nations of spices in 2005. China was the leading exporter of spices, mainly due to its exports of

Table 12: The import value of various spice commodities and the leading importers of those spices, 2004

Spice categories	Import value (US$'000)	First	%	Second	%	Third	%
Pepper	494,096	US	23.1	Germany	10.9	Netherlands	5.3
Capsicum	590,420	US	23.6	Malaysia	7.6	Germany	7.1
Vanilla	394,928	US	51.9	France	11.3	Germany	9.3
Cinnamon	128,174	Mexico	21.0	US	16.9	India	6.0
Cloves	115,869	Singapore	46.3	India	23.7	Malaysia	7.1
Nutmeg/mace/cardamom	204,383	Saudi Arabia	25.0	India	8.0	Netherlands	8.0
Spice seeds	207,526	US	11.1	Germany	8.4	Malaysia	6.5
Ginger (except preserved)	305,321	Japan	41.2	US	12.1	Pakistan	6.2
Thyme/saffron/bay leaves	105,896	Spain	20.2	US	13.9	Italy	8.0
Spices n.e.s., mixtures	427,266	US	13.0	Belgium	7.8	Germany	6.8

Source: ITC, 2006

ginger to Japan. Ginger exports from China alone amounted to $209m in 2005 and have been growing by over 22% per year from 2000, while Japan's imports from China amounted to $105m in 2005. Total Chinese exports of spices have been growing at 14.5% per annum from 2000 to 2005. Second on the top exporters list in 2005 was India, which exported $316m worth of spices. India's exports, unlike China's, are

Table 13: The leading exporting countries of spices, 2005 (US$-million)

Rank	Exporter name	Exports 2005 (US $'000)	Market share (%)	CGAR 2000 - 2005	Rank	Exporter name	Exports 2005 (us $'000)	Market share (%)
-	**The world**	3,291,531	100	4.4	17	Iran, Islamic Rep.	57,721	1.8
Top 20					18	Syrian Arab Rep.	56,839	1.1
1	China	431,422	13.1	14.4	19	US	56,544	1.7
2	India	316,677	9.6	2.3	20	Mexico	50,926	1.5
3	Indonesia	282,864	8.6	-6.1	**Selected countries**			
4	Vietnam	212,959	6.5	8.1	21	Israel	49,309	1.5
5	Brazil	170,742	5.2	10.4	29	South Africa	19,099	0.6
6	Peru	145,468	4.4	80.3	32	Italy	15,580	0.5
7	Germany	123,624	3.8	10.8	33	Morocco	15,430	0.5
8	Madagascar	119,210	3.6	-6.3	34	Nigeria	15,378	0.5
9	Sri Lanka	100,754	3.1	7.1	37	Tanzania	14,193	0.4
10	Spain	100,419	3.1	7.1	44	Zimbabwe	10,035	0.3
11	Netherlands	81,657	2.5	-0.7	46	Uganda	9,267	0.3
12	France	71,275	2.2	10.8	52	Australia	7,056	0.2
13	Turkey	68,013	2.1	6.3	68	Ethiopia	2,895	0.1
14	Guatemala	67,897	2.1	-7.7	69	Malawi	2,832	0.1
15	Thailand	65,298	2.0	5.3	71	Kenya	2,775	0.1
16	Malaysia	58,794	1.8	-16.1	78	Argentina	1,991	0.1

Source: UN Comtrade and own calculations

spread over a range of different spices. In 2005, India exported over $90m worth of the capsicum and pimento families, an amount that has grown by nearly 20% per annum from 2000. India also exported pepper to the value of $57m, turmeric ($36m), cumin seeds ($19m), coriander seeds ($17m), curry ($14m), ginger ($14m), cardamom ($10m) and other spices ($52m). The majority of the country's exports are destined for the US ($55m), although Malaysia is also becoming an important destination. Indonesia is the third largest exporting country but its exports of $280m in 2005 are significantly lower than the $387m it recorded in 2000. This is mainly due to the loss of pepper exports, which have more than halved since 2000, although this has been mitigated somewhat by increases in the country's other major export commodities – nutmeg, cinnamon, mace and cloves improved by 7%, 6%, 13% and 20.5% respectively. Indonesia's main trading partners have historically been the US, the Netherlands, Germany and India. Indonesia is

also a major exporter of cloves to Singapore, with the total value of its exports to that country topping $34m in 2005. Vietnam, the fourth largest exporter, trades mainly in pepper, where it is the world leader. Roughly $44m of Vietnam's 2005 pepper exports went to the EU, $35m went to the US and $26m was destined for the Indian pepper markets. Brazil is also a major exporter of pepper, exporting about $79m in 2005 which amounted to just under half of its total spice exports. Brazil is also emerging as a large exporter of other types of spices, including varieties from the capsicum family which currently account for $46m of its total spice exports. Brazil has enjoyed growth rates of over 38% per annum since 2000. While the majority of Brazilian spices were sold in the US markets in the past, the country has recently started to target the German market.

Peru has had phenomenal success with its spice exports, which have grown from $7m in 2000 to $145m in 2005. The country's success is mainly due to the growth of paprika and other capsicum spices, which for the most part go to Spain and the US. Spices from the capsicum family exported from Peru have grown by over 80% per annum for the last five years, catapulting Peru from an insignificant spice exporter to the number six position.

Table 14: Leading exporters of various spice commodities, 2004

Spice categories	Import value (US$'000)	First	%	Second	%	Third	%
Pepper whole	394,560	Vietnam	32.6	Indonesia	17.5	Brazil	16.7
Pepper crushed/ground	99,536	Germany	18.2	India	14.8	Vietnam	8.0
Capsicum	590,420	China	23.8	India	15.9	Spain	9.3
Vanilla	394,928	Madagascar	51.8	Indonesia	12.2	Papua N. Guinea	8.9
Cinnamon whole	105,580	Sri Lanka	45.0	Indonesia	21.1	China	19.9
Cinnamon crushed/ground	22,594	Indonesia	28.7	Brazil	14.8	Netherlands	11.1
Cloves, whole and stems	115,869	Madagascar	30.4	Sri Lanka	17.3	Tanzania, U.R.	12.5
Nutmeg/Mace/Cardamom	204,383	Guatemala	38.8	Indonesia	24.1	Nepal	5.7
Spice seeds	207,526	India	18.2	Syria Arab Rep.	14.7	Turkey	8.7
Ginger (except preserved)	305,321	China	64.3	Thailand	12.3	Brazil	3.3
Thyme/Saffron/Bay leaves	105,896	Iran Islam Rep.	29.3	Spain	25.0	Turkey	12.0
Spices n.e.s., mixtures	427,266	Germany	15.9	India	13.9	Netherlands	6.9

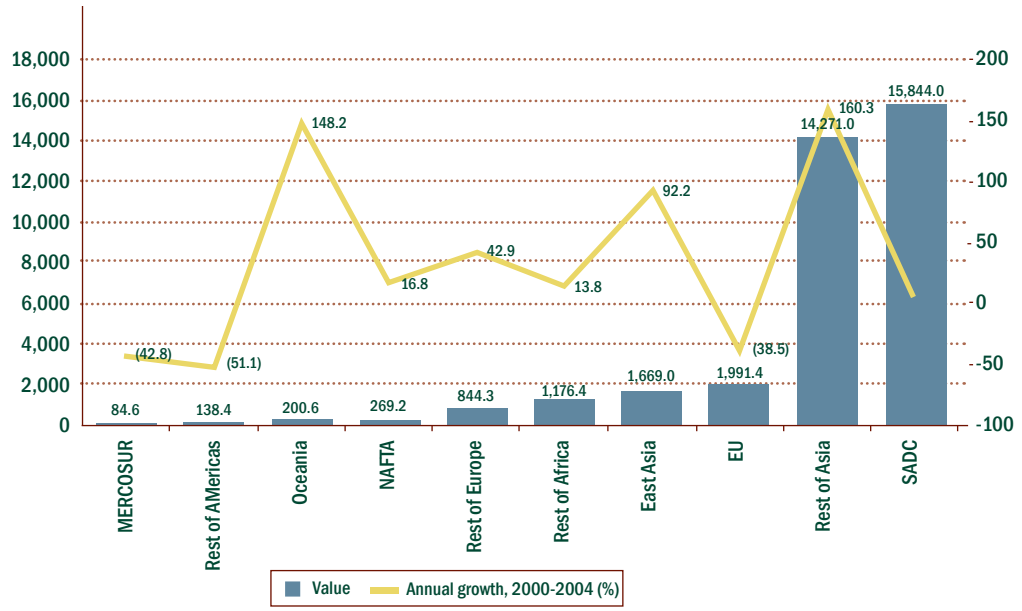
Source: ITC, 2006

4.2.1 SADC trade

Most of SADC's imports for the period 2000-2004 came from within the region, followed by imports from the rest of Asia. The majority of SADC's spice imports came from South Africa, which also accounted for the majority of spice imports from the rest of Asia. Imports from the EU included mixed spices, while those from East Asia were predominantly ginger. Imports from the rest of the world are relatively insignificant.

Figure 16 shows that NAFTA accounts for a large part of SADC's exports, mainly because Madagascar is a major exporter of vanilla to the US. Second on the list is the EU, where Madagascar, South Africa, Tanzania, Zambia, Zimbabwe and Malawi all export various spices, including vanilla and cloves (Madagascar and Tanzania), capsicum

Figure 15: SADC imports by region and growth (US$'000 and %), 2000-2004

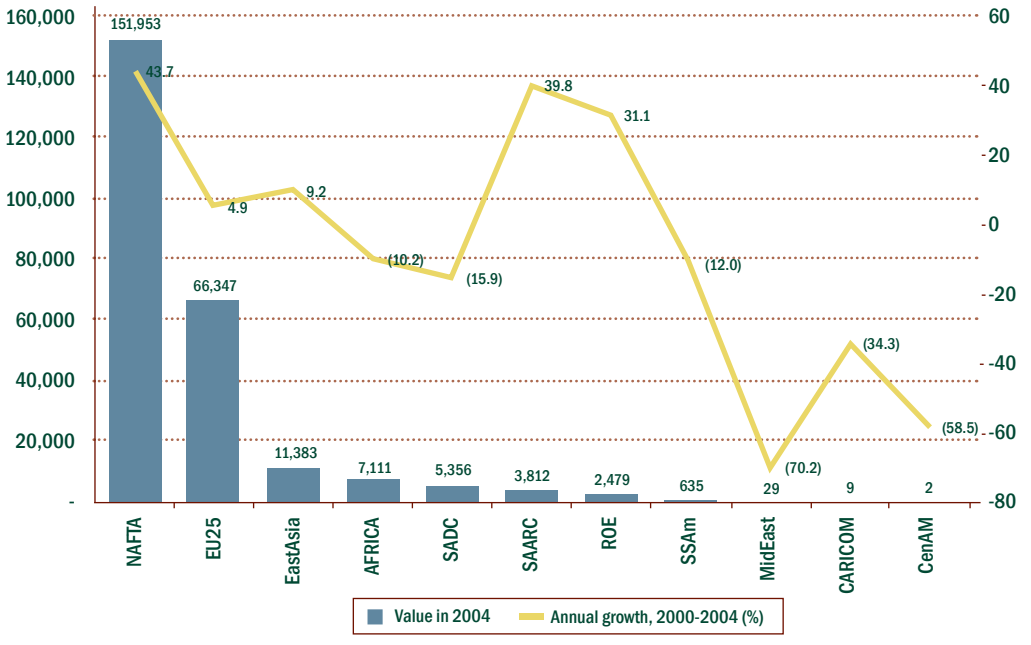


Source: TIPS/AusAID Southern African Trade Database *This table excludes data for the non-reporting countries of Madagascar, Zimbabwe, DRC and Angola

(South Africa, Zambia, Zimbabwe, Malawi) and pepper (Zimbabwe). East Asia imported about $11m worth of SADC spices in 2004, while other countries in Africa imported spices worth about $7m.

Two important points should be kept in mind about these data. As these figures reflect exports for the period 2000-2004, and we have seen in an earlier section of this Brief that Madagascar's exports declined significantly in 2005, they might well be overstated. The second issue is around the reporting of country data to the TIPS Southern African Trade Database and UN Comtrade, the two databases from which

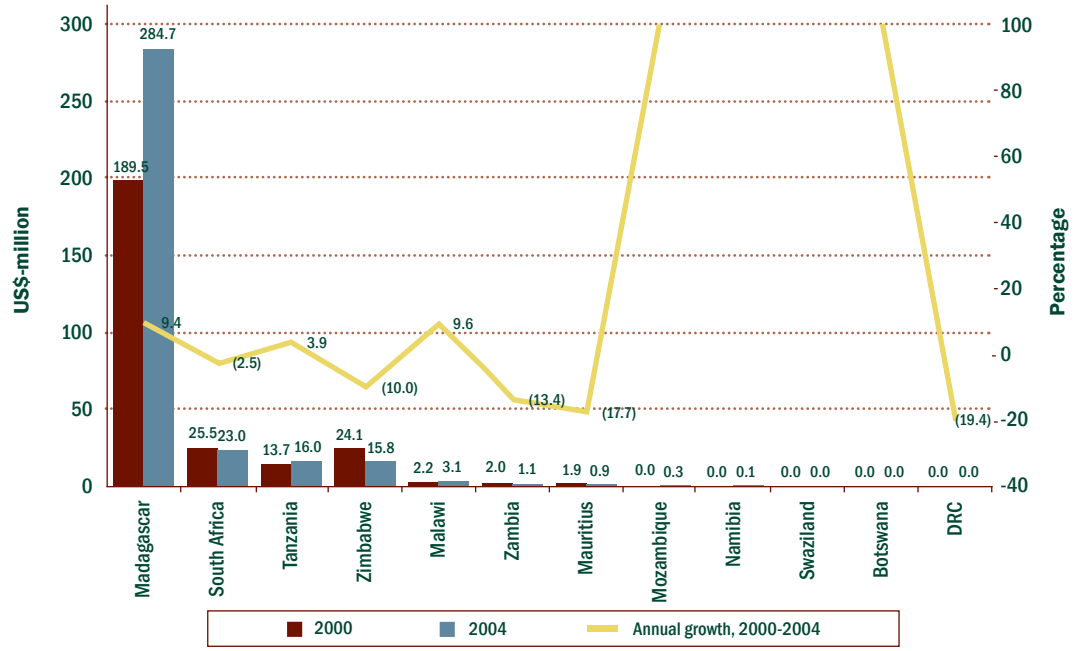
Figure 16: SADC exports by partner region and annual compounded growth (US$'000 and %), 2000-2004



Source: UN Comtrade and own calculations

the information around SADC trade has been drawn. As not all SADC countries report to the two databases, the information is likely to be understated. For this reason the authors have used mirror statistics (using those countries that reported importing spices from SADC countries) to make up for gaps in the data. However, reported imports do not always correspond with reported exports, and thus the figures must be

Figure 17: SADC exports of spices by country, 2000-2004 (US$-million and %)



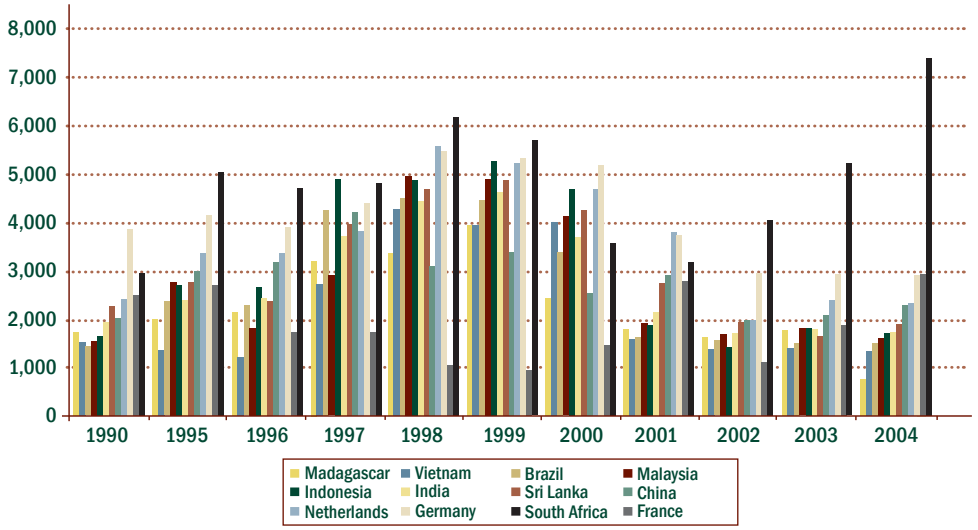
Source: UN Comtrade and own calculations

interpreted with caution and perhaps used simply to illustrate the broad trends, rather than actual accurate trade flows.

Figure 17 shows SADC's export of spices in 2000-2004 and the annual average growth in exports for that period. The data are from UN Comtrade and make use of mirror statistics (it reports other country imports of spices from SADC member states). SADC exports are dominated by exports from Madagascar, which until 2004 saw spice exports rise by over 9% per annum (2005 shows less favourable figures). In 2004, Madagascar reported exports of $284m, which is roughly 82% of the entire region's trade in spices. South Africa exported some $23m or 6.6%, Tanzania was third with $15.9m and Zimbabwe was fourth with $15.7m. Malawi and Zambia exported spices amounting to $3m and $1m respectively. Of the six countries that exported significant quantities of spices in 2004, Madagascar, Tanzania and Malawi all showed growth in exports, while South Africa, Zimbabwe and Zambia registered declines. Mozambique, Namibia, Swaziland and Botswana doubled their exports of spices, albeit off a low base.

5. Prices

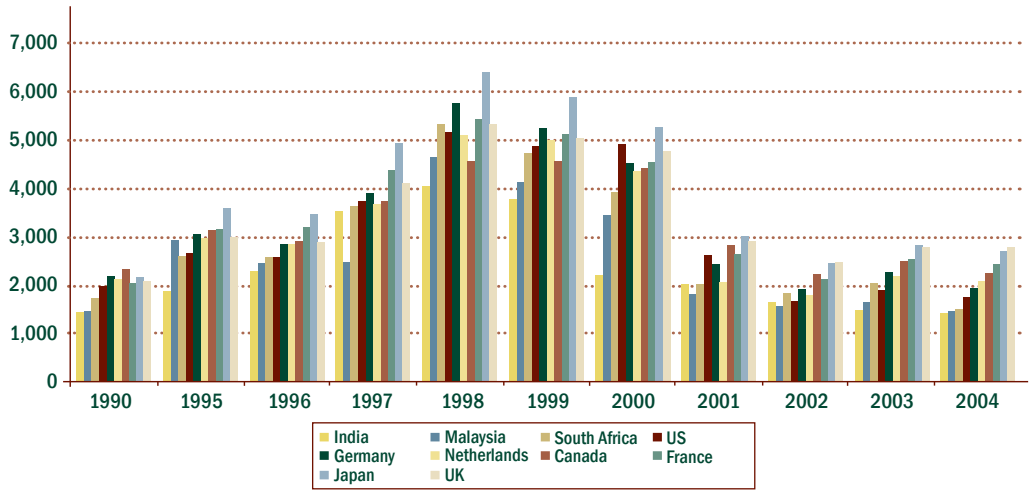
Figure 18: Black pepper export prices, 1990-2004 (US$/ton)



Source: FAOSTAT and own calculations

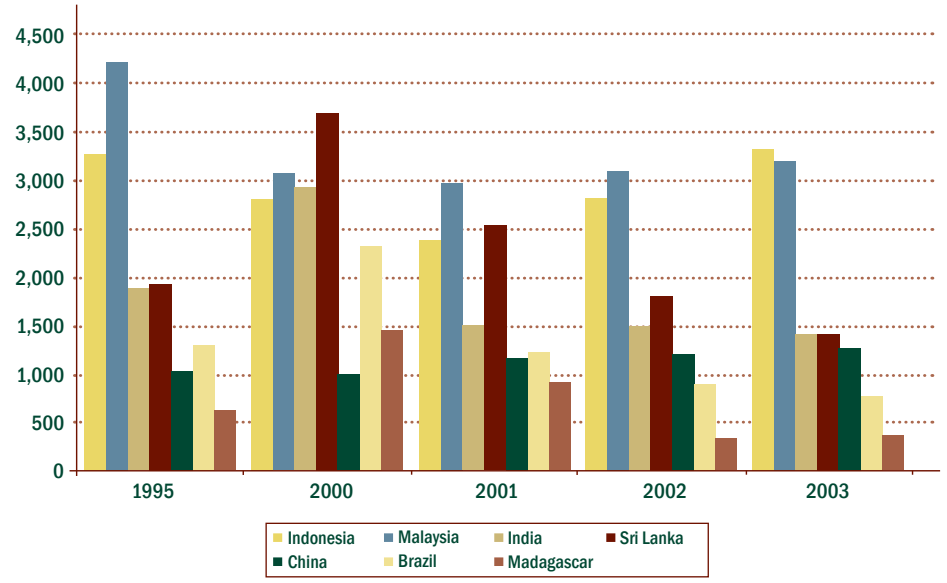
Spices have been volatile commodities in recent years because most spices are traded as true agricultural commodities, are not controlled by a cartel or a dominant supplying body and therefore respond quickly to changes in supply and demand. Harvests are the most obvious influence on prices. Just how much prices can vary is illustrated in Figure 18, which shows the pepper export price for a number of leading exporting countries from 1990-2004, and in Figure 19, which shows pepper import prices for the same period. It is clear that the pepper price was on an upward curve during the 1990s, reaching a peak in 1998, declining slightly in 1999 and 2000, and dropping off significantly in 2001. Since 2001, pepper prices have been relatively stable.

Figure 19: Black pepper import prices, 1990-2004 (US$/ton)



Source: FAOSTAT and own calculations

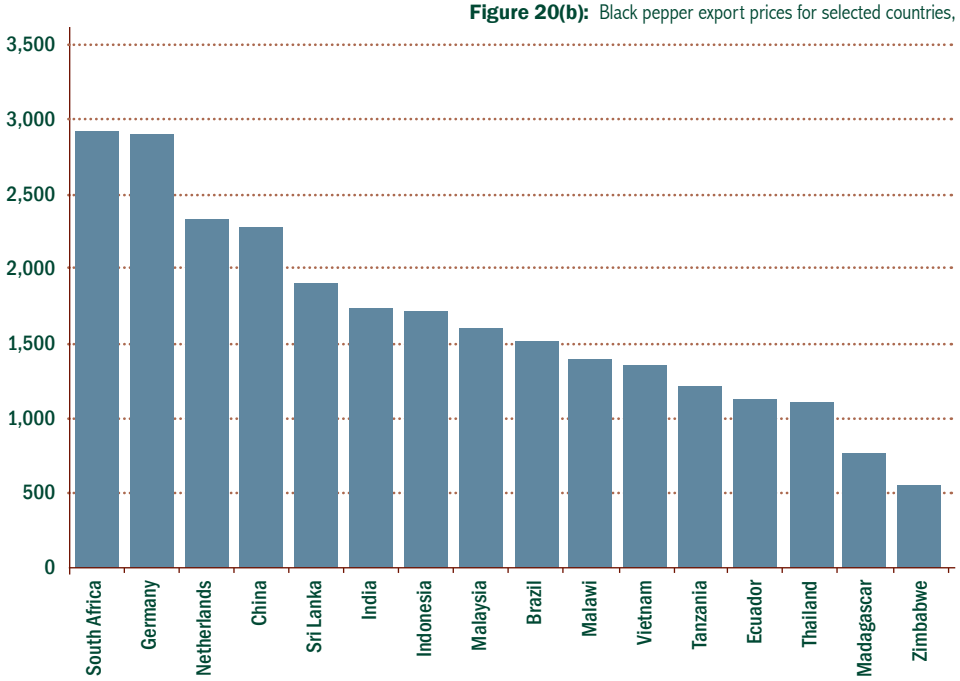
Figure 20(a): Black pepper producer prices, 1995-2003 (US$/ton)



Source: FAOSTAT and own calculations

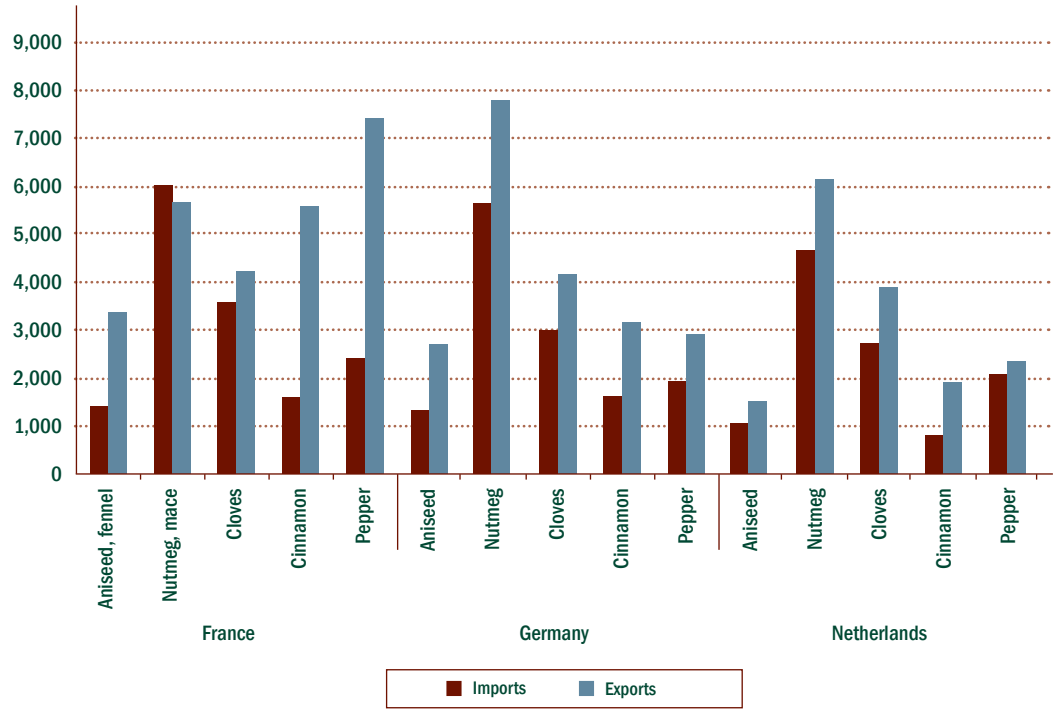
Figure 20a) shows pepper producer prices to highlight the costs of potential competitor countries. Countries like China and Brazil's production costs are on average much lower than most of the other producers, although Madagascar has the lowest production cost of all the countries shown. Unfortunately, producer prices for Vietnam, the leading exporter of black pepper, are not available, nor are those for the leading producing countries of SADC – Zimbabwe, Tanzania and Malawi. The export prices for 2004 in Figure 20b) illustrate the relative comparative advantage that exists for SADC member countries. Zimbabwe, Madagascar and Tanzania were all cheaper than Vietnam, while all SADC countries that export pepper bar South Africa were cheaper than the second and third largest pepper exporters, Indonesia and Brazil.

Figure 20(b): Black pepper export prices for selected countries, 2004 (US$/ton)



Source: FAOSTAT and own calculations

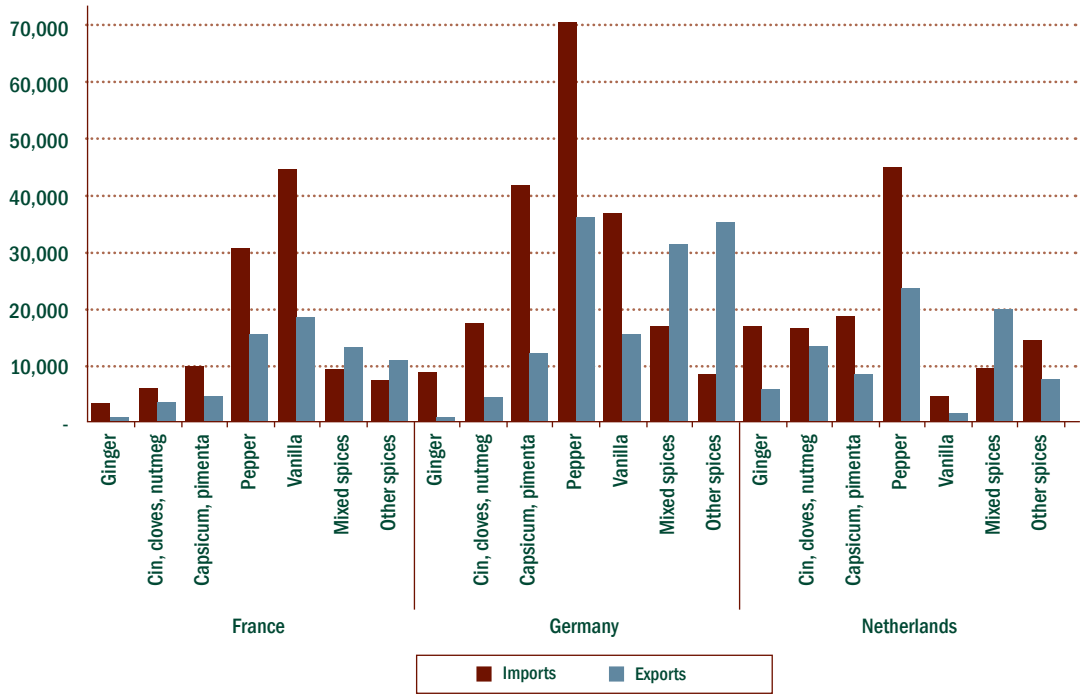
Figure 21: Import and export prices of distribution hubs France, Germany and the Netherlands, 2004 (US$/ton)



Source: FAOSTAT and own calculations

Figure 21 highlights the export and import prices of Germany, France and the Netherlands, which act as spice distributing and processing hubs. Germany, for example, imports unprocessed black pepper and then grinds and re-exports it. It also exports a number of spice mixtures, with significant value added. These countries mainly distribute spices into the rest of Europe, and they have particularly

Figure 22: Value of imported and exported spices into Germany, France and the Netherlands, 2004 (US$'000)



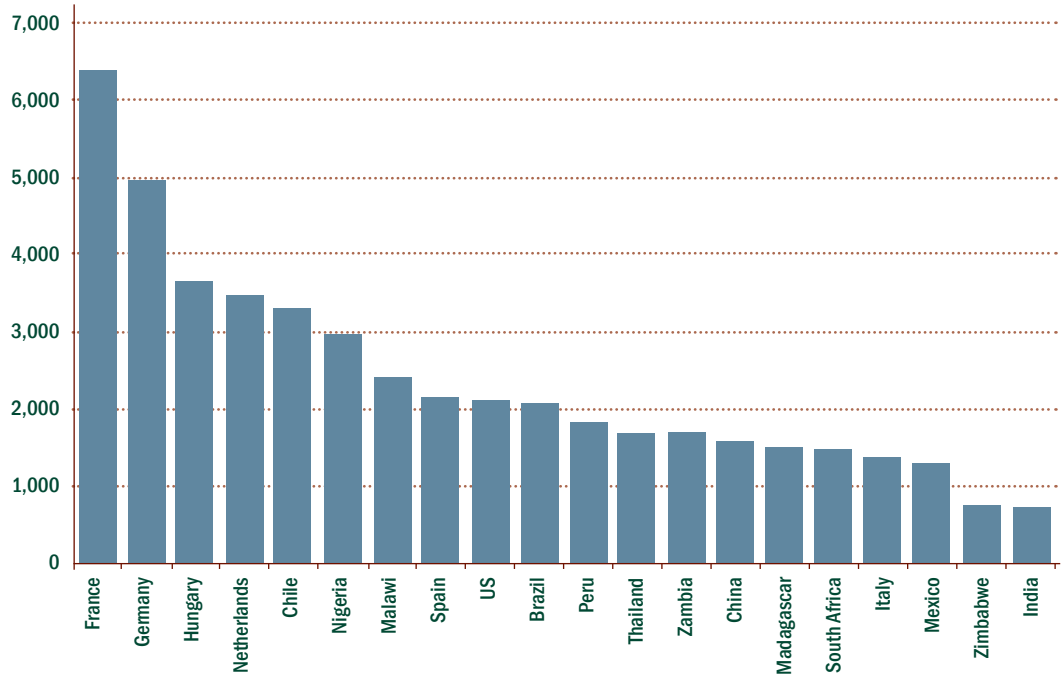
Source: FAOSTAT and own calculations

strong links with those spice-producing countries that were former colonies. As such they tend to specialise in the spice products that these former colonies produce.

The tariffs placed on processed spices (as one can see from section 6 on market access) are also higher than on unprocessed spices. Of course, the countries mentioned above which act as trading hubs, as members of the EU, face no tariffs on their exports of processed spices and mixtures, whereas potential competitors from countries outside of the EU do. Figure 22 gives an idea of the significant quantities of spices imported into and exported from these three countries.

Figures 23a) and 23b) show the average export prices for capsicum, pimento and vanilla in 2004. Figure 23a) demonstrates the relative price competitive advantage that seems to exist in SADC countries. Zimbabwe, South Africa, Madagascar, Zambia and Malawi are all low-cost producers of capsicum. Zimbabwe is the second cheapest producer after India, while South Africa and Madagascar produce pep-

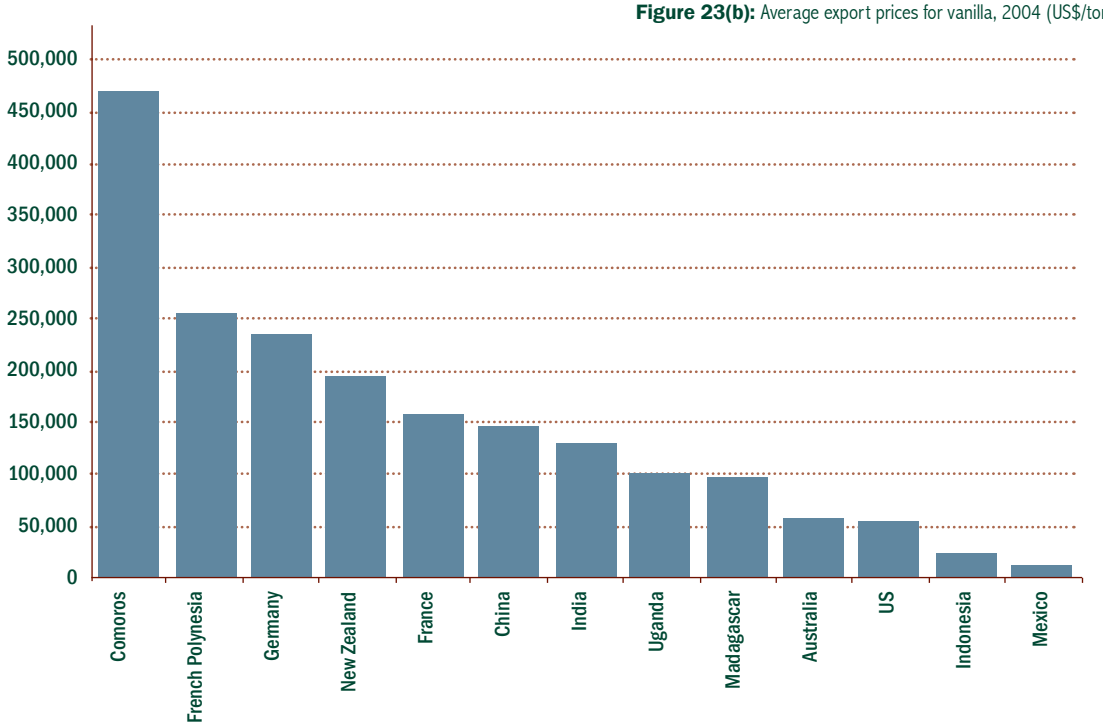
Figure 23(a): Average export prices for capsicum and pimento, 2004 (US$/ton)



Source: FAOSTAT and own calculations

pers at prices that are even cheaper than those of labour-abundant China or heavily subsidised Italy. Vanilla prices are slightly more difficult to analyse as there are different grades which affect the average price. Madagascar's export price of $100,000 per ton in 2004 is almost a benchmark, as Madagascar's exports represented more than 60% of all vanilla exports in that year. Indonesia's very low prices are pre-

Figure 23(b): Average export prices for vanilla, 2004 (US$/ton)



Source: FAOSTAT and own calculations

sumably linked to the fact that its vanilla is of sub-standard quality. As Germany and France do not produce vanilla, their prices are reflective of re-exports and may contain a value-added component.

Prices for spices on world markets fluctuate widely. There are different prices for different grades and for different stages of the processing chain, and it is difficult to analyse price trends without more detailed information. It appears that SADC countries may have comparative advantages in terms of price for certain spice varieties, in particular for pepper of the genus piper (black, green and white pepper), peppers from the capsicum family (chilli peppers, cayenne peppers, paprika, etc.), and for vanilla based on the labour-intensity of the crop, although prices vary dramatically between grades and quality. There may well be arguments for other spices, but detailed information on producer prices and/or export prices is not available and some of the industries in the SADC region are not very well developed. What is clear is that spices tend to go through cycles and their prices are greatly influenced by supply. While demand seems to be increasing steadily world-wide and quite rapidly in particular markets (upper-middle-income economies especially), it is difficult to predict what will happen to prices, as the supply side seems to be so important in determining the price level. Price fluctuations pose a risk for potential SADC producers, which can be made worse by currency exchange rate fluctuations. Support from industry associations, co-operatives or government is particularly important.

6. Market access

Market access remains a major impediment for the expansion of trade in agricultural commodities and processed foodstuffs. Many developed countries have tariff escalation structures that stimulate the import of relatively unprocessed agricultural commodities at the expense of processed products. In addition to tariff protection, developed countries have non-tariff barriers that can be used to alter the shape of trade and discourage the importation of processed agricultural products. These non-tariff barriers include sanitary and phytosanitary (SPS) measures, as well as anti-dumping and countervailing duties and safeguards.

6.1 The EU

All goods entering the EU are subject to import duties. The level of tariffs depends on the country of origin and the product. However, the EU has created a Generalised System of Preferences (GSP), which gives developing countries trade preferences, as they are unable to compete with the developed countries. In 2001, the EU adopted the "Everything but Arms" (EBA) initiative, whereby developing countries were granted duty-free access to export their products without any quantitative restrictions, except for arms and ammunition. This provision has been incorporated in the Generalised System of Tariff Preferences. Since most SADC countries fall within this category, they have an opportunity to increase spice and herb exports into this market, provided they meet market access requirements. More information regarding the EU marketplace, tariffs, requirements and other useful information is available at:

- *http://ec.europa.eu/trade/issues/global/development/thd_en.htm*

Tariff information for all products entering the EU can be found on the TARIC website:

- *http://ec.europa.eu/taxation_customs/dds/cgi-bin/tarchap?Lang=EN*

Table 17 illustrates the tariffs that face SADC spice exporters. Generally, the EU's tariff schedule toward spices demonstrates a degree of tariff escalation for processed or value-added products. The highest tariff rate is on mixtures of ground/crushed spices, which is also the region's largest exported spice group. Some of these tariffs are therefore designed to protect the local industry. Spices grown in the region, like capsicum, thyme and bay leaves, also receive some level of protection.

Table 17: Tariff rates facing SADC spices and herbs exports in the EU

Code			Description			GSP (%)
0904			**Pepper of the genus piper, capsicum and pimento**			
	90410			**Pepper of the genus piper**		
		09041100			*Pepper neither crushed nor ground*	0.0
		09041200			*Pepper crushed or ground*	4.0
	90420			**Fruits of the genus capsicum or of the genus pimenta, dried or crushed or ground**		
			Neither crushed nor ground:			
		9042010			*Sweet peppers*	9.6
		9042030			*Other*	0.0
		9042090			*Crushed or ground*	5.0
905			**Vanilla**			
		9050000			*Vanilla*	6.0
906			**Cinnamon and cinnamon - tree flowers:**			
		9061000			*Neither crushed nor ground*	0.0
		9062000			*Crushed or ground*	0.0
907			**Cloves**			
		9070000			*Cloves (whole fruit, cloves and stems)*	8.0
908			**Nutmeg, mace and cardamom:**			
		9081000			*Nutmeg*	0.0
		9082000			*Mace*	0.0
		9083000			**Cardamom**	0.0
909			**Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries:**			
		9091000			*Seeds of anise or badian*	0.0
		9092000			*Seeds of coriander*	0.0
		9093000			*Seeds of cumin*	0.0
		9094000			*Seeds of caraway*	0.0
		9095000			*Seeds of fennel; juniper berries*	0.0
910			**Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices:**			
		9101000			*Ginger*	0.0
	91020			**Saffron:**		
		9102010			*Neither crushed nor ground*	0.0
		9102090			*Crushed or ground*	8.5
	91030			**Turmeric (curcuma)**		0.0
	91040			**Thyme; bay leaves**		
			Thyme:			
			Neither crushed nor ground			
		9104011			*Wild thyme (thymus serpyllum)*	0.0
		9104013			*Other*	7.0
		9104019			*Crushed or ground*	8.5
		9104090			*Bay leaves*	7.0
		9105000			*Curry*	0.0
			Other spices:			
	91091			**Mixtures of spices**		
		9109110			*Neither crushed nor ground*	0.0
		9109190			*Crushed or ground*	12.5
	91099			**Other:**		
		9109910			*Fenugreek seed*	0.0
			Other:			
		9109991			*Neither crushed nor ground*	0.0
		9109999			*Crushed or ground*	12.5

Source: Official Journal of the EU

6.2 The US

Most spices enter the US duty free (see Table 18), except thyme, oreganum, bay leaves, mixtures of spices and 'other spices', which incur ad valorem duties of 1.9% to 4.8%. Paprika, ancho peppers, chilli pepper mixtures and various other peppers, mace and ground ginger incur tariffs of between 1c/kg and 7.4c/kg. With the exception of ginger, these tariffs correspond to those spices that the US currently produces.

The tariffs presented here are the most-favoured nation (MFN) rates, applicable to any nation that is a member of the WTO. Most SADC member states, however, qualify under the African Growth and Opportunity Act (AGO), which allows most commodities into the US at zero duties or quotas. AGOA-qualifying countries therefore have a comparative advantage, as their goods enter the US duty-free, while other countries have to pay the MFN duty on their goods. However, in the case of spices the AGOA agreement does not cover the majority of tariff lines, which means AGOA countries are liable for the same MFN duties as most other countries and can therefore be at a disadvantage if competitor countries have a preferential agreement with the US or NAFTA. The only two line items receiving preferential access under the AGOA agreement are 0904.20.40 Anaheim Peppers and Ancho Peppers and 09.40.40 Bay leaves, both of which enter without any tariffs instead of the original 5c per kg and 3.2% respectively.

6.3 Japan

Japan's tariff schedule is organised slightly differently to that of the US and the EU. For most imports entering Japan, what counts is whether the goods have been placed in a container for retail sale. If the item is in a container as a final commodity, it attracts some form of tariff. This is a thinly disguised form of tariff escalation – the intermediate or raw goods and commodities enter with less or no tariffs, while the processed goods are subject to potentially discriminating tariffs designed to promote the local processing industry. Japan's tariffs vary quite significantly depending on whether the importing country belongs to the WTO or not, or has a preferential agreement with Japan. Most SADC countries' products enter under the Japanese General System of Preferences, which gives them access to rates under the heading "pref". This means there are no tariffs whatsoever on any spices from SADC entering Japan, a significant advantage.

There are some import regulations and procedures that apply to exporters of spices and herbs in this market. The Plant Protection Law and the Food Sanitation Law require that imported and exported plants (and therefore herbs and spices) are inspected for harmful pests to prevent the spread of disease. Imported spices have to go through Import Quarantine Inspection with an inspection certificate issued by the government of the exporting country and submitted to the plant quarantine station when entering Japan. If imports of spices and herbs are found to be harmful they are disinfected, discarded or shipped back to the exporting country. Dried turmeric, ulmoides and dried pepper seeds are exempt from the Plant Protection Law, as are spices dried and packed in retail containers.

Table 18: Tariff rates facing SADC spice and herb exports to the US

Code		Description		General
904		**Pepper of the genus piper, capsicum and pimento**		
	09041100		Neither crushed nor ground	0%
			Black	0%
			White	0%
	09041200		Crushed or ground	0%
		Of the genus capsicum (including cayenne pepper, paprika and red pepper):		
	09042020		Paprika	3c/kg
	09042040		Anaheim and ancho pepper	5c/kg
		Other		
	09042060		Not ground	2.5c/kg
			Bell peppers	2.5c/kg
			Jalapeno peppers	2.5c/kg
		Other		2.5c/kg
			Ground	
	09042073		Mixtures of mashed or macerated hot red peppers	0%
	09042076		Other	5c/kg
	09042080		Of the genus pimenta (including allspice)	0%
905		**Vanilla beans**		0%
906		**Cinnamon and cinnamon - tree flowers:**		
	09061000		Neither crushed nor ground	0%
	09062000		Crushed or ground	0%
	09070000		Cloves (whole fruit, cloves and stems)	0%
908		**Nutmeg, mace and cardamom:**		
	09081000		Nutmeg	0%
908.2		**Mace:**		
	09082020		Bombay or wild mace, ground	7.4ç/kg
	09082040		Other	0%
	09083000		Cardamom	0%
909		**Seeds of anise, badian fenne, coriander, cumin or caraway; juniper berries:**		
	09091000		Seeds of anise or badian	0%
	09092000		Seeds of coriander	0%
	09093000		Seeds of cumin	0%
	09094000		Seeds of caraway	0%
	09095000		Seeds of fennel; juniper berries	0%
910		**Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices:**		
910.0		**Ginger:**		
	09101020		Not ground	0%
	09101040		Ground	1c/kg
	09102000		Saffron	0%
	09103000		Turmeric (curcuma)	0%
910.4		**Thyme; bay leaves:**		
	09104020		Crude or not manufactured	0%
		Other:		
	09104030		Thyme	4.80%
	09104040		Bay leaves	3.20%
	09105000		Curry	0%
		Other spices:		
	09109100		Mixtures of spices	1.90%
91099		**Other**		
	09109920		Origanum (lippia spp): crude or not manufactured	0%
	09109940		Origanum (lippia spp): other	3.40%
		Other:		
	09109950		Dill	0%
	09109960		Other	1.90%

Source: US Statistics Department

Table 19: Tariffs facing SADC spice and herb exports to Japan

Code	Description		General	WTO	Pref
904	**Pepper of the genus piper, capsicum and pimenta dried or crushed or ground fruits:**				
904.11	Neither crushed nor ground:				
-100		*1. Put up in containers for retail sale*	4.2	3	0
-200		*2. Other*	0	0	0
904.12	Crushed or ground:				
-100		*1. Put up in containers for retail sale*	4.2	3	0
-200		*2. Other*	0	0	0
904.2	**Fruit of the genus capsicum& pimenta**				
	Crushed or ground:				
-100		*1. Put up in containers for retail sale*	7	6	0
-200		*2. Other*	0	0	0
-210		*Neither crushed nor ground*	0	0	0
-220		*Crushed or ground*	0	0	0
905	**Vanilla**		0	0	0
906	**Cinnamon and cinnamon-tree flowers**				
-210		*Neither crushed nor ground*	0	0	0
-220		*Crushed or ground*	0	0	0
907	**Cloves (whole fruit, cloves and stems):**				
-100		*1. Put up in containers for retail sale*	4.2	3.6	0
-200		*2. Other*	0	0	0
-210		*Neither crushed nor ground*	0	0	0
-220		*Crushed or ground*	0	0	0
908	**Nutmeg, mace and cardamom**				
908.1	**Nutmeg:**				
-100		*1. Put up in containers for retail sale*	4.2	3.6	0
-200		*2. Other*	0	0	0
-210		*Neither crushed nor ground*	0	0	0
-220		*Crushed or ground*	0	0	0
908.2	**Mace:**				
-100		*1. Put up in containers for retail sale*	4.2	3.6	0
-200		*2. Other*	0	0	0
-210		*Neither crushed nor ground*	0	0	0
-220		*Crushed or ground*	0	0	0
908.3	**Cardamom:**				
-100		*1. Put up in containers for retail sale*	4.2	3.6	0
-200		*2. Other*	0	0	0
-210		*Neither crushed nor ground*	0	0	0
-220		*Crushed or ground*	0	0	0
909	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries:				
909.1	Seeds of anise or badian:				
-100		*1. Put up in containers for retail sale*	7	6	0
-200		*2. Other*	0	0	0
-210		*Neither crushed nor ground*	0	0	0
-220		*Crushed or ground*	0.5	3	0

Code	Description		General	WTO	Pref
909.2	Seeds of coriander:				
-100		1. Put up in containers for retail sale	7	6	0
-200		2. Other	0	0	0
-210		Neither crushed nor ground	0	0	0
-220		Crushed or ground	3.5	3	0
909.3	Seeds of cumin:				
-100		1. Put up in containers for retail sale	7	6	0
-200		2. Other	0	0	0
-210		Neither crushed nor ground	0	0	0
-220		Crushed or ground	3.5	3	0
909.4	Seeds of caraway:				
-100		1. Put up in containers for retail sale	7	6	0
-200		2. Other	0	0	0
-210		Neither crushed nor ground	0	0	0
-220		Crushed or ground	3.5	3	0
909.5	Seeds of fennel; juniper berries				
-100		1. Put up in containers for retail sale	7	6	0
-200		2. Other	0	0	0
-210		Neither crushed nor ground	0	0	0
-220		Crushed or ground	3.5	3	0
910	**Ginger, saffron, turmeric, thyme, bayleaves, curry and other spices**				
910.2	Saffron:				
-100		1. Put up in containers for retail sale	4.2	3.6	0
-200		2. Other	0	0	0
-210		Neither crushed nor ground	0	0	0
-220		Crushed or ground	0	0	0
910.3	Turmeric:				
-100		1. Put up in containers for retail sale	4.2	3.6	0
-200		2. Other	0	0	0
-210		Neither crushed nor ground	0	0	0
-220		Crushed or ground	0	0	0
910.4	Thyme; bay leaves:				
-100		1. Put up in containers for retail sale	4	4	0
-200		2. Other	0	0	0
-210		Neither crushed nor ground	0	0	0
-220		Crushed or ground	0	0	0
910.5	Curry		12	7.2	3.6
	Other spices:				
910.91	Mixtures				
-100		1. Put up in containers for retail sale	4.2	3.6	0
-200		2. Other	0	0	0
910.99	Other				
-100		1. Put up in containers for retail sale	4.2	3.6	0
-200		2. Other	0	0	0
-210		Neither crushed nor ground	0	0	0
-220		Crushed or ground	0	0	0

Source: Japan Tariff

6.4 Known non-tariff barriers

6.4.1 The EU

It is essential for exporters from SADC countries to know the EU market access requirements for spices and herbs. The EU places emphasis on standards through legislation, codes, markings, labels and certificates with respect to quality, environment, safety, and health and labour conditions. Exporters from SADC countries can obtain more information regarding these requirements from *www.cbi.nl/accessguide*. Food legislation, known as the General Food Law, which was initially introduced to ensure that consumers gained more confidence in various food products, can make a potential exporter's life a little more difficult. It includes various provisions on the traceability of food and differ from country to country. It is best to obtain country-specific information, available at ht*www.europa.eu.int/comm/food/indexen.html*. Documentation and labels of suppliers are also crucial to the food industry, as food travelling across internal borders is required to have this information available for traceability purposes. The following websites are useful for SADC exporters:

- Integral text of the directives and regulations mentioned above: *http://europa.eu.int/eur-lex/lex/en/index.htm*
- EU pesticide residue legislation: *http://europa.eu.int/comm/food/plant/protection/pesticides/index en.htm*
- EU legislation on pesticides and other contaminants: *www.useu.be/agri/pesticides.html*

Perhaps the most important piece of legislation regarding herbs and spices deals with the maximum levels of aflatoxin that may be present in the product, especially for capsicum, piper (black, green, white and long pepper), nutmeg, ginger and turmeric. The maximum acceptable levels of aflatoxin are listed in Regulation (EC) 472/2002, which is an amendment of Regulation (EC) 466/2001, which sets maximum levels for contaminants in foodstuffs. Sampling methods for aflatoxin in spices are available in the Commission Directive 2002/27/EC. Further information can be obtained from *www.cbi.nl/accessguide*.

6.4.2 NAFTA

In NAFTA, and particularly the US as the region's most important market for herbs and spices, the existing known non-tariff barriers are the Inspection and Phytosanitary Requirements. The US Department of Agriculture's (USDA's) Animal and Plant Health Inspection Service (APHIS) specifies that all spices and herbs entering the US are subject to thorough inspection and checks. For example, before being imported

into the US, shipments of cumin seed from Pakistan packed in jute or burlap bagging must be fumigated with methyl bromide to prevent diseases from potentially entering the country. Contaminated shipments are either sent back, destroyed or decontaminated. Paperwork detailing the country of origin must be presented to the relevant officers at the port of entry for verification of species, as well as a packing list and phytosanitary certificate. Other information required includes the size of the shipment and a compliance history. SADC exporters of spices and herbs can obtain more information regarding these requirements from *www.fas.usda.gov/itp/ofsts/us.html*, *http://www.arms.usda.gov.nop* and *www.ioia.net*.

Quality assurance officials in certain countries often host a USDA official or team of officials and allow them to perform audits and checks to ensure that the particular exporting country has appropriate quality standards. This helps to facilitate faster customs clearance and can be a deciding factor when contracts are awarded for the supply of spices to retailers or large wholesalers.

6.4.3 Japan

Japan has very tight controls and many believe that the only successful way to ship agricultural commodities into Japan is through a Japanese agent or wholesaler. Japan places great emphasis on phytosanitary measures and all fresh spices and herbs must go through Plant Quarantine Law procedures. Certain forms of dried spices, including dried turmeric, dried pepper and spices packaged for retail use are, however, exempt. Spices must also comply with the Food Sanitation Law.

Conclusion

International trade in herbs and spices is dictated by often volatile international commodity markets. However, the demand for spices has been growing consistently over recent decades. As incomes around the world increase, creating new middle classes intent on enjoying different cuisines, the demand for herbs and spices will continue to surge. This trend has been assisted by declining transport costs and increased frequencies of cargo carriers transporting goods to formerly remote areas, as well as the lowering of tariffs through bi-lateral and multilateral trade agreements.

Many herbs and spices are potentially good agricultural products for sub-Saharan and therefore SADC countries to grow and export. They are suited to hot and tropical climates, while the techniques and equipment required to grow and process them are neither capital- nor technology-intensive. Herbs and spices are also light and easy to store and transport. The fact that most of them are dried before being shipped removes the need for expensive cold-chain management or other advanced storage capacity needs. However, there is still a need for quality assurance, labelling and phytosanitary clearance procedures to be in place, as plant quality and health standards are demanding in developed country markets. Should SADC exporters conform to these requirements, there are many opportunities for the lucrative export of herbs and spices.

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