ICTSD Project on Tropical Products



Trade Effects of SPS and TBT Measures on Tropical and Diversification Products

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ICTSD welcomes feedback and comments on this document. These can be forwarded to Marie Chamay, mchamay@ictsd.ch.

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ABBREVIATIONS AND ACRONYMS

ACP	Alliance of the African, Caribbean and Pacific Group of States
APHIS	Animal and Plant Health Inspection Service
AVE	*Ad-valorem* equivalent
BACI	Base pour l'Analyse du Commerce International (Database of International Trade Analysis)
CEPII	Centre of Prospective Studies and International Information
CIF	cost, insurance and freight
CNA	Censo Nacional Agropecuario (Ecuador's National Agriculture Census)
COLEACP	Comité de Liaison Europe-Afrique-Caraïbes-Pacifique (Europe-Africa-Caribbean-Pacific Liaison Committee)
COMTRADE	Commodity Trade Statistics Database
CORPEI	Corporación Ecuatoriana de Promoción de Exportaciones e Inversiones (Ecuadorian Corporation for Export and Investment Promotion)
EC	European Community
EU	European Union
EU25	Twenty-five Members of the European Union
EUREP	Euro-Retailer Produce Working Group
EurepGAP	Euro-Retailer Produce Working Group Good Agricultural Practices
FAO	Food and Agriculture Organization
FPEAK	Fresh Produce Exporters Association of Kenya
GAP	good agricultural practices
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GFSI	Global Food Safety Initiative
GLOBALGAP	Global Partnership for Good Agricultural Practice
GSP	Generalized System of Preferences
HS	Harmonized System of the United Nations
ISO	International Organization for Standardization
ICTSD	International Centre for Trade and Sustainable Development
ITC	International Trade Center
LA8	Eight Latin American countries (Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Nicaragua, Panama and Peru)
LDCs	least developed countries
MacMap	Market Access Map
NES	not elsewhere specified
NTB	non-tariff barrier
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
PIP	Pesticides Initiative Programme
PROFIAGRO	Programa Fitosanitario para el Agro para la Mitigacion de Barreras Tecnicas de Acceso al Mercado de EE.UU.
SESA	Servicio Ecuatoriano de Sanidad Animal (Ecuadorian Service for Animal Health)
SPS	Sanitary and Phytosanitary (Agreement)
STDF	Standards and Trade Development Facility
TBT	Technical Barrier to Trade (Agreement)
TRAINS	Trade Analysis Information System
UNCTAD	United Nations Conference on Trade and Development

US	United States of America
USITC	United States International Trade Commission
WITS	World Bank Integrated Trade Solution
WHO	World Health Organization
WTO	World Trade Organization

FOREWORD

Agriculture remains the main source of livelihood for more than 2.6 billion people in the world, the majority of whom are located in developing countries. Rising incomes, urbanization and shifting food use patterns have increased food consumption in most areas of the world. But despite spectacular increases in food production per capita, major distributional inequalities in access to food persist. In 2002, an estimated 852 million people remained undernourished and, according to the UN Millennium Development Goals 2007 report, if current trends continue, the target to halve the proportion of underweight children will be missed by 30 million children, largely because of slow progress in southern Asia and sub-Saharan Africa.

At the same time, according to the Millennium Ecosystem Assessment, if the productivity of cultivated systems cannot keep pace with demand, there is a very real threat to global food security, with the daunting challenge of providing sufficient food to sustain another 2 billion people by 2020. As agricultural systems are under increasing pressure to meet the growing need for cultivated products, it becomes vital from a sustainable development perspective to address environmental challenges associated with food production, such as water pollution, pesticide use, land degradation and greenhouse gas emissions.

The reform of the global agriculture trading system currently being negotiated in the context of the Doha Round – with the objective of establishing a "fair and market-oriented trading system" – will play a major role in this process. Over the past 15 years, world agriculture trade has grown almost twice as fast as production. However, exports from developing countries, of tropical and diversification products in particular, face a variety of specific challenges, including non-tariff barriers (NTBs), such as sanitary and phytosanitary (SPS) measures and technical requirements, tariff peaks, tariff escalation, preference erosion, and subsidized agricultural production and exports from Organisation for Economic Co-operation and Development (OECD) countries.

The importance of tropical products for developing countries is undeniable. Their significance has been recognized in an array of studies, fora and organizations. As indicated in a document by the Common Fund for Commodities, 2004):

The livelihoods of hundreds of millions of the world's poorest people in developing countries, and in particularly in the least developed countries, are heavily dependent on commodities. Commodities form the backbone of the economies and account for the bulk of the export earnings of these countries. The development of commodities is thus vitally important in the global struggle to alleviate poverty.

However, there are no studies estimating the importance of tropical and other basic products using economic, social and foreign trade indicators. Nonetheless, the participation of such products in exports from developing countries is significant: the 20 main tropical products account for 36 percent of developing countries' incoming foreign currency from agricultural exports. This proportion reaches 46 percent for low-income developing countries (Perry, 2008).

Many of these products are grown primarily by small farmers in developing countries (coffee, cocoa, tobacco and cotton). Others are vital in the generation of rural employment (sugar, rubber and rice). Therefore, besides their considerable contribution to foreign currency generation, they also play an important role from a social point of view.

The built-in agenda of the Agreement on Agriculture reflects the longstanding priority attached to tropical and diversification products that:

having agreed that in implementing their commitments on market access, developed country Members would take fully into account the particular needs and conditions of developing country Members by providing for a greater improvement of opportunities and terms of access for agricultural products of particular interest to these Members, including the fullest liberalisation of trade in tropical agricultural products as agreed in at the Mid-Term Review, and for products of particular importance to the diversification of production from the growing of illicit narcotic crops;

The 2004 Framework Agreement reached during the Doha Round notes that the full implementation of the liberalization of trade in tropical agricultural products is "overdue and will be addressed effectively in the market access negotiations." However, the way in which the commitment is to be implemented, and even the identification of such products, remains far from clear.

Multilateral discussions on the full liberalization of trade in tropical and diversification products have focused almost exclusively on the reduction of tariffs, and tariff escalation for those products and the overlap with the mandate on preference erosion. There has been no debate and analysis on NTBs and more specifically on SPS measures and technical barriers to trade (TBTs). This is surprising, since this paper reveals that imports of tropical and diversification products from African, Caribbean and Pacific (ACP) countries and some Latin American countries are particularly affected by SPS and TBT measures. This paper also reveals that ACP countries are the exporters for which the most sectors are influenced negatively and significantly by SPS measures and TBTs.

This paper represents a contribution to a knowledge-based discussion in this area. The purpose of this study is to analyse the trade effects of SPS measures and TBTs on tropical and diversification products. The authors examine to what extent and for what products SPS and technical requirements under public law represent barriers for exports of tropical and diversification products to enter developed countries' markets, namely the European Union (EU), the United States (US), Japan, Canada, Australia and Switzerland. The objective of the study is also to generate solution-oriented analyses and to identify possible policy responses.

By way of introduction, the paper provides information on the SPS and TBT agreements, the private sector requirements and NTBs to trade. The paper presents case studies documenting the effects of SPS and TBT measures on producers and exporters. These cases studies are based on surveys and interviews. They focus on production and export of bananas and pineapples in Ecuador, bananas, melons and pineapples in Costa Rica, coffee in Ethiopia and cut flowers in Kenya.

The paper provides a statistical analysis of SPS and TBT measures applied by main developed countries on their imports of tropical and diversification products. Results of the surveys and case studies are not easily generalized. The main advantage of the statistical analysis is to be more exhaustive. This analysis reveals information on the types of measure used (authorizations, technical measures), the motives to impose SPS and TBT measures on tropical and diversification products, the number of notifications by country, the stringency of SPS and TBT measures, and the affected exports. Furthermore, the paper presents econometrical estimations of the trade impacts of public standards through the gravity equation.

Finally, the paper describes the existing technical assistance programmes to help farmers and exporters of developing countries to conform with SPS and TBT requirements adopted by main developed markets. It assesses their strengths and weaknesses, and it provides recommendations to improve their efficiency. The paper analyses how the Aid for Trade initiative can help developing countries to meet these standards. Additional policy responses resulting from the study are also suggested.

This paper was produced under an International Centre for Trade and Sustainable Development (ICTSD) dialogue and research project that seeks to address the opportunities and challenges of the full liberalization of trade in tropical and diversification products, and explores possible areas of convergence between different groupings and interests in World Trade Organization (WTO) negotiations. The project seeks to generate solutions-oriented analyses and possible policy responses from a sustainable development perspective.

Ricardo Meléndez-Ortiz
Chief Executive, ICTSD

EXECUTIVE SUMMARY

The study analyses the trade effects of SPS measures and TBTs on tropical and diversification products.[1] We examine to what extent and for what products sanitary, phytosanitary and technical requirements under public law represent barriers for exports of tropical and diversification products to enter developed countries' markets, namely the EU, the US, Japan, Canada, Australia and Switzerland. The purpose of this study is also to generate solution-oriented analyses and to identify possible policy responses.

The study focuses on the tropical and diversification products listed by the Cairns Group in the document JOB(07)/31, dated 16 March 2007, which were supported by eight Latin American countries (Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Nicaragua, Panama and Peru; hereafter referred to as LA8) that circulated a proposal on the full liberalization on tropical and diversification products on 28 April 2006. The list covers 134 products at the six-digit level. Countries of interest for the study are ACP, Latin American and Asian countries.

The SPS and TBT Agreements

WTO Members are allowed to adopt regulations under both SPS and TBT agreements in order to protect human, animal and plant health, environment, wildlife and human safety. Both agreements contain provisions on technical assistance and special and differential treatment to help developing countries and least developed countries (LDCs) to implement and take advantage of this agreement. However, despite this support, developing countries and LDCs face difficulties in the implementation of both agreements. Besides, developing countries and LDCs protest regularly against the increasing use of SPS and TBTs by developed countries and view this use as a disguised form of protectionism. Furthermore, producers and exporters should also compete with private sector requirements. The development of private standards is recent but very rapid, and one can question whether today these standards do not influence trade more than public standards do.

Case Studies

Our study first provides case studies documenting the effects of SPS and TBT measures on producers and exporters. These case studies are based on surveys and interviews. We focus on production and export of bananas and pineapples in Ecuador, bananas, melons and pineapples in Costa Rica, coffee in Ethiopia and cut flowers in Kenya.

Bananas are Ecuador's main tropical export. They represent approximately two thirds of total tropical exports. Pineapples are less important but are an export product on the rise and are the third most exported product. All banana and pineapple farmers and producers reported that they had to deal with SPS and TBT measures and that each year it seems they have to comply with more and more requirements. Compliance with SPS and TBT measures implies higher costs, in either production or export, according to the nature of the business. This higher cost did not mean, however, that the businesses lost export markets. In general, the ability to cope with SPS and TBT measures varies with the size of the business. It seems that large businesses may be able to cope, while medium-sized and small businesses find it more difficult, if not impossible, to comply with the most stringent SPS and TBT requirements from developed markets. One solution, however, could be to act in cooperatives. Another aspect in coping with these standards is the growing importance of export contracts (between farmers and exporters) to establish long-term business relationships that ensure quality controls.

Costa Rica is the world's second largest exporter of bananas after Ecuador. Melons are the fifth largest contributor to Costa Rica's agriculture gross domestic product (GDP) determination. Finally, pineapple exports grew from USD159 million in 2002 to USD430 million in 2006, which represents an annual growth rate of 28.2 percent. Adopting international norms and certifications imposes high economic costs. However, most banana producers consider changes introduced by norms as positive and an opportunity to access more profitable markets. Others consider that the main export barrier is tariffs, especially to the EU market. Banana producers and exporters do not report market losses due to SPS and TBT measures. Melon producers point out that the main obstacle in applying SPS and TBT requirements is the constant change in the allowed maximum residue levels. These variations produce constant changes in production practices, with a significant economic cost in terms of inputs and staff training. But melon producers also state that SPS and TBT measures have helped them to improve their competitiveness. They recognize that practices and inputs demanded by certifiers create safer working conditions and at the same time increase productivity and company discipline. Pineapple producers also complain that the EU often changes the agrochemical tolerance levels, as well as the list of permitted agrochemicals, raising the risk of fruit rejection. Despite the cost induced by SPS and TBT measures, pineapple producers consider that the main barrier to export to the EU and US markets remains tariffs. Surveyed pineapple producers consider that the norms and technical regulations, as well as private sector requirements, benefit their exports. The cost of not complying with SPS and TBT measures or with voluntary norms is to sell their products in the local market or in less profitable international markets.

Ethiopia is a leading producer and exporter of coffee in Africa. The annual production of coffee represents about 2.5 percent of the world's marketable coffee. Until recently, coffee generated over 60 percent of Ethiopia's export earnings. Coffee production in Ethiopia is dominated by small-scale farmers. Faced with a situation in which improved quality has not necessarily brought better prices for the farmer, Ethiopian farmers have been reluctant to take on additional costs for the sake of standards. Coffee farmers and exporters have little knowledge about SPS and TBT measures.

Kenya is one of the biggest world producers and exporters of cut flowers. The cut-flower industry has become a fast-growing sector and is increasing its contribution to the overall economy of Kenya. The export value of cut flowers increased tremendously between 1997 and 2004, with an average annual growth rate of 20 percent. Kenya's cut-flower industry is well developed and dominated by large- and medium-scale producers. Producers and exporters interviewed reported that they internalized the standards set by their buyers and other stakeholders. However, this was not without cost and induced a shift in their mode of production (such as water and pesticide usage), but it did not cause a product shift.

Statistical Analysis

Statistical analysis of SPS and TBT measures notified by main developed countries (the EU, the US, Canada, Japan, Australia and Switzerland) on their imports of tropical and diversification products provides more exhaustive results. The data used for such an analysis come from the United Nations Conference on Trade and Development (UNCTAD) database. This database is based on notifications made by importing countries to the WTO and completed by individual countries' trade policies surveys by the WTO, as well as a series of national sources, ranging from custom authorities to specialized publications. Unfortunately, these notifications include only public ones. To date, no database on private standards is available. Our statistical analysis will therefore focus only on public measures.

Results suggest differences between importing countries. First, they do not use exactly the same measures. Twenty-five members of the European Union (EU25), Canada and Switzerland mainly use authorizations, while the US, Japan and Australia mostly notify technical measures related to product

characteristics requirements or to testing, inspection or quarantine requirements. Furthermore, importing countries adduce different motives to impose SPS and TBT measures on tropical and diversification products: EU25 aims to protect wildlife, Canada focuses on the protection of plant health, the US, Japan and Switzerland aim to protect human health, and Australia's most frequent concerns are the protection of human and plant health. The number of notifications also differs significantly across importing countries: EU25 and Japan notify few products, Canada and the US are in the middle of the ranking, and Australia notifies SPS and TBT measures on all except three tropical and diversification products.

By merging information on notifications with trade data, one can analyze the stringency of SPS and TBT measures. Although EU countries notify few standards, some exporting countries are highly affected by these measures. Results also suggest differences in terms of affected exports between countries belonging to the same sub-group of exporters (ACP, LA8, other Latin American or Asian countries). For example, if we focus on LA8 countries, results show that exports of Guatemala are much more affected by EU standards than are exports of other LA8 countries. However, Guatemala's exports to Canada are no more affected than those of other LA8 countries.

Econometric Analysis

We also estimate econometrically the trade impact of public standards. To conduct such an analysis, we use the gravity equation. In its basic form, the gravity equation explains bilateral trade with the size of the countries and their bilateral distance. Additional explanatory variables are usually included to account for countries' proximity. We also control for the bilateral tariff barriers applied by importing countries and SPS and TBT measures.

Results show strong differences between exporting countries. Only imports from ACP and LA8 countries are affected significantly by SPS and TBT measures. Estimated coefficients for other Latin American and Asian countries are not significant. Furthermore, ACP countries are much more affected than LA8 countries. ACP countries are also the sub-sample of exporters for which the most sectors are influenced negatively and significantly by SPS and TBT measures.

Thus, our results suggest that special attention should be paid to ACP countries in the next WTO negotiations. These countries should be supported in their efforts to comply with SPS and TBT requirements. Provisions on technical assistance and special and differential treatment included in the SPS and TBT agreements should be maintained and reinforced in order to help them to implement and take advantage of the agreements. However, the main impediments faced by ACP countries are not only cost but also that these standards may not be justifiable from a risk basis or may be disproportionate. Thus, WTO should also make sure that SPS and TBT measures are not implemented disproportionately to the level of risk.

Policy Responses

- Size matters: the ability to cope with SPS and TBT measures varies with the size of business. Generally, medium-sized and small producers find it harder to comply with the requirements.
- Upgrading benefits but costs: high investments to comply with SPS and TBT measures yield improved competitiveness and better access to profitable markets for large businesses.
- Role for union and government: one solution for medium-sized and small businesses to comply with the most stringent SPS and TBT requirements could be to act in cooperatives. Government's help could also be useful. However, if the role played by either the government or the union is too large, this could obscure the market requirements of international buyers from the producers,

who have little direct knowledge of market trends other than international buyers from the producers.

- Stability of private requirements: another difficulty mentioned by exporters is the variation in requirements between different importing countries. Interviewed producers also point out that the main obstacle in applying private SPS and TBT measures is the constant change in the requirements. These variations produce constant changes in production practices, with a significant economic cost in terms of inputs and staff training.
- Requirements justifiable from a "risk" basis: the main impediments faced by exporters are not only cost but also that these standards may not be justifiable from a risk basis or may be disproportionate, and their implementation requires measures far outside what is provided for. Thus, WTO should also make sure that SPS and TBT measures are not implemented disproportionately to the level of risk.

1. INTRODUCTION

1.1 Context

Tropical products have been a special negotiating sector since the Kennedy Round (1964–67). These products were given "special attention" during the Uruguay Round (1986–94). The 31 July 2004 Framework Agreement (Paragraph 43 of Annex A) notes that the full implementation of the longstanding commitment to achieve the fullest liberalization of trade in tropical agricultural products is "overdue and will be addressed effectively in the market access negotiations."[2]

The negotiations on modalities started in 2004. However, there is no specific group or committee in charge of handling negotiations in tropical and diversification products. The WTO Committee on Agriculture covers such negotiations. Furthermore, there is still no agreed definition as to which agricultural commodities should be considered as tropical and diversification products in the agricultural negotiations at the WTO. In addition, WTO Members still have to agree on the way in which the longstanding commitment to achieve the fullest liberalization of trade in these agricultural products will be worked out.

The present study aims to understand the extent to which SPS and TBTs represent obstacles preventing tropical and diversification products exports from ACP, Latin American and Asian countries from entering developed countries' markets, namely the EU, the US, Canada, Japan, Australia and Switzerland. The purpose of this work is to generate solution-oriented analyses and to identify possible policy responses.

Our study applies econometric and survey data approaches. We first provide some descriptive statistics on SPS and TBT measures by merging information on notifications with trade data. Then, we estimate econometrically the impact of such measures on bilateral trade in tropical and diversification products. Our source data are WTO Members' notifications of SPS and TBT measures. We also include case studies of SPS and TBTs. The case studies are based on surveys conducted on Ecuadorian, Costa Rican, Ethiopian and Kenyan farmers and agricultural export businesses.

1.2 Coverage of the Study

1.2.1 Products of Interest for the Study

The Uruguay Round negotiating group on tropical w focused on seven categories of product.[3] However, they have never constituted a definitive list. Since 1995, the Committee on Agriculture has not put together a list of tropical and diversification products, and the Chair of the Committee has expressed pessimism on this issue, acknowledging that no agreement on an exhaustive list has ever been reached in the history of General Agreement on Tariffs and Trade (GATT)/WTO negotiations.

This study will focus on the products listed by the Cairns Group in the document JOB(07)/31, dated 16 March 2007. Eight Latin American countries (LA8) supported this list: Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Nicaragua, Panama and Peru in a communication dated 11 April 2007 (JOB(07)/31/Add.1).

Table 1.1 presents the list of covered products. It includes 134 products at the six-digit level of the Harmonized System (HS). This list differs slightly from that proposed by LA8 in their document JOB(06)/129 of 28 April 2006. This latter list included 86 products at the four-digit level of the HS classification (i.e. 317 products at the HS6 level). Of the 134 products included in the Cairns Group list, 126 are also included in that established by LA8 in 2006. The eight products present only in the Cairns list are: HS 070310 (onions and shallots), HS 100640 (broken rice), HS 110230 (rice flour), HS 110620 (flour, meal and powder of sago or of roots or tubers of heading

07.14), HS 110630 (flour, meal and powder of dried leguminous vegetables), HS 151410 (low erucic acid rape or colza oil, crude), HS 151490 (low erucic acid rape or colza oil, other) and HS 220720 (ethyl alcohol).

Table 1.1. Tropical and Diversification Products Considered in the Study (List Proposed by the Cairns Group) – HS 1996 Classification

CODE HS6	DESCRIPTION
060240	Roses, grafted or not
060290	Live plants, including their roots, and mushroom spawn
060310	Cut flowers and flower buds for bouquets, etc., fresh
060390	Cut flowers and flower buds for bouquets, etc., dried
060491	Foliage, branches, for bouquets, etc., fresh
060499	Foliage, branches, for bouquets, etc., except fresh
070190	Potatoes, fresh or chilled except seed
070310	Onions and shallots
070960	Peppers (Capsicum, Pimenta), fresh or chilled
070990	Vegetables, fresh or chilled NES
071190	Other vegetables; mixtures of vegetables
071390	Other dried leguminous vegetables
071410	Manioc (cassava), fresh or dried
071420	Sweet potatoes
071490	Arrowroot, salep, etc., fresh or dried, and sago pith
080111	Desiccated coconuts
080119	Other coconuts
080290	Nuts, fresh or dried, whether or not shelled or peeled
080300	Bananas, including plantains, fresh or dried
080420	Figs, fresh or dried
080430	Pineapples, fresh or dried
080440	Avocados, fresh or dried
080450	Guavas, mangoes and mangosteens, fresh or dried
080510	Oranges, fresh or dried
080520	Mandarin, clementine and citrus hybrids, fresh or dried
080530	Lemons and limes, fresh or dried
080590	Other citrus fruit, fresh or dried
080711	Watermelons, fresh
080719	Melons, fresh
080720	Fresh pawpaws “papayas”
081090	Fresh tamarinds, passion fruit, carambola, pitahaya and other edible fruit
081190	Fruits and nuts (uncooked, steamed, boiled), frozen
081290	Fruit and nuts, provisionally preserved
081340	Other fruit
081350	Mixtures of nuts or dried fruits
081400	Peel of citrus fruit or melons
090112	Coffee, not roasted, decaffeinated
090121	Coffee, roasted, not decaffeinated
090122	Coffee, roasted, decaffeinated
090190	Coffee, other roasted
090210	Tea, green (unfermented) in packages < 3 kg
090412	Pepper, crushed or ground
090420	Capsicum or Pimenta, dried, crushed or ground
090700	Cloves (whole fruit, cloves and stems)

CODE HS6	DESCRIPTION
091010	Ginger
100610	Rice in the husk (paddy or rough)
100620	Husked (brown) rice
100630	Semi-milled or wholly milled rice, whether or not polished or glazed
100640	Broken rice
110230	Rice flour
110620	Flour, meal and powder of sago or of roots or tubers of heading 07.14
110630	Flour, meal and powder of the dried leguminous vegetables
110814	Manioc (cassava) starch
120210	Ground-nuts in shell, not roasted or cooked
120220	Ground-nuts, shelled, whether or not broken
120890	Other flours and meals of oil seeds or oleaginous fruits
121190	Plants and parts, pharmacy, perfume, insecticide use NES
121210	Locust beans, locust seeds
121299	Vegetable products NES for human consumption
130219	Vegetable saps and extracts NES
140190	Other vegetable materials
150710	Crude soya-bean oil and its fractions
150790	Other soya-bean oil and its fractions
150810	Crude ground-nut oil
151110	Palm oil, crude
151190	Palm oil or fractions simply refined
151211	Crude sunflower-seed or safflower oil and fractions thereof
151219	Other sunflower-seed or safflower oil and fractions thereof
151311	Crude coconut (copra) oil and its fractions
151319	Other coconut (copra) oil and its fractions
151321	Crude palm-kernel or babassu oil
151329	Palm-kernel or babassu oil and fractions thereof, other
151410	Low erucic acid rape or colza oil, crude
151490	Low erucic acid rape or colza oil, other
151530	Castor oil and its fractions
151550	Sesame oil or fractions not chemically modified
151620	Vegetable fats, oils or fractions hydrogenated, esterified
151710	Margarine, excluding liquid margarine
152190	Beeswax, other insect waxes and spermaceti
170111	Raw sugar, cane
170191	Containing added flavouring or colouring matter
170199	Refined sugar, in solid form, NES, pure sucrose
170310	Cane molasses
180310	Cocoa paste, not defatted
180320	Cocoa paste, wholly or partly defatted
180400	Cocoa butter, fat, oil
180500	Cocoa powder, unsweetened
180610	Cocoa powder, sweetened
180620*	Chocolate and other food preparations containing cocoa > 2 kg
180631	Chocolate, cocoa preparations, block, slab, bar, filled, > 2 kg
180632	Chocolate, cocoa preparations, block, slab, bar, not filled, > 2 kg
180690*	Chocolate, cocoa food preparations, NES
200190	Vegetables, fruit, nuts, NES prepared or preserved by vinegar
200410	Potatoes, prepared, frozen
200520	Potatoes, prepared or preserved, not frozen/vinegar
200590	Vegetables, NES, mixes, prepared/preserved, not frozen/vinegar

CODE HS6	DESCRIPTION
200600	Fruits, nuts, fruit-peel, etc. preserved by sugar
200710	Homogenised jams, jellies, etc.
200791	Citrus-based jams, jellies, marmalade, etc.
200799	Jams, fruit jellies, purees and pastes, except citrus
200811	Ground-nuts otherwise prepared or preserved
200819	Nuts, seeds and mixes otherwise prepared or preserved
200820	Pineapples otherwise prepared or preserved
200830	Citrus fruits otherwise prepared or preserved
200870	Peaches otherwise prepared or preserved
200891	Palm hearts otherwise prepared or preserved
200892	Fruit mixtures otherwise prepared or preserved
200899	Fruit, edible plants NES otherwise prepared or preserved
200911	Orange juice, frozen, not fermented or spirited
200919	Orange juice, not fermented, spirited or frozen
200920	Grapefruit juice, not fermented or spirited
200930	Citrus juice NES (one fruit), not fermented or spirited
200940	Pineapple juice, not fermented or spirited
200980	Single fruit, vegetable juice NES, not fermented or spirited
200990	Mixtures of juices, not fermented or spirited
210111	Coffee extracts, essence
210112	Coffee preparations of extracts
210120	Tea and mate extracts, essences and concentrates
210390	Sauces NES, mixed condiments, mixed seasoning
220720	Ethyl alcohol
220840	Rum
230610	Oil-cake and other solid residues, of cotton seeds
230660	Oil-cake and other solid residues, of palm nuts or kernels
240110	Tobacco, not stemmed/stripped
240120	Tobacco, partly or wholly stemmed/stripped
240130	Tobacco refuse
240210	Cigars, cheroots and cigarillos, containing tobacco
240220	Cigarettes containing tobacco
240290	Cigars, cheroots and cigarettes, with tobacco substitutes
240310	Smoking tobacco, whether or not containing tobacco substitutes
240391	“Homogenised” or “reconstituted” tobacco
240399	Other manufactured tobacco
330112	Essential oils of orange
330113	Essential oils of lemon

Source: JOB(07)/31 document of 16 March 2007.
**Excluding more disaggregated lines that have a majority of their ingredients that are not tropical or alternative products.*

1.2.2 Countries of Interest for the Study

Exporting countries

The group of ACP countries includes 79 members.[4] Among them, 56 are members of the WTO and 77 have signed the Cotonou Agreement with the EU.[5]

Regarding the group of Latin American countries, the study focuses on the eight Latin American countries (Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Nicaragua, Panama and Peru) that circulated a proposal on the full liberalization on tropical and diversification products on 28 April 2006.

Finally, we focus on a third group of Latin American and Asian countries that are members of the WTO and producers of products (defined here as countries being located between the Tropic of Cancer and the Tropic of Capricorn). These countries could also be affected by the trade liberalization of tropical and diversification products. This third group includes Brazil, El Salvador, Honduras, Mexico, Paraguay, Venezuela, Bangladesh, Brunei Darussalam, Cambodia, India, Indonesia, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand and Viet Nam.

The list of exporting countries covered by our study is provided in Table 1.2.

Table 1.2. Exporting Countries Considered in the Study

COUNTRY	UN CODE	ISO CODE	ACP56	ACP77
		ACP79		
Angola	024	AGO	Yes	Yes
Antigua and Barbuda	028	ATG	Yes	Yes
Burundi	108	BDI	Yes	Yes
Benin	204	BEN	Yes	Yes
Burkina Faso	854	BFA	Yes	Yes
Bahamas	044	BHS		Yes
Belize	084	BLZ	Yes	Yes
Barbados	052	BRB	Yes	Yes
Botswana	072	BWA	Yes	Yes
Central African Republic	140	CAF	Yes	Yes
Cote d'Ivoire	384	CIV	Yes	Yes
Cameroon	120	CMR	Yes	Yes
Congo	178	COG	Yes	Yes
Cook Islands	184	COK		Yes
Comoros	174	COM		Yes
Cape Verde	132	CPV		Yes
Cuba	192	CUB	Yes	
Djibouti	262	DJI	Yes	Yes
Dominica	212	DMA	Yes	Yes
Dominican Republic	214	DOM	Yes	Yes
Eritrea	232	ERI		Yes
Ethiopia	231	ETH		Yes
Fiji	242	FJI	Yes	Yes
Federation States of Micronesia	583	FSM		Yes
Gabon	266	GAB	Yes	Yes
Ghana	288	GHA	Yes	Yes
Guinea	324	GIN	Yes	Yes
Gambia	270	GMB	Yes	Yes
Guinea-Bissau	624	GNB	Yes	Yes

COUNTRY	UN CODE	ISO CODE	ACP56	ACP77
Equatorial Guinea	226	GNQ		Yes
Grenada	308	GRD	Yes	Yes
Guyana	328	GUY	Yes	Yes
Haiti	332	HTI	Yes	Yes
Jamaica	388	JAM	Yes	Yes
Kenya	404	KEN	Yes	Yes
Kiribati	296	KIR		Yes
St Kitts and Nevis	659	KNA	Yes	Yes
Liberia	430	LBR		Yes
St Lucia	662	LCA	Yes	Yes
Lesotho	426	LSO	Yes	Yes
Madagascar	450	MDG	Yes	Yes
Marshall Islands	584	MHL		Yes
Mali	466	MLI	Yes	Yes
Mozambique	508	MOZ	Yes	Yes
Mauritania	478	MRT	Yes	Yes
Mauritius	480	MUS	Yes	Yes
Malawi	454	MWI	Yes	Yes
Namibia	516	NAM	Yes	Yes
Niger	562	NER	Yes	Yes
Nigeria	566	NGA	Yes	Yes
Niue	570	NIU		Yes
Nauru	520	NRU		Yes
Palau	585	PLW		Yes
Papua New Guinea	598	PNG	Yes	Yes
Rwanda	646	RWA	Yes	Yes
Sudan	736	SDN		Yes
Senegal	686	SEN	Yes	Yes
Solomon Islands	090	SLB	Yes	Yes
Sierra Leone	694	SLE	Yes	Yes
Somalia	706	SOM		Yes
Sao Tome and Principe	678	STP		Yes
Suriname	740	SUR	Yes	Yes
Swaziland	748	SWZ	Yes	Yes
Seychelles	690	SYC		Yes
Chad	148	TCD	Yes	Yes
Togo	768	TGO	Yes	Yes
Tonga	776	TON		Yes
Trinidad and Tobago	780	TTO	Yes	Yes
Tuvalu	798	TUV		Yes
Tanzania	834	TZA	Yes	Yes
Uganda	800	UGA	Yes	Yes
St Vincent and Grenadines	670	VCT	Yes	Yes

COUNTRY	UN CODE	ISO CODE	ACP56	ACP77
Vanuatu	548	VUT		Yes
Samoa	882	WSM		Yes
South Africa	710	ZAF	Yes	Yes
Democratic Republic of the Congo	180	ZAR	Yes	Yes
Zambia	894	ZMB	Yes	Yes
Zimbabwe	716	ZWE	Yes	Yes
Timor Leste	626	TLS		Yes
LA8				
Bolivia	068	BOL		
Colombia	170	COL		
Costa Rica	188	CRI		
Ecuador	218	ECU		
Guatemala	320	GTM		
Nicaragua	558	NIC		
Panama	591	PAN		
Peru	604	PER		
Other countries				
Central and Latin America				
Brazil	076	BRA		
Honduras	340	HND		
Mexico	484	MEX		
Paraguay	600	PRY		
El Salvador	222	SLV		
Venezuela	862	VEN		
Asia				
Bangladesh	050	BGD		
Brunei Darussalam	096	BRN		
Indonesia	360	IDN		
India	699	IND		
Cambodia	116	KHM		
Sri Lanka	144	LKA		
Myanmar	104	MMR		
Malaysia	458	MYS		
Philippines	608	PHL		
Thailand	764	THA		
Viet Nam	704	VNM		

ACP, Alliance of the Africa, Caribbean and Pacific Group of States.
ACP56, ACP country Members of the WTO.
ACP79, ACP countries.
ACP77, signatories of the Cotonou Agreement.
LA8, signatories of the April 2006 proposal on tropical and diversification products.

Importing countries

We consider the main developed countries' markets: EU25, the US, Canada, Japan, Australia and Switzerland.

2. BACKGROUND

2.1 The SPS and TBT Agreements

2.1.1 The SPS Agreement

The SPS Agreement allows countries to adopt scientifically based measures in order to protect human, animal and plant life or health (Box 2.1). It entered into force on 1 January 1995. Least developed countries were allowed to delay implementation for five years (Article 14).

Box 2.1. Definition of a SPS Measure

ANNEX A OF THE AGREEMENT DEFINES A SPS MEASURE AS ANY MEASURE APPLIED TO:

- protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;
- protect human or animal life or health within the territory of the Member from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs;
- protect human life or health within the territory of the Member from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests;
- prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests.

Source: www.wto.org/English/tratop_e/sps_e/spsagr_e.htm

The SPS Agreement pursues two main objectives: first, it recognizes the sovereign right of WTO Members to provide the level of health protection they deem appropriate; second, it ensures that SPS measures are not disguised restrictions on international trade. To achieve both objectives, the agreement encourages Members to base their measures on international standards (from the Food and Agriculture Organization (FAO)/World Health Organization (WHO) Codex Alimentarius Commission, the World Organization for Animal Health, etc.), guidelines and recommendations, where they exist (Article 3.1). If international standards do not exist, or if countries want to adopt higher standards, then they must be able to demonstrate that their measures are based on an "appropriate" risk assessment (Article 3.3). In cases where relevant scientific evidence is not available, a country may provisionally adopt SPS measures on the basis of available pertinent information (Article 5.7). Furthermore, the SPS measures should be applied only to the extent necessary to protect health, and arbitrary discrimination between countries where similar conditions prevail is forbidden (Article 2.2).

Notifying countries must publish all their SPS measures and ensure that an enquiry point exists. This enquiry point should be able to answer all reasonable questions from other Members (Annex B).

2.1.2 The TBT Agreement

The Agreement on Technical Barriers to Trade (the 1979 TBT Agreement or "Standards Code") is one of the important results of the Tokyo Round. It took effect for ratifying countries on 1 January 1980 and was superseded by the 1995 WTO TBT Agreement, which is applicable to all WTO Members.

This agreement deals with all technical requirements, voluntary standards and conformity assessment procedures, except when these measures are covered by the SPS Agreement, and ensures that they do not create unnecessary obstacles to trade. To do so, the agreement calls upon Members to use international standards (Article 2.4). It also encourages Members to recognize as equivalent the requirements of other Members, even if they differ from their own, provided that they fulfil the same final objective (Article 2.7). Similarly, in order to avoid the multiplication of tests, Members are encouraged to recognize other Members' conformity assessment procedures (Article 6.1). Furthermore, Members should not discriminate between countries: the same requirements should be applied to imported and domestic products. If a measure is applied to imports from one source, then it also has to be applied to imports from all other sources.

All technical regulations and conformity assessment procedures that have been adopted must be published promptly (Articles 2.11 and 5.8). Enquiry points that are able to answer to all reasonable questions from other members must be established (Article 10.1)

2.1.3 Differences between SPS and TBT Measures

Both agreements deal with health-related trade restrictions. There are, however, differences in the scope of the two agreements. The SPS Agreement covers measures as defined in Box 2.1. The TBT Agreement covers all technical regulations, standards or procedures, except when these measures are included in the SPS Agreement (Box 2.2).

Box 2.2. SPS or TBT: Which Agreement Does a Measure Come Under?

<table>
<tr><td colspan="4">IS ITS OBJECTIVE TO PROTECT ONE OF THESE?</td></tr>
<tr><td>Human life risks from:</td><td>• additives
• contaminants
• toxins
• plant-, product- or animal-carried disease
• disease-causing organisms
• pests entering, establishing or spreading</td><td rowspan="4">➤</td><td rowspan="4">YES ➜ SPS</td></tr>
<tr><td>Animal life risks from:</td><td>• additives
• contaminants
• toxins
• diseases
• plant-, product- or animal-carried disease
• disease-causing organisms
• pests entering, establishing or spreading</td></tr>
<tr><td>Plant life risks from:</td><td>• pests entering, establishing or spreading
• diseases
• disease-causing organisms</td></tr>
<tr><td>A country risks from:</td><td>• pests entering, establishing or spreading</td></tr>
<tr><td>↓</td><td colspan="3" rowspan="3"></td></tr>
<tr><td>No</td></tr>
<tr><td>↓</td></tr>
<tr><td colspan="2">Is it a technical regulation, a standard or a procedure for assessing whether a product conforms to a technical requirement?</td><td colspan="2">➜ YES ➜ TBT</td></tr>
<tr><td>↓</td><td colspan="3" rowspan="4"></td></tr>
<tr><td>No</td></tr>
<tr><td>↓</td></tr>
<tr><td>Other</td></tr>
</table>

Source: www.wto.org/english/tratop_e/sps_e/sps_agreement_cbt_e/c1s5p1_e.htm

As mentioned on the WTO website:[6]

The SPS Agreement applies to a narrowly defined range of health protection measures, but it places quite strict requirements on these measures, for example that they always be based on scientific principles. The TBT Agreement on the other hand applies to a wide range of technical requirements, and solely notes that available scientific information is one of the relevant elements of consideration in assessing risks. Some of these technical requirements are introduced for health or safety purposes, but others are introduced to standardize products, ensure quality, or to avoid consumer deception.

Following are some examples that illustrate the differences between SPS and TBT measures (source: WTO website):

Fertilizer:

- fertilizer residue in food and animal feed – SPS;
- specifications to ensure fertilizer works effectively – TBT;
- safe handling instructions to protect farmers from possible harm from handling fertilizer – TBT.

Food labelling:

- health warnings, use, dosage – SPS;
- label's position, lettering, composition, nutrient content, quality – TBT.

Containers for shipping grain:

- fumigation, disinfectant, etc. to prevent disease from spreading –SPS;
- size, construction/structure, safe handling – TBT.

Fruit:

- treatment of imported fruit to prevent pests from spreading – SPS;
- quality, grading and labelling of imported fruit – TBT.

2.1.4 The Case of Developing Countries in both Agreements

Both the SPS and TBT agreements contain provisions on technical assistance (Article 9 in the SPS Agreement and Article 11 in the TBT Agreement), and special and differential treatment (Article 10 in the SPS Agreement and Article 12 in the TBT Agreement) to help developing countries and LDCs to implement and take advantage of the agreement.

Despite this support, developing countries and LDCs encounter difficulties in the implementation of the SPS and TBT agreements. One of their main concerns arises from the definition of standards, shaped largely by the interests of developed countries, which are the main players in the standards-setting bodies.

To enhance the capacity of developing countries and LDCs to participate in negotiations and to implement standards, FAO, the World Organization for Animal Health, the World Bank, the Codex Alimentarius, WHO and WTO launched the global programme "Standards and Trade Development Facility"[7] in 2002.

2.1.5 SPS and TBT Measures as a Source of Trade Dispute

The increasing notification of SPS and TBTs and their potential use in a protectionist way could be a source of trade disputes between countries. Many disputes on SPS measures have already occurred. A much smaller number of disputes on TBTs have arisen. We provide below three examples of trade disputes:

Ecuador's complaint on the fresh fruit import procedures applied by Turkey[8]

In August 2001, Ecuador requested consultations with Turkey concerning certain import procedures for fresh fruits and, in particular, bananas applied by Turkey. According to these procedures, an importer must obtain a control certificate issued by the Turkish Ministry of Agriculture and Rural Affairs in order to be able to seek the SPS clearance certificate that is a prerequisite for presentation of the goods for customs clearance.

Ecuador highlighted the following:

- Until November 1999, importers of bananas could request control certificates at any time for any quantity of bananas, and the certificates were issued without undue delays.
- Since November 1999, the control certificates are, however, issued only for limited quantities, for limited periods of time and with considerable delays.
- A control certificate can be used for only one shipment. If a quantity less than that indicated in the certificate is imported, then it is deemed exhausted.
- A new control certificate is issued only after the shipment for which the previous certificate was issued has been cleared through customs. As up to two months can lapse between the application for a control certificate and customs clearance, this means that an importer may be able to request a control certificate only six times a year.
- The quantities for which control certificates are issued are not published, but importers are advised orally of the quantities that will be accepted.
- Turkey alleged before the Committee on SPS Measures that it could issue control certificates only for limited quantities because it had limited laboratory capacity. However, the maximum quantities for which control certificates were issued and the periods during which they were valid have not varied with Turkey's laboratory capacity and, in its replies to questions by Ecuador, Turkey failed to confirm that it imposes similar requirements and limitations on domestic production.

For Ecuador, these procedures were inconsistent with the obligations of Turkey under GATT 1994 (Articles II, III, VIII, X and XI), the SPS Agreement (Articles 2.3 and 8 and Annexes B and C), the Agreement on Import Licensing Procedures (Paragraphs 2, 3, 5 and 6 of Article 1), the Agreement on Agriculture (Article 4) and the General Agreement on Trade in Services (GATS) (Articles VI and XVII).

As regards more specifically the SPS agreement, Ecuador underlined the following:

- The administration of the control certificate system cannot be reconciled with the requirements set out in Article 2.3 of the SPS Agreement, which stipulates among other things that the procedures for the application of import licenses shall be "as simple as possible" and that SPS measures shall not be a disguised restriction on international trade.
- Turkey's failure to apply to domestic bananas a testing and certification procedure equivalent to that applied to bananas from other WTO Members and to allocate access to its laboratory capacity appropriately between importers and domestic producers is inconsistent with its obligation under Article 8 and Paragraph 1 of Annex C of the SPS Agreement.
- Turkey's failure to publish the quantities of domestic and imported bananas that its laboratories accept for inspection and for which control certificates are issued violates Turkey's obligations under Article 7 and Paragraph 1 of Annex B of the SPS Agreement.

In September 2001, the European Community (EC) requested to join the consultations. In June 2002, Ecuador requested the establishment of a panel. A month later, Ecuador requested the dispute settlement body to suspend the composition of the panel as negotiations were engaged between the parties. Turkey modified its application of the control certificate system. Henceforth, with the submission of the necessary documents, the

control certificates for the importation of bananas are being issued by the Ministry of Agriculture and Rural Affairs for the quantities requested by the importers and for the validity periods indicated in Amending Communiqué, Number 2002/21, published in the Official Gazette dated 20 July 2002.

Therefore, in November 2002, the parties informed the dispute settlement body that they had found a mutually agreed solution to their dispute.

Nicaragua's complaint on certain measures imposed by Mexico and affecting the imports of black beans

In March 2003, Nicaragua requested consultations with Mexico concerning certain measures imposed by Mexico, and that affected the imports of black beans from Nicaragua. Nicaragua was concerned particularly about the following measures:

- the administration of the procedures set out in Official Standard 006-FITO-95 and Official Standard 028-FITO-95, including the refusal of the competent Mexican authorities to furnish importers with the document containing the phytosanitary requirements necessary for the importation of black beans from Nicaragua;
- the more favourable treatment that the competent Mexican authorities accord in the administration of the above procedures to like products originating in countries other than Nicaragua;
- failure to publish the specific phytosanitary requirements for the importation of black beans from Nicaragua;
- failure to publish the rules, requirements and procedures concerning the tender for the quota allocation of black beans from Nicaragua, including, but not limited to, the Public Tender No. 44/2002 for the period 2002–03.

For Nicaragua, these measures were inconsistent with Mexico's obligations under GATT 1994 (Articles I:1, X:1, X:3a, XI:1 and XIII:1) and the Agreement on Import Licensing Procedures (Articles 1.2, 1.3, 1.4a and 2.2a). Furthermore, Nicaragua claimed that, if the measures applied by Mexico were SPS measures as defined in the SPS Agreement, then they would also be inconsistent with the following articles of this Agreement:

- Article 2.1, which stipulates that SPS measures put in place should not be inconsistent with the provisions of the SPS Agreement;
- Article 2.2, which specifies that SPS measures should be based on scientific principles and should not be maintained without sufficient scientific evidence;
- Article 2.3, which specifies that SPS measures should not constitute a disguised restriction on international trade;
- Article 5.1, which specifies that SPS measures should be based on an assessment of risks, as appropriate to the circumstances;
- Article 7, which specifies that changes and information in the SPS should be provided by Members;
- Paragraph 1 of Annex B, which specifies that SPS measures should be published promptly by Members in such a manner as to enable interested Members to become acquainted with them.

In March 2003, the US and Canada requested to join the consultations.

In March 2004, Nicaragua withdrew its request for consultations as its complaint had been addressed adequately as a result of negotiations with Mexico. It seems that the excellent political and trade relations between the countries were useful in finding a positive solution to this dispute.

Argentina, Canada and US complaints on EU measures affecting the approval and marketing of biotech products

In May 2003, the US, Canada and Argentina launched a WTO case against the EU by requesting consultations concerning different measures adopted by the EU affecting US, Canadian and Argentine exports of biotechnology products.

According to the complainants, these measures were inconsistent with the EU obligations under GATT 1994 (Articles I, III, X and XI), the SPS Agreement (Articles 2, 5, 7 and 8 and Annexes B and C), the TBT Agreement (Articles 2 and 5), and the Agriculture Agreement (Article 4). Argentina stated that these measures were also inconsistent with Article 10 of the SPS Agreement and Article 12 of the TBT Agreement.

The consultations did not allow the dispute to be solved, and in August 2003 the US, Argentina and Canada requested the establishment of a dispute settlement panel. The panel report concluded that the EU violated its obligations under Annex C(1)(a) first clause of the SPS Agreement and Article 8 of the SPS Agreement. In addition, certain EU Member States also violated their obligations under Articles 2 and 5 of the SPS Agreement.

The report, however, mentioned that the EU and its Member States have not acted inconsistently with their obligations under other provisions raised by the complainants.

In December 2006, the EU announced its intention to conform to the recommendations. Due to the complexity of the issues involved, the EU would need a reasonable period of time in which to implement these recommendations and was ready to discuss the timeframe with the complainants.

2.2 Private Sector Requirements

2.2.1 Definition

Private sector requirements are standards set by the private sector (e.g. supermarket chains). Examples include good agricultural practices (GAP) set by the Euro-Retailer Produce Working Group (EUREP; now called Global Partnership for Good Agricultural Practice, GlobalGAP) (Box 2.3), and requirements of the retailer-driven Global Food Safety Initiative (GFSI) and the food safety management system standard ISO 22000 from the International Organization for Standardization (ISO). Private standards have existed since trading began, but the development of formal private standards is recent and is increasing. Indeed, private standards are becoming so important and widespread that one can question whether today these standards do not influence trade more than public standards do. One explanation for this increase is that private standards are seen by firms in developed markets as a way to fill a void left by the slow process of public sector setting and implementation of standards.

Box 2.3. Private Standards: The Example of EurepGAP

WHAT IS EUREPGAP?

- Euro-Retailer Produce Working Group Good Agricultural Practices (EurepGAP) members include retailers, producers/farmers and associate members from the input and service side of agriculture.
- EurepGAP started in 1997 as an initiative by retailers belonging to the Euro-Retailer Produce Working Group (EUREP). EUREP is an association that joins big European leadership supermarkets in the food sector.
- GAP stands for good agricultural practices. EurepGAP is a private sector body that has placed a wide range of private quality standards under one umbrella for producers of fish, fruits, vegetables and ornamental plants. These standards are voluntary.

Box 2.3. continued

- EurepGAP is a pre-farm-gate standard, which means that the certificate covers the process of the certified product from before the seed is planted until it leaves the farm. EurepGAP is a business-to-business label and is therefore not directly visible to consumers.
- In September 2007, EurepGAP became Global Partnership for Good Agricultural Practice (GLOBALGAP).General information

EurepGAP implies the following aspects:

- food security of the product (appropriate use of fertilizers and pesticides);
- environmental management of the farm;
- health, security and wellbeing of workers.

The fulfilment of this norm is a requirement of the fruit purchasers in Europe.

Requirements

This norm consists of compliance with some requirements, such as registration to apply pesticides and requirements for the storage area, etc. Therefore, compliance with EurepGAP requirements implies financial costs to the producer both on- and off-farm (those related to implementation of special facilities, warehouse construction for pesticides, etc.). If the firm complies with all requirements, it can obtain a certificate. An external audit must be done by a certificated organization in order to obtain a EurepGAP certificate. Audits are conducted regularly, often annually, and this cost is borne by the producer.

Regulations to get certification

The producers should fulfil the following requirements:

- registration of farm and production;
- training and sanitary certificate for the fruit or vegetable;
- risk analysis;
- visual check-up;
- quality of water and treatment of residual waters;
- plastic and container uses;
- social aspects:

carrying out with the current law about social conditions such as social security, allowance fund, etc.;

having decent housing for workers who work and live on the farm;

- infrastructure and projects.

Sources: Central Bank of Ecuador (2004); Association of Banana Exporters of Ecuador (undated); www.eurepgap.org/Languages/English/about.html; www.globalgap.org/cms/front_content.php?idart=3&idcat=9&lang=1

Private standards are voluntary. However, as mentioned by Henson and Northen (1998) and Fulponi (2006), they are required for doing business, thus making them *de facto* mandatory. These private standards could be trade-enhancing if they help producers to improve the quality of their products and provide access to new markets. This potential positive impact of standards on market access explains partly why producers in exporting countries try to fulfil them, despite the associated costs. But standards also exclude producers that are not able to adapt their production systems. More generally, private standards usually represent an additional cost of production, which causes concern over the differential impact of increasing private standards. Furthermore, producers often argue that such requirements are not transparent as they are not notified to WTO and are not science-based. Private standards also often conflict with those set by governments or international organizations. In a recent workshop on private and commercial standards organized by WTO and UNCTAD in June 2007,[9] several countries emphasized that private standards cover not only food safety but also other issues (e.g. quality, production methods, environmental concerns) and consequently impose additional burdens. A special treatment was asked for developing countries.

In 2007, the number of private schemes is estimated by UNCTAD at 400 and rising (WTO, 2007). Schemes range from those developed by individual firms to collective industry-wide international schemes. Table 2.1, extracted from WTO (2007), provides some examples. Standards could also be divided between pre- and post-farm-gate standards, or between business-to-business standards and standards tied to a particular labelling or logo scheme intended for consumers.

Table 2.1. Examples of Private Standards

INDIVIDUAL FIRM SCHEMES	COLLECTIVE NATIONAL SCHEMES	COLLECTIVE INTERNATIONAL SCHEMES
Tesco Nature's Choice	Assured Food Standards	EurepGAP
Carrefour Filière Qualité	British Retail Consortium Global Standard – Food	International Food Standard
	QS Qualitat Sicherheit	Global Food Safety Initiative
	Label Rouge	ISO 22000: food safety management systems
	Food and Drink Federation/ British Retail Consortium Technical Standard for the Supply of Identity Preserved Non-Genetically Modified Food Ingredients and Product	Safe Quality Food (SQF) 1000 and 2000
		ISO 22005: traceability in the feed and food chain

Source: WTO (2007)

2.2.2 Private Sector Requirements and the SPS and TBT Agreements

Relationship of private standards schemes with the SPS Agreement

How do private standards relate to the SPS Agreement, and particularly to Article 13? Article 13 states:

> Members are fully responsible under this Agreement for the observance of all obligations set forth herein. [...] Members shall take such reasonable measures as may be available to them to ensure that non-governmental entities within their territories [...] comply with the relevant provisions of this Agreement.

A recent document by the WTO (2007) asks two questions:

- What positive measures are open to Members to support observance of the SPS Agreement by a non-governmental entity?
- What should be a reasonable measure to ensure compliance by a non-governmental entity?

The SPS Agreement does not provide answers to these questions and there is no jurisprudence on this matter.

Relationship of private standards schemes with the TBT Agreement

As underlined in WTO (2007), the TBT Agreement is more explicit on this issue. Article 4 of the TBT Agreement requires Members to take reasonable measures to ensure that non-governmental bodies accept and comply with the Code of Good Practice for the Preparation, Adoption and Application of Standards (Annex 3 of the TBT Agreement).

2.3 Quick Survey on Non-tariff Barriers to Trade (Definition, Measure of their Trade Impact)

SPS and TBTs are the main NTBs in agriculture, and our study is restricted to them. However, the estimation of their trade impact is similar to that used for other NTBs. Therefore, in this section, we use the term NTBs instead of focusing only on SPS and TBTs.

2.3.1 Definition

An NTB is any measure other than a tariff that distorts trade. Different NTB nomenclature exists; see, for example, Deardorff and Stern (1997), USITC (2002) and UNCTAD[10]. In our work, we use the UNCTAD classification. Its main advantage is that it is used in the UNCTAD Trade Analysis Information System (TRAINS) database, which is our source for identifying the SPS and TBT measures notified on tropical and diversification products.

The UNCTAD nomenclature distinguishes seven broad categories of NTB:

- para-tariff measures
- price control measures
- finance measures
- automatic licensing measures
- quality control measures
- monopolistic measures
- technical measures.

SPS and TBT measures fit into all of these categories, except for price control measures.

2.3.2 Measure of Non-Tariff Barriers Trade Impact

Four main approaches have been developed in the trade literature for measuring the trade effects of NTBs (Deardorff and Stern 1998; Beghin and Bureau 2001; Disdier et al., 2008):

Frequency and coverage-type measures

The frequency index provides information on the presence or absence of an NTB, while the coverage index gives information on the relative value of affected products. The latter index should ideally be weighted by the value of imports that would have occurred in the absence of NTBs. This value is, however, unobservable and home or world imports are usually used as alternative weights. In cases where trade barriers reduce imports, however, this methodology suffers from an endogeneity problem and biases downward the coverage ratio.

Furthermore, in the presence of incomplete information on traded products, some NTBs such as SPS and TBT measures can facilitate trade by signalling that products are safe to the consumer. In their absence, there might be no trade at all.

Deardorff and Stern (1998) suggest two other limits of frequency and coverage indexes:

- No information is provided on the deterrent effects that NTBs may have on exporters' pricing and quantity decisions.
- These indices do not indicate the possible effects of trade barriers on prices, production and international trade.

Quantity-impact measures

In this approach, information on the trade effects of NTBs comes from the comparison between predicted trade flows in the absence of NTBs and actual trade flows. Trade models (mainly gravity equations), in which a frequency or a coverage index of NTBs is introduced as an explanatory variable, are estimated. However, this approach suffers from two main drawbacks:

- the endogeneity problem between trade barriers and imports is usually not addressed;
- the sensitivity of trade flows to models' assumptions.

The two last measures provide *ad-valorem* equivalents (AVEs) of NTBs, which are directly comparable with a tariff.

Price-comparison measures

The trade impact of NTBs is detected here by comparing the domestic prices of imported goods with some reference prices. Since the price that would prevail in the absence of barriers is unobservable, the price effect or "price wedge" is commonly computed by simply comparing domestic and world prices in the presence of NTBs. Potential quality differences between domestic and imported goods, which could impact prices, are not taken into account in this approach, however.

Price effect measures based on import demand elasticities

This last measure is based on Leamer's (1990) comparative advantage approach, which consists of predicting imports using factor endowments and observing its deviations in the presence of NTBs. Following this approach, Kee et al. (2006) estimate the quantity impact of core NTBs and agricultural domestic support on imports. Quantity impact is then converted into an AVE using import demand elasticities. The main problem in this method is the indirect derivation. However, the unavailability of detailed price data for all countries and products prevents the use of the price-comparison method described above in studies aiming to be exhaustive.

3. CASE STUDIES

3.1 SPS and TBT Measures on Banana and Pineapple Trade in Ecuador

This section explores the impact of SPS and TBTs requirements from major export markets on Ecuadorian banana and pineapple farmers and exporters. It looks specifically at whether technical or SPS requirements on the one hand, or tariffs on the other, are the main concern for farmers and exporters and how SPS and TBT measures impact upon Ecuadorian banana and pineapple farmers and exporters.

Bananas are Ecuador's main tropical export. They represent approximately two thirds of Ecuador's tropical exports. Pineapples are less important as an agricultural export (they represent barely 2 percent of total tropical exports by Ecuador), but they are an export product on the rise and are in the top three most exported tropical products by Ecuador (Table 3.1).

Table 3.1. Ecuadorian Exports of Tropical and Diversification Products, 2004

PRODUCT	EXPORTS BY PRODUCT TO				SHARE DEVELOPED MARKETS IN WORLD (%)	RANKING IN EXPORTS BY ECUADOR TO WORLD MARKETS
	DEVELOPED MARKETS[1]		WORLD EXPORTS			
	USD1000	SHARE (%)	USD1000	SHARE (%)		
Bananas	1 129 709	64.83	1 676 088	67.57	67.40	1
Flowers	304 943	17.50	346 427	13.97	88.03	2
Pineapples	43 430	2.49	45 707	1.84	95.02	3
Fruit or vegetable juice	37 371	2.14	39 611	1.60	94.34	4
Heart palm	21 015	1.21	32 303	1.30	65.05	5
Others[2]	206 216	11.83	340 262	13.72	60.61	
Total	1 742 684	100.00	2 480 399	100.00	70.26	

Source: Base pour l'Analyse du Commerce International (Database of International Trade Analysis) (BACI) (Centre of Prospective Studies and International Information, CEPII).
[1]Developed markets include EU25, Canada, US, Japan, Australia and Switzerland.
[2]"Others" includes tropical and diversification products such as living plants and flower-growing products; vegetables, plants and roots and tubers; coffee, tea, herbal mate and species; cereals; miller products; seeds and other fruits; resins and vegetable extracts; other products of vegetable origin; fats and animal or vegetable oils; sugars; cocoa paste; vegetable and fruit preparations; food product preparations; drinks and alcoholic liquids; and tobacco.

3.1.1 Overview of the Banana and Pineapple Markets in Ecuador

The banana market in Ecuador

There are thousands of banana producers in Ecuador, operating at different levels in terms of technology, productivity and cultural practices. Most banana producers are located in three provinces: Guayas, Los Rios and El Oro. Small banana farms are predominant in El Oro, whereas the big banana farms tend to be in Guayas and Los Rios. Banana production centres on large and medium-sized producers (by farm size) that are more productive and have better cultural practices. Most banana producers sell their produce to exporters. In a few cases, producers (in general, multinational companies) sell directly to foreign markets.

The average size of a big banana producer is 219 hectares, while that of medium-sized and small producers is 44 hectares and 8 hectares, respectively. Medium-sized banana producers make up 46 percent of total land dedicated to banana production, big banana producers 30 percent and small banana producers 24 percent. Small producers produce only around 23 percent of total bananas, and medium-sized and big banana producers each produce around 40 percent (Table 3.2). From Table 3.2 it is evident that productivity is higher among medium-sized and big producers than small producers. According to banana farmers, economies of scale, agro-ecological conditions, degree of technological implementation and cultural practices in banana plantation create

these differences in productivity. Big farms have easier access to technology for banana growing, access to credit and connections with foreign markets where they sell their crops. Small banana farmers usually lack technological advances, credit access and marketing capabilities.

Table 3.2. Banana Productive Structure in Ecuador, 2004

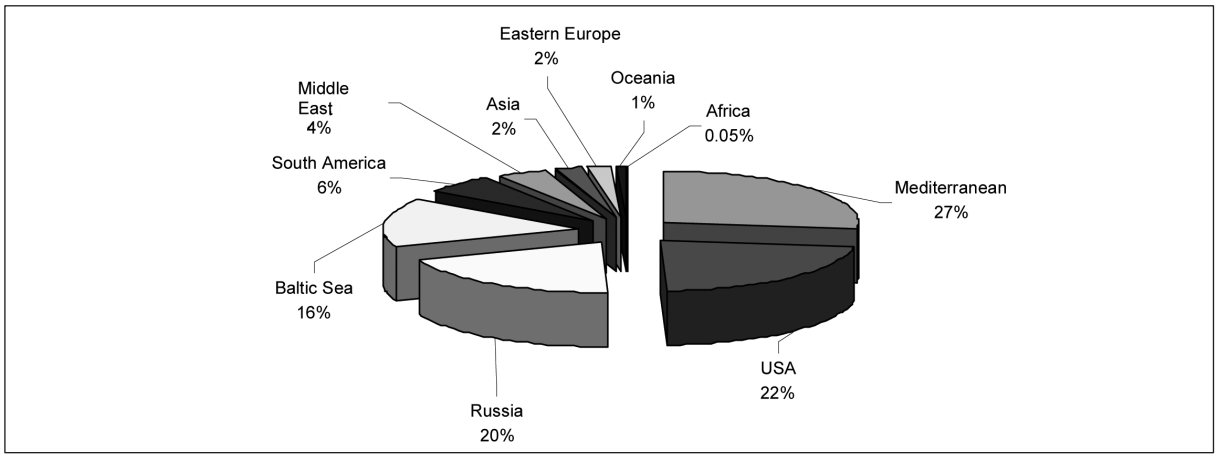
ITEM	SMALL		MEDIUM		BIG		TOTAL	
	0 < HA ≤20		0 < HA ≤20		> 100 HA			
	QTY	%	QTY	%	QTY	%	QTY	%
Number of producers	4453	71	1618	26	211	3	6282	100
Area (ha)	36 626	24	71 880	46	46 279	30	154 785	100
Average size per producer (ha)	8	-	44	-	219	-	25	-
Production (MT)	1 230 610	23	2 162 291	40	2 060 318	38	5 453 220	100
Average production per producer (MT)	276	-	1336	-	9765	-	868	-

Source: own construction using data from Ministry of Agriculture (2004).
ha, hectares; MT, metric tons.

Banana farmers also differ in their cultural practices. According to data from the last agricultural census in Ecuador on water use, pesticide use and SPS measures in small, medium-sized and big farms, 77 percent of medium-sized and 96 percent of big farms have access to irrigation, but only 22 percent of small farms apply irrigation. Similarly, 84 percent of medium-sized and 97 percent of big farms use fertilizers, while the figure for small farms is 12 percent. Finally, 11 percent of small, 84 percent of medium-sized and 97 percent of big farms apply SPS measures (CNA, 2000).

Currently, the main export markets for Ecuadorian bananas are the EU (the Mediterranean – which includes Italy, Spain, Portugal and Greece – and the Baltic Sea), the US and Russia, where 43, 22 and 20 percent of Ecuadorian banana exports go, respectively (Figure 3.1). This is in contrast with market destinations in the 1990s, when the US used to be the main export market. According to the Central Bank of Ecuador (2004), Ecuador has reduced its share in the US banana market from 58 percent in 1990 to 25 percent in 2003. The same publication argues that among the reasons why Ecuador has lost market share in the US banana market are the disadvantage of distance and the difficulties faced when trying to obtain entry to the US market due to the market policies of Chiquita and Dole, whose main interests are the banana farms in Central America. Another reason mentioned in this document is the preference that the US gives to bananas from Colombia as a result of the US interest in encouraging banana substitution for drug-related crop production.

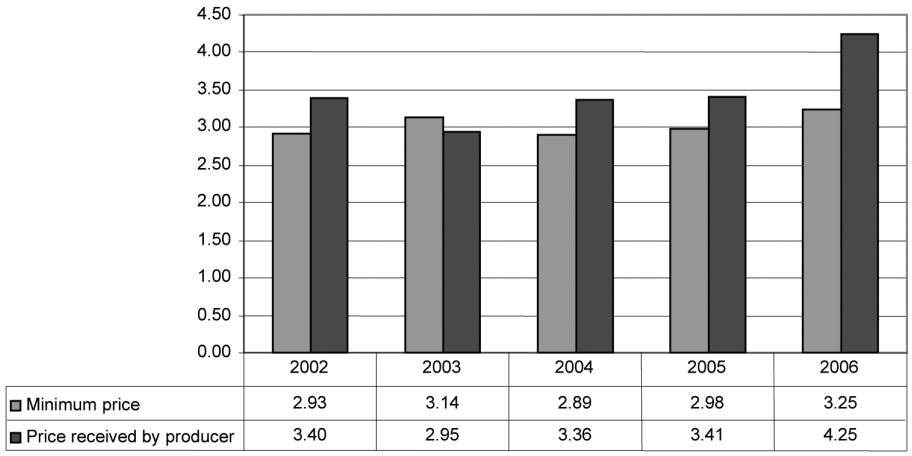
Figure 3.1. Ecuador's Banana Exports by Major Export Destinations, 2006 (As a Percentage of Export Volume)



Source: statistics from the Banana Exporters Association of Ecuador.

It has long been said that the banana market in Ecuador is oligopsonistic because it comprises a few big export companies that buy bananas from many – very heterogeneous – banana producers. Thus, in order to protect the small banana producers, the Ecuadorian government (in agreement with exporters and producers, at least in theory) sets a minimum price for banana production. However, when world banana prices are low, it has been the case that exports companies pay less than the minimum price. On the other hand, it has also been the case that when there is high world demand for bananas, or domestic supply is short, exporters end up paying more than the minimum price to Ecuadorian banana producers[11] (Figure 3.2).

Figure 3.2. Minimum Price vs. Price Received by Ecuadorian Producers*, 2002-2006 (in USD per Box of 18.14 kg)



	2002	2003	2004	2005	2006
Minimum price	2.93	3.14	2.89	2.98	3.25
Price received by producer	3.40	2.95	3.36	3.41	4.25

Source: Serrano (2007).
**Average price per annum.*

The fact that the number of banana export companies has increased in the past decade may help to explain why banana farmers in Ecuador have been receiving better prices for their fruit in recent years. Traditional big banana players, Dole, Del Monte, Chiquita and Noboa, have seen their market share fall from 76 percent in 1994 to 60 percent in 2000 and 48 percent in 2006 (Table 3.3). New companies have entered the export banana business in Ecuador, among which the most important are Russian companies. In fact, all the banana export companies interviewed said that they perceive an increase in competition between banana export companies (see Table 3.8). Less concentration in the banana export market in Ecuador has undermined the market power of export companies, which, coupled with higher demand in new markets (Russia and Eastern Europe), has determined higher prices now paid to Ecuadorian banana producers. Banana export companies have pursued vertical integration as a means to reduce costs and stay competitive in the local market.

Table 3.3. Banana Exporters: Share (%) in the Ecuadorian Banana Market

BANANA EXPORT COMPANY	1994	1997	2000	2002	2005	2006	2007E	2008E
Main brands (Dole, Bonita Noboa, Del Monte, Chiquita Banana)	76	77	60	63	49	48	43	43
Secondary brands (Fav, Excelban)	4	13	18	24	25	22	26	26
Russians (Bonanza, Sunway, DC, PD)	0	0	0	4	13	16	17	17
Other independents (several)	11	6	15	4	8	10	10	9
South America (several)	9	4	6	5	5	5	5	5
Total industry volume (1000 boxes of 18.4 kg each)	157 481	212 502	218 231	210 674	237 486	240 493	248 716	250 418

Source: banana exporters' reports.
Note: E = Estimated.

Important trends in the distribution of bananas include the concentration on retailers, obligatory certifications, and more and more consumer and retailer involvement in determining standards for bananas. Indeed, consumers are looking for healthier food, which implies stricter demands on quality (Zuñiga, 2007). These developments in the fresh fruit retail industry affect the way bananas are commercialized and the price that local banana farmers get. It seems to be the case that, although consumers set higher standards for quality and presentation of bananas, the price they are willing to pay is not increasing. How this increasing demand for quality reflects as a TBT and SPS and has an impact on local banana producers is an issue that will be addressed in the next section.

The pineapple market in Ecuador

In Ecuador, there are approximately 6000 hectares of pineapple farms located in the provinces of Los Rios, Guayas and Pichincha. About a third of these hectares are dedicated to growing pineapples for exports. In general, pineapples for export are grown on big or medium-sized farms, and, in terms of the number of agricultural productive units with these characteristics, only a few farms are big enough to grow pineapples for export. Small pineapple farms usually produce for the local market (Table 3.4).

Table 3.4. Pineapple Productive Structure in Ecuador, 2000

ITEM	SMALL		MEDIUM		BIG		TOTAL	
	0 < HA ≤ 10		10 < HA ≤ 50		> 50 HA			
	QTY	%	QTY	%	QTY	%	QTY	%
Number of UPAs	4574	99	50	1	7	0.2	4632	100
Area (ha)	3952	69	1006	17	792	13.8	5750	100
Average size (ha)	1		20		107		1	
Production (MT)	21 018	43	8495	18	18 994	39.2	48 507	100
Average production per UPA (MT)	5		169		2573		10	

Source: own calculations based on CNA (2000).
ha, hectares; MT, metric tons.

Cultural practices also differ among the big and medium-sized pineapple farms, on the one hand, and small pinea pple farms, on the other. Most big pineapple farms (and, in general, medium-sized farms) have irrigation systems (83 percent of big farms and 33 percent of medium-sized farms), apply fertilizer (96 percent of big farms and 95 percent of medium-sized farms) and follow consistent SPS standards (96 percent of big and 93 percent of medium-sized farms). In contrast, most small pineapple farms do not have irrigation (85 percent), do not apply fertilizer (71 percent) and do not follow SPS practices (76 percent).

Pineapple production is growing sharply, especially in the varieties that are exported (Cayena and Golden Sweet or MD2). The variety grown for local consumption is known as "Perolera" or "Milagreña". Pineapple exports have had an explosive growth in the 2000s. In 2000 pineapple exports reached almost USD3 million, in 2002 USD13 million, and in 2006 USD30.4 million. The expansion in 2002 can be explained by the increase in the production areas made by the Dole Food Company and because other producers – which also believe in the export potential of pineapples – expanded their production as well (Contreras, 2004).

According to the trade statistics of the Central Bank of Ecuador, the main export markets of Ecuadorian pineapples are the EU and the US. In 2006, 47 percent of the total value of pineapple exports went to the EU and 40 percent to the US. The EU is steadily increasing its share in Ecuador's pineapple exports at the expense of the US share. Eighty percent of pineapple exports are done by banana export companies (Ecuador Exporta, 2007).

Pineapple producers are about to form their own association of producers. The main aim of this association will be to oversee the production process in order to ensure quality, preserve the environment and help producers to comply with private sector standards of good agricultural practices, such as EurepGAP.

3.1.2 Measuring SPS and TBTs in the Ecuadorian Banana and Pineapple Markets

Survey method

Boxes 3.1 and 3.2 summarize the standard types required of bananas and pineapples, respectively, by Ecuador's main banana and pineapple export markets (the US and the EU). Governments and international organizations usually set these food standards and food import regulations; however, they do not preclude the demands made by private sector standards.

Box 3.1. Banana Standards

REQUIREMENTS FROM THE EU (THIS LIST IS NOT COMPREHENSIVE OR EXHAUSTIVE):

- Green and unripe.
- Sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded.
- Clean, practically free of any visible foreign matter.
- Practically free of pests affecting the general appearance of the produce and damages.
- Free of abnormal external moisture, excluding condensation following removal from cold storage, and bananas packed under modified atmosphere conditions.
- Free of any foreign smell and/or taste and free of bruises; firm.
- Free of damage caused by low temperatures.
- Free of malformation or abnormal curvature of the fingers.
- With pistils removed and the stalk intact, without bending, fungal damage or desiccation.

THE DEVELOPMENT AND CONDITION OF THE BANANAS MUST BE SUCH AS TO ENABLE THEM:

- to reach the appropriate stage of physiological maturity corresponding to the characteristics of the variety;
- to withstand transport and handling and to arrive in satisfactory condition at the place of destination in order to ripen satisfactorily.

Box 3.1. continued

SIZING

The reference fruit for measurement of the length and grade is:

- for hands, the median finger on the outer row of the hand;
- for clusters, the finger next to the cut section of the hand, on the outer row of the cluster;
- the minimum length should not be less than 14.0 cm and the minimum grade not less than 2.7 cm.

TOLERANCES

For all classes, 10 percent by number of bananas not satisfying the sizing characteristics, up to a limit of 1 cm for the minimum length of 14 cm.

PRESENTATION

- The contents of each package must be uniform and consist exclusively of bananas of the same origin, variety and/or commercial type and quality.
- The visible part of the contents of each package must be representative of the entire contents.
- The bananas must be packed in such a way as to protect the produce properly.
- The materials used inside the package must be new, clean and of a quality such as to avoid causing any external or internal damage to the produce.
- The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided the printing or labelling has been done with non-toxic ink or glue.
- Packages must be free from any foreign matter.
- The bananas must be presented in hands or clusters (parts of hands) of at least four fingers.
- Clusters with not more than two missing fingers are allowed, provided that the stalk is not torn but is cleanly cut, without damage to the neighbouring fingers.<
- Not more than one cluster of three fingers with the same characteristics as the other fruit in the package may be present per row; in the producing regions, the stem may market bananas.

CONTAINERS

The containers shall meet the quality, hygiene, ventilation and resistance characteristics to ensure suitable handling, shipping and preserving of the bananas. Packages must be free of all foreign matter and smell.

MARKING

- Identification.
- The word 'Bananas' where the contents are not visible from the outside.
- The name of the variety or commercial type.
- Country of origin and, in the case of Community produce, production area and (optionally) national, regional or local name. Present the class and net weight.
- Size, expressed as minimum length and, optionally, maximum length; official control mark (optional).

REQUIREMENTS FROM US: MAXIMUM RESIDUE LIMITS (MRL) FOR PESTICIDES

Pesticide	MRL (parts per million)	Pesticide	MRL (parts per million)	Pesticide	MRL (parts per million)
Ametryn	0.25	Ethoprop	0.02	Paraquat dichloride	0.05
Azoxystrobin	2	Fenamiphos	0.1	Phosphine	0.01
Benomyl	1	Fenbuconazole	0.3	Propiconazole	0.2
Buprofezin	0.2	Fosetyl-Al	3	Pyraclostrobin	0.04
Carbaryl	10	Glufosinate-ammonium	0.3	Pyrimethanil	0.1
Carbofuran	0.1	Glyphosate	0.2	Pyriproxyfen	0.2
Carfentrazone-ethyl	0.2	Imazalil	3	Spinosad	0.25
Chlorothalonil	0.05	Mancozeb	4	Tebuconazole	0.05
Chlorpyrifos	0.1	Maneb	4	Terbufos	0.025
Diazinon	0.1	Myclobutanil	4	Thiabendazole	3
Diquat dibromide	0.05	Oxamyl	0.3	Thiophanate-methyl	2
Diuron	0.1	Oxyfluorfen	0.05	Tridemorph	0.1
Epoxiconazole	0.5				

Source: Codex Standards for Bananas (Codex Stan 205-1997, AMD. 1-2005), pp.1-4; and maximum residue limits from FAS Online - USDA.

Box 3.2. Pineapple Standards

REQUIREMENTS FROM THE EU (THIS LIST IS NOT COMPREHENSIVE OR EXHAUSTIVE)

- Good colour and condition of the crown.
- If the pineapple is totally mature, it should have a clear and brilliant appearance.
- Leafs from the crown should be bright green.
- Crown should be green and well developed.
- Practically free of pests affecting the general appearance of the produce.
- Free of abnormal external moisture, excluding condensation following removal from cold storage.
- Free of any foreign smell and/or taste and free of damage caused by low and/or high temperatures.

CLASSIFICATION FOR FRESH PINEAPPLE

CATEGORY	CALIBRE*	NUMBER OF FRUITS/BOXES	WEIGHT (G)	AVERAGE (G)	SYMBOLS
A	1	8	1800-	2200	18/22
A	2	8	1500-	1799	15/18
B	3	12	1300-	1499	13/15
B	4	12	1100-	1299	11-13
C	5	12	900-	1099	9-11
D	6	20	700-	899	7-9

**On each calibre, fruits are classified according to maturity grade.*

M1: one quarter of the fruit is yellow red.

M2: one half of the fruit is yellow red.

M3: two thirds of the fruit is yellow red.

M4: fruit is totally yellow red.

- The exported fruits by air may have a maximum grade of maturity (M2).
- The crown is cut up to a height of 50–130 mm, depending on the fruit size; it leaves a small stem and the section is disinfected.
- EU markets prefer pineapples where weight is 0.7–1.5 kg. The most accepted variety on the members is:
  - Germany: Smooth Cayenne, with pineapples that weigh 1–1.2 kg and the fruit must be mature, with yellow-red colour;
  - France: Smooth Cayenne, with sizes B and C; the stem may be a maximum of 2 cm long and cut in a similar way; and the crown should be 5–12 cm long, very clean, green colour and with no sign of damage;
  - United Kingdom: the fruit must be yellow and intense orange colour; the crowns of best-quality pineapple must be dense and with bright brilliant colour, with no sign of damage.

MARKING OR LABELLING

- If the produce is not visible from the outside, each package should be labelled with the name of the produce and may also be labelled with the name of the variety and/or commercial type.
- The absence of the crown should be indicated.
- Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked and visible from the outside, or in the documents accompanying the shipment:
  - Name and address of exporter, packer and/or dispatcher. Identification code (optional).
  - Country of origin and, optionally, district where grown or national, regional or local place name.
  - Commercial identification: class; size (size code or average weight in grams), number of unit (optional), net weight (optional).
  - Official inspection mark (optional).

PESTICIDES

Maximum residue limits for pineapples in (mg/kg): ethoprophos 0.02; deltamethrin 0.01; diazinon 0.1; disulfoton 0.1; fenaminphos 0.05; heptachior 0.01; methidathion 0.05; methomyl 0.2; oxamyl 1; triadimenol 1.

REQUIREMENTS FROM THE US (THIS LIST IS NOT COMPREHENSIVE OR EXHAUSTIVE)

- Maturity; humidity; good formation (developed eyes); free of rotten sections and damage from the sun.
- Free of damage caused by bruises, sunburn, diseases, insects, rodents and any mechanical instrument.
- The base should be well cut; leafs should be of the same colour, individuals and more or less straight; good stick on the fruit. No more than five per crown.
- The length of the leaves should be not less than 10 cm or more than twice the fruit size.

US market prefers pineapple with weight of 1.3–2.0 kg, principally from the variety Smooth Cayenne.

Source: Pineapple Report Market from Servicio de Información y Censo Agropecuario (SICA).

In this study, we surveyed 13 banana exporters and farmers and 5 pineapple exporters and farmers. Each survey questionnaire was complemented by interviews with the corresponding exporter and farmer, except for one case. In general, the companies were selected so that the sample represents the majority of bananas and pineapple exports in Ecuador.[12] In the case of bananas, the sample includes at least one representative of a big, a medium-sized and a small (by volume of exports or production) company, a cooperative of farmers and an export association. For pineapples, the sample was planned in the same way as the banana sample, but the pineapple sample included companies that can be considered big and medium-sized (no small farmers, cooperatives or association of pineapple producers/exporters were found).

The complete questionnaire for exporters (of either bananas or pineapples) included 28 questions. The questions were of a general nature (years in business, volume/value of dollar exports, main export markets, transport used), about the SPS and TBTs faced, their impact on costs, the degree of competition from other export companies and assistance received, either from the Ecuadorian government or from private firms.

The survey for banana or pineapple farmers included 23 questions. These questions also included general questions (years in business, volume/value of dollar produce, main buyers of produce), about the SPS and TBTs faced, their impact on costs, choice of crop and mode of production and about assistance received from the Ecuadorian government. Both questionnaires for exporters and farmers are presented in the appendices.

Characteristics of businesses surveyed

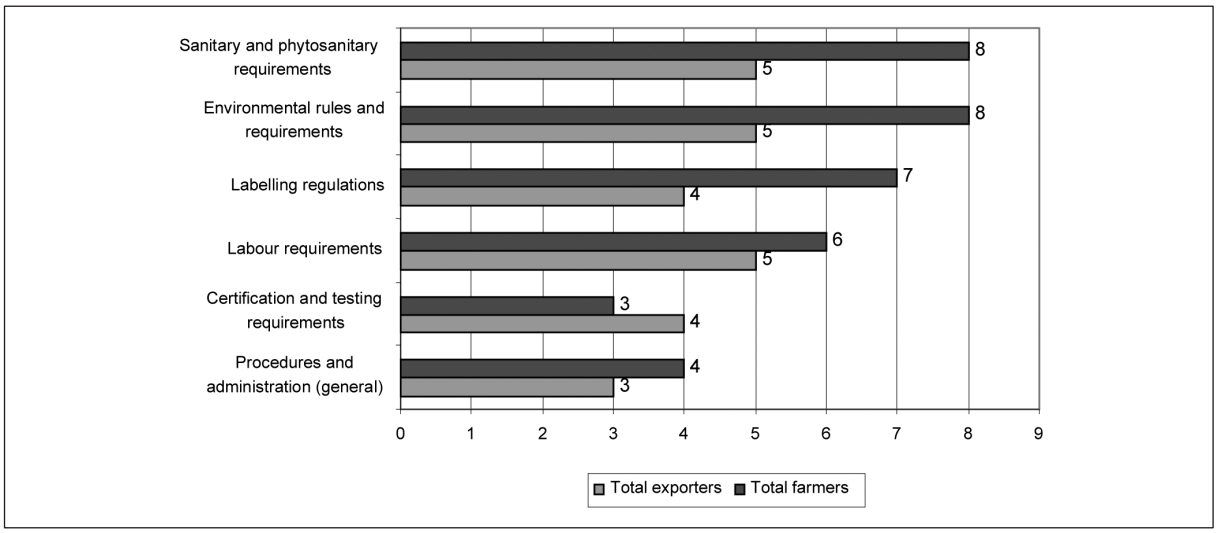
Five businesses (farmers or exporters of banana or pineapples) with 20 or more years in the business were interviewed, four with 10–20 years in the business, and eight with up to 10 years in business. Twelve of the businesses interviewed produce or export over USD1 million a year, four USD0.5–1 million a year, and two (small banana farmers) less than USD0.5 million a year (this list does not include the Banana Exporter Association of Ecuador). The major export destinations for the banana and pineapple producers and exporters are the EU (including the Mediterranean region), the US and Russia (the latter only in the case of bananas).

SPS and TBT requirements[13]

Overview of results from the survey and interviews of Ecuadorian banana and pineapple farmers and exporters

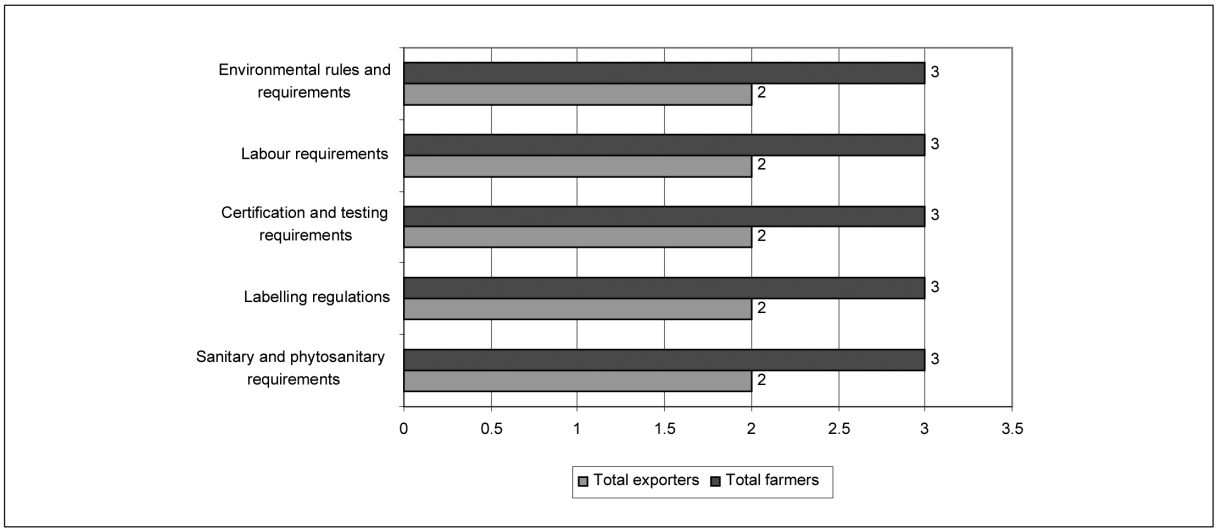
All the farmers and exporters interviewed reported at least three SPS and TBT measures in the case of bananas and at least seven in the case of pineapples. Figures 3.3 and 3.4 show a summary of SPS and TBT measures faced by farmers and exporters of bananas and pineapples, respectively. All of the farmers and exporters interviewed reported that they had to deal with SPS and environmental rules and requirements. Almost all of the banana farmers and exporters, and all of the pineapple producers and exporters, mentioned that they also had to deal with labelling regulations and labour requirements. Some farmers and exporters also reported certification requirements. Procedures and administration in general were reported in particular by medium-sized and small farmers and exporters.

Figure 3.3. SPS and TBT Requirements Faced by Banana Exporters and Farmers in Ecuador*, §



Source: interviews with Ecuadorian banana farmers and exporters.
**Other responses that were mentioned once or twice from exporters include quarantine, slow customs clearance, complex regulations, arbitrary enforcement of rules, lack of harmonization, competition-related restrictions on market access, quantitative restrictions, investment restrictions or requirements, transport regulations or costs, and local marketing regulations.*
§Other responses from farmers that were mentioned once or twice include quarantine, excessive documentation required, complex regulations, arbitrary enforcement of rules, lack of harmonization, transport regulations or costs, restrictions of services, and local marketing regulations.

Figure 3.4. SPS and TBT Requirements Faced by Pineapple Exporters and Farmers in Ecuador*, §

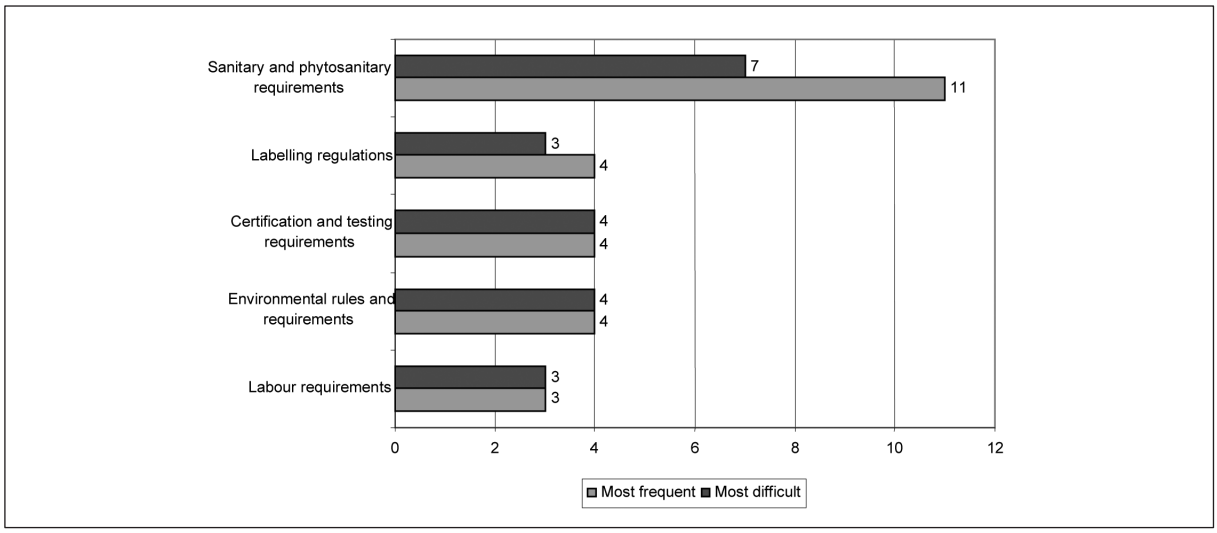


Source: interviews with Ecuadorian farmers and exporters.
**Other responses that were mentioned once or twice from exporters include quarantine, slow customs clearance, complex regulations, arbitrary enforcement of rules, lack of harmonization, procedures and administration (general), transport regulations or costs, and local marketing regulations.*
§Other responses from farmers that were mentioned once or twice include quarantine, excessive documentation required, slow customs clearance, complex regulations, arbitrary enforcement of rules, lack of harmonization, quantitative restrictions, procedures and administration (general), transport regulations or costs, restrictions of services, and local marketing regulations.

Without doubt, the most difficult and frequent measure faced by farmers and exporters of banana and pineapple are the SPS standards. The majority of banana farmers and exporters interviewed (11 of 13) state that SPS standards are the most frequent requirement they encounter when producing/exporting bananas. Seven of the 13 interviewed farmers and exporters point out

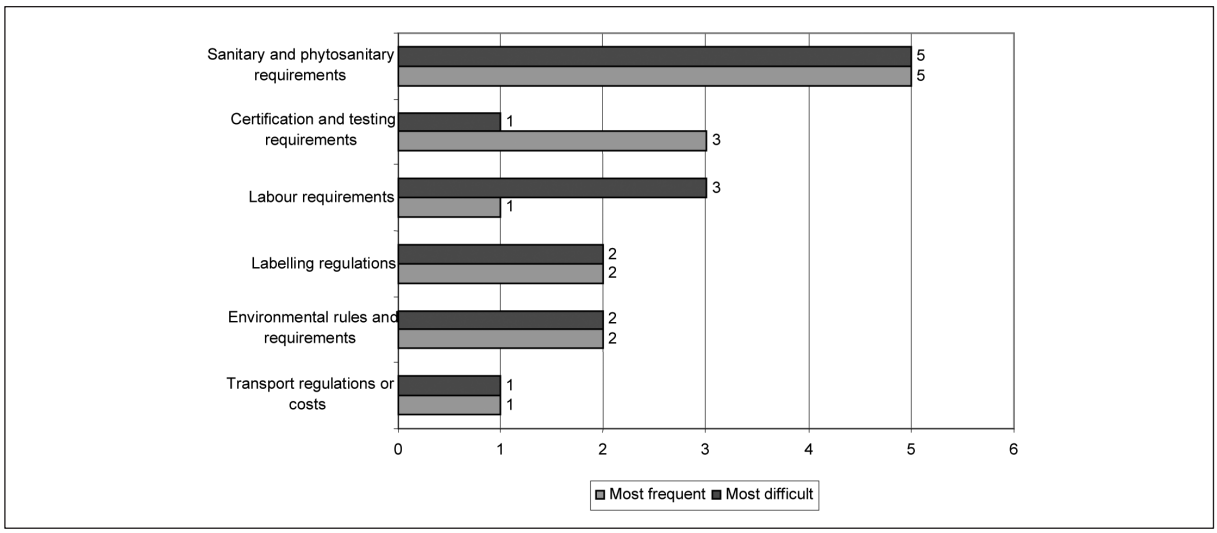
that SPS measures are the most difficult standards they have to meet in order to be able to export bananas. All of the pineapple producers/exporters state that SPS standards are the most frequent and most difficult measure they face when producing/exporting pineapples. Other barriers to trade encountered by farmers include certification and testing requirements, labelling and environmental rules. Among the most difficult measures for some businesses are the labour rules, certification and testing requirements, labelling and environmental rules (Figures 3.5 and 3.6).

Figure 3.5. SPS and TBT Requirements Faced by Banana Exporters and Farmers in Ecuador: The Most Difficult and More Frequent



Source: interviews with Ecuadorian banana farmers and exporters.

Figure 3.6. SPS and TBT Requirements Faced by Pineapple Exporters and Farmers in Ecuador: The Most Difficult and More Frequent



Source: interviews with Ecuadorian pineapple farmers and exporters.

All of the farmers and exporters interviewed stated that it seems that each year they have to comply with more and more SPS and TBT requirements. When asked about private sector standards for fresh bananas and pineapples, only small farmers said that they did not know about these standards. Big and medium-sized farmers reported as private sector standards those of EurepGAP and consumers' demand for a certain size, weight, presentation and quality (Table 3.5).

Table 3.5. SPS and TBT Requirements: General Trend, Cost Impact and Government Assistance in Ecuador[1] (Percentage and Number of Businesses that Responded)

TOPIC	BANANA		PINEAPPLE	
	%	NUMBER	%	NUMBER
SPS and TBTs: trend				
Increasing	100	13	100	5
Decreasing	0	0	0	0
No change	0	0	0	0
		13		5
Private standards faced				
EurepGAP	46	6	80	4
Quality, size, weight	23	3	20	1
Unknown/did not respond	31	4	0	0
		13		5
Response to SPS and TBT requirements				
Hiring consultants and technicians	38	5	40	2
New investments	23	3	0	0
Adjustments in production and management	31	4	60	3
Did not respond	8	1	0	0
		13		5
Cost impact				
Increase in costs	100	13	100	5
		13		5
Export market loss				
Yes	8	1	0	0
No	92	12	100	5
		13		5
Government assistance				
Received	23	3	40	2
Not received	77	10	60	3
		13		5

Source: interviews with farmers and exporters of bananas and pineapples in Ecuador.
[1]SPS and TBT requirements refer to items such as sanitary and phytosanitary requirements, labelling regulations, quarantines, certification and testing requirements, excessive documentation required, slow customs clearance, complex regulations, arbitrary enforcement of rules, lack of harmonization, labour requirements, environmental rules and requirements, competition-related restrictions on market access, quantitative restrictions, procedures and administration (general), public procurement practices, investment restrictions or requirements, transport regulations or costs, restrictions of services, local marketing regulations, and others.

Most of the businesses (31 percent of banana farmers and exporters and 60 percent of pineapple farmers and exporters) reported that, in order to respond to SPS and TBT requirements, they make adjustments in production and management processes. Thirty-eight percent of banana farmers and exporters and 40 percent of pineapple farmers and exporters stated that they hire consultants and technicians in order to be able to comply with SPS and TBT requirements. In the banana sector, some businesses (23 percent) responded that they make investments in order to meet technical and SPS standards.

In all of the banana and pineapple businesses, compliance with SPS and TBT measures implies

higher costs, of either export or production, according to the nature of their business. This higher cost did not mean, however, that the businesses lost export markets. (Only the Banana Exporters Association of Ecuador reported a loss in export markets.)

Seventy-five percent of banana exporters and producers and 60 percent of pineapple exporters and producers stated that they have not received any assistance from the Ecuadorian government when trying to meet requirements. The banana exporters and producers that mentioned receiving some help from the government pointed out that this help consisted of maintaining a minimum price for bananas and providing information on SPS and TBTs. The information they receive comes from the Ecuadorian Corporation for Export and Investment Promotion (Corporación Ecuatoriana de Promoción de Exportaciones e Inversiones; CORPEI), which is the Ecuadorian corporation in charge of promoting exports and foreign direct investments in Ecuador.[14] Farmers and exporters also reported receiving information from the Ecuadorian Service for Animal Health (Servicio Ecuatoriano de Sanidad Animal; SESA). Interestingly, small farmers declared that they had not received any assistance from the government in dealing with SPS and TBTs. The Ministry of Agriculture provided only normative inputs (meaning policies) and not technical inputs. The current government wants to change this situation and have the Ministry of Agriculture provide technical assistance to farmers, especially small farmers. CORPEI may be an exception, but its programmes may not target small banana/pineapple producers or may not be of national reach.

To gauge the farmers and exporters' capability to comply with SPS in their main export markets, we asked them how important the following factors were in terms of their businesses' ability to satisfy SPS requirements:

- insufficient access to scientific/technical expertise;
- incompatibility of SPS requirements with domestic production/marketing methods;
- poor awareness of SPS requirements within agriculture;
- poor access to information on SPS requirements;
- period of time permitted for compliance is relatively short.

For both banana and pineapple exports to the US or the Mediterranean countries of the EU, all these factors were considered insignificant or very insignificant. Only when exporting bananas or pineapples to the northern part of the EU did some of the businesses answer that insufficient access to scientific/technical expertise was an important factor in their ability to satisfy SPS. Incompatibility of SPS requirements with domestic production/ marketing methods was mentioned as an important or very important factor in some businesses' ability to comply with SPS. Poor awareness of SPS requirements within agriculture was reported as an important factor in banana businesses' ability to satisfy SPS when exporting to the EU and Russia (Tables 3.6 and 3.7).

Table 3.6. Bananas: Factors Determining Farmers' and Exporters' Ability to Satisfy SPS in Ecuador (Number of Business that Responded)

EXPORTS TO EU						
Item		1	2	3	4	5
(a)	Insufficient access to scientific/technical expertise	4	3	1	2	0
(b)	Incompatibility of SPS requirements with domestic production/ marketing methods	3	5	1	1	0
(c)	Poor awareness of SPS requirements within agriculture	4	3	1	2	0
(d)	Poor access to information on SPS requirements	6	1	2	0	1
(e)	Period of time permitted for compliance is relatively short	3	4	2	1	0
EXPORTS TO US						
Item		1	2	3	4	5
(a)	Insufficient access to scientific/technical expertise	4	2	0	0	0
(b)	Incompatibility of SPS requirements with domestic production/ marketing methods	3	2	0	1	0
(c)	Poor awareness of SPS requirements within agriculture	4	1	1	0	0
(d)	Poor access to information on SPS requirements	5	1	0	0	0
(e)	Period of time permitted for compliance is relatively short	4	1	1	0	0
EXPORTS TO RUSSIA						
Item		1	2	3	4	5
(a)	Insufficient access to scientific/technical expertise	5	1	1	0	0
(b)	Incompatibility of SPS requirements with domestic production/ marketing methods	5	0	1	1	0
(c)	Poor awareness of SPS requirements within agriculture	4	0	0	3	0
(d)	Poor access to information on SPS requirements	4	1	0	1	1
(e)	Period of time permitted for compliance is relatively short	3	1	3	0	0
EXPORTS TO MEDITERRANEAN COUNTRIES OF THE EU						
Item		1	2	3	4	5
(a)	Insufficient access to scientific/technical expertise	3	1	0	0	0
(b)	Incompatibility of SPS requirements with domestic production/ marketing methods	2	2	0	0	0
(c)	Poor awareness of SPS requirements within agriculture	2	1	1	0	0
(d)	Poor access to information on SPS requirements	3	1	0	0	0
(e)	Period of time permitted for compliance is relatively short	3	0	1	0	0

Source: interviews with pineapple farmers and exporters.
1 = very insignificant; 2 = insignificant; 3 = no impact; 4 = significant; 5 = very significant.

Table 3.7. Pineapples: Factors Determining Farmers' and Exporters' Ability to Satisfy SPS in Ecuador (Number of Business that Responded)

EXPORTS TO EU						
Item		1	2	3	4	5
(a)	Insufficient access to scientific/technical expertise	0	2	0	3	0
(b)	Incompatibility of SPS requirements with domestic production/ marketing methods	2	0	1	1	1
(c)	Poor awareness of SPS requirements within agriculture	2	2	1	0	0
(d)	Poor access to information on SPS requirements	2	2	1	0	0
(e)	Period of time permitted for compliance is relatively short	0	4	1	0	0
EXPORTS TO US						
Item		1	2	3	4	5
(a)	Insufficient access to scientific/technical expertise	0	2	0	0	1
(b)	Incompatibility of SPS requirements with domestic production/ marketing methods	2	0	0	1	0
(c)	Poor awareness of SPS requirements within agriculture	3	0	0	0	0
(d)	Poor access to information on SPS requirements	2	0	1	0	0
(e)	Period of time permitted for compliance is relatively short	1	2	0	0	0

Source: interviews with pineapple farmers and exporters.
1 = very insignificant; 2 = insignificant; 3 = no impact; 4 = significant; 5 = very significant.

It seems clear that businesses' ability to satisfy SPS varies depending on whether the business is a farmer or an exporter and whether it is big or small. A big banana exporter declared that they could comply with the world's highest SPS standards (such as those of the EU). For this firm, standards are an essential part of food security and safety policy, which in turn is part of the firm's corporate and social responsibility.

Another big national banana exporter and producer explained how it had prepared for compliance with EurepGAP and other technical and SPS standards by EU governments or the private sector. According to the manager of this national banana firm, compliance with technical requirements and SPS standards posed no problems. In fact, the firm's preparedness (reflecting an ongoing process to keep abreast of any changes) meant that it had a competitive edge over its less prepared rivals.

However, small firms in particular cannot be expected to reach the same level of preparedness because they do not have the infrastructure (knowledge, human or physical capital, equipment, etc.) needed to do so. Compliance with SPS and technical requirements seems to be a burden and a difficult task for medium-sized and small farmers. A medium-sized pineapple producer declared that consumers are demanding better quality and presentation of the fruit (pineapple) each time, but, in general, consumers are not willing to pay extra money when those demands are met. Medium-sized and small banana producers also stated that SPS standards and quality demands are higher each year but that these demands are not reflected in higher prices paid for bananas. According to one medium-sized banana producer whose banana production goes to the EU, if the market paid for the extra cost that compliance with technical requirements implies, then he would be more than willing and able to comply with those requirements. Without compensation for the USD 3000 per year that compliance with the EU technical requirements implies, the farmer would prefer to sell its production to export companies that do not demand stringent technical requirements (usually those that ship to the Russian market). As a result, this medium-sized banana producer was considering selling his fruit to a banana export company. Small banana producers had also considered changing crops in order to cultivate produce that did not face too demanding technical requirements and/or SPS measures and that fetched a better price.

In general, it seems that the ability to cope with SPS and technical requirements is not the same for big, medium-sized and small banana and pineapple producers. For big producers there seems to be no problem in complying with SPS and technical standards, but for medium-sized and small producers it is very difficult, if not impossible, to comply with the most stringent SPS and technical requirements from markets such as the EU. One solution, however, could be to act in cooperatives. An interview with a banana cooperative was illustrative of the good results that small farmers can achieve if they work together and prepare to face and meet world market demands. The cooperative gives some (local) market power to small producers, allowing the farmers to receive better prices for the bananas they sell (compared with if they were to sell the fruit by themselves); it also gives the associates information on the standards they need to meet in order to be able to sell their fruit, follows them up to ensure they meet requirements standards, and keeps them abreast of the newest world market demands.

Another aspect that came up in the interviews with regard to coping with these standards is the growing importance of exports contracts (between exporters and farmers) to establish long-term business relationships that ensure quality controls.

Analysis of feedback from exporters

The interviews with exporters included a specific set of questions directed solely at them (exporters). These questions dealt with the duration of exports, proof of compliance, choice of export markets and new markets (Table 3.8).

Table 3.8. Impact of SPS and TBTs on Ecuadorian Exporters

QUESTION		BANANA		PINEAPPLE	
		%	NUMBER	%	NUMBER
1.	Do these standards increase the durations of export?				
	Yes	20	1	0	0
	No	80	4	100	2
			5		2
2.	How do you prove that you respect the standards?				
	Certifications	100	5	100	2
			5		2
3.	Degree of competition with other exporting firms				
	Increasing	100	4	100	2
	Decreasing	0	0	0	0
	About the same	0	0	0	0
			4		2
4.	Do these standards affect the choice of the country towards which you export?				
	Yes	20	1	50	1
	No	80	4	50	1
			5		2
5.	If you export more than one agricultural product, for what products is the situation the most difficult?	Pineapple, papaya, plantains, baby banana ('orito'), mangoes and organic products		Papaya	
6.	Potential markets/regions for your exports in the near future	China, Japan, EU, Russia, Korea		Mediterranean countries of the EU, England	
7.	Major difficulties in establishing new markets	Tariffs, transportation costs, Ecuadorian legislation, lack of government support, SPS and TBT barriers and (for the Russian market) favouritism among national (Russian) companies			

Source: interviews with banana and pineapple exporters in Ecuador.

For all banana and pineapple exporters, except for one (banana exporter), the standards did not increase the duration of exports. All the exporters reported that they prove their compliance with the standards through certifications (issued by third parties). For most of the banana and pineapple exporters, the standards did not affect the choice of the country to which they export their fruit. The products for which the standards seem to be the most difficult to meet are pineapples, papayas, plantains, baby bananas, mangoes and organic products.

Banana exporters see China, Japan, the EU (despite all current difficulties), Russia and Korea as potential markets for new or increasing exports in the near future. Pineapple exporters look to the Mediterranean countries of the EU and England as future potential markets. However, the major difficulties in establishing new markets are tariffs (in the case of bananas and the EU), transportation costs, the Ecuadorian legislation, lack of government support, the existence of SPS and TBTs and – in the case of the Russian market – favouritism towards national (Russian) companies. As an additional comment, one of the banana companies reported that transport costs (all the shipments are shipped by vessel) are a big problem nowadays. This aspect reduces the competitiveness of the firm in relation to the competition from, for instance, Asian banana producers.

Analysis of feedback from farmers

Interviews with farmers covered a specific set of questions. These questions tried to identify the difficulties encountered by a farmer when complying with SPS and technical standards set by the importing countries and the impact of SPS and technical standards on their choice of crops

and mode of production. For most of the banana and pineapple farmers interviewed, the high cost of compliance and the financial constraints they face are the most difficult aspects they have to overcome in order to meet the standards imposed by importing countries. In spite of these difficulties, for most of the farmers the standards do not affect their choice of product (the exception seems to be small farmers). However, standards do affect the mode of production. For most banana farmers (88 percent) and all pineapple farmers, the standards imply changes in the mode of production, which can include hiring more workers, having more infrastructure and mechanization, and changing cultural practices (Table 3.9).

Table 3.9. Impact of SPS and TBTs on Ecuadorian Farmers

QUESTION		BANANA		PINEAPPLE	
		%	NUMBER	%	NUMBER
1.	Which are the difficulties met by you so that your production complies with standards imposed by the importing countries?				
	None	25	2	0	0
	High cost of compliance	50	4	33	1
	Financial constraints	25	2	67	2
			8		3
2.	Does this affect your choice of products?				
	No	62.5	5	67	2
	Yes	37.5	3	33	1
			8		3
3.	Does this affect your mode of production?				
	No	12.5	1	0	0
	Yes	87.5	7	100	3
			8		3
	If Yes, how?				
	Hiring more workers	40	4	20	1
	More infrastructure and mechanization	40	4	40	2
	Changing cultural practices	20	2	40	2
			10		5

Source: interviews with banana and pineapple producers in Ecuador.

In order to get a sense of how farmers and exporters perceive the SPS and TBT requirements we asked them: (i) whether they thought these requirements are a trade barrier, (ii) whether their production or export increases when their businesses comply with SPS and TBT requirements, and (iii) to compare SPS and TBT requirements and tariffs and state whether they consider SPS and TBT requirements or tariffs as a trade barrier in the case of the fruit they export.

For banana exporters and producers, most (85 percent) reported that they did not consider the standards (SPS, technical and others) a trade barrier. This was also the case for most pineapple exporters and producers (60 percent). In fact, when asked whether their production or exports had increased as a consequence of compliance with the standards imposed by the importing countries, 54 percent of banana exporters and producers said yes (but 46 percent of the banana producers and exporters did not respond) and 60 percent of the pineapple exporters and producers said yes (but 40 percent of the pineapple producers and exporters did not respond).

Finally, banana exporters and producers all agree that tariffs and not the SPS or technical standards set by the importing markets are the main barrier to banana trade (due to the 176 euros per metric ton that banana exporters have to pay in order to enter the EU). On the contrary, for pineapple producers and exporters (given that pineapples in general are not subject to tariffs in their main importing countries – the US and the EU), it is the SPS and TBT requirements rather than tariffs that are considered a trade barrier.

3.2 SPS and TBT Measures on Banana, Melon and Pineapple Trade in Costa Rica

We now investigate the trade effects of SPS and TBT measures on selected tropical products in Costa Rica. We focus on three products: bananas, melons and pineapples.

3.2.1 The Banana Market in Costa Rica

The banana industry is the main employer in both the agricultural sector and the economy as a whole. The importance of this industry is particularly notable in the Atlantic zone of the country. Official numbers show that 91 of 100 workers in this economic region are linked directly or indirectly to banana production (Corbana, 2005). The regional distribution of banana producers according to the number of hectares planted is provided in Table 3.10.

Table 3.10. Costa Rica's Banana Producers According to the Number of Hectares Planted, by Region, 2006

	STRATUM 1		STRATUM 2		STRATUM 3	
REGION	≤100 HA		100.01-500 HA		>500 HA	
	NUMBER OF PRODUCERS	HA	NUMBER OF PRODUCERS	HA	NUMBER OF PRODUCERS	HA
Pococí	4	226	18	4795	5	4119
Siquirres	1	61	19	5902	2	1783
Matina	-	-	34	8679	2	1513
Limón Central	5	406	2	658	2	2333
Guácimo	1	63	12	3476	-	-
Sarapiquí	-	-	5	1070	6	5128
Talamanca	-	-	5	1049	1	1009
Pacific zone	-	-	-	-	1	518
Corredores	-	-	1	213	-	-
Parrita	-	-	1	305	-	-
Total	11	756	97	26 147	19	16 403

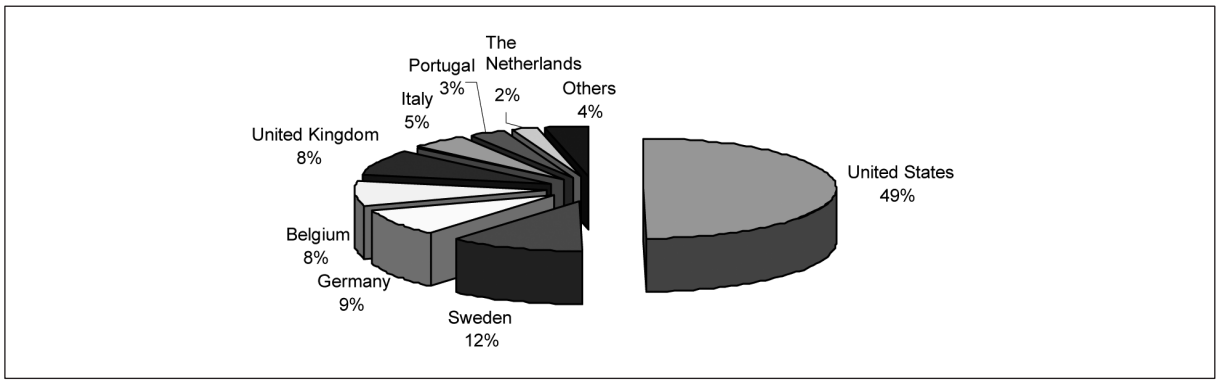
Source: own elaboration. Statistics section of the Corporación Bananera Nacional, 2006.

The volume of banana exports now stands at an annual average of 100 million boxes (1.8 million metric tons), and this makes Costa Rica the second largest world exporter of the fruit, after Ecuador.

The fruit export trade is largely in the hands of transnational companies such as Chiquita, Dole, Fiffes and Del Monte. In most cases, producers enter into sales contracts with these companies obliging them to supply fruits that meet certain quality specifications and other regulations. For example, producers working with COBAL (subsidiary of Chiquita in Costa Rica) must implement and maintain programmes supported on a corporate level, such as socio-environmental rules of the Rainforest Alliance, EurepGAP and, in the future, Social Accountability 8000. There are, however, exceptions to the rule. Some producers (for example, Roberto Acon and the Platanera Río Sixaola) directly export their production. Platanera Río Sixaola trades the fruit in Germany and is certified with EurepGAP and ISO 14001.[15]

Regarding banana destinations, Costa Rica's production is historically exported to the US and EU markets. In 2006, 49 percent of the exports had the US as the destination, while Sweden had 12 percent, Germany 9 percent, Belgium 8 percent, the United Kingdom (UK) 8 percent, Italy 5 percent, Portugal 3 percent and Holland 2 percent. Those are the main European destinations. Only 4 percent of the exports went to other markets, such as Eastern Europe (Figure 3.7).

Figure 3.7. Costa Rica's Banana Export Destinations, 2006



Source: Promotora del Comercio Exterior de Costa Rica (Procomer)

3.2.2 The Melon Market in Costa Rica

Melons are the fifth most important product in terms of contribution to the agriculture GDP. Melon production in Costa Rica is characterized by a yearly increase in the use of land for sowing. In 2006, the cultivated land was 10 202 hectares (3000 hectares more than in 2002). Approximately 20 000 people are employed directly in the production or export of melons. Much of this employment is temporary, reflecting the seasonal nature of melon production. Field tasks start in October and harvest starts in December and extends until May. Some places have two harvests per year (December to February, and February to May).

National production of melons is located in the North Pacific Region and the Central Pacific Region. Small producers use 100 hectares, medium-sized producers 200 hectares, and large producers more than 1000 hectares (CNP, 2005). Table 3.11 reports the number of small, medium-sized and big producers.

Table 3.11. Typology of Costa Rica's Melon Producers, 2003

CLASSIFICATION (HA)	PRODUCTION SITES	TOTAL AREA (HA)
4–29	14	246
30–40	7	260
41–100	13	865
>100	20	8451
Total	54	9822

Source: elaborated with data from the Dirección de Servicio de Protección Fitosanitaria, Ministerio de Agricultura y Ganadería (MAG), 2003

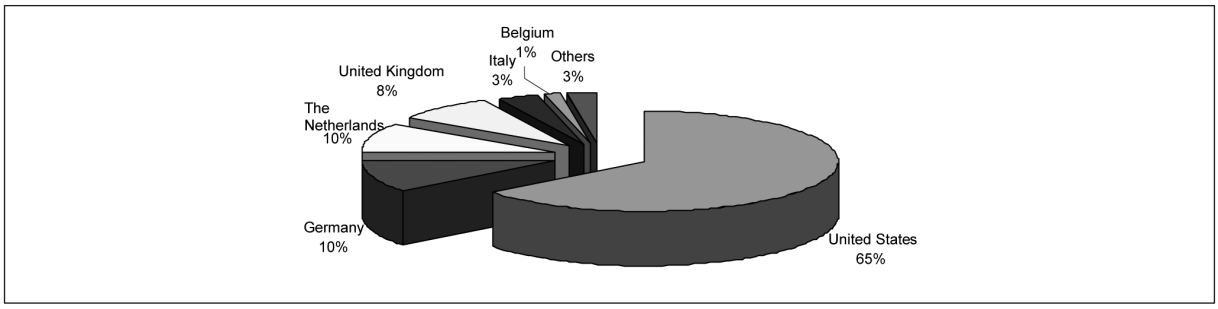
New and growing markets, such as the EU, are an appealing option to melon producers. Access to such markets motivates continuous technological improvements. This means that production needs to undergo significant improvements in order to comply with the norms and standards applied on these export markets.

The production and export process is made through private agents. Some melon producers sell their own production to transnational companies such as Del Monte and Dole. Contracts between producers and traders are signed before the sowing of the melons. In these contracts, national producers commit to produce certain quantities and specific kinds of melon, while brokers give a down payment to the national producer.

The main export market for Costa Rica's melons is the US. In 2006, other important markets were European countries such as Germany,

the Netherlands and the UK (Figure 3.8). Total exports of melons from Costa Rica have increased annually by 11.5 percent during the past five years. Exports grew from USD55 million in 2002 to USD85 million in 2006. This places melons among the top 10 exports of the country.

Figure 3.8. Costa Rica's Melon Export Destinations, 2006



Source: Promotora del Comercio Exterior de Costa Rica (Procomer)

3.2.3 The Pineapple Market in Costa Rica

Currently 38 500 hectares are dedicated to pineapple production in Costa Rica. Table 3.12 shows the regional distribution of producers. The north of the country is the main zone of production. There are 91 companies dedicated to the plantation and export of pineapples, generating around 7000 direct jobs.

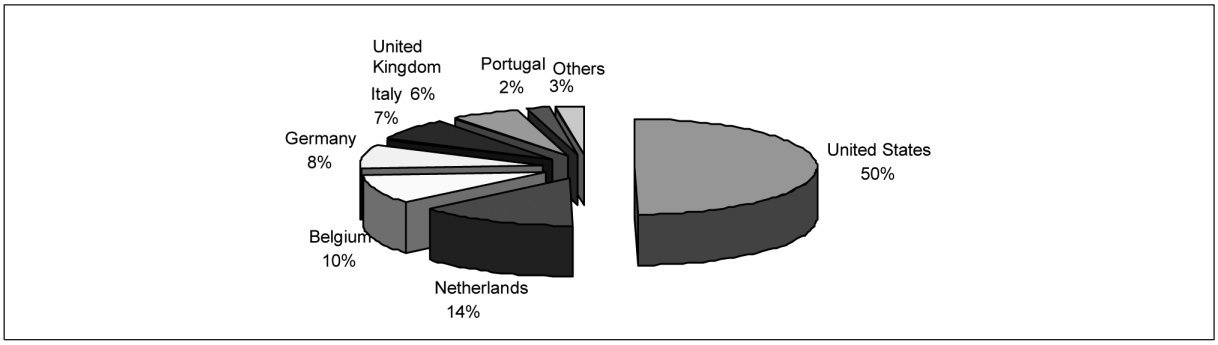
Table 3.12. Typology of Costa Rica's Pineapple Producers, 2007

REGION	NUMBER OF PRODUCERS	TOTAL AREA (HA)
Huetar Norte*	1100	7500
Brunca	3	16500
Huetar Atlántica	6	12500
Central	41	2000
Total	1150	38500

Source: elaborated with data from the National Pineapple Program, MAG, 2007.
**The structure is composed of small and medium-sized producers that have between 2-5 ha.*

Costa Rica's pineapple exports grew from USD159 million in 2002 to USD430 million in 2006, which represents an annual growth rate of 28.2 percent. The main export destination is the US (50 percent of exports in 2006), followed by the Netherlands (14 percent), Belgium (10 percent), Germany (8 percent), Italy (7 percent), the UK (6 percent) and Portugal (2 percent) (Figure 3.9).

Figure 3.9. Costa Rica's Pineapple Export Destinations, 2006



Source: Promotora del Comercio Exterior de Costa Rica (Procomer)

3.2.4 Measuring SPS and TBTs in Costa Rica's Banana, Melon and Pineapple Markets

Box 3.3 describes the regulations applied in Europe and the US on tropical products. Recently private standards have become an important issue in market access strategies. They require precise levels of compliance and are often mandatory if the producer wants to preserve the business relation.

Box 3.3. Public Regulations Applied on Tropical Products in Europe and the US

EU

- Technical requirements:
  - Regulation (EC) No. 1615/2001 for melon.
- Requirements for innocuousness:
  - Regulation (EC) No. 178/2002, by which general principles on food innocuousness are established. It includes aspects of traceability, equivalent and responsibility of the operators.
  - Regulation (EC) No. 852/2004 on hygiene of food products.
  - Maximum limit of pesticide residues in food (norms are constantly changing, although their unification is planned).
  - Directive 90/642/EEC relative to the fixation of maximum contents of pesticide residues in determined vegetable products, including fruits and vegetables.
  - Directive 76/895/EEC relative to the fixation of maximum contents of pesticide in fruits and vegetables.
  - Directive 2006/59/EEC on the maximum limits of residues of carbaril, deltametrin, endosulfan, fenitrotion, metidation and oxamil.
  - Regulation (EC) No. 396/2005 relative to the maximum limits of pesticide residues in vegetables and animal food and fodder.
  - Regulation (EC) No. 1881/2006 on the maximum contents of polluters in food products.
  - Regulation (EC) No. 1935/2004 on materials and objects destined to enter in contact with food.
- Phytosanitary requirements:
  - Phytosanitary certificate (free from plagues – for fresh products).
  - Directive 2000/29/EC.
  - Official controls at the border.
  - Documentary control, identity control, physical control.
  - Regulation (EC) No. 882/2004.
- Norms relative to organic production:
  - Regulation (EC) No. 2092/91.
  - Costa Rica was certified as third country in 2003; the certification was ratified in 2006 (comparative advantage).

US

- Law on bioterrorism.
- Hazard analysis and critical control points
- Codex Alimentarius (applies for the US as well as Europe).
- Residue controls in products, by the Environmental Protection Agency, as well as by the Food and Drug Administration.

Source: Ministerio de Comercio Exterior de Costa Rica (COMEX).

In April 1997 the Law of Phytosanitary Protection was promulgated, taking WTO agreements as a basis and directly incorporating the general principles of the SPS Agreement. The State Phytosanitary Service (Servicio Fitosanitario del Estado), a decentralized institution of the Ministry of Agriculture and Cattle (Ministerio de Agricultura y Ganadería), was created. This service is legally, technically and administratively independent. The Law of Phytosanitary Protection has a wide range of applications. It includes vegetable sanitation, pesticides and organic agriculture and creates the Biosecurity Commission.

Costa Rica created the National Committee of SPS Measures by legal decree in 1997 to apply the dispositions included in the SPS Agreement and to meet the objectives, especially in matters of harmonization. However, due to the lack of experience, the results obtained by the Committee are far below the expectations.

Despite the efforts made by Costa Rica, the effective reinforcement of sanitary protection measures and there-conversion of non-competitive sectors did not go hand in hand with the action taken to enhance market access through trade agreements (e.g. tariff reduction, non-tariff barriers). In other words, reinforcement of SPS and TBTs lagged behind tariff liberalization.

Compliance with sanitary regulations carries a significant cost for producers and exporters. The literature points out that compliance with current legislation is one of the main Central American problems. This results from a lack of human and budget resources and a lack of supportive infrastructure, including specialized installations and more diagnostic and software laboratories.

The private sector is currently very active (increasing numbers of producers and exporters' organizations) and more dynamic than the public sector regarding SPS issues.

There are some problems regarding food innocuousness, except in terms of legislation and diagnosis (Bernardo et al., 2003). There are weaknesses affecting human resources, specialized installations and some procedures of certification. For instance, there is no access to basic virology equipment, no random inspections for plagues and other diseases, incomplete documented procedures or work instructions regarding certifications, and not enough inspectors for the task (George Bush School for Government and Public Service, 2003).

3.2.5 Analysis of Trade Effects of SPS and TBT Measures

In this study, we surveyed banana, melon and pineapple producers and exporters. Each survey questionnaire was complemented with interviews with the corresponding exporter and farmer. We surveyed small, medium-sized and big farmers and exporters. The questionnaire is presented in the appendix.

Banana production process and exports

The Banana Environmental Commission (Comisión Ambiental Bananera) and the Corbana transmit new market requirements (such as the EurepGAP Protocol) to producers and exporters. Both institutions provide technical assistance.

Adopting norms and international certifications implies a high economic cost. However, most producers consider changes introduced by norms as positive and as an opportunity to access more profitable markets. Some others consider that the main export barrier is tariffs, especially on the EU market. Producers and exporters do not report market losses due to SPS and TBT measures. For small producers, the main export restriction is their size, which does not allow them to satisfy the requirements of the international buyers.

Banana producers have adopted different measures to overcome barriers such as SPS and TBTs. In general, big transnational companies have the capacity to absorb the costs that arise from adapting production in order to meet SPS and TBT requirements. A number of small producers that sell their produce through transnational companies also get assistance from

the transnationals. Other small producers work through associations. The case of the Asociación de Pequeños Productores de Talamanca, an association of 1200 small farmers that produces mashed and dehydrated bananas for export to Canada and England, was also documented. This association complies with certifications of fair trade and organic production such as FLO-CERT GmbH. It was able to overcome the barriers of SPS and TBTs by creating its own certification system.

Melon production process and exports

Melon exporters must meet national and international SPS and TBT requirements and private sector requirements. National regulations are elaborated and verified by the Ministerio de Agricultura y Ganadería of Costa Rica. Producers and exporters consider that this process is necessary in order to improve sanitary and phytosanitary innocuousness.

Applying technical rules of international governing entities appears to be difficult. Melon producers point out that the main obstacle is the constant change in the allowed maximum residue levels. These variations produce constant changes in production practices, with a significant economic cost in terms of inputs and staff training. There is even a documented case of one of the largest melon companies losing a great part of its melon harvest because it failed to pass the residue control of a particular agrochemical. The company lost several million dollars and its financial situation became critical. The company took the case to Costa Rican courts, arguing that the agrochemical causing the problem did not meet the conditions guaranteed by the manufacturer.

In the case of voluntary norms, the situation is even more variable. Interviewed producers point out that variations in international supply and demand tend to trigger further inspections from institutions such as EurepGAP, and that these inspections in turn trigger changes in tolerance and fulfillment levels of the agreed norms.

Producers state that trade barriers such as SPS play an important role when choosing the products they cultivate. They state that if there were no barriers, then they would assign part of their farms to the production of vegetables in controlled environments (greenhouses). However, they focus their production on melons because they are able to overcome trade barriers, such as SPS measures, applied on this product.

Producers also report that the socio-labour and environmental conditions required to obtain certifications such as EurepGAP are among the most difficult conditions to satisfy. They argue that the initial investment to guarantee the sanitary innocuousness and the education of agricultural unskilled workers is too high. In addition, variable costs such as social changes and practices for environmental friendly production are difficult to overcome, especially for smaller producers.

Furthermore, the major problem they face on international markets is the non-payment of contracts by foreign buyers. They also point out as problems the lack of transparency, price determination and profit margins of traders in the EU market. This problem is less common in the US market thanks to the Department of Agriculture's periodical publication of average import and sales prices for all agricultural products.

Producers have overcome barriers such as SPS and TBTs in different ways. While big producers have to assume the adaptation cost of their productive processes to the new standards and complain about the little help received from the state, small producers say they had support from government entities such as the Ministerio de Agricultura y Ganadería and the Promotora de Comercio Exterior.

Finally, producers state that SPS and TBT measures have helped them to improve their competitiveness. They recognize that practices and inputs demanded by certifiers create better working conditions and at the same time increase productivity and company discipline.

Pineapple production process and exports

Pineapple exporters must also meet a series of SPS measures, as well as national and international technical norms and regulations. Pineapple producers that also produce melons and bananas mention that SPS and TBT measures notified on pineapple are the hardest to meet. The most important national requirement is the agrochemical residue control made in the packing plant before sending the product to the shipping port. Producers consider that this control is necessary in order to improve the sanitary and phytosanitary innocuousness of pineapple and is done in an objective and transparent way.

After the revision in the plant, the authorities of the destination country inspect shipped products. Pineapple producers faced problems in entering the US market, due to quarantine. The most difficult requirement to overcome on the EU market is the agrochemical residue controls.

As with melons, pineapple producers highlight that the EU often changes the agrochemical tolerance levels, as well as permitted agrochemicals, raising the risk of fruit rejection. This obliges producers to modify their agricultural practices.

Regarding fresh pineapple shipments, import permits established by the destination country are required. Fruit must have no leaves, branches or other plant parts. In case of a previous treatment, phytosanitary certificates are required.

Pineapple is included in the list of non-propagative products. The US Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) requests special treatments for these products. APHIS works with the Plant Protection and Quarantine, whose inspectors examine non-propagative products when they arrive in the US ports before allowing them to enter the US market.

In the EU market, colour and crown condition appear to be the most important characteristics. Producers must demonstrate to the European inspection services that their production process is sustainable and that their pineapples satisfy food security requirements.

As in the case for melons, one of the most difficult challenges to overcome in terms of norms and technical regulations concerns the way pineapples are produced. The initial investment to guarantee the sanitary and environmental innocuousness conditions is too high. Furthermore, norms and international certifications, which require the use of environment- and labour-friendly practices, significantly increase variable costs.

Despite the cost induced by SPS and TBTs, pineapple producers consider that the main barrier to export to the EU and US markets remains tariffs. Pineapple is a product for which access to the EU and the US depends on unilateral preference regimes such as the Caribbean Basin Initiative and the Generalized System of Preferences (GSP), which can be suspended. This is a source of uncertainty.

Producers have adopted different strategies to overcome SPS and TBT requirements. Big producers, which have resources to invest, are better placed to absorb the costs of adopting new production modes and pay certifications; on the other hand, small producers face a harder situation. Small produces therefore decided to create the Chamber of Pineapple Export Producers (Cámara de Productores de Piña de Exportación). The Chamber established an inspection and certification programme that disseminates information to the associates.

Surveyed pineapple producers consider that the norms and technical regulations as well as private sector requirements benefit their exports when they are established objectively and not used arbitrarily. In the first case, SPS and TBT requirements help them to improve the quality of their products and their level of competitiveness. The cost of not complying with SPS and TBTs or with voluntary norms is to sell their products in the local market or in less profitable international markets.

3.3 SPS and TBT Measures on the Coffee Trade in Ethiopia and the Cut–flower Trade in Kenya

We now investigate the trade effects of SPS and TBT measures on Ethiopian coffee and Kenyan cut flowers. Ethiopia and Kenya are leading producers and exporters in Africa of coffee and cut flowers, respectively.

3.3.1 Overview of the Coffee and Cut–Flower Markets in Ethiopia and Kenya

The coffee market in Ethiopia

Agriculture is the mainstay of the Ethiopian economy and contributes more than 50 percent of GDP, 80 percent of exports and 85 percent of employment. Until recently, coffee generated over 60 percent of export earnings. This has now declined to 47 percent due to rival export commodities such as oil seeds and flowers and the collapse of the international coffee price. The country's annual production of coffee is estimated to be more than 3.5 million bags, which constitutes about 2.5 percent of the world's marketable coffee. It provides employment to 25 percent of the population directly and indirectly. Essentially, coffee is sold as green coffee beans, with further processing such as blending, roasting and grinding taking place elsewhere. Ethiopian coffee has a good appreciation in the world market. The country produces a number of rare varieties of coffee. Currently, the major markets for Ethiopian coffee are the EU (for about 50 percent exports) and eastern Asia (for about 25 percent). Japan and the US are also important trading partners.

Although coffee is Ethiopia's main export crop, it is cultivated on only 3 percent of the cropped area, located mainly in eastern and central Ethiopia. Subsistence farmers are responsible for the production of more than 95 percent of coffee produced in the country, while large state-owned plantations supply the remainder. Small farmers cultivate coffee as a cash crop in combination with food crops and allocate on average about 20–40 percent of their land to it. Their cultivation practices are simple. They use little fertilizer and rarely any other chemicals, and average yield is around 600 kg per hectare. In several coffee-growing districts, agriculture extension workers (three in each *kebele*[16]) are assigned in order to enhance cultivation and marketing of coffee by renewing coffee bushes with improved varieties, supplying farm inputs, and constructing roads and warehouses. These help farmers to address the standard (quality) imposed by importing countries.

The production of this coffee can be categorized as organic and other coffee, which is produced using fertilizer and other organized coffee-producing technology. Coffee production is unmechanized and highly labour-intensive. Agricultural production methods and tools have changed little for centuries, at least in smallholder agriculture. Ploughing is usually carried out by locally manufactured ploughshare, and weeding and harvesting are carried out by hand using basic traditional hand tools. The ripe (red) berries are harvested using traditional baskets, which presumably is inconvenient for harvesters. There are two types of coffee processing in Ethiopia: wet and sun-dried. Nearly 80 percent of the country's coffee exports are sun-dried (Kilcher et al., 2002). Only ripe berries can undergo wet processing and have to be processed immediately after harvest.

In Ethiopia, coffee grading and quality control are implemented at the producer, central and export levels. This integrated control system helps to grade coffee before auction and export, which is very important for all those involved in the production, collection, export and consumption of coffee. Unlike the situation in other countries, exporters are not allowed to buy directly from farmers. For the past decade, the influence of cooperatives and unions in the sector has increased dramatically, due partly to the emphasis given by government to strengthening them and shortening the market chain from coffee grower to final customer. Coffee farmers are now

organized in different cooperative societies on the basis of proclamation N147/1998 (Table 3.13). Consequently, the large role played by either government or union has obscured the market requirements of international buyers from the producers, who have little direct knowledge of market trends other than price.

Table 3.13. Number and Distribution of Ethiopian Coffee Traders and Cooperatives

LOCATION	COOPERATIVES	PRIVATE
SOUTH NATION NATIONALITY REGION		
Sidama	80	69
Gedio	36	43
Amaro	3	3
Bench	3	2
Kefiticho	4	3
North Omo	1	2
Subtotal	127	122
Oromya		
Illibabure	3	9
Borena	5	26
Jimma	28	29
West wollega	1	8
Subtotal	37	72

Source: Ethiopian Coffee and Tea Authority.

The integrated control system includes different steps:

- In every major coffee-producing district, there is a quality inspection office, which checks the grade and quality of every truckload of coffee before it leaves for the central quality grading and auction centre. Any coffee that does not meet the minimum standard is rejected on the spot. Any coffee with more than 11.5 percent moisture content and 8 percent impurities by volume is not allowed to be transported to the auction centre.
- At the central level, the grading of the coffee is done in two ways – by visual green analysis and by cup tasting. Exporters usually buy different grades and qualities of different origins from the auction. In many cases, the exporter has to reprocess the coffee to match the country's export standard.
- Every exporter must bring the coffee to central quality control for checking and certification, with the following objectives: to check whether the green and cup qualities have met the export standard, to check the origin character, so as to keep the country's export reputation for its coffee quality, and to protect the overseas clients' interests.

The cut-flower market in Kenya

The cut-flower industry has become the fastest-growing sector of the Kenyan economy. Kenya's cut-flower exports are often cited as a success story in African agriculture (Minot and Ngigi, 2004). Data from 2006 show that Kenyan horticulture exports account for USD700 million, growing at 14 percent annually, and are larger than tea and coffee exports. Cut flowers account for 52 percent of total horticultural sector. The Netherlands is a key trade partner of Kenya in the flower industry. For instance, for the past 10 years, the Netherlands imported more than 60 percent of Kenyan flowers. Some of these imports by the Netherlands are re-exported to other EU countries. The UK imported more than 20 percent of Kenyan flowers from 1997 to 2006.

In 2005, Kenya was the fourth largest supplier (6.1 percent) of cut flowers to world markets, after the Netherlands (54.3 percent), Colombia (15.8

percent) and Ecuador (6.4 percent) (Hornberger et al., 2007). Kenya's flower export share in EU market is significant (38 percent, excluding intra-EU trade), while other sub-Saharan African flower exports to the EU are very small. Table 3.14 shows Kenya's dominance in the region in the cut-flower industry. However, Hornberger et al. (2007) reported that the recent remarkable growth of Ethiopian flower export (annual growth rate of 77 percent) indicates potential threats to Kenya's dominance in the region.

Table 3.14. Major Sub-Saharan Africa Flower Exporters

COUNTRY	2005 VALUE (€ MILLION)	2005 EU25 MARKET SHARE (%)	COMPOUND ANNUAL GROWTH RATE 2001-2005 (%)
Kenya	267	38	11
Zimbabwe	32	5	-18
Uganda	22	3	15
South Africa	16	2	14
Zambia	13	2	-8
Ethiopia	10	1	77
Tanzania	5	1	-14

Source: Hornberger et al. (2007).

A report from Learn Africa indicates that large foreign companies and white Kenyan farmers own 90 percent of Kenyan farms.[17] Hornberger et al. (2007), however, argued that the sector benefited from foreign direct investments by upgrading the cluster's technology, production skills and market know-how. Moreover, the industry employs an estimated 56 000 people, approximately two thirds of them women, in more than 140 commercial farms supporting hundreds of thousands of Kenyans. The most important production areas are Lake Navasha, Thika, Limuru, Athi River, North Kinangop, Kericho and Eldoret (Omosa et al., 2005).

There are various stakeholders who play crucial roles in the success and proper functioning of the industry. These include government, non-government and private organizations. The role of these organizations might be classified into two major components:

- those that promote market, standards, ethical social behaviour and workers rights (Milieu Programme Stiftung, Flower Label Programme, Fresh Produce Exporters Association of Kenya, Kenya Flower Council, EUREPGAP, Agricultural Employers Association, Horticultural Ethical Business Initiative, Workers Rights Alert, the Kenya Human Rights Commission, Kenya Women Workers' Organizations, etc.);
- those engaged in formulating polices (various governmental stakeholders, including Horticultural Crops Development Authority).

In terms of code adoption, the Kenyan cut-flower industry is frequently cited favourably in comparison with competitors elsewhere in Africa or Latin America (Omosa et al., 2005). The different codes fall into four main types: (i) northern environmental and social code certifiers, (ii) European organizations selling flowers with social and environmental labelling, (iii) European retailer codes, and (iv) local (Kenyan) membership organizations (Table 3.15). The codes cover freedom of employment, conditions of employment, child labour, discriminatory practices, living wage, working hours, safe and hygienic working conditions (including maternity issues), inhumane treatment, freedom of association, and the right to collective bargaining, management systems and environmental protection. Moreover, Omosa et al. (2005) reported that, in 2004, approximately half of the 145 grower-exporters, employing around 75 percent of workers in the cut-flower industry, were signed up to at least one code, with several belonging to more than one.

Table 3.15. Codes Used in Kenya Cut-Flower Industry

CODE TYPE	NAME
Northern environmental and social code certifiers	Milieu Programme Stiftung (MPS)
	EurepGAP
European organizations selling flowers with social and environmental labelling	Max Havelaar Switzerland Criteria for Fairtrade Cut Flowers
	Flower Label Programme (FLP)
European retailer codes	Separate company codes in UK usually based on the Ethical Trading Initiative (ETI) base code
Local (Kenyan) membership organizations	Fresh Produce Exporters Association of Kenya (FPEAK)
	Kenya Flower Council (KFC)

Source: Omosa et al. (2005).

Two main associations represent flower growers in Kenya: the Fresh Produce Exporters Association of Kenya (FPEAK), which was started in 1976, and has the bulk of horticultural members, and the Kenya Flower Council, which groups together mainly the large-scale flower growers. The Kenya Flower Council was launched in March 1997, partly in response to the growing number of European flower industry codes of practice. The hope in creating a robust Kenyan code was that local growers would be able to avoid having to comply simultaneously with two or more European codes. Consequently, the Kenya Flower Council has had to raise its profile in Europe in order to convince buyers that its code is of a sufficiently high standard. To a large extent this has been achieved, although the pressure to comply with the European codes has not disappeared entirely (Collinson, 2001). The Kenya Flower Council offers two levels of code compliance. The silver standard covers worker terms and conditions, health and safety and environmental responsibilities. Having successfully complied with this standard, Kenya Flower Council Members are free to progress to the gold standard, which concentrates on achieving much higher standards of environmental performance. The Kenya Flower Council code is benchmarked to EurepGAP (now GLOBALGAP). A second code, KenyaGAP, is also internationally benchmarked. Both are recognized in the markets. In addition to these, there are several international certification schemes working in Kenya (e.g. MPS of the Netherlands, Bureau Veritas and Africert). A central concern by both producers and markets had been whether in-house certification process by industry associations can be considered as unbiased when compared with external certification.

3.3.2 Analysis of Trade Effects of SPS and TBT Measures

We surveyed Ethiopian coffee and Kenyan cut-flower producers and exporters. Each survey questionnaire was complemented with interviews with the corresponding exporter and farmer. The questionnaires are presented in the appendix.

Coffee production process and exports

Quantitative and qualitative data were collected from farmers producing coffee in the southern part of Ethiopia. The survey included 28 coffee-grower households. We purposefully selected Wenago, Cuko and Gachere *woredas* (counties) from the Gedo Zone of the South Nation Nationality Region. These are some of the main coffee growers in Ethiopia. From each *woreda*, we purposefully selected *kebeles* and then farmers from each *kebele*. Coffee exporters from Harar, Sidamo and Jimma and three cooperatives (Sidamo, Yirgachefi and Oromia cooperatives) were also part of the survey.

The main standard imposed by cooperatives to purchase coffee from farmers includes timely

harvesting, proper handling during harvesting, good filtering according to size, and not affected by fungus. Box 3.4 describes some of the Ethiopian Quality Standard Authority requirements for coffee to be exported. From the survey results obtained in the Gedio Zone of Yiregachfe *woreda*, producers sell on average 62.2 percent of their total production to private sellers and 27.3 percent to cooperatives and unions. On the other hand, 73.7 percent of private collectors and suppliers (who have the licence to supply to the central auction market in Addis Ababa), which purchase the coffee from farmers, do not impose any specific standard on quality of coffee. Cooperatives give better attention towards quality and impose quality standards.

Farmers were asked whether they changed their mode of production due to the standards imposed by the purchaser: 63.6 percent of them uprooted coffee trees and replaced them with other local cash crops such as tef (*Eragrostis tef*), enset and chat (*Chata edulis*) for two basic reasons, which are the low price paid and the difficulty in complying with standards set by their purchasers. Furthermore, 77.2 percent of farmers changed their method of production. However, only 36.3 percent of farmers lost market shares due to the low quality of their coffee. Most cooperatives and unions complain about the unfair trade competition that exists with private collectors. A total of 77.2 percent of farmers have taken training on coffee production and handling by government and non-governmental organizations.

In Ethiopia there is neither a mechanism for ensuring coordination between government agencies involved in human, animal and plant-related standards, nor a common method for sharing information among themselves or with the public. The survey result shows that 79 percent of farmers do not have awareness about international standard quality of coffee. Lack of coordination among national authorities is often cited as an obstacle to developing countries' compliance with SPS issues. Communication between the public and private sectors is also deficient.

Box 3.4. Quality Standard Imposed For Exported Coffee

- Select – cherry-picking only fully ripe red cherries.
- Pulped on the same day to avoid fermentation.
- Thickness of drying cherry shall not exceed 5 cm.
- Moisture content by mass 12%.
- No dry cherry shall be allowed on earthly floor.
- Coffee must be free from pesticide, plastic fibres and fragmentation.
- Olfactory examination according to Ethiopian Standard ISO 4140.
- Appearance colour, shape and make.
- Size analysis according to Ethiopian Standard ISO 4149.

Source: Ethiopian Quality Standard Authority.

Coffee grading and quality assessments take place at the central coffee board. This means that farmers have little or no information about the quality of coffee required. However, suppliers to the central auction system as well as exporters know the types of coffee that fetch a high price. Coffee standards are linked mainly to (i) the origin of the coffee and (ii) whether it is washed or not. SPS and TBT measures do not seem to feature highly among the concerns of coffee exporters.

Cut-flower production process and exports

The Kenya Flower Council and two flower producers and exporters (both of them large-scale) [18] were interviewed.

The cut-flower industry in Kenya faces both international and national standards. These standards are northern environmental and social code certifiers (Milieu Programme Stiftung and EurepGAP), European organizations selling flowers with social and environmental labelling (Flower Label Programme and Max Havelaar Switzerland Criteria for Fairtrade Cut Flowers), and European retailer codes (separate company codes in the UK usually based on the Ethical Trading Initiative base code). Locally, the Kenya Flower Council and Fresh Produce Exporters Association of Kenya have their own codes of conduct.

Both the local and international codes relate to environmental, social and quality standards. Cut-flower producers interviewed in this study reported that they have to comply with one or more of these standards in order to access the foreign market and build a good reputation. However, these standards increase their production costs. All of the companies interviewed reported the growing influence of European retailers in the Kenya flower industry.

Both flower producers and exporters interviewed reported that they internalized the standards set by their buyers and other stakeholders (designing, certification, testing, labelling and packaging, etc.). However, this was not without cost and induced a shift in their mode of production (such as water and pesticide usage), but it did not cause a product shift. Compared with the previous case studies, Kenya's cut-flower industry is less impacted by SPS and TBT measures because this sector is owned largely by industries from the countries that impose these measures.

Importing countries have their own food safety and animal and plant health standards at their borders based on the SPS Agreement. This means that cut flowers must be sampled and tested before they gain entry into the country. Export destination countries have their own level of minimum residue levels of pesticides. Beyond this level, refusal to entry is the outcome. The companies interviewed reported that they did not experience any rejection from any countries, but one of the companies mentioned that Japan's SPS measures, in particular, are difficult to comply with.

The companies reported that almost their entire production is exported to foreign markets, especially the EU. They also indicated that the standards and technical regulations do not preclude them from exporting cut flowers to any developed country market. The cut-flower industry in Kenya is well developed compared with that in other countries, but the companies complain about poor infrastructure and bureaucracy in Kenya, which affect their activity negatively. Both producers and exporters do not see tariff measures as an obstacle for the Kenya flower trade with its major trading partner. This is due to the fact that Kenya currently enjoys the preferential treatment of the Cotonou Agreement, which exempts Kenya's cut flowers from EU tariffs.[19]

The Kenya Flower Council Members, mainly large and medium-sized producers, are responsible for more than 60 percent of the production.[20] The Council has three quality certifications (silver, gold and platinum), which are benchmarked to European import standards. John Njenga, Principal Auditor of the Council, argued that the codes introduced are good for the health and sustainability of the industry. He acknowledges that producers and exporters face additional costs to comply with these standards, which might discourage them. However, the export volume and value of cut flowers increased exponentially due to the better quality and practice of the industry. He also reported that the standards and technical regulations do not prevent their members from entering developed countries' markets. This is partly because their members are mainly large and medium-sized flower farmers. However, the story is quite different for small-scale farmers. As Hornberger et al. (2007) pointed out, the small growers lack critical export volume and scale to compete with larger exporters in areas such as logistics infrastructure and food and safety standards.

A few studies have tried to estimate compliance cost for local and international codes. Collinson (2001) tried to estimate the compliance cost (Kenya Flower Council silver standard) of five flower-growing companies (one small-scale and four medium- and large-scale) of Kenya Flower Council Members (Table 3.16). He argued that year 1 costs differ from those of subsequent years for two reasons.

First, compliance was not necessarily started right at the beginning of the calendar year. Second, year 1 includes the cost of management time used to plan and implement the majority of compliance actions. Subsequent years do not require such large management inputs. Collinson (2001) also shows that most of the companies already comply with many of the code requirements before their audits by the Kenya Flower Council.

Table 3.16. Compliance Costs Across Time (£)

COMPANY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
A (small-scale)	4971	2887	2887	2887	2887
B (medium-scale)	297	716	716	716	716
C (large-scale)	341	5745	5837	5837	5837
C (large-scale)	?	10 018	10 018	10 018	10 018
C (large-scale)	1919	2617	2617	2642	2642

Source: Collinson (2001).

4. STATISTICAL ANALYSIS: DATA AND DESCRIPTIVE STATISTICS

In this section, we provide a statistical analysis of the SPS and TBT measures applied by major developed importing countries (EU25, Canada, the US, Japan, Australia and Switzerland) on their imports of tropical and diversification products. Results of surveys and case studies are not easily generalized. The main advantage of the following statistical analysis is to be more exhaustive.

Unfortunately, no database on private standards is available. Therefore, our statistical analysis (as well as the econometric analysis in the next section) will focus only on public measures.

4.1 Data Sources on SPS and TBT Measures

Our data on SPS and TBT measures applied by main developed countries on tropical and diversification products come from the UNCTAD database on NTBs. To collect and analyse the notifications, the UNCTAD proceeds as follows:

UNCTAD uses notifications made by countries to the WTO, completed by individual countries' trade policies surveys by the WTO, as well as a series of national sources, ranging from custom authorities to specialized publications. The source file lists sources such as "WTO TBT/ Notification93.481, 23.12.93" (notification to the WTO), "Acuerdo de 29/X/91. Secretaría de Desarrollo Urbano y Ecología" (national source) and "MOCI 1370, 31st December 1998" (specialized publication).

Information on notifications made to the WTO is taken from the source files of TRAINS. For each HS6 position, measures applied are recorded by importing country, according to a classification developed by the UNCTAD.[21] In the database, the nomenclature of measures goes up to four digits. This is the level used in this study.

TRAINS is currently disseminated online through the World Bank Integrated Trade Solution (WITS). The database comprises 119 countries.

The UNCTAD-WITS website[22] reproduces the explanations available on the UNCTAD site and provides additional information regarding the four-digit decomposition used for "sensitive product categories" and for "technical regulations". The four-digit level permits one to identify the following justifications of applied measures: to protect human health; to protect animal health and life; to protect plant health; to protect environment; to protect wildlife; to control drug abuse; to ensure human safety; to ensure national security; and for purposes not elsewhere specified (NES). We have collected a nomenclature that identifies 115 potential environmental measures out of 210 headings.

For each notification, the UNCTAD database provides the notifying country (the importing country), the affected product at the six-digit level of the HS and the classification code of the SPS or TBT measure. Data do not have a bilateral dimension. With rare exceptions, measures are enforced unilaterally by importing countries and applicable to all exporting countries. Unfortunately, such data focus only on public standards and do not include private sector requirements. This information on notifications can be matched with trade data at the HS six-digit level.

4.1.1 Limits of the WTO Notifications

TRAINS suffers from weaknesses. First, it is based on the declarations made by governments applying NTBs on their imports. Second, the database has not been updated for all countries. We, however, consider that both limits do not bias our analysis significantly, since these limits mainly concern notifications made by non-WTO Members. Besides, as mentioned previously, the UNCTAD completes countries' notifications to the WTO with individual

countries' trade policies surveys and a series of national sources. More importantly, WTO Members have to notify only changes to their SPS and TBT regimes; measures that have been in place without change do not need to be notified and therefore could be missing in our study. However, TRAINS is currently the most widely available source of information on non-tariff barriers, and consequently we based our analysis on it.

4.2 Typology and Motivations for SPS and TBT Measures on Tropical and Diversification Products

Among the 115 potential environmental measures that could be imposed for environment, wildlife, health or safety purposes, only 11 are enforced by importing countries on tropical and diversification products in our sample. These measures are as follows:

- 6171: Authorization to protect human health
- 6172: Authorization to protect animal health
- 6173: Authorization to protect plant health
- 6175: Authorization to protect wildlife
- 6271: Quota to protect human health
- 8111: Product characteristics requirements to protect human health
- 8113: Product characteristics requirements to protect plant health
- 8131: Labelling requirements to protect human health
- 8151: Testing, inspection or quarantine requirements to protect human health
- 8152: Testing, inspection or quarantine requirements to protect animal health and life
- 8153: Testing, inspection or quarantine requirements to protect plant health

These 11 measures represent 521 notifications. Table 4.1 presents their distribution by importing country. An HS6 position can be affected by several notifications. This is why the number of notifications is higher than the number of products for Australia (220 notifications versus 134 products).

Table 4.1 shows that importing countries do not use exactly the same measures. EU25, Canada and Switzerland use mainly authorizations (codes 6171, 6172, 6173 or 6175), while the US, Japan and Australia notify mostly technical measures related to product characteristics requirements or related to testing, inspection or quarantine requirements. Australia also applies technical measures related to labelling requirements.

Table 4.1. Distribution of SPS and TBTs, by Type of Measure and Importing Country

CODE	DESCRIPTION	TOTAL	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
6171	Authorization to protect human health	70						70
6172	Authorization to protect animal health	16						16
6173	Authorization to protect plant health	101		61	40			
6175	Authorization to protect wildlife	24	6	6	5	1	5	1
6271	Quota to protect human health	1				1		
8111	Product characteristics requirements to protect human health	44			31	13		
8113	Product characteristics requirements to protect plant health	36			6		30	
8131	Labelling requirements to protect human health	54					54	

CODE	DESCRIPTION	TOTAL	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
8151	Testing, inspection or quarantine requirements to protect human health	82			31	1	50	
8152	Testing, inspection or quarantine requirements to protect animal health and life	2					2	
8153	Testing, inspection or quarantine requirements to protect plant health	91			3	9	79	
Total		521	6	67	116	25	220	87

One can also analyse the motives adduced by importing countries to impose SPS and TBT measures on tropical and diversification products. Countries can adduce six different motives:

- protection of human health
- protection of animal health
- protection of plant health
- protection of the environment
- protection of wildlife
- protection of human safety

Table 4.2 suggests that only four of these six motives are used in our sample. Neither protection of the environment nor protection of human safety is used. Protection of human health and protection of plant health are the two main motives adduced by importing countries in our sample. They are adduced in 251 and 228 cases, respectively.

As in Table 4.1, one can see some differences between importing countries: EU25 measures aim to protect wildlife; Canada's most frequent concern is the protection of plant health; the US, Japan and Switzerland aim first to protect human health; and Australian standards focus on the protection of human and plant health.

Table 4.2. Distribution of Motives, by Importing Country

MOTIVE	TOTAL	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
Protection of human health	251			62	15	104	70
Protection of animal health	18					2	16
Protection of plant health	228		61	49	9	109	
Protection of environment							
Protection of wildlife	24	6	6	5	1	5	1
Protection of human safety							

We now investigate the number of tropical and diversification products affected by SPS and/or TBT measures. Table 4.3 reports this number for each importing country. Of the 134 tropical and diversification products, 131 face an SPS or TBT measure in our sample. Only HS 200190 (Vegetable, fruit, nuts not classified elsewhere prepared or preserved by vinegar), HS 330112 (Essential oils of orange) and HS 330113 (Essential oils of lemon) do not face any barrier in any importing country.

However, the number of notified products differs strongly among importing countries.[23] EU25 notifies measures on only 6 products and Japan on 18 products. In the middle of the ranking, we find Canada (61 notified products), the US (67 products) and Switzerland (72 products). Finally, Australia notifies SPS and TBT measures on all except three products (HS 200190 – Vegetable, fruit, nuts not classified elsewhere prepared or preserved by vinegar; HS 330112 – Essential oils of orange; and HS 330113 – Essential oils of lemon).

Table 4.3. Number of Tropical and Diversification Products Affected by SPS or TBTs, by Importing Country

TOTAL	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
355	6	61	67	18	131	72

We pursue the investigation by analysing the distribution of SPS and TBT measures by product and importing country. This provides information on which products are the most affected by SPS and TBT measures and on which exports market. Results are described in Table 4.4. First, we can see that all importing countries except EU25 notify more than one measure on several products. Second, it appears that:

- EU25 notifies mainly products of Chapter HS06 (SPS and TBT measures are applied on all tropical and diversification products of this chapter, except for HS 060240 – Roses, grafted or not) and product HS 152190 (Beeswax, other insect waxes or spermaceti);
- Canada notifies all tropical and diversification products of Chapters 06–14;
- the US notifies all tropical and diversification products of Chapters 06, 07, 08, 10, 20 (except HS 200190 – Vegetable, fruit, nuts not classified elsewhere prepared or preserved by vinegar), 21 and products HS 120890 (Other flours and meals of oil seeds or oleaginous fruits) and HS 121210 (Locust beans, locust seeds);
- Australia notifies all products except for HS 200190 (Vegetable, fruit, nuts not classified elsewhere prepared or preserved by vinegar), HS 330112 (Essential oils of orange) and HS 330113 (Essential oils of lemon);
- for Japan and Switzerland, it seems to be more difficult to highlight a strategy. Both countries notify several products in different chapters.

Table 4.4. Number of SPS and TBTs, by Tropical and Diversification Product and Importing Country

CODE	DESCRIPTION	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
060240	Roses, grafted or not	0	2	2	0	1	1
060290	Live plants, including their roots, and mushroom spawn	1	2	3	0	2	1
060310	Cut flowers and flower buds for bouquets, etc., fresh	1	2	3	0	2	0
060390	Cut flowers and flower buds for bouquets, dried, etc.	1	2	3	0	2	0
060491	Foliage, branches, for bouquets, etc. – fresh	1	2	3	0	2	1
060499	Foliage, branches, for bouquets, etc. – except fresh	1	2	3	0	2	1
070190	Potatoes, fresh or chilled except seed	0	1	1	0	2	1
070310	Onions and shallots	0	1	1	0	2	0
070960	Peppers (Capsicum, Pimenta) fresh or chilled	0	1	1	0	2	0
070990	Vegetables, fresh or chilled NES	0	1	1	0	2	0
071190	Other vegetables; mixtures of vegetables	0	1	1	0	2	0
071390	Other dried leguminous vegetables	0	1	2	2	3	1
071410	Manioc (cassava), fresh or dried	0	1	1	0	2	1
071420	Sweet potatoes	0	1	1	0	2	1
071490	Arrowroot, salep, etc., fresh or dried and sago pith	0	1	1	0	2	1
080111	Desiccated coconuts	0	1	1	0	3	0

CODE	DESCRIPTION	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
080119	Other coconuts	0	1	1	0	3	0
080290	Nuts, fresh or dried, whether or not shelled or peeled	0	1	1	0	3	0
080300	Bananas, including plantains, fresh or dried	0	1	1	0	3	0
080420	Figs, fresh or dried	0	1	1	0	3	0
080430	Pineapples, fresh or dried	0	1	1	0	3	0
080440	Avocados, fresh or dried	0	1	3	0	3	0
080450	Guavas, mangoes and mangosteens, fresh or dried	0	1	3	0	3	0
080510	Oranges, fresh or dried	0	1	3	0	3	0
080520	Mandarin, clementine and citrus hybrids, fresh or dried	0	1	1	0	3	0
080530	Lemons and limes, fresh or dried	0	1	3	0	3	0
080590	Other citrus fruit, fresh or dried.	0	1	1	0	3	0
080711	Watermelons, fresh	0	1	1	0	2	0
080719	Melons, fresh	0	1	1	0	2	0
080720	Fresh pawpaws “papayas”	0	1	1	0	2	0
081090	Fresh tamarinds, passion fruit, carambola, pitahaya and other edible fruit	0	1	1	0	2	0
081190	Fruits and nuts (uncooked, steamed, boiled) frozen	0	1	3	0	3	0
081290	Fruit and nuts, provisionally preserved	0	1	1	0	2	0
081340	Other fruit	0	1	1	0	3	1
081350	Mixtures of nuts or dried fruits	0	1	1	0	3	1
081400	Peel of citrus fruit or melons	0	1	1	0	3	0
090112	Coffee, not roasted, decaffeinated	0	1	0	0	1	1
090121	Coffee, roasted, not decaffeinated	0	1	0	0	1	1
090122	Coffee, roasted, decaffeinated	0	1	0	0	1	1
090190	Coffee, other roasted	0	1	0	0	1	1
090210	Tea, green (unfermented) in packages < 3 kg	0	1	0	0	1	1
090412	Pepper, crushed or ground	0	1	0	0	1	0
090420	Capsicum or Pimenta, dried, crushed or ground	0	1	0	0	1	0
090700	Cloves (whole fruit, cloves and stems)	0	1	0	0	1	0
091010	Ginger	0	1	0	0	1	0
100610	Rice in the husk (paddy or rough)	0	1	1	2	1	1
100620	Husked (brown) rice	0	1	1	2	1	1
100630	Semi-milled or wholly milled rice, whether or not polished or glazed	0	1	1	2	1	1
100640	Broken rice	0	1	1	2	1	1
110230	Rice flour	0	1	0	2	2	1
110620	Flour, meal and powder of sago or of roots or tubers of heading 07.14	0	1	0	0	2	1
110630	Flour, meal and powder of the dried leguminous vegetables	0	1	0	0	2	1
110814	Manioc (cassava) starch	0	1	0	1	2	0
120210	Ground-nuts in shell, not roasted or cooked	0	1	0	1	1	1
120220	Ground-nuts, shelled, whether or not broken	0	1	0	2	1	1
120890	Other flours and meals of oil seeds or oleaginous fruits	0	1	1	0	2	1
121190	Plants and parts, pharmacy, perfume, insecticide use NES	0	1	0	1	1	1
121210	Locust beans, locust seeds	0	1	1	0	1	1
121299	Vegetable products NES for human consumption	0	1	0	2	1	1
130219	Vegetable saps and extracts NES	0	1	0	0	1	1
140190	Other vegetable materials	0	1	0	0	1	0

CODE	DESCRIPTION	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
150710	Crude soya-bean oil and its fractions	0	0	0	0	2	1
150790	Other soya-bean oil and its fractions	0	0	0	0	2	1
150810	Crude ground nut oil	0	0	0	0	2	2
151110	Palm oil, crude	0	0	0	0	2	2
151190	Palm oil or fractions simply refined	0	0	0	0	2	2
151211	Crude sunflower-seed or safflower oil and fractions thereof	0	0	0	0	2	2
151219	Other sunflower-seed or safflower oil and fractions thereof	0	0	0	0	2	2
151311	Crude coconut (copra) oil and its fractions	0	0	0	0	2	2
151319	Other coconut (copra) oil and its fractions	0	0	0	0	2	2
151321	Crude palm kernel or babassu oil	0	0	0	0	2	2
151329	Palm kernel or babassu oil and fractions thereof, other	0	0	0	0	2	2
151410	Low erucic acid rape or colza oil, crude	0	0	0	0	2	2
151490	Low erucic acid rape or colza oil, other	0	0	0	0	2	2
151530	Castor oil and its fractions	0	0	0	0	2	2
151550	Sesame oil or fractions not chemically modified	0	0	0	0	2	2
151620	Vegetable fats, oils or fractions hydrogenated, esterified	0	0	0	0	1	2
151710	Margarine, excluding liquid margarine	0	0	0	0	2	2
152190	Beeswax, other insect waxes and spermaceti	1	0	0	1	2	1
170111	Raw sugar, cane	0	0	0	0	1	1
170191	Containing added flavouring or colouring matter	0	0	0	0	1	0
170199	Refined sugar, in solid form, NES, pure sucrose	0	0	0	0	1	1
170310	Cane molasses	0	0	0	0	1	0
180310	Cocoa paste, not defatted	0	0	0	0	2	1
180320	Cocoa paste, wholly or partly defatted	0	0	0	0	2	1
180400	Cocoa butter, fat, oil	0	0	0	0	2	1
180500	Cocoa powder, unsweetened	0	0	0	0	2	1
180610	Cocoa powder, sweetened	0	0	0	0	2	1
180620	Chocolate and other food preps containing cocoa > 2 kg	0	0	0	1	2	1
180631	Chocolate, cocoa preparations, block, slab, bar, filled, > 2 kg	0	0	0	0	2	1
180632	Chocolate, cocoa preparation, block/slab/bar, not filled, > 2 kg	0	0	0	0	2	1
180690	Chocolate/cocoa food preparations NES	0	0	0	1	2	1
200190	Vegetables, fruit, nuts NES prepared or preserved by vinegar	0	0	0	0	0	0
200410	Potatoes, prepared, frozen	0	0	2	0	1	1
200520	Potatoes, prepared or preserved, not frozen/vinegar	0	0	2	0	1	1
200590	Vegetables NES, mixes, prepared/ preserved, not frozen/vinegar	0	0	2	0	1	1
200600	Fruits, nuts, fruit-peel, etc., preserved by sugar	0	0	2	0	1	0
200710	Homogenized jams, jellies, etc.	0	0	2	0	1	0
200791	Citrus-based jams jellies marmalade, etc.	0	0	2	0	1	0
200799	Jams, fruit jellies, purees and pastes, except citrus	0	0	2	0	1	0
200811	Ground-nuts otherwise prepared or preserved	0	0	2	0	1	0
200819	Nuts, seeds and mixes, otherwise prepared or preserved	0	0	2	0	1	0
200820	Pineapples, otherwise prepared or preserved	0	0	2	0	1	0

CODE	DESCRIPTION	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
200830	Citrus fruits, otherwise prepared or preserved	0	0	2	0	1	0
200870	Peaches, otherwise prepared or preserved	0	0	2	0	1	0
200891	Palm hearts, otherwise prepared or preserved	0	0	2	0	1	0
200892	Fruit mixtures, otherwise prepared or preserved	0	0	2	0	1	0
200899	Fruit, edible plants NES otherwise prepared/preserved	0	0	2	0	1	0
200911	Orange juice, frozen, not fermented or spirited	0	0	2	0	1	0
200919	Orange juice, not fermented, spirited, or frozen	0	0	2	0	1	0
200920	Grapefruit juice, not fermented or spirited	0	0	2	0	1	0
200930	Citrus juice NES (one fruit) not fermented or spirited	0	0	2	0	1	0
200940	Pineapple juice, not fermented or spirited	0	0	2	0	1	0
200980	Single fruit, vegetable juice NES, not fermented or spirited	0	0	2	0	1	1
200990	Mixtures of juices not fermented or spirited	0	0	2	0	1	1
210111	Coffee extracts, essence	0	0	2	0	2	1
210112	Coffee prep. of extracts	0	0	2	1	2	1
210120	Tea and mate extracts, essences and concentrates	0	0	2	1	2	1
210390	Sauces NES, mixed condiments, mixed seasoning	0	0	2	0	2	1
220720	Ethyl alcohol	0	0	0	0	2	1
220840	Rum	0	0	0	0	2	1
230610	Oil-cake and other solid residues, of cotton seeds	0	0	0	0	1	1
230660	Of palm nuts or kernels	0	0	0	0	1	1
240110	Tobacco, not stemmed/stripped	0	0	0	0	1	0
240120	Tobacco, partly or wholly stemmed/stripped	0	0	0	0	1	0
240130	Tobacco refuse	0	0	0	1	1	0
240210	Cigars, cheroots and cigarillos, containing tobacco	0	0	0	0	1	0
240220	Cigarettes containing tobacco	0	0	0	0	1	0
240290	Cigars, cheroots, cigarettes, with tobacco substitutes	0	0	0	0	1	0
240310	Smoking tobacco, whether or not containing tobacco substitutes	0	0	0	0	1	0
240391	"Homogenised" or "reconstituted" tobacco	0	0	0	0	1	0
240399	Other manufactured tobacco	0	0	0	0	1	0
330112	Essential oils of orange	0	0	0	0	0	0
330113	Essential oils of lemon	0	0	0	0	0	0
Total		6	67	116	25	220	87

Finally, we could observe the number of products by importing country on which more than one measure is notified. Results are shown in Table 4.5. Australia and the US do not hesitate to adopt several notifications on the same product.

Table 4.5. Number of Tropical and Diversification Products Affected by More than one SPS or TBT, by Importing Country

TOTAL	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
139	0	6	38	7	72	16

4.3 Stringency of SPS and TBT Measures

In order to analyse the stringency of SPS and TBTs, we merge information on notifications with trade data at the HS6 level. Data on trade are for the year 2004 and come from the BACI (Base pour l'Analyse du Commerce International) database[24] developed by the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) (see Gaulier et al., 2007. This database uses original procedures to harmonize Commodity Trade Statistics Database (COMTRADE) data: evaluation of the quality of country declarations to average mirror flows, evaluation of cost, insurance and freight (CIF) rates to reconcile import and export declarations, etc. Unfortunately, BACI data are in HS 1992, while the list of tropical and diversification products established by the Cairns group is based on HS 1996. Three codes of HS 1992 are slipped into two different codes in HS 1996:

- 080110 (Coconuts, fresh or dried, whether or not shelled) in HS 1992 is slipped into 080111 (Desiccated coconuts) and 080119 (Other coconuts) in HS 1996;
- 080710 (Melons, including cantaloupes and watermelons, fresh) in HS 1992 is slipped into 080711 (Watermelons, fresh) and 080719 (Melons, fresh) in HS 1996;
- 210110 (Coffee extracts) in HS 1992 is slipped into 210111 (Coffee extracts, essence) and 210112 (Coffee prep. of extracts) in HS 1996.

For these codes, we therefore divide by two the trade flow observed in BACI and distribute half of the flow to each HS 1996 code.

Notifications of SPS and TBTs are compiled up to 2004. We mentioned previously that data on notifications do not have a bilateral dimension. They are applied by importing countries to all exporting countries. However, exporting countries are affected differently by these measures depending on the structure of their exports in terms of products and markets.

4.3.1 The Exports of Tropical and Diversification Products to Main Developed Markets

Before studying the impact of SPS and TBTs, we briefly describe the exports of tropical and diversification products to main developed markets. Table 4.6 reports for each exporting country the value of world exports of tropical and diversification products and the share exported to each main developed market. Three observations could be derived from the table.

- *There is a strong variation in the value of exports:* Some countries export a high amount of tropical and diversification products, while others do not trade a lot. The five smallest exporters are Lesotho (USD2.2 thousand), Tuvalu (USD3.2 thousand), Palau (USD13.2 thousand), Chad (USD25.6 thousand) and Nauru (USD25.9 thousand). On the other hand, the top five exporting countries are Brazil (USD8 440 134 thousand), Malaysia (USD7 463 273 thousand), Thailand (USD6 450 874 thousand), Indonesia (USD6 066 241 thousand) and India (USD3 053 028 thousand). Interestingly, we see that the five biggest exporters of tropical and diversification products are not ACP or LA8 countries. The first Latin American country in the ranking is Ecuador (seventh position), followed by Costa Rica (eighth position) and Colombia (tenth position). The first ACP country is South Africa (eleventh biggest exporter), followed by Cote d'Ivoire (twelfth biggest exporter).
- *The share of tropical and diversification products exported to main developed markets varies significantly:* Seven countries export less than 10 percent of their tropical and diversification products to the main developed markets. These countries are Gabon (1.03 percent), Burma (1.04 percent), Seychelles (2.42 percent), Brunei Darussalam (4.20 percent), Tuvalu (5.12 percent), Bolivia (5.31 percent) and Niue (5.69 percent). Thirty-six countries export less than 50 percent of their tropical and diversification products to main developed markets, while 67 countries export more

than 50 percent. Among these 67 countries, 39 export more than 75 percent of their products to developed markets; for 23 countries, the amount reaches 90 percent. The five countries that export the most to developed markets are Cape Verde (99.08 percent), Rwanda (99.62 percent), Sao Tome and Principe (99.97 percent), Palau (100 percent) and Marshall Islands (100 percent).

- *There is a strong variation in the share exported to each developed market:* At this stage of the analysis, we do not take into account the tariffs and trade preferences applied by developed countries on their imports of tropical and diversification products. This will be done in the next section. However, a first look at the results suggests that distance between the exporting and importing countries seems to be an important determinant of the exports' destination.

Exports to Asia (Japan) and Australia

Four countries export more than 50 percent of their tropical and diversification products to Japan: Cook Islands (53.31 percent), Tonga (87.21 percent), Micronesia Federation (94.49 percent) and Palau (100 percent). The shares exported to Australia are much smaller; the five main exporting countries to Australia are Vanuatu (1.81 percent), Tonga (2.13 percent), Fiji (5.56 percent), Solomon Islands (9.72 percent) and Samoa (10.49 percent). All of these countries are located near Japan and Australia.

Exports to North America (Canada and the US)

Seven countries send more than 50 percent of their tropical and diversification exports to North America. These countries are Liberia (50.32 percent), Guatemala (56.16 percent), Dominican Republic (59.74 percent), Honduras (61.64 percent), Haiti (71.87 percent), Mexico (85.65 percent) and Marshall Islands (98.86 percent). Again, distance seems to impact the exports' destination. Five of these seven countries are located in Central America and the Caribbean.

Exports to Europe (EU25 and Switzerland)

Forty-five countries send more than 50 percent of their exports of tropical and diversification products to Europe. Distance here also has an influence, although its effect tends to be counterbalanced by the EU market size. The EU market size is so big that it mitigates the negative impact of transaction costs on trade flows and distant countries are encouraged to trade with the EU. However, for 7 of the 10 biggest exporters of tropical and diversification products to the EU, the EU is the closest developed market. These countries are Equatorial Guinea (94.36 percent), Gambia (94.72 percent), Mauritius (95.28 percent), Namibia (95.42 percent), Sierra Leone (96.45 percent), Rwanda (99.62 percent) and Sao Tome and Principe (99.97 percent).

Table 4.6. Exports of Tropical and Diversification Products by Exporting Country

CODE	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
	USD1000	%	%	%	%	%	%
ACP79							
Angola	422.9	11.8	0.0	0.0	0.0	0.0	0.0
Antigua and Barbuda	1967.1	21.0	2.4	2.4	0.4	0.0	6.5
Burundi	5124.2	11.8	0.0	0.0	0.0	0.0	0.2
Benin	30 598.3	15.3	0.01	0.1	0.0	0.0	0.01
Burkina Faso	54 757.0	30.3	0.02	0.1	0.04	0.0	0.5
Bahamas	299 119.4	96.5	0.1	1.5	0.03	0.0	0.01
Belize	150 297.0	53.6	3.4	25.6	1.2	0.0	0.01
Barbados	69 262.7	46.6	5.8	13.9	0.01	0.3	0.01
Botswana	195.3	13.9	0.0	5.0	0.0	0.0	0.0
Central African Republic	955.6	53.6	0.0	23.0	0.0	0.0	0.0

CODE	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
	USD1000	%	%	%	%	%	%
Cote d'Ivoire	1 290 448.0	73.3	2.3	5.3	0.9	1.0	0.2
Cameroon	281 714.0	88.1	0.2	5.4	0.0	0.0	0.4
Congo	31 128.8	44.1	0.0	9.0	0.0	0.0	0.1
Cook Islands	2466.3	13.6	1.8	1.5	53.3	0.03	0.0
Comoros	8614.8	19.2	0.4	4.6	0.0	0.0	0.1
Cape Verde	171.1	62.2	0.0	36.9	0.0	0.0	0.0
Cuba	594 313.1	43.7	0.8	0.0	0.7	0.3	3.6
Djibouti	825.8	1.9	0.0	14.7	0.0	0.0	0.0
Dominica Island	17 616.3	56.4	0.2	1.0	0.8	0.01	0.5
Dominican Republic	666 325.8	36.3	1.4	58.3	0.3	0.1	1.5
Eritrea	243.7	93.7	0.9	0.0	0.0	0.0	0.3
Ethiopia	29 215.2	59.3	0.1	5.4	2.6	0.02	0.01
Fiji	158 040.1	69.0	0.2	5.8	3.6	5.6	0.01
Micronesia, Federated States of	34.8	0.0	0.0	0.0	94.5	0.0	0.0
Gabon	15 418.8	0.7	0.05	0.2	0.0	0.0	0.0
Ghana	298 997.9	74.3	0.3	4.9	0.2	0.03	2.6
Guinea	2802.4	46.6	1.4	9.7	0.0	0.0	0.0
Gambia	17 410.4	94.7	0.01	0.2	0.0	0.0	2.2
Guinea-Bissau	204.5	65.9	0.0	1.3	0.0	0.0	0.0
Equatorial Guinea	219.6	94.4	0.6	0.0	0.0	0.0	0.2
Grenada	624.4	66.2	5.1	18.0	1.3	0.0	0.4
Guyana	241 567.8	64.3	1.0	3.4	0.05	0.1	0.2
Haiti	13 234.2	25.7	1.6	70.3	0.1	0.0	0.04
Jamaica	212 764.0	59.4	5.6	20.3	1.5	0.3	0.03
Kenya	622 758.1	72.4	0.2	3.2	3.3	0.1	1.8
Kiribati	1176.9	61.3	0.0	0.0	0.0	0.0	0.0
St Kitts and Nevis	11 071.8	77.4	0.01	20.9	0.0	0.01	0.0
Liberia	232.3	5.0	0.0	50.3	0.0	0.0	0.0
St Lucia	26 149.4	97.2	0.2	0.8	0.03	0.0	0.0
Lesotho	2.2	56.8	0.0	0.0	0.0	0.0	0.0
Madagascar	145 457.0	70.8	1.1	2.1	0.3	0.02	0.2
Marshall Islands	1604.5	0.2	0.0	98.9	0.8	0.0	0.1
Mali	8713.6	60.1	0.1	12.2	0.5	1.0	0.8
Mozambique	95 327.2	39.2	0.1	6.8	0.8	0.01	0.7
Mauritania	523.3	76.4	0.0	0.0	0.6	0.0	1.0
Mauritius	379 054.8	95.3	0.05	2.3	0.2	0.1	0.4
Malawi	383 810.1	46.7	0.01	10.2	3.1	0.9	1.0
Namibia	2373.9	95.4	0.03	1.6	0.0	0.3	0.0
Niger	29 537.8	11.3	0.1	11.4	0.01	0.0	0.03
Nigeria	61 571.5	73.9	0.2	2.1	0.1	0.01	0.01
Niue	33.4	5.7	0.0	0.0	0.0	0.0	0.0
Nauru	25.9	61.3	0.0	0.0	8.4	0.0	0.0
Palau	13.2	0.0	0.0	0.0	100.0	0.0	0.0
Papua New Guinea	209 487.1	97.2	0.0	1.3	0.1	0.4	0.0
Rwanda	673.1	99.6	0.0	0.0	0.0	0.0	0.0
Sudan	107 246.4	51.1	0.01	0.0	0.9	0.03	0.2
Senegal	87 057.5	46.3	0.01	0.1	0.0	0.0	0.4
Solomon Islands	298.0	0.0	10.4	0.0	0.0	9.7	0.0
Sierra Leone	2332.9	96.4	0.4	0.4	0.0	0.0	0.0
Somalia	300.9	4.8	6.9	6.6	19.5	0.3	0.0
Sao Tome and Principe	355.4	100.0	0.0	0.0	0.0	0.0	0.0

CODE	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
	USD1000	%	%	%	%	%	%
Suriname	21 139.9	81.2	0.01	1.6	0.0	0.0	0.02
Swaziland	168 300.7	87.4	0.2	0.3	0.2	0.04	0.01
Seychelles	12 778.7	1.9	0.0	0.0	0.0	0.0	0.5
Chad	25.6	17.4	0.0	0.0	0.0	0.0	0.0
Togo	23 487.9	39.7	0.5	0.2	0.0	0.0	1.0
Tonga	12 789.0	0.0	0.0	1.9	87.2	2.1	0.0
Trinidad and Tobago	105 866.9	29.9	1.5	5.6	0.05	0.01	0.02
Tuvalu	3.2	5.1	0.0	0.0	0.0	0.0	0.0
Tanzania	175 337.8	52.8	0.02	1.2	0.9	0.3	4.2
Uganda	153 907.7	60.9	0.01	0.7	3.8	0.5	1.3
St Vincent and the Grenadines	21 652.2	61.3	0.2	0.9	0.0	0.0	0.01
Vanuatu	13 593.0	67.6	0.0	1.0	0.1	1.8	0.0
Samoa	7193.1	20.5	0.0	43.8	13.8	10.5	0.0
South Africa	1 752 459.0	42.2	2.5	5.4	5.2	0.6	1.2
Democratic Republic of the Congo	9272.5	57.6	0.1	1.6	0.0	0.0	0.6
Zambia	146 770.0	38.9	0.0	0.04	1.0	0.2	0.01
Zimbabwe	649 475.4	38.3	0.1	2.1	0.5	0.7	1.0
LA8							
Bolivia	189 655.5	1.0	0.2	3.1	0.9	0.01	0.2
Colombia	1 995 957.0	26.7	3.7	44.2	1.4	0.1	1.0
Costa Rica	2 403 004.0	51.8	4.4	31.6	0.3	0.02	1.6
Ecuador	2 480 399.0	41.5	2.6	23.0	2.2	0.1	1.0
Guatemala	934 779.8	7.1	6.8	49.4	0.4	0.01	0.1
Nicaragua	168 776.8	12.8	11.5	37.1	0.01	0.8	0.3
Panama	488 491.0	82.7	0.1	5.6	0.5	0.0	0.8
Peru	332 840.5	50.1	2.5	34.9	1.4	0.4	0.9
Other countries							
Central and Latin America							
Brazil	8 440 134.0	22.9	2.3	8.7	2.4	0.5	0.8
Honduras	602 170.1	14.7	3.8	57.9	0.2	0.01	0.3
Mexico	2 955 777.0	5.3	5.4	80.3	3.9	0.1	0.1
Paraguay	260 672.5	7.1	0.4	9.5	0.2	0.0	0.5
El Salvador	123 075.8	5.2	6.2	26.7	0.1	0.03	0.0
Venezuela	158 357.3	47.3	0.1	8.0	0.5	0.0	0.2
Asia							
Bangladesh	65 693.7	39.4	0.4	3.9	0.02	0.1	0.0
Brunei Darussalam	29.0	4.2	0.0	0.0	0.0	0.0	0.0
Indonesia	6 066 241.0	20.8	0.2	3.5	0.7	0.7	0.2
India	3 053 028.0	20.8	1.3	8.2	2.1	0.5	0.5
Cambodia	13 148.9	20.2	0.5	0.5	0.02	1.7	0.01
Sri Lanka	254 488.1	49.2	0.8	1.6	2.6	0.6	1.2
Myanmar	154 339.1	0.7	0.01	0.0	0.1	0.0	0.2
Malaysia	7 463 273.0	15.3	0.5	4.9	5.0	1.6	0.2
Philippines	2 236 330.0	16.7	1.3	21.5	29.0	0.6	0.3
Thailand	6 450 874.0	12.3	1.3	8.5	6.5	1.1	0.5
Viet Nam	939 104.6	4.7	1.0	2.3	4.0	0.4	0.1

Exports by tropical and diversification product

Tables 4.7–4.10 present the exports of tropical and diversification products by product. Each table focuses on a sub-group of exporting countries. Table 4.7 describes the exports of ACP countries, Table 4.8 the exports of LA8 countries, Table 4.9 the exports of other Latin American countries and

Table 4.10 the exports of the Asian countries included in our sample. The distance effect mentioned above also appears in these tables. More interestingly, this divide by product and sub-group of exporters suggests some differences in the tropical and diversification products exported by each sub-group of countries. Below we list the five most exported products for each sub-group of exporters. We consider world exports and exports to main developed markets. We indicate in bold the products that are present in both rankings.

ACP countries to world:

- HS 240210 – Cigars, cheroots and cigarillos, containing tobacco (flow= 449,897.9)
- HS **220840** – Rum (flow = 510 121.9)
- HS **080300** – Bananas, including plantains, fresh or dried (flow = 652 209.9)
- HS **240120** – Tobacco, partly or wholly stemmed/stripped (flow = 927 455.6)
- HS **170111** – Raw sugar, cane (flow = 1 850,309)

ACP countries to main developed markets:

- HS 060310 – Cut flowers and flower buds for bouquets, etc., fresh (flow = 433,272.4)
- HS **240120** – Tobacco, partly or wholly stemmed/stripped (flow = 438 986.4)
- HS **220840** – Rum (flow = 464 182.5)
- HS **080300** – Bananas, including plantains, fresh or dried (flow = 637 579.5)
- HS **170111** – Raw sugar, cane (flow = 1 340 022)

LA8 countries to world:

- HS 170199 – Refined sugar, in solid form, NES, pure sucrose (flow = 252 858.5)
- HS **170111** – Raw sugar, cane (flow = 409 127.9)
- HS **080430** – Pineapples, fresh or dried (flow = 560 762.1)
- HS **060310** – Cut flowers and flower buds for bouquets, etc., fresh (flow = 1 095 801)
- HS **080300** – Bananas, including plantains, fresh or dried (flow = 4 099 032)

LA8 countries to main developed markets:

- HS 080719 – Melons, fresh (flow = 97 017)
- HS **170111** – Raw sugar, cane (flow = 189 983.5)
- HS **080430** – Pineapples, fresh or dried (flow = 550 291.6)
- HS **060310** – Cut flowers and flower buds for bouquets, etc., fresh (flow = 1 023 036)
- HS **080300** – Bananas, including plantains, fresh or dried (flow = 3 438 376)

Other Latin American countries to world:

- HS **200911** – Orange juice, frozen, not fermented or spirited (flow = 745 475.1)
- HS 170199 – Refined sugar, in solid form, NES, pure sucrose (flow = 1 115 507)
- HS 150710 – Crude soya-bean oil and its fractions (flow = 1 343 298)
- HS **240120** – Tobacco, partly or wholly stemmed/stripped (flow = 1 345 640)
- HS 170111 – Raw sugar, cane (flow = 1 844 845)

Other Latin American countries to main developed markets:

- HS 070990 – Vegetables, fresh or chilled NES (flow = 318 508.8)
- HS 200919 – Orange juice, not fermented, spirited, or frozen (flow = 430 590.5)
- HS 070960 – Peppers (Capsicum, Pimenta) fresh or chilled (flow = 535 713.1)
- HS **200911** – Orange juice, frozen, not fermented or spirited (flow = 644 624.5)
- HS **240120** – Tobacco, partly or wholly stemmed/stripped (flow = 760 765)

Asian countries to world:

- HS **151311** – Crude coconut (copra) oil and its fractions (flow = 716 437.1)
- HS **080300** – Bananas, including plantains, fresh or dried (flow = 769 736.6)
- HS **151110** – Palm oil, crude (flow = 2 721 504)
- HS 100630 – Semi-milled or wholly milled rice, whether or not polished or glazed (flow = 3 858 787)
- HS **151190** – Palm oil or fractions simply refined (flow = 6 466 100)

Asian countries to main developed markets:

- HS **080300** – Bananas, including plantains, fresh or dried (flow = 476 706)
- HS 200820 – Pineapples, otherwise prepared or preserved (flow = 496 410.6)
- HS **151311** – Crude coconut (copra) oil and its fractions (flow = 519 949.2)
- HS **151110** – Palm oil, crude (flow = 770 733.6)
- HS **151190** – Palm oil or fractions simply refined (flow = 1 015 341)

Two remarks can be made. First, products in both rankings are very similar. Four products are present in both rankings in each case except for the sub-group of other Latin American countries (only two products are present in both rankings for this sub-group). Second, each sub-group of exporting countries exports different tropical and diversification products. For example, the two main products exported by Asian countries to developed markets are HS 151110 (Palm oil, crude) and HS 151190 (Palm oil or fractions simply refined). Neither product appears in the top five exported products of other sub-groups of exporting countries. These differences are weaker, however, if we focus only on ACP and LA8 countries. Three products are present in the top five exported products to main developed markets of both sub-groups: HS 060310 (Cut flowers and flower buds for bouquets, etc., fresh), HS 080300 (Bananas, including plantains, fresh or dried) and HS 170111 (Raw sugar, cane).

Table 4.7. Exports of ACP Countries, by Tropical and Diversification Products

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
060240	Roses, grafted or not	33 535.5	95.3	0.0	0.5	0.0	0.0	0.0
060290	Live plants, incl. their roots, and mushroom spawn	15 959.7	59.5	1.4	13.0	1.7	0.2	0.4
060310	Cut flowers and flower buds for bouquets, etc., fresh	449 574.3	90.4	0.1	1.0	1.1	0.3	3.5
060390	Cut flowers and flower buds for bouquets, dried, etc.	6283.2	61.3	1.2	11.9	17.0	0.0	0.5
060491	Foliage, branches, for bouquets, etc. - fresh	14 038.6	87.0	0.1	0.8	0.1	0.2	4.6
060499	Foliage, branches, for bouquets, etc. - except fresh	10 954.8	71.9	0.3	23.6	0.4	0.0	0.9
070190	Potatoes, fresh or chilled except seed	26 837.8	5.4	0.0	0.1	0.0	0.0	0.0
070310	Onions and shallots	31 154.8	21.4	0.4	0.1	0.0	0.0	0.0
070960	Peppers (Capsicum, Pimenta). fresh or chilled	14 048.5	47.4	4.9	35.8	0.0	0.0	0.4
070990	Vegetables, fresh or chilled NES	108 288.2	78.4	1.7	2.1	10.1	0.3	1.1
071190	Other vegetables; mixtures of vegetables	1492.5	54.1	0.7	2.8	0.1	0.6	3.5
071390	Other dried leguminous vegetables	11 166.1	6.3	0.0	0.2	0.0	0.1	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
071410	Manioc (cassava), fresh or dried	4301.6	46.9	0.9	17.1	0.1	14.1	1.2
071420	Sweet potatoes	8827.2	35.6	15.9	38.8	0.0	0.0	0.3
071490	Arrowroot, salep, etc., fresh or dried and sago pith	61 818.8	24.6	3.4	51.0	0.1	3.9	0.1
080111	Desiccated coconuts	16 244.2	42.4	2.6	12.8	0.2	0.9	1.1
080119	Other coconuts	16 244.2	42.4	2.6	12.8	0.2	0.9	1.1
080290	Nuts, fresh or dried, whether or not shelled or peeled	100 619.6	20.9	2.0	39.3	10.5	0.0	0.2
080300	Bananas, including plantains, fresh or dried	652 209.9	96.1	0.1	0.5	0.1	0.0	0.9
080420	Figs, fresh or dried	365.4	71.0	1.9	0.0	0.0	0.1	0.4
080430	Pineapples, fresh or dried	259 913.2	92.2	0.0	0.4	0.0	0.0	3.1
080440	Avocados, fresh or dried	100 294.0	77.1	0.1	17.6	0.0	0.0	0.6
080450	Guavas, mangoes and mangosteens, fresh or dried	65 820.5	67.6	1.0	11.4	0.0	0.0	5.3
080510	Oranges, fresh or dried	436 987.1	57.5	4.6	3.5	1.2	0.0	0.3
080520	Mandarin, clementine and citrus hybrids, fresh or dried	81 135.3	63.5	2.0	21.5	0.0	0.0	0.0
080530	Lemons and limes, fresh or dried	64 992.7	46.7	0.0	1.4	7.1	0.1	0.4
080590	Other citrus fruit, fresh or dried	5583.3	24.5	0.9	53.0	0.0	0.0	0.2
080711	Watermelons, fresh	5483.1	36.4	17.8	31.4	0.0	0.0	1.3
080719	Melons, fresh	5483.1	36.4	17.8	31.4	0.0	0.0	1.3
080720	Fresh pawpaws “papayas”	27 474.5	24.2	18.0	54.0	0.7	0.1	0.3
081090	Fresh tamarinds, passion fruit, carambola, pitahaya and other edible fruit	102 002.3	93.0	1.1	0.7	0.0	0.0	1.9
081190	Fruits and nuts (uncooked, steamed, boiled), frozen	10 322.4	56.7	0.2	17.0	19.7	0.9	0.3
081290	Fruit and nuts, provisionally preserved	3926.1	72.0	6.0	13.7	0.0	0.5	0.0
081340	Other fruit	4580.1	50.5	3.3	12.3	0.4	9.7	2.3
081350	Mixtures of nuts or dried fruits	1153.5	26.0	0.8	3.1	0.0	1.6	0.4
081400	Peel of citrus fruit or melons	3463.5	89.4	0.0	4.5	5.5	0.0	0.2
090112	Coffee, not roasted, decaffeinated	8928.6	11.8	0.1	16.3	0.5	1.1	0.0
090121	Coffee, roasted, not decaffeinated	6418.6	18.5	2.0	22.4	22.6	3.3	0.4

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
090122	Coffee, roasted, decaffeinated	672.5	5.5	1.6	10.6	3.9	0.0	0.0
090190	Coffee, other roasted	9679.6	35.1	3.7	5.2	0.5	0.7	1.6
090210	Tea, green (unfermented) in packages < 3 kg	7221.3	3.0	0.7	1.6	39.2	0.0	0.2
090412	Pepper, crushed or ground	2137.4	40.7	3.4	17.8	0.5	0.4	2.6
090420	Capsicum or Pimenta, dried, crushed or ground	25 544.9	63.2	2.4	8.3	2.1	2.0	0.5
090700	Cloves (whole fruit, cloves and stems)	62 429.8	5.7	0.3	2.2	1.2	0.1	0.0
091010	Ginger	13 473.6	49.2	0.6	8.5	0.2	7.8	0.2
100610	Rice in the husk (paddy or rough)	1467.7	0.2	0.0	0.8	0.0	0.0	0.0
100620	Husked (brown) rice	73 614.7	47.8	0.2	0.7	0.0	0.2	0.0
100630	Semi-milled or wholly milled rice, whether or not polished or glazed	18 620.4	11.7	0.0	1.6	0.0	0.0	0.2
100640	Broken rice	26 957.0	13.8	0.0	0.0	0.0	0.7	1.4
110230	Rice flour	8.8	16.6	0.0	0.0	0.0	0.0	0.0
110620	Flour, meal and powder of sago or of roots or tubers of heading 07.14	1 931.1	34.0	2.2	14.1	0.0	0.0	1.1
110630	Flour, meal and powder of the dried leguminous vegetables	739.0	26.6	0.2	29.6	3.3	0.1	0.4
110814	Manioc (cassava) starch	751.3	62.3	2.6	10.9	0.0	0.1	0.0
120210	Ground-nuts in shell, not roasted or cooked	7982.2	27.9	0.0	0.3	29.7	0.0	5.0
120220	Ground-nuts, shelled, whether or not broken	37 449.7	43.7	0.3	0.0	15.4	0.0	0.0
120890	Other flours and meals of oil seeds or oleaginous fruits	8386.3	0.0	0.0	0.0	1.0	0.7	0.0
121190	Plants and parts, pharmacy, perfume, insecticide use NES	68 946.1	51.1	1.5	4.2	1.3	0.4	1.4
121210	Locust beans, locust seeds	581.7	0.5	0.0	15.9	0.0	0.0	0.0
121299	Vegetable products NES for human consumption	75 877.5	56.7	0.0	1.4	2.7	0.8	0.0
130219	Vegetable saps and extracts NES	22 142.9	48.0	5.4	34.3	1.0	0.1	0.1
140190	Other vegetable materials	6933.3	60.2	0.8	5.8	0.4	0.3	0.3

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
150710	Crude soya-bean oil and its fractions	21 701.6	1.6	0.0	0.0	0.0	2.9	0.0
150790	Other soya-bean oil and its fractions	15 877.7	0.8	0.0	0.3	0.0	0.2	0.0
150810	Crude ground nut oil	46 817.4	97.4	0.0	0.0	0.0	0.0	0.6
151110	Palm oil, crude	142 334.7	91.9	0.0	0.0	0.0	0.0	0.0
151190	Palm oil or fractions simply refined	140 306.9	27.1	0.0	0.4	0.1	0.0	0.0
151211	Crude sunflower-seed or safflower oil and fractions thereof	2271.9	25.4	0.0	0.0	0.0	0.0	0.0
151219	Other sunflower-seed or safflower oil and fractions thereof	11 315.9	2.3	0.0	0.1	0.0	0.0	0.0
151311	Crude coconut (copra) oil and its fractions	53 936.8	84.4	0.0	3.0	0.0	2.0	0.0
151319	Other coconut (copra) oil and its fractions	4532.9	56.8	0.0	2.3	0.0	10.5	0.0
151321	Crude palm kernel or babassu oil	16 170.7	98.4	0.0	0.0	0.0	0.0	0.0
151329	Palm kernel or babassu oil and fractions thereof, other	715.3	1.1	0.0	29.7	0.0	1.5	0.0
151410	Low erucic acid rape or colza oil, crude	6.4	0.0	0.0	0.0	0.0	0.0	0.0
151490	Low erucic acid rape or colza oil, other	345.5	25.0	0.0	1.5	0.0	7.0	0.0
151530	Castor oil and its fractions	93.2	55.4	1.7	7.9	0.0	0.0	0.0
151550	Sesame oil or fractions not chemically modified	269.0	18.3	1.2	1.2	0.0	0.6	3.7
151620	Vegetable fats, oils or fractions hydrogenated, esterified	17 449.8	19.1	0.0	4.0	0.0	0.1	0.0
151710	Margarine, excluding liquid margarine	28 797.8	0.6	0.0	1.3	0.0	0.0	0.0
152190	Beeswax, other insect waxes and spermaceti	4734.2	39.3	0.0	27.2	30.6	0.0	0.0
170111	Raw sugar, cane	1 850 309.0	63.1	0.0	7.1	2.1	0.0	0.1
170191	Containing added flavouring or colouring matter	36 525.1	41.9	0.0	0.0	0.0	0.0	0.0
170199	Refined sugar, in solid form, NES, pure sucrose	161 354.0	19.4	0.0	0.1	0.0	0.2	0.0
170310	Cane molasses	43 940.2	66.8	0.0	5.1	0.0	0.0	0.0
180310	Cocoa paste, not defatted	385 964.9	68.8	4.2	7.9	0.2	3.1	0.1

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
180320	Cocoa paste, wholly or partly defatted	91 111.1	64.8	6.7	19.3	0.0	0.0	0.0
180400	Cocoa butter, fat, oil	318 436.6	78.2	4.7	8.0	3.7	0.2	0.0
180500	Cocoa powder, unsweetened	96 141.2	53.5	3.6	18.0	0.0	0.3	0.0
180610	Cocoa powder, sweetened	3867.1	5.7	1.6	7.7	0.0	0.1	0.0
180620	Chocolate and other food preparations containing cocoa > 2 kg	36 897.8	64.1	1.0	0.6	0.0	0.2	0.0
180631	Chocolate, cocoa preparations, block, slab, bar, filled, > 2 kg	6555.6	10.0	3.5	12.0	0.0	0.3	0.0
180632	Chocolate, cocoa preparations, block/slab/bar, not filled, > 2 kg	6893.9	13.4	0.3	2.6	1.0	0.4	0.1
180690	Chocolate/ cocoa food preparations NES	12 450.6	28.5	2.1	1.0	0.1	3.4	0.3
200190	Vegetables, fruit, nuts NES prepared or preserved by vinegar	8016.5	72.9	1.4	14.5	0.0	3.2	2.1
200410	Potatoes, prepared, frozen	513.0	1.4	0.0	1.7	0.0	0.7	0.0
200520	Potatoes, prepared or preserved, not frozen/vinegar	6439.4	1.7	0.0	0.2	0.0	0.5	0.1
200590	Vegetables NES, mixes, prepared/ preserved, not frozen/vinegar	8122.3	50.7	5.4	30.3	0.3	0.3	2.4
200600	Fruits, nuts, fruit-peel, etc., preserved by sugar	2195.5	27.9	0.3	18.0	0.0	3.6	0.0
200710	Homogenized jams, jellies, etc.	2891.2	23.8	0.4	0.6	0.0	2.3	0.1
200791	Citrus based jams jellies marmalade, etc.	2118.7	77.9	0.8	0.6	0.6	0.6	0.1
200799	Jams, fruit jellies, purees and pastes, except citrus	11 312.5	18.1	1.2	13.6	0.1	7.1	1.2
200811	Ground-nuts otherwise prepared or preserved	10 891.3	21.3	0.0	40.7	2.0	0.0	0.0
200819	Nuts, seeds and mixes, otherwise prepared or preserved	10 674.6	13.2	1.8	51.4	0.7	0.0	0.0
200820	Pineapples, otherwise prepared or preserved	78 020.3	91.1	0.1	1.1	0.0	0.0	3.5

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
200830	Citrus fruits, otherwise prepared or preserved	24 221.8	87.0	1.9	4.1	5.4	0.4	0.0
200870	Peaches, otherwise prepared or preserved	69 219.4	34.8	3.3	2.8	22.8	2.6	4.8
200891	Palm hearts, otherwise prepared or preserved	3290.2	87.5	0.3	3.2	0.0	0.0	4.2
200892	Fruit mixtures, otherwise prepared or preserved	45 134.4	43.5	6.8	2.1	15.1	2.0	9.8
200899	Fruit, edible plants NES otherwise prepared/ preserved	28 496.3	41.1	2.4	29.7	0.3	5.1	0.8
200911	Orange juice, frozen, not fermented or spirited	52 084.8	44.7	0.0	34.8	1.2	0.6	1.4
200919	Orange juice, not fermented, spirited, or frozen	20 715.4	52.6	0.1	2.9	0.6	0.3	4.3
200920	Grapefruit juice, not fermented or spirited	38 925.4	67.5	0.1	6.9	5.8	0.8	1.8
200930	Citrus juice NES one fruit) not fermented or spirited	4668.0	28.6	0.9	25.2	4.6	21.4	0.3
200940	Pineapple juice, not fermented or spirited	31 130.0	86.5	0.1	0.9	0.8	0.1	0.1
200980	Single fruit, vegetable juice NES not fermented or spirited	21 900.0	14.0	5.4	10.7	19.9	3.2	0.1
200990	Mixtures of juices not fermented or spirited	34 579.3	4.7	4.8	6.4	7.6	0.5	0.1
210111	Coffee extracts, essence	22 162.3	37.7	0.1	0.4	0.5	0.0	0.1
210112	Coffee preparation of extracts	22 162.3	37.7	0.1	0.4	0.5	0.0	0.1
210120	Tea and mate extracts, essences and concentrates	17 651.8	17.8	0.8	22.8	45.1	0.1	0.0
210390	Sauces NES, mixed condiments, mixed seasoning	41 602.9	26.7	2.7	22.0	1.3	4.0	0.8
220720	Ethyl alcohol	11 110.4	0.8	0.0	0.0	0.3	0.1	11.4
220840	Rum	510 121.9	82.6	2.6	5.0	0.5	0.3	0.0
230610	Oil-cake and other solid residues, of cotton seeds	19 077.9	31.8	0.0	0.0	0.0	0.0	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
230660	Oil-cake and other solid residues, of palm nuts or kernels	5427.3	67.1	0.1	0.0	0.0	9.2	0.0
240110	Tobacco, not stemmed/ stripped	251 151.3	27.4	0.0	10.1	1.1	1.0	0.5
240120	Tobacco, partly or wholly stemmed/ stripped	927 455.6	40.0	0.1	3.4	1.9	0.7	1.3
240130	Tobacco refuse	35 121.3	46.9	0.0	15.6	0.4	0.0	3.1
240210	Cigars, cheroots and cigarillos, containing tobacco	449 897.9	33.9	1.3	48.5	1.0	0.4	5.2
240220	Cigarettes containing tobacco	188 394.0	4.5	0.0	6.2	0.0	0.1	0.0
240290	Cigars, cheroots, cigarettes, with tobacco substitutes	4110.0	1.3	0.0	0.0	0.0	0.0	0.4
240310	Smoking tobacco, whether or not containing tobacco substitutes	107 029.5	0.9	0.0	0.0	0.0	0.0	0.8
240391	“Homogenized” or “reconstituted” tobacco	346.8	26.7	12.6	34.1	0.0	0.0	0.0
240399	Other manufactured tobacco	2558.4	0.5	0.0	0.4	0.0	2.2	0.6
330112	Essential oils of orange	4488.7	55.3	4.6	26.8	1.6	0.0	0.0
330113	Essential oils of lemon	3312.3	41.9	1.0	45.3	0.0	0.0	6.6

Table 4.8. Exports of LA8 Countries, by Tropical and Diversification Products

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
060240	Roses, grafted or not	1651.1	3.1	6.9	0.0	0.0	0.0	0.0
060290	Live plants, including their roots, and mushroom spawn	58 686.0	57.2	2.0	27.2	4.9	0.3	0.0
060310	Cut flowers and flower buds for bouquets, etc., fresh	1 095 801.0	13.6	3.4	73.9	1.3	0.0	1.2
060390	Cut flowers and flower buds for bouquets, dried, etc.	9336.4	18.8	13.2	12.6	48.2	0.0	0.4
060491	Foliage, branches, for bouquets, etc. - fresh	91 214.2	81.0	0.2	8.4	5.6	0.1	0.6

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
060499	Foliage, branches, for bouquets, etc. - except fresh	7141.5	69.3	1.3	17.2	6.8	0.0	0.0
070190	Potatoes, fresh or chilled except seed	13 646.9	0.2	0.0	0.8	0.2	0.0	0.0
070310	Onions and shallots	25 941.4	10.3	1.4	60.2	0.0	0.0	0.0
070960	Peppers (Capsicum, Pimenta) fresh or chilled	2377.3	6.7	3.6	13.9	0.2	0.0	0.0
070990	Vegetables, fresh or chilled NES	27 047.2	11.3	4.7	79.1	0.1	0.0	0.1
071190	Other vegetables; mixtures of vegetables	2326.1	7.6	1.2	72.2	0.2	0.2	0.0
071390	Other dried leguminous vegetables	421.5	54.6	19.7	11.3	0.0	0.0	0.0
071410	Manioc (cassava), fresh or dried	40 847.7	19.2	1.9	75.4	0.0	0.0	0.0
071420	Sweet potatoes	606.0	25.6	58.2	3.9	0.2	0.0	0.0
071490	Arrowroot, salep, etc., fresh or dried and sago pith	33 420.9	7.9	1.0	90.2	0.4	0.0	0.1
080111	Desiccated coconuts	989.5	31.4	1.2	11.0	1.4	0.0	0.4
080119	Other coconuts	989.5	31.4	1.2	11.0	1.4	0.0	0.4
080290	Nuts, fresh or dried, whether or not shelled or peeled	14 123.9	36.4	2.4	46.9	0.9	0.0	2.5
080300	Bananas, including plantains, fresh or dried	4 099 032.0	53.6	3.6	24.0	1.1	0.0	1.5
080420	Figs, fresh or dried	844.7	65.5	10.3	1.2	0.0	0.0	6.7
080430	Pineapples, fresh or dried	560 762.1	54.8	8.0	33.9	0.0	0.0	1.4
080440	Avocados, fresh or dried	21 020.8	92.5	0.0	0.1	0.0	0.0	0.3
080450	Guavas, mangoes and mangosteens, fresh or dried	82 825.2	38.0	5.2	52.3	0.0	0.0	0.3
080510	Oranges, fresh or dried	1895.3	27.7	3.4	0.0	0.0	0.0	0.0
080520	Mandarin, clementine and citrus hybrids, fresh or dried	14 675.6	81.9	10.4	0.1	0.0	0.0	0.1
080530	Lemons and limes, fresh or dried	5385.4	18.5	0.5	31.4	0.0	0.0	0.3
080590	Other citrus fruit, fresh or dried	496.1	3.6	17.1	0.3	0.0	0.0	0.3
080711	Watermelons, fresh	99 565.0	40.7	9.3	47.3	0.0	0.0	0.1
080719	Melons, fresh	99 565.0	40.7	9.3	47.3	0.0	0.0	0.1

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
080720	Fresh pawpaws "papayas"	5026.0	55.9	13.0	10.2	0.0	0.0	0.0
081090	Fresh tamarinds, passion fruit, carambola, pitahaya and other edible fruit	24 524.4	77.4	3.3	4.2	0.5	0.0	3.2
081190	Fruits and nuts (uncooked, steamed, boiled) frozen	33 412.1	30.2	2.2	62.8	1.3	0.5	0.2
081290	Fruit and nuts, provisionally preserved	1132.8	75.5	4.2	2.6	0.0	0.0	0.0
081340	Other fruit	424.7	31.0	4.3	35.4	0.0	0.4	0.6
081350	Mixtures of nuts or dried fruits	122.5	41.2	16.7	4.5	0.0	0.0	0.9
081400	Peel of citrus fruit or melons	4528.0	67.1	0.5	8.6	0.0	0.0	0.4
090112	Coffee, not roasted, decaffeinated	62 352.4	6.0	2.3	88.9	0.3	0.1	0.0
090121	Coffee, roasted, not decaffeinated	12 781.8	18.2	1.8	28.8	5.7	0.1	1.2
090122	Coffee, roasted, decaffeinated	2278.8	9.2	40.8	10.8	0.0	0.0	0.1
090190	Coffee, other roasted	777.4	3.9	19.9	10.7	0.1	0.0	0.3
090210	Tea, green (unfermented) in packages < 3 kg	92.4	8.5	37.6	10.6	0.0	0.0	0.0
090412	Pepper, crushed or ground	642.6	14.2	1.4	4.1	0.0	0.0	0.0
090420	Capsicum or Pimenta, dried, crushed or ground	58 044.1	49.4	0.4	36.6	0.1	0.0	0.0
090700	Cloves (whole fruit, cloves and stems)	43.8	10.3	0.0	3.1	0.0	0.0	0.0
091010	Ginger	1508.3	11.8	4.2	80.6	0.0	0.0	0.0
100610	Rice in the husk (paddy or rough)	1417.4	0.0	0.0	0.1	0.0	0.0	0.0
100620	Husked (brown) rice	105.1	18.2	0.0	79.4	0.0	0.0	0.0
100630	Semi-milled or wholly milled rice, whether or not polished or glazed	2537.0	1.3	0.0	3.8	0.0	0.0	0.0
100640	Broken rice	989.5	1.4	0.0	0.7	0.0	0.0	0.0
110230	Rice flour	284.1	0.0	0.0	4.3	0.0	0.0	0.0
110620	Flour, meal and powder of sago or of roots or tubers of heading 07.14	1932.6	10.5	3.4	42.4	33.3	2.1	0.5
110630	Flour, meal and powder of dried leguminous vegetables	1019.7	30.8	1.2	23.3	4.3	0.1	0.0
110814	Manioc (cassava) starch	582.7	3.3	2.2	7.8	0.0	0.0	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
120210	Ground-nuts in shell, not roasted or cooked	5911.9	89.2	0.0	0.3	0.0	0.0	0.0
120220	Ground-nuts, shelled, whether or not broken	43 019.6	20.7	2.0	3.0	0.0	3.1	0.0
120890	Other flours and meals of oil seeds or oleaginous fruits	49.6	13.8	0.0	6.7	0.0	0.0	0.0
121190	Plants and parts, pharmacy, perfume, insecticide use NES	12 319.8	22.0	6.2	34.2	5.1	0.2	0.3
121210	Locust beans, locust seeds	106.2	22.5	0.0	0.0	1.6	0.0	0.0
121299	Vegetables products NES for human consumption	2816.7	5.5	0.3	25.8	1.0	0.0	0.0
130219	Vegetable saps and extracts NES	8156.7	6.1	0.4	57.4	15.0	0.0	1.6
140190	Other vegetable materials	225.8	1.0	0.0	7.9	0.0	0.4	0.0
150710	Crude soya-bean oil and its fractions	108 472.8	0.1	0.0	1.3	0.0	0.0	0.0
150790	Other soya-bean oil and its fractions	29 494.9	0.1	0.0	0.2	0.0	0.0	0.0
150810	Crude ground-nut oil	5955.1	0.0	0.0	100.0	0.0	0.0	0.0
151110	Palm oil, crude	196 665.5	29.3	0.0	0.0	0.0	0.0	0.2
151190	Palm oil or fractions simply refined	58 391.4	3.6	0.1	2.9	0.0	0.0	1.7
151211	Crude sunflower-seed or safflower oil and fractions thereof	10 093.7	0.0	0.0	0.0	0.0	0.0	0.0
151219	Other sunflower-seed or safflower oil and fractions thereof	13 348.1	0.0	0.0	0.1	0.0	0.0	0.0
151311	Crude coconut (copra) oil and its fractions	64.3	0.0	0.0	47.1	0.0	1.2	26.1
151319	Other coconut (copra) oil and its fractions	372.8	0.0	0.0	6.9	0.0	0.3	0.0
151321	Crude palm kernel or babassu oil	31 640.7	28.0	0.0	0.7	0.0	0.0	0.0
151329	Palm kernel or babassu oil and fractions thereof, other	934.0	0.9	0.0	18.1	0.0	0.1	0.0
151410	Low erucic acid rape or colza oil, crude	0.0	0.0	0.0	0.0	0.0	0.0	0.0
151490	Low erucic acid rape or colza oil, other	0.7	0.0	0.0	0.0	0.0	0.0	0.0
151530	Castor oil and its fractions	821.2	0.0	0.0	0.0	0.0	0.0	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
151550	Sesame oil or fractions not chemically modified	936.5	31.2	0.0	54.1	0.0	0.0	0.0
151620	Vegetable fats, oils or fractions hydrogenated, esterified	41 921.0	0.1	0.2	1.3	0.0	0.0	0.0
151710	Margarine, excluding liquid margarine	10 873.9	0.0	0.0	0.4	0.0	0.0	0.0
152190	Beeswax, other insect waxes and spermaceti	53.0	48.5	0.0	32.0	0.0	0.0	0.0
170111	Raw sugar, cane	409 127.9	0.6	11.1	34.2	0.5	0.0	0.0
170191	Containing added flavouring or colouring matter	2286.5	0.1	1.0	18.2	0.0	0.0	0.0
170199	Refined sugar, in solid form, NES, pure sucrose	252 858.5	0.3	3.4	4.3	0.0	0.0	0.0
170310	Cane molasses	36 575.4	7.3	3.1	86.6	0.0	0.0	0.0
180310	Cocoa paste, not defatted	10 621.9	27.5	0.8	21.4	2.4	7.2	0.0
180320	Cocoa paste, wholly or partly defatted	8002.8	49.4	8.8	19.9	0.0	0.0	0.0
180400	Cocoa butter, fat, oil	59 927.8	52.8	0.2	40.5	0.0	0.8	0.7
180500	Cocoa powder, unsweetened	12 193.4	3.5	0.0	11.5	0.2	0.0	0.1
180610	Cocoa powder, sweetened	8739.1	0.7	0.0	5.3	0.0	0.0	0.0
180620	Chocolate and other food preparations containing cocoa > 2 kg	2233.0	4.7	0.2	34.1	0.0	0.0	0.0
180631	Chocolate, cocoa preparations, block, slab, bar, filled, > 2 kg	6157.7	0.9	0.0	4.6	0.0	0.0	0.0
180632	Chocolate, cocoa preparations, block/slab/bar, not filled, > 2 kg	17 709.4	1.3	0.1	9.9	0.0	0.0	0.0
180690	Chocolate/ cocoa food preparations NES	23 819.6	0.9	0.0	5.3	0.0	0.0	0.0
200190	Vegetables, fruit, nuts NES prepared or preserved by vinegar	10 595.1	21.1	0.6	46.0	0.1	2.8	0.5
200410	Potatoes, prepared, frozen	651.1	1.3	0.0	4.0	71.4	0.0	0.0
200520	Potatoes, prepared or preserved, not frozen/vinegar	8187.1	0.2	0.1	1.6	0.1	0.0	0.0
200590	Vegetables NES, mixes, prepared/ preserved, not frozen/vinegar	60 601.2	66.5	1.4	27.8	0.2	0.9	0.6

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
200600	Fruits, nuts, fruit-peel, etc., preserved by sugar	1249.7	3.3	0.1	59.8	0.0	0.0	0.0
200710	Homogenized jams, jellies, etc.	9579.6	42.7	1.8	8.8	0.0	0.0	0.0
200791	Citrus-based jams jellies marmalade, etc.	919.8	6.8	1.4	41.1	0.0	0.4	0.4
200799	Jams, fruit jellies, purees and pastes, except citrus	37 616.7	53.5	3.5	24.1	0.9	0.6	0.2
200811	Ground-nuts otherwise prepared or preserved	1331.2	5.7	0.0	37.5	0.0	0.0	0.0
200819	Nuts, seeds and mixes, otherwise prepared or preserved	3635.5	7.9	0.0	79.5	0.0	0.0	2.2
200820	Pineapples, otherwise prepared or preserved	1525.5	29.7	7.1	17.4	0.8	0.0	1.9
200830	Citrus fruits, otherwise prepared or preserved	309.4	85.7	0.0	11.8	0.0	0.0	0.0
200870	Peaches, otherwise prepared or preserved	309.7	16.0	0.4	14.9	0.0	0.0	0.0
200891	Palm hearts, otherwise prepared or preserved	60 117.5	54.7	4.1	11.4	0.1	0.0	0.1
200892	Fruit mixtures, otherwise prepared or preserved	2786.2	23.0	1.0	59.8	0.0	0.4	0.0
200899	Fruit, edible plants NES otherwise prepared/ preserved	67 119.1	38.7	1.4	40.2	3.5	0.9	1.2
200911	Orange juice, frozen, not fermented or spirited	37 401.8	11.1	0.0	88.0	0.2	0.0	0.0
200919	Orange juice, not fermented, spirited, or frozen	43 048.6	20.8	0.0	38.2	0.1	0.0	0.0
200920	Grapefruit juice, not fermented or spirited	322.0	95.3	0.4	1.9	0.0	0.8	0.0
200930	Citrus juice NES (one fruit) not fermented or spirited	2109.5	65.0	0.2	11.1	6.6	0.0	3.1
200940	Pineapple juice, not fermented or spirited	25 123.3	83.7	0.0	8.8	1.1	0.0	0.1

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
200980	Single fruit, vegetable juice NES, not fermented or spirited	65 861.3	58.6	2.9	19.5	0.9	0.5	0.9
200990	Mixtures of juices not fermented or spirited	4636.5	16.8	0.1	19.4	0.4	4.4	0.0
210111	Coffee extracts, essence	83 065.7	46.3	1.0	15.1	9.7	0.7	0.4
210112	Coffee preparation of extracts	83 065.7	46.3	1.0	15.1	9.7	0.7	0.4
210120	Tea and mate extracts, essences and concentrates	701.0	0.5	0.1	2.0	0.0	0.0	0.0
210390	Sauces NES, mixed condiments, mixed seasoning	53 657.1	1.0	0.5	7.0	0.8	0.0	0.0
220720	Ethyl alcohol	1397.4	0.0	0.0	0.0	0.0	0.0	0.0
220840	Rum	27 867.7	20.1	0.6	16.9	2.0	0.0	0.2
230610	Oil-cake and other solid residues, of cotton seeds	262.4	0.0	0.0	0.0	0.0	0.0	0.0
230660	Oil-cake and other solid residues, of palm nuts or kernels	98.6	0.0	0.0	0.0	0.0	0.0	0.0
240110	Tobacco, not stemmed/ stripped	32 332.3	24.4	0.1	7.9	0.0	0.0	0.6
240120	Tobacco, partly or wholly stemmed/ stripped	65 599.6	44.8	0.3	44.1	1.0	0.0	0.0
240130	Tobacco refuse	813.7	29.2	0.0	22.2	0.0	0.0	0.0
240210	Cigars, cheroots and cigarillos, containing tobacco	25 034.6	8.9	0.5	43.6	0.1	0.2	2.6
240220	Cigarettes containing tobacco	102 879.0	0.3	0.0	61.6	0.1	0.0	0.0
240290	Cigars, cheroots, cigarettes, with tobacco substitutes	1094.7	0.1	0.0	0.4	0.1	0.0	0.0
240310	Smoking tobacco, whether or not containing tobacco substitutes	374.5	18.8	0.0	7.9	0.0	0.0	0.0
240391	"Homogenized" or "reconstituted" tobacco	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240399	Other manufactured tobacco	40.7	78.5	0.0	0.0	0.0	0.0	0.0
330112	Essential oils of orange	2817.1	1.6	0.0	70.8	0.0	0.0	0.0
330113	Essential oils of lemon	5669.0	50.7	2.8	31.3	0.0	0.0	0.0

Table 4.9. Exports of other Latin American Countries, by Tropical and Diversification Products

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
060240	Roses, grafted or not	827.8	4.1	29.5	65.9	0.0	0.0	0.0
060290	Live plants, including their roots, and mushroom spawn	20 593.4	68.9	0.8	16.5	7.4	0.1	0.1
060310	Cut flowers and flower buds for bouquets, etc., fresh	21 586.4	12.0	1.3	85.4	0.0	0.0	0.0
060390	Cut flowers and flower buds for bouquets, dried, etc.	3209.4	4.3	22.3	68.3	0.3	0.0	0.0
060491	Foliage, branches, for bouquets, etc. - fresh	17 036.2	73.5	1.3	24.0	0.8	0.0	0.2
060499	Foliage, branches, for bouquets, etc. - except fresh	5335.5	22.6	0.9	73.6	0.3	0.0	0.0
070190	Potatoes, fresh or chilled except seed	993.1	0.6	0.0	22.7	0.0	0.0	0.0
070310	Onions and shallots	180 579.7	1.2	8.2	87.6	0.0	0.0	0.0
070960	Peppers (Capsicum, Pimenta), fresh or chilled	537 201.0	0.0	6.5	93.1	0.0	0.0	0.0
070990	Vegetables, fresh or chilled NES	320 267.7	1.2	5.7	88.5	4.1	0.0	0.0
071190	Other vegetables; mixtures of vegetables	12 562.5	10.5	0.7	88.4	0.0	0.5	0.0
071390	Other dried leguminous vegetables	137.7	0.0	25.8	51.7	0.0	0.0	0.0
071410	Manioc (cassava), fresh or dried	778.6	52.7	1.3	15.8	0.0	0.0	0.1
071420	Sweet potatoes	1848.7	59.7	14.1	18.8	1.1	0.0	0.0
071490	Arrowroot, salep, etc., fresh or dried and sago pith	8744.4	44.4	4.4	45.5	1.4	0.2	0.0
080111	Desiccated coconuts	2269.8	9.9	1.0	60.7	0.0	0.0	0.9
080119	Other coconuts	2269.8	9.9	1.0	60.7	0.0	0.0	0.9
080290	Nuts, fresh or dried, whether or not shelled or peeled	12 571.4	4.3	17.4	76.3	0.0	0.0	0.2
080300	Bananas, including plantains, fresh or dried	305 530.4	28.5	4.5	58.1	0.8	0.0	0.2
080420	Figs, fresh or dried	4875.9	82.5	0.9	9.5	0.0	0.0	5.0
080430	Pineapples, fresh or dried	66 833.4	49.8	4.1	39.8	0.0	0.0	1.8
080440	Avocados, fresh or dried	215 947.4	15.2	10.4	32.7	21.3	0.0	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
080450	Guavas, mangoes and mangosteens, fresh or dried	222 431.2	34.0	9.9	50.4	3.3	0.2	0.2
080510	Oranges, fresh or dried	40 918.1	57.3	0.7	12.9	0.3	0.0	0.3
080520	Mandarin, clementine and citrus hybrids, fresh or dried	11 531.9	19.2	17.2	21.6	0.0	0.0	0.0
080530	Lemons and limes, fresh or dried	195 742.8	18.4	3.8	73.1	3.3	0.0	0.3
080590	Other citrus fruit, fresh or dried	912.3	71.1	2.1	0.6	3.2	0.0	0.0
080711	Watermelons, fresh	175 652.1	27.0	5.9	58.2	6.4	0.0	0.2
080719	Melons, fresh	175 652.1	27.0	5.9	58.2	6.4	0.0	0.2
080720	Fresh pawpaws “papayas”	119 914.0	31.5	1.4	64.6	0.0	0.0	1.9
081090	Fresh tamarinds, passion fruit, carambola, pitahaya and other edible fruit	56 769.7	3.0	0.9	93.8	0.2	0.0	0.0
081190	Fruits and nuts (uncooked, steamed, boiled) frozen	31 689.3	19.2	1.6	61.7	11.9	3.4	0.2
081290	Fruit and nuts, provisionally preserved	2281.2	84.4	4.6	5.2	0.0	0.0	0.0
081340	Other fruit	1715.4	23.3	0.8	63.7	0.3	0.0	1.4
081350	Mixtures of nuts or dried fruits	59.5	37.0	6.7	47.4	0.0	0.0	0.0
081400	Peel of citrus fruit or melons	6741.3	86.7	0.1	1.7	0.2	0.0	0.0
090112	Coffee, not roasted, decaffeinated	37 482.7	8.2	1.9	80.6	0.0	0.3	0.3
090121	Coffee, roasted, not decaffeinated	33 267.1	26.8	8.7	44.3	2.7	0.2	0.0
090122	Coffee, roasted, decaffeinated	3365.1	5.3	8.8	16.6	0.3	0.5	0.0
090190	Coffee, other roasted	2997.9	39.1	0.4	26.1	0.1	1.8	0.0
090210	Tea, green (unfermented) in packages < 3 kg	1634.9	0.5	1.8	48.1	47.5	0.0	0.0
090412	Pepper, crushed or ground	5470.8	42.3	3.0	43.6	0.0	0.0	0.0
090420	Capsicum or Pimenta, dried, crushed or ground	55 424.3	41.8	0.6	51.7	1.1	0.1	0.0
090700	Cloves (whole fruit, cloves and stems)	14 448.8	9.2	0.4	3.7	0.0	0.0	0.0
091010	Ginger	7242.1	51.0	4.5	41.7	0.0	0.0	0.4
100610	Rice in the husk (paddy or rough)	2496.6	0.0	0.0	7.1	0.0	0.0	0.0
100620	Husked (brown) rice	796.0	0.3	0.0	22.1	3.1	0.0	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
100630	Semi-milled or wholly milled rice, whether or not polished or glazed	13 585.0	0.5	0.0	4.4	0.1	1.7	0.0
100640	Broken rice	6192.8	0.0	0.0	1.6	0.0	0.0	4.6
110230	Rice flour	308.3	2.0	0.4	55.3	0.0	0.0	0.0
110620	Flour, meal and powder of sago or of roots or tubers of heading 07.14	1203.1	31.4	0.2	30.2	9.6	0.4	0.5
110630	Flour, meal and powder of dried leguminous vegetables	1057.9	25.0	0.6	5.9	0.0	0.0	0.3
110814	Manioc (cassava) starch	7372.8	18.1	2.7	32.2	0.1	0.1	0.0
120210	Ground-nuts in shell, not roasted or cooked	3431.7	97.1	0.0	0.8	0.0	0.0	0.0
120220	Ground-nuts, shelled, whether or not broken	27 713.8	89.3	0.2	0.3	1.6	0.0	0.0
120890	Other flours and meals of oil seeds or oleaginous fruits	693.2	42.2	0.0	18.0	0.0	1.8	0.0
121190	Plants and parts, pharmacy, perfume, insecticide use nes	29 157.4	22.1	3.8	53.3	10.4	0.2	0.4
121210	Locust beans, locust seeds	36.9	30.1	0.0	35.4	0.0	0.0	0.0
121299	Vegetable products NES for human consumption	2693.5	47.2	0.9	31.3	12.5	0.0	0.1
130219	Vegetable saps and extracts NES	48 747.1	33.4	0.4	53.1	4.7	0.1	0.4
140190	Other vegetable materials	357.5	8.1	0.0	65.5	0.0	0.0	0.0
150710	Crude soya-bean oil and its fractions	1 343 298.0	2.5	0.0	3.5	0.0	0.1	0.0
150790	Other soya-bean oil and its fractions	225 874.4	0.6	0.0	0.0	0.0	1.7	0.0
150810	Crude ground-nut oil	6511.6	96.2	0.0	0.0	0.0	0.0	3.8
151110	Palm oil, crude	43 846.2	10.2	0.0	0.5	0.0	0.0	0.0
151190	Palm oil or fractions simply refined	24 467.0	1.2	0.4	1.7	0.0	0.0	0.0
151211	Crude sunflower-seed or safflower oil and fractions thereof	44 532.5	23.0	0.0	52.0	0.0	0.0	0.2
151219	Other sunflower-seed or safflower oil and fractions thereof	12 190.1	0.2	0.6	80.7	0.0	0.0	0.0
151311	Crude coconut (copra) oil and its fractions	1599.3	0.0	0.0	0.5	0.0	0.0	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
151319	Other coconut (copra) oil and its fractions	318.6	0.0	2.4	4.8	0.0	0.0	0.0
151321	Crude palm kernel or babassu oil	4846.9	2.2	0.0	1.1	0.0	0.0	0.0
151329	Palm kernel or babassu oil and fractions thereof, other	272.9	3.4	0.6	24.3	0.0	0.0	0.0
151410	Low erucic acid rape or colza oil, crude	3641.2	0.5	0.0	0.0	0.0	0.0	0.0
151490	Low erucic acid rape or colza oil, other	848.9	0.0	0.0	0.5	0.0	0.0	0.0
151530	Castor oil and its fractions	1310.3	10.2	9.5	5.7	0.0	0.0	0.0
151550	Sesame oil or fractions not chemically modified	11 212.4	27.7	2.1	54.0	10.2	0.8	0.0
151620	Vegetable fats, oils or fractions hydrogenated, esterified	29 940.2	29.2	0.4	14.6	0.0	0.0	0.0
151710	Margarine, excluding liquid margarine	30 746.6	0.0	0.0	1.3	0.0	0.0	0.0
152190	Beeswax, other insect waxes and spermaceti	7544.6	0.7	0.2	1.0	75.6	0.0	0.0
170111	Raw sugar, cane	1 844 845.0	2.1	5.6	4.6	0.0	0.0	0.0
170191	Containing added flavouring or colouring matter	44 009.0	0.3	0.1	26.8	0.0	0.0	0.0
170199	Refined sugar, in solid form, NES pure sucrose	1 115 507.0	1.9	0.1	1.7	0.0	0.0	0.1
170310	Cane molasses	44 844.4	22.8	2.5	66.1	0.0	0.0	0.0
180310	Cocoa paste, not defatted	19 076.0	6.4	0.0	20.8	0.0	0.0	0.0
180320	Cocoa paste, wholly or partly defatted	19 739.6	6.3	9.9	59.5	0.0	0.0	0.0
180400	Cocoa butter, fat, oil	124 670.3	22.2	6.1	49.5	0.0	0.0	0.6
180500	Cocoa powder, unsweetened	61 623.9	11.4	9.7	35.5	0.0	0.0	0.0
180610	Cocoa powder, sweetened	9 476.6	0.2	0.0	66.5	0.2	0.0	0.0
180620	Chocolate and other food preparations containing cocoa > 2 kg	40 360.8	0.1	5.5	85.7	0.1	0.0	0.0
180631	Chocolate, cocoa preparations, block, slab, bar, filled, > 2 kg	18 716.2	2.2	1.9	27.8	2.2	1.1	0.0
180632	Chocolate, cocoa preparations, block/slab/bar, not filled, > 2 kg	40 595.0	0.8	0.7	66.7	2.0	0.3	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
180690	Chocolate/ cocoa food preparations NES	116 660.0	2.1	7.8	42.9	0.9	1.1	0.0
200190	Vegetables, fruit, nuts NES prepared or preserved by vinegar	121 877.7	3.2	3.0	92.0	0.8	0.2	0.0
200410	Potatoes, prepared, frozen	324.3	1.1	0.0	60.6	0.0	0.0	0.0
200520	Potatoes, prepared or preserved, not frozen/vinegar	73 416.9	0.9	13.3	82.3	0.0	0.0	0.0
200590	Vegetables NES, mixes, prepared/ preserved, not frozen/vinegar	22 818.7	3.8	2.4	80.4	0.2	1.9	0.0
200600	Fruits, nuts, fruit-peel, etc., preserved by sugar	3913.7	4.8	0.1	65.4	0.3	0.0	0.0
200710	Homogenized jams, jellies, etc.	9652.4	5.4	0.1	2.5	0.3	0.4	0.0
200791	Citrus-based jams, jellies, marmalade	1075.7	1.8	0.2	1.5	4.5	0.0	0.1
200799	Jams, fruit jellies, purees and pastes, except citrus	19 406.0	10.7	0.3	40.9	1.5	1.1	0.0
200811	Ground-nuts otherwise prepared or preserved	12 356.7	5.2	0.4	40.5	0.3	0.0	0.0
200819	Nuts, seeds and mixes, otherwise prepared or preserved	9735.5	5.1	5.0	44.4	3.1	2.2	0.0
200820	Pineapples, otherwise prepared or preserved	1209.4	3.2	0.0	24.0	0.2	0.0	0.1
200830	Citrus fruits, otherwise prepared or preserved	18 924.0	17.6	0.6	63.8	15.0	0.0	0.1
200870	Peaches, otherwise prepared or preserved	2212.3	0.0	0.0	10.3	0.1	0.0	0.0
200891	Palm hearts, otherwise prepared or preserved	7730.7	21.9	0.0	56.4	4.8	0.0	0.7
200892	Fruit mixtures, otherwise prepared or preserved	7714.8	5.9	0.1	88.7	0.3	0.0	0.0
200899	Fruit, edible plants NES otherwise prepared/ preserved	108 555.9	8.5	1.9	84.3	1.4	0.2	0.2
200911	Orange juice, frozen, not fermented or spirited	745 475.1	53.7	4.6	15.1	8.9	3.5	0.7

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
200919	Orange juice, not fermented, spirited, or frozen	447 460.4	82.9	1.1	4.7	2.3	0.2	5.1
200920	Grapefruit juice, not fermented or spirited	12 675.7	21.8	0.5	75.2	0.0	0.0	1.0
200930	Citrus juice NES (one fruit) not fermented or spirited	26 885.5	31.2	3.4	55.9	2.4	3.3	0.4
200940	Pineapple juice, not fermented or spirited	24 100.8	70.0	0.2	8.1	0.0	0.0	0.7
200980	Single fruit, vegetable juice NES, not fermented or spirited	67 552.6	14.1	0.5	50.0	3.6	1.2	0.2
200990	Mixtures of juices not fermented or spirited	12 874.5	13.9	0.1	65.3	0.1	1.3	0.1
210111	Coffee extracts, essence	174 961.1	20.4	0.8	19.8	9.6	0.4	0.1
210112	Coffee preparation of extracts	174 961.1	20.4	0.8	19.8	9.6	0.4	0.1
210120	Tea and mate extracts, essences and concentrates	25 244.7	1.5	0.9	90.0	0.2	0.2	0.0
210390	Sauces NES, mixed condiments, mixed seasoning	95 891.4	3.6	0.4	60.2	4.7	0.0	0.0
220720	Ethyl alcohol	58 316.7	19.6	14.8	13.3	7.0	0.0	0.1
220840	Rum	55 505.9	48.6	0.0	12.1	0.6	0.1	2.4
230610	Oil-cake and other solid residues, of cotton seeds	6338.7	39.5	0.0	0.0	0.0	0.0	0.0
230660	Oil-cake and other solid residues, of palm nuts or kernels	834.1	16.8	0.0	0.0	0.0	0.0	0.0
240110	Tobacco, not stemmed/ stripped	71 539.1	40.7	0.1	11.0	0.6	0.0	6.7
240120	Tobacco, partly or wholly stemmed/ stripped	1 345 640.0	34.1	0.6	14.9	4.6	0.6	1.7
240130	Tobacco refuse	61 365.0	36.7	0.2	17.4	2.6	1.3	0.7
240210	Cigars, cheroots and cigarillos, containing tobacco	79 235.2	8.1	0.7	86.4	0.1	0.1	0.4
240220	Cigarettes containing tobacco	92 692.0	0.9	0.0	29.7	0.0	0.0	0.0
240290	Cigars, cheroots, cigarettes, with tobacco substitutes	393.6	0.0	3.0	0.1	0.0	0.0	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
240310	Smoking tobacco, whether or not containing tobacco substitutes	52 361.6	12.7	0.0	5.3	0.0	0.0	0.0
240391	"Homogenized" or "reconstituted" tobacco	20 066.7	54.7	0.9	0.0	0.0	0.0	4.9
240399	Other manufactured tobacco	10 936.6	0.1	0.0	0.0	0.0	0.0	0.0
330112	Essential oils of orange	60 028.9	37.4	1.5	32.7	5.1	0.7	7.0
330113	Essential oils of lemon	11 609.6	37.2	0.7	54.4	0.3	0.5	0.5

Table 4.10. Exports of Asian Countries, by Tropical and Diversification Products

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
060240	Roses, grafted or not	241.8	5.1	0.2	0.0	9.1	0.0	0.0
060290	Live plants, including their roots, and mushroom spawn	50 291.9	21.4	0.8	9.3	21.5	1.7	0.2
060310	Cut flowers and flower buds for bouquets, etc., fresh	121 131.4	20.2	0.6	5.7	53.3	1.3	0.7
060390	Cut flowers and flower buds for bouquets, dried, etc.	27 263.0	17.6	1.1	4.1	39.7	0.3	0.2
060491	Foliage, branches, for bouquets, etc. - fresh	20 429.2	20.3	0.3	4.1	44.3	0.4	0.5
060499	Foliage, branches, for bouquets, etc. - except fresh	35 030.2	49.9	0.6	28.4	0.9	0.7	0.3
070190	Potatoes, fresh or chilled except seed	14 005.3	0.7	0.0	0.0	0.5	0.0	0.0
070310	Onions and shallots	195 862.9	2.0	0.0	0.1	1.7	0.0	0.0
070960	Peppers (Capsicum, Pimenta) fresh or chilled	23 691.8	9.4	0.3	0.1	4.6	0.0	1.7
070990	Vegetables, fresh or chilled NES	134 852.7	36.6	1.2	0.2	14.8	0.7	5.0
071190	Other vegetables; mixtures of vegetables	17 562.9	48.9	0.3	5.6	18.2	3.4	0.4
071390	Other dried leguminous vegetables	161 842.3	1.0	0.1	8.3	0.1	0.0	0.0
071410	Manioc (cassava), fresh or dried	556 512.4	38.1	0.0	0.1	0.6	0.0	0.4

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
071420	Sweet potatoes	6047.8	1.2	3.5	0.3	11.4	0.1	0.8
071490	Arrowroot, salep, etc., fresh or dried and sago pith	7308.2	19.9	1.4	4.6	12.4	2.6	0.4
080111	Desiccated coconuts	120 511.7	27.8	2.5	15.8	1.0	2.6	0.4
080119	Other coconuts	120 511.7	27.8	2.5	15.8	1.0	2.6	0.4
080290	Nuts, fresh or dried, whether or not shelled or peeled	71 404.1	3.5	0.1	3.9	0.0	0.1	0.0
080300	Bananas, including plantains, fresh or dried	769 736.6	0.3	0.0	0.7	60.8	0.0	0.1
080420	Figs, fresh or dried	1 291.1	5.4	0.5	0.0	1.7	0.1	13.1
080430	Pineapples, fresh or dried	125 800.9	3.2	0.3	3.8	60.3	0.4	0.2
080440	Avocados, fresh or dried	99.7	3.0	0.0	0.0	25.3	0.0	0.0
080450	Guavas, mangoes and mangosteens, fresh or dried	194 492.3	4.1	2.0	7.6	13.5	0.4	0.9
080510	Oranges, fresh or dried	3819.4	0.6	0.6	0.2	0.1	0.0	0.0
080520	Mandarin, clementine and citrus hybrids, fresh or dried	1575.1	0.7	0.7	0.0	0.0	0.0	0.0
080530	Lemons and limes, fresh or dried	5830.6	1.1	0.6	0.1	0.0	0.0	0.4
080590	Other citrus fruit, fresh or dried	5957.2	12.3	11.6	0.3	0.0	0.0	0.0
080711	Watermelons, fresh	12 048.7	0.2	0.0	0.0	0.4	0.0	0.0
080719	Melons, fresh	12 048.7	0.2	0.0	0.0	0.4	0.0	0.0
080720	Fresh pawpaws “papayas”	35 000.8	14.8	0.7	0.4	18.3	0.0	0.1
081090	Fresh tamarinds, passion fruit, carambola, pitahaya and other edible fruit	337 425.7	8.7	3.4	1.0	0.4	0.2	0.6
081190	Fruits and nuts (uncooked, steamed, boiled) frozen	44 217.0	25.9	3.4	14.9	23.7	6.5	0.3
081290	Fruit and nuts, provisionally preserved	9135.8	16.8	6.4	12.9	2.9	0.8	0.0
081340	Other fruit	66 887.5	5.8	1.2	9.1	0.2	0.8	0.1
081350	Mixtures of nuts or dried fruits	4695.6	16.5	8.6	32.1	0.1	1.9	0.0
081400	Peel of citrus fruit or melons	1345.4	36.9	0.7	4.2	8.0	0.2	0.0
090112	Coffee, not roasted, decaffeinated	21 874.3	5.8	7.0	70.7	1.5	0.4	0.2
090121	Coffee, roasted, not decaffeinated	10 362.1	28.7	3.8	19.8	14.3	1.7	0.1

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
090122	Coffee, roasted, decaffeinated	2664.5	24.6	0.5	21.1	0.3	0.1	0.0
090190	Coffee, other roasted	9384.8	18.7	0.2	8.5	13.9	0.9	0.3
090210	Tea, green (unfermented) in packages < 3 kg	23 925.3	23.7	2.6	8.9	0.9	1.1	0.4
090412	Pepper, crushed or ground	37 688.8	35.9	11.2	16.3	13.9	2.5	0.3
090420	Capsicum or Pimenta, dried, crushed or ground	130 616.1	7.9	1.3	18.8	0.9	1.0	0.1
090700	Cloves (whole fruit, cloves and stems)	36 221.3	4.2	0.3	2.2	0.6	0.4	0.2
091010	Ginger	52 172.7	19.6	1.0	5.6	40.0	0.9	0.1
100610	Rice in the husk (paddy or rough)	136 924.8	2.9	0.0	0.1	0.0	0.0	0.0
100620	Husked (brown) rice	252 568.7	64.5	0.6	4.9	0.0	0.1	1.0
100630	Semi-milled or wholly milled rice, whether or not polished or glazed	3 858 787.0	2.9	1.1	5.0	0.8	0.7	0.2
100640	Broken rice	535 067.1	5.3	0.1	0.2	2.2	0.5	1.4
110230	Rice flour	33 443.9	8.6	2.5	10.6	1.5	2.5	0.3
110620	Flour, meal and powder of sago or of roots or tubers of heading 07.14	6883.8	2.6	1.5	6.8	22.8	0.2	0.2
110630	Flour, meal and powder of dried leguminous vegetables	28 592.5	31.6	0.4	3.1	1.9	1.0	0.2
110814	Manioc (cassava) starch	293 858.2	2.6	0.9	2.0	8.6	0.6	0.0
120210	Ground-nuts in shell, not roasted or cooked	20 174.0	13.8	1.6	2.6	0.1	0.4	0.0
120220	Ground-nuts, shelled, whether or not broken	108 627.8	27.2	5.1	0.0	0.1	0.0	0.0
120890	Other flours and meals of oil seeds or oleaginous fruits	4548.5	6.2	0.3	1.5	0.5	0.2	0.1
121190	Plants and parts, pharmacy, perfume, insecticide use NES	125 042.8	17.3	1.3	24.2	12.7	1.1	0.6
121210	Locust beans, locust seeds	292.6	21.3	0.4	6.3	40.1	0.2	0.0
121299	Vegetable products NES for human consumption	10 244.6	25.1	0.7	2.5	15.6	2.6	0.8
130219	Vegetable saps and extracts NES	70 090.1	15.5	1.1	41.0	24.9	1.6	0.1
140190	Other vegetable materials	4318.4	27.3	1.1	12.7	3.9	1.2	0.2

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
150710	Crude soya-bean oil and its fractions	51 193.8	0.0	0.0	0.2	12.2	0.0	0.0
150790	Other soya-bean oil and its fractions	88 848.0	0.2	0.0	0.3	4.7	10.8	0.0
150810	Crude ground-nut oil	66 804.1	77.0	0.0	16.6	0.2	0.8	4.6
151110	Palm oil, crude	2 721 504.0	27.7	0.0	0.2	0.4	0.0	0.0
151190	Palm oil or fractions simply refined	6 466 100.0	9.7	0.1	1.8	3.3	0.7	0.1
151211	Crude sunflower-seed or safflower oil and fractions thereof	5986.9	0.9	0.0	0.1	2.3	0.0	3.3
151219	Other sunflower-seed or safflower oil and fractions thereof	21 824.1	1.2	0.0	0.0	0.0	6.0	0.0
151311	Crude coconut (copra) oil and its fractions	716 437.1	48.4	0.4	22.9	0.0	0.4	0.5
151319	Other coconut (copra) oil and its fractions	301 195.3	6.8	2.1	26.9	13.5	1.7	0.0
151321	Crude palm kernel or babassu oil	456 272.3	38.5	0.0	4.2	0.0	0.2	0.1
151329	Palm kernel or babassu oil and fractions thereof, other	453 428.0	12.5	1.3	26.9	7.4	1.7	0.1
151410	Low erucic acid rape or colza oil, crude	2140.8	2.6	1.4	2.3	0.2	1.6	0.1
151490	Low erucic acid rape or colza oil, other	20 336.3	0.7	0.3	0.1	20.6	28.0	0.0
151530	Castor oil and its fractions	232 726.3	45.4	0.6	13.5	8.4	0.4	0.7
151550	Sesame oil or fractions not chemically modified	9308.0	15.3	0.9	10.0	27.7	1.3	0.5
151620	Vegetable fats, oils or fractions hydrogenated, esterified	454 627.7	13.4	1.3	2.1	3.4	1.8	0.0
151710	Margarine, excluding liquid margarine	50 584.1	2.8	0.0	0.2	0.4	0.9	0.1
152190	Beeswax, other insect waxes and spermaceti	1378.0	26.6	0.0	7.2	47.5	0.0	0.0
170111	Raw sugar, cane	540 894.6	2.7	0.1	10.7	24.5	0.0	0.0
170191	Containing added flavouring or colouring matter	4252.7	0.5	3.0	4.6	3.7	0.4	0.0
170199	Refined sugar, in solid form, NES, pure sucrose	429 017.1	1.9	0.0	0.0	0.0	0.3	0.0
170310	Cane molasses	91 092.8	9.8	0.2	1.2	13.0	0.0	0.0
180310	Cocoa paste, not defatted	20 646.3	4.4	0.0	1.1	12.6	16.5	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
180320	Cocoa paste, wholly or partly defatted	75 763.2	43.6	3.5	21.0	1.7	2.6	0.0
180400	Cocoa butter, fat, oil	404 959.2	28.8	4.6	35.8	5.2	9.9	0.4
180500	Cocoa powder, unsweetened	154 386.1	10.5	0.9	11.9	4.5	8.5	0.0
180610	Cocoa powder, sweetened	20 079.4	4.2	0.5	1.3	9.8	1.1	0.0
180620	Chocolate and other food preparations containing cocoa > 2 kg	18 299.6	1.2	0.2	1.2	20.3	6.7	0.2
180631	Chocolate, cocoa preparations, block, slab, bar, filled, > 2 kg	25 211.8	0.4	0.0	0.7	5.0	0.1	0.0
180632	Chocolate, cocoa preparations, block/slab/bar, not filled, > 2 kg	11 967.9	9.9	0.0	17.0	2.3	0.7	0.0
180690	Chocolate/ cocoa food preparations NES	28 886.1	0.7	0.1	2.4	1.2	1.8	0.0
200190	Vegetables, fruit, nuts NES prepared or preserved by vinegar	33 580.7	44.6	5.8	10.2	10.8	4.1	1.8
200410	Potatoes, prepared, frozen	3482.9	4.7	0.0	1.2	5.0	0.3	0.0
200520	Potatoes, prepared or preserved, not frozen/vinegar	12 137.8	8.8	0.6	1.0	6.6	5.8	0.0
200590	Vegetables NES, mixes, prepared/ preserved, not frozen/vinegar	86 022.4	32.0	3.8	18.3	27.8	3.7	0.4
200600	Fruits, nuts, fruit-peel, etc., preserved by sugar	33 470.3	22.7	1.4	33.4	10.5	0.8	1.5
200710	Homogenized jams, jellies, etc.	6093.3	21.6	1.8	12.2	5.9	1.9	0.4
200791	Citrus-based jams, jellies, marmalade	970.6	3.8	2.7	2.8	0.4	3.3	0.1
200799	Jams, fruit jellies, purees and pastes, except citrus	25 112.8	7.6	1.5	18.5	3.8	1.7	0.2
200811	Ground-nuts otherwise prepared or preserved	21 866.5	7.9	4.1	13.7	0.8	1.8	0.1
200819	Nuts, seeds and mixes, otherwise prepared or preserved	85 969.8	34.7	11.6	28.8	5.9	0.4	0.1
200820	Pineapples, otherwise prepared or preserved	598 598.0	35.7	2.7	36.1	6.5	0.9	1.1

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
200830	Citrus fruits, otherwise prepared or preserved	19 500.3	6.7	15.1	71.9	2.0	0.1	0.1
200870	Peaches, otherwise prepared or preserved	26 920.0	4.0	6.3	87.8	0.1	0.0	0.0
200891	Palm hearts, otherwise prepared or preserved	605.7	8.0	12.3	20.3	0.0	0.0	0.7
200892	Fruit mixtures, otherwise prepared or preserved	115 404.9	14.0	3.7	53.5	5.3	0.3	0.2
200899	Fruit, edible plants NES otherwise prepared/ preserved	225 610.1	27.0	2.9	22.5	16.9	3.1	0.9
200911	Orange juice, frozen, not fermented or spirited	1608.1	22.4	0.1	11.3	0.7	1.6	0.0
200919	Orange juice, not fermented, spirited, or frozen	5090.8	4.2	0.5	1.2	1.9	0.2	0.0
200920	Grapefruit juice, not fermented or spirited	1138.9	5.8	0.4	1.5	13.4	0.7	0.0
200930	Citrus juice NES (one fruit) not fermented or spirited	2384.9	11.4	1.8	3.6	3.6	1.7	0.0
200940	Pineapple juice, not fermented or spirited	199 866.2	45.7	3.4	26.9	5.0	3.0	0.1
200980	Single fruit, vegetable juice NES, not fermented or spirited	70 630.7	10.2	3.2	19.6	1.9	1.5	0.1
200990	Mixtures of juices not fermented or spirited	16 085.7	7.5	9.1	11.0	1.2	0.5	0.2
210111	Coffee extracts, essence	97 562.2	15.4	0.2	1.3	4.2	0.7	0.0
210112	Coffee preparation of extracts	97 562.2	15.4	0.2	1.3	4.2	0.7	0.0
210120	Tea and mate extracts, essences and concentrates	47 325.1	26.3	0.3	18.1	25.6	0.6	1.3
210390	Sauces NES, mixed condiments, mixed seasoning	221 580.8	21.0	2.3	16.2	14.4	8.0	1.1
220720	Ethyl alcohol	6703.2	3.9	0.0	0.0	1.5	0.0	0.0
220840	Rum	3015.9	2.7	2.6	0.7	2.5	1.0	0.0
230610	Oil-cake and other solid residues, of cotton seeds	944.4	0.0	0.0	0.0	0.8	0.1	0.0

CODE	DESCRIPTION	WORLD	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
		USD1000	%	%	%	%	%	%
230660	Oil-cake and other solid residues, of palm nuts or kernels	271 134.2	81.8	0.0	0.0	0.1	0.0	0.0
240110	Tobacco, not stemmed/ stripped	165 966.3	44.2	0.0	5.5	0.5	0.6	2.2
240120	Tobacco, partly or wholly stemmed/ stripped	441 111.9	41.2	0.2	8.1	1.1	2.1	1.3
240130	Tobacco refuse	18 962.2	21.6	0.0	2.5	1.8	0.0	0.3
240210	Cigars, cheroots and cigarillos, containing tobacco	17 475.8	51.4	0.6	18.3	0.4	2.7	0.2
240220	Cigarettes containing tobacco	491 835.4	2.0	0.0	6.1	0.5	0.2	0.0
240290	Cigars, cheroots, cigarettes, with tobacco substitutes	8994.3	7.2	0.0	6.3	0.3	0.1	0.0
240310	Smoking tobacco, whether or not containing tobacco substitutes	94 851.7	16.8	0.0	0.4	0.0	0.0	0.1
240391	"Homogenized" or "reconstituted" tobacco	6234.1	0.7	0.3	0.1	0.0	2.5	0.0
240399	Other manufactured tobacco	35 576.4	4.7	0.1	2.5	1.9	0.2	0.0
330112	Essential oils of orange	643.0	67.0	0.0	7.6	2.6	0.0	0.0
330113	Essential oils of lemon	482.5	23.2	0.0	6.8	0.0	0.4	0.5

4.3.2 Impact of SPS and TBT Measures on Trade Flows: Descriptive Analysis

Before we estimate econometrically the impact of SPS and TBT measures on bilateral trade flows of tropical and diversification products (see next section), we provide some descriptive statistics on the impact of standards on trade.

First, we calculate for each exporting country the share of exports of tropical and diversification products affected by SPS and TBTs in each importing market. Results are presented in Table 4.11. The share of affected exports on each market of course depends on the notification of SPS and TBTs by the importing country. Australia notifies standards on almost all tropical and diversification products. Consequently, the share of exports towards Australia affected by these standards is very high. The fact that other main developed countries do not notify as many measures as Australia suggests that Australia tends to use these standards in a protectionist way. Furthermore, many countries do not export to Australia. One can assume that, in such cases, the degree of stringency of SPS and TBT measures is very high and prevents imports.

Although EU countries notify few standards, some exporting countries are affected highly by these measures. For example, 78.91 percent of Burundi's exports to EU25 are affected by SPS and TBTs. We could also mention Central African

Republic (84.57 percent), Kenya (63.23 percent), Niue (100 percent), Rwanda (72.61 percent) and Brunei Darussalam (100 percent). The same result is observed for exports to Japan. Japan notifies (only) 25 SPS and TBTs on tropical and diversification products. However, eight countries have more than half of their exports to Japan affected by these measures. These countries are Union of Myanmar (71.81 percent), Ethiopia (76.05 percent), Nigeria (63.63 percent), Paraguay (91.67 percent), Somalia (50 percent), Sri Lanka (58.52 percent), Sudan (100 percent) and United Republic of Tanzania (56.46 percent).

Table 4.11 also suggests differences in terms of affected exports between countries belonging to the same sub-group of exporters (ACP, LA8, other Latin American and Asian countries). For example, if we focus on LA8 countries, Table 4.11 shows that exports of Guatemala are affected by EU standards much more than exports of other LA8 countries. However, Guatemala's exports to Canada are not affected any more than those of other LA8 countries.

Table 4.11. Share and Value of Exports Affected by SPS and TBT Measures, by Exporting Country

COUNTRY	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND	VALUE AFFECTED EXPORTS
	%	%	%	%	%	%	USD1000
ACP79							
Angola	0.00	-	-	-	-	-	0
Antigua and Barbuda	0.00	33.76	7.60	0.00	-	1.01	20.92
Burundi	78.91	-	-	-	-	100.00	486.14
Benin	0.02	0.00	23.13	-	-	0.00	4.57
Burkina Faso	0.49	100.00	0.00	0.00	-	9.88	120.37
Bahamas	0.00	4.16	11.64	0.00	-	0.00	546.27
Belize	0.04	96.37	86.02	2.36	-	0.00	38137.73
Barbados	0.15	3.38	0.89	0.00	100.00	0.00	481.24
Botswana	0.00	-	100.00	-	-	-	9.86
Central African Republic	84.57	-	0.00	-	-	-	432.84
Cote d'Ivoire	0.57	0.05	9.62	0.00	100.00	1.39	24 679.42
Cameroon	0.94	5.90	0.34	-	-	22.99	2682.46
Congo	0.00	-	0.00	-	-	88.21	13.76
Cook Islands	0.00	11.49	100.00	0.00	100.00	-	44.04
Comoros	0.00	100.00	0.00	-	-	0.00	36.98
Cape Verde	0.00	-	0.00	-	-	-	0.00
Cuba	0.11	10.76	-	0.00	100.00	0.26	2758.72
Djibouti	0.00	-	2.23	-	-	-	2.70
Dominica	0.14	98.07	93.51	0.00	100.00	35.80	237.11
Dominican Republic	0.42	57.13	16.97	0.00	100.00	3.36	73 146.76
Eritrea	38.70	100.00	-	-	-	0.00	90.43
Ethiopia	38.18	92.82	0.14	76.05	100.00	0.00	7226.16
Fiji	0.00	70.49	22.45	0.12	99.73	95.69	11 049.75
Micronesia, Federated States of	-	-	-	0.00	-	-	0.00
Gabon	0.00	100.00	0.00	-	-	-	7.44

COUNTRY	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND	VALUE AFFECTED EXPORTS
	%	%	%	%	%	%	USD1000
Ghana	0.03	44.46	24.75	2.82	100.00	5.80	4619.25
Guinea	3.70	100.00	0.00	-	-	-	88.10
Gambia	0.00	100.00	4.54	-	-	100.00	377.76
Guinea-Bissau	0.00	-	0.00	-	-	-	0.00
Equatorial Guinea	0.40	0.00	-	-	-	100.00	1.32
Grenada	0.59	71.97	0.13	0.00	-	100.00	28.15
Guyana	0.00	14.64	19.08	23.19	100.00	74.00	2478.49
Haiti	2.72	86.94	87.80	0.00	-	8.93	8441.61
Jamaica	0.01	34.88	68.08	0.44	100.00	99.07	34 351.33
Kenya	63.23	77.78	94.45	38.68	100.00	0.95	313 048.10
Kiribati	0.00	-	-	-	-	-	0.00
St Kitts and Nevis	0.00	100.00	6.29	-	100.00	-	145.92
Liberia	0.00	-	0.00	-	-	-	0.00
St Lucia	0.00	37.20	91.74	0.00	-	-	212.12
Lesotho	0.00	-	-	-	-	-	0.00
Madagascar	0.32	99.95	23.28	0.76	100.00	6.88	2650.23
Marshall Islands	0.00	-	0.00	0.00	-	0.00	0.00
Mali	2.93	100.00	0.00	0.00	100.00	7.14	252.72
Mozambique	0.83	0.00	5.28	0.00	100.00	0.00	651.61
Mauritania	1.54	-	-	0.00	-	0.00	6.17
Mauritius	0.53	20.99	0.42	0.00	100.00	79.02	3461.69
Malawi	0.17	89.25	10.41	1.27	100.00	2.89	8035.85
Namibia	8.91	100.00	0.00	-	100.00	-	209.64
Niger	0.31	100.00	0.40	0.00	-	100.00	57.92
Nigeria	0.16	93.74	7.62	63.63	100.00	50.13	299.06
Niue	100.00	-	-	-	-	-	1.90
Nauru	0.00	-	-	0.00	-	-	0.00
Palau	-	-	-	0.00	-	-	0.00
Papua New Guinea	0.00	-	0.14	0.00	100.00	-	784.67
Rwanda	72.61	-	-	-	-	-	486.91
Sudan	0.01	100.00	-	100.00	100.00	95.14	1154.01
Senegal	0.41	100.00	16.47	-	-	80.43	485.47
Solomon Islands	-	0.00	-	-	100.00	-	28.97
Sierra Leone	0.87	100.00	0.00	-	-	-	28.95
Somalia	27.35	84.25	47.23	50.00	100.00	-	60.93
Sao Tome and Principe	13.34	-	-	-	-	-	47.41
Suriname	1.57	0.00	0.00	-	-	100.00	273.22
Swaziland	0.00	0.00	87.51	0.00	100.00	46.38	510.95
Seychelles	0.00	-	-	-	-	42.14	26.35
Chad	0.00	-	-	-	-	-	0.00
Togo	0.76	94.10	34.28	-	-	20.04	245.90

COUNTRY	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND	VALUE AFFECTED EXPORTS
	%	%	%	%	%	%	USD1000
Tonga	-	-	100.00	0.00	100.00	-	519.89
Trinidad and Tobago	0.04	63.68	75.15	5.69	100.00	100.00	5518.94
Tuvalu	0.00	-	-	-	-	-	0.00
Tanzania	7.41	6.19	5.36	56.46	100.00	0.53	8402.17
Uganda	27.27	100.00	2.36	0.00	100.00	0.47	26 327.03
St Vincent and the Grenadines	0.00	100.00	91.18	-	-	100.00	237.34
Vanuatu	0.00	-	0.00	0.00	100.00	-	245.39
Samoa	0.00	-	94.29	0.00	100.00	-	3725.81
South Africa	5.06	57.99	73.98	11.03	97.81	13.36	156 068.70
Democratic Republic of the Congo	0.21	93.35	18.22	-	-	58.92	81.64
Zambia	29.44	-	18.43	0.00	100.00	0.00	17 141.40
Zimbabwe	19.52	5.57	0.69	0.00	100.00	0.05	52 936.11
LA8							
Bolivia	0.16	39.92	13.82	20.01	100.00	99.17	1675.36
Colombia	13.58	88.69	87.24	22.82	99.96	10.47	916 965.90
Costa Rica	6.95	87.81	91.02	0.00	100.00	0.50	871 503.4
Ecuador	7.09	90.70	92.91	3.10	100.00	3.16	663 759.10
Guatemala	38.52	67.86	75.62	0.07	100.00	41.37	418 171.90
Nicaragua	9.62	5.43	35.12	0.00	100.00	11.63	26 523.70
Panama	0.00	94.18	58.67	0.00	-	0.50	16 419.65
Peru	1.86	91.43	56.46	6.87	79.81	24.33	78 545.39
Other countries							
Central and Latin America							
Brazil	0.50	6.73	28.98	14.25	98.92	3.94	310 835.70
Honduras	8.10	93.63	71.04	0.00	100.00	0.01	276 077.80
Mexico	7.07	85.63	83.89	0.22	94.07	76.16	2 143 618.0
Paraguay	0.76	5.70	1.30	91.67	-	65.10	1914.95
El Salvador	40.62	40.02	26.91	0.00	100.00	-	14 534.50
Venezuela	0.07	24.39	53.30	1.20	-	0.90	6861.15
Asia							
Bangladesh	0.52	79.88	15.27	25.74	96.81	-	817.44
Brunei Darussalam	100.00	-	-	-	-	-	1.22
Indonesia	0.12	24.50	20.52	15.02	100.00	22.55	96 860.71
India	3.39	62.01	36.65	23.83	97.17	73.42	178 994.50
Cambodia	0.00	100.00	100.00	0.00	100.00	0.00	357.04
Sri Lanka	4.44	71.91	50.29	58.52	75.62	18.44	14 658.93
Myanmar	0.98	100.00	-	71.81	-	100.00	462.68
Malaysia	0.46	1.73	2.24	1.60	99.98	95.94	153 944.00
Philippines	0.97	34.06	42.67	0.32	99.99	48.50	236 973.10
Thailand	2.99	58.98	92.38	14.05	99.40	52.19	727 636.60
Viet Nam	1.01	68.17	72.28	38.09	96.91	14.89	41 234.39

- = no exports at all.

We can also investigate which exporting countries are affected the most by SPS and TBTs notified by main developed markets. Most affected countries are defined using two different rankings. The first refers to the value of affected exports (last column of Table 4.11) and the second is based on the ratio of affected exports over total exports to main developed markets. This ratio is derived from Table 4.11 for the numerator and Table 4.6 for the denominator.

The 10 most affected exporting countries (by value of notified exports – in USD thousands) are:

- Mexico (2 143 618)
- Colombia (916 966)
- Costa Rica (871 503)
- Thailand (727 637)
- Ecuador (663 759)
- Guatemala (418 172)
- Kenya (313 048)
- Brazil (310 836)
- Honduras (276 078)
- Philippines (236 973)

The 10 most affected exporting countries (in terms of affected exports/total exports to main developed markets – in percent) are:

- Brunei Darussalam (100)
- Niue (100)
- Burundi (79.19)
- Mexico (76.28)
- Rwanda (72.61)
- Guatemala (70.12)
- Haiti (65.30)
- Kenya (62.15)
- Colombia (59.63)
- Honduras (59.62)

These rankings are somewhat different. Five countries are present in both rankings (Mexico, Guatemala, Kenya, Colombia, Honduras). Only one ACP country is included in the first ranking (Kenya), while five are included in the second ranking (Niue, Burundi, Rwanda, Haiti, Kenya). The most affected countries in terms of value of affected exports are big Latin American and Asian exporting countries. This latter result could be explained easily by the size of these countries. They are large and export more products; therefore, a high value of their exports is affected by SPS and TBTs.

Descriptive statistics could also be used to study the value of imports of main developed countries affected by standards and the share of affected imports in the total imports of tropical and diversification products. Results are given in Table 4.12. Our results show strong variations in the share of affected imports in the total of imports. This share is above 50 percent for Canada (55.3 percent), the US (66.2 percent) and Australia (99.3 percent). On the other hand, it equals only 5 percent for EU25 and 7.6 percent for Japan. Both countries notify fewer SPS and TBTs than other importing countries (see Table 4.1). Interestingly, the share is 18.1 percent for Switzerland. In Table 4.1 we saw that Switzerland notifies more measures than EU25, Japan and Canada. The smallest share of affected imports for Switzerland than the one observed for Canada (18.1 percent versus 55.3 percent) seems, therefore, to suggest that Switzerland's notifications reduce trade more than Canadian measures do.

Table 4.12. Use of SPS and TBT Measures by Importing Countries

IMPORTING COUNTRY	EU25	CANADA	US	JAPAN	AUSTRALIA	SWITZERLAND
Total imports of tropical and diversification products (USD1000)	15 946 583	1 056 462	9 119 398	2 192 672	372 593	345 747
Imports of tropical and diversification products affected by standards (USD1000)	797 041	584 134	6 036 727	165 780	369 937	62 701
Share of affected imports (%)	5.0	55.3	66.2	7.6	99.3	18.1

We now study which tropical and diversification products are the most affected by SPS and TBTs. Using Tables 4.4 and 4.7–4.10, we rank products according to the following criteria: (i) the value of affected exports and (ii) the share of affected exports over total exports to main developed markets. The top 10 affected tropical and diversification products are described below. Products are mostly different in each ranking. Only three of them are present in both rankings: HS 060310 (Cut flowers and flower buds for bouquets, etc., fresh), HS 070960 (Peppers – Capsicum, Pimenta – fresh or chilled) and HS 070310 (Onions and shallots).

The 10 most affected tropical and diversification products (by value of affected exports – USD thousands) are:

- HS 060310 – Cut flowers and flower buds for bouquets, etc., fresh (1 463 514)
- HS 080300 – Bananas, including plantains, fresh or dried (1 334 696)
- HS 070960 – Peppers (Capsicum, Pimenta) fresh or chilled (541 685)
- HS 070990 – Vegetables, fresh or chilled, not elsewhere classified (331 817)
- HS 100630 – Semi-milled or wholly milled rice, whether or not polished or glazed (302 075)
- HS 080430 – Pineapples, fresh or dried (270 977)
- HS 200820 – Pineapples, otherwise prepared or preserved (222 750)
- HS 080450 – Guavas, mangoes and mangosteens, fresh or dried (209 583)
- HS 200911 – Orange juice, frozen, not fermented or spirited (190 463)
- HS 070310 – Onions and shallots (189 358)

The 10 most affected products (by the share of affected exports over total exports to main developed markets – in percent) are:

- HS 060499 – Foliage, branches, for bouquets, etc. – except fresh (98.30)
- HS 070960 – Peppers (Capsicum, Pimenta) fresh or chilled (98.03)
- HS 060310 – Cut flowers and flower buds for bouquets, etc., fresh (92.82)
- HS 070310 – Onions and shallots (90.92)
- HS 060491 – Foliage, branches, for bouquets, etc. – fresh (89.12)
- HS 152190 – Beeswax, other insect waxes and spermaceti (87.12)
- HS 060290 – Live plants, including their roots, and mushroom spawn (86.29)
- HS 071390 – Other dried leguminous vegetables (84.86)
- HS 200520 – Potatoes, prepared or preserved, not frozen/vinegar (83.06)
- HS 210120 – Tea and mate extracts, essences and concentrates (77.36)

5. ECONOMETRIC ANALYSIS OF THE TRADE IMPACT OF SPS AND TBT MEASURES ON TROPICAL AND DIVERSIFICATION PRODUCTS

5.1 Estimated Gravity Equation

5.1.1 Framework

In this section we estimate econometrically the trade impact of SPS and TBT measures notified by main developed countries on their imports of tropical and diversification products. To conduct such an analysis, we use the gravity equation. In its basic form, the gravity equation explains bilateral trade in terms of the size of the countries and the distance between them. This latter term is a proxy for transaction costs. Additional explanatory variables (such as common language, past colonial links, etc.) are usually included to account for countries' cultural proximity.

An important issue is the level of aggregation. We decided to work at the six-digit level of the HS classification. The list of tropical and diversification products proposed by the Cairns Group covers a limited number of HS six-digit codes. However, our results could be biased if SPS and TBTs are notified by importing countries on products for which imports have to be kept under control in the absence of sizeable tariffs. We therefore test the robustness of our results by aggregating products at the four-digit level and measuring the stringency of SPS and TBT measures within each of these categories with our information at the six-digit level. Results of both sets of estimations are very similar.[25]

Different specifications could be used to estimate a gravity equation. In our study, we introduce fixed effects for each exporting and importing country. These fixed effects include the size effects, but also the price and number of varieties of the exporting country for each sector and the size of demand and the price index of the importing partner. Since we use sector-level trade data, we interact HS two-digit sector and country fixed effects to fully capture the unobserved price indexes at the sector level. Due to the degree of freedom constraint, we have to limit the number of fixed effects. Our estimations therefore include only HS two-digit sector-specific exporter fixed effects and do not interact importer fixed effects with sector dummies; that is, they include 1648 sector-specific exporter fixed effects (103 exporter fixed effects × 16 sector fixed effects) and 29 importer fixed effects.

5.1.2 Dependent and Explanatory Variables

Dependent variable

For our dependent variable, we use bilateral import data of each main developed country included in our study from each country exporting tropical and diversification products. As in the previous section, trade data are extracted from the CEPII database BACI. Notifications are compiled up to 2004 and tariff data are available for 2004. Trade data are therefore for 2004.

Explanatory variables

Bilateral distances come from the CEPII database on distances.[26] These distances are calculated as the sum of the distances between the biggest cities of both countries, weighted by the share of the population living in each city. We also include a dummy variable "Common border" (cbord) that equals 1 if both countries share a border and is 0 otherwise.

We control for countries' cultural proximity, which could foster bilateral trade, and introduce two dummies, respectively equal to 1 if both countries share a language (clang) or if they have had a colonial relationship (col). Data come from the previously mentioned CEPII database on distances.

We also control for the bilateral tariff barriers applied by importing countries. This allows us

to distinguish the impact of SPS and TBTs on trade from that of tariffs. Our data on tariffs come from the Market Access Map (MacMap) database jointly developed by the CEPII and the International Trade Center (ITC).[27] Data include not only the applied tariff but also specific duties, tariff quotas and anti-dumping duties. All of these barriers are converted into an AVE and summarized in one measure. Data are available at the six-digit level.

Finally, to capture the trade effects of SPS and TBT measures, we include a dummy variable equal to 1 if the importing country notifies at least one measure at the six-digit level of the HS classification, and 0 if there are no measures in place.

After taking logs, our estimated equation is as follows:

$$\ln x_{ij}^{k} = \alpha_i fe_i^{shs2} + \beta_j fe_j^{shs2} + \gamma_1 d_{ij} + \gamma_2 cbord_{ij} + \gamma_3 clang_{ij} + \gamma_4 col_{ij} + \gamma_5 tariff_{ij}^{k} + \gamma_6 SPSTBT_{ij}^{k} + u_{ij}^{k}.$$

where *i* is the exporting country, *j* the importing country and *k* the tropical product. We use cluster regressions to deal with the problem of clustering of errors.

5.2 Results

Estimation results are described in Table 5.1. Fixed effects estimations are presented in all columns. Column 1 includes only tariff barriers. SPS and TBTs are introduced in column 2. Column 3 analyses the influence of SPS and TBTs for the different sub-samples of exporting countries included in our sample (ACP, LA8 and other Latin American and Asian countries).

The overall fit is consistent with what is found in the literature. Distance has a negative and significant impact on trade flows, while sharing a border increases bilateral imports. Both variables are significant at the 1 percent level. Interestingly, cultural proximity variables (common language and colonial links) do not have a significant influence. One explanation could be that tropical and diversification products are usually traded on organized exchanges or have a reference price. Therefore, and as suggested by Rauch (1999), common language is less important for such goods than for differentiated products. Tariffs do not have a significant influence on trade. This result could be explained by the fact that we are studying tropical and diversification products for which many exporting countries benefit from preferential access to main developed markets.

In column 2, the estimated coefficient on SPS and TBTs is negative and significant ($p < 0.01$). This suggests that tropical and diversification products imports of main developed markets are reduced by SPS and TBT measures.

In the third column we investigate potential differences in the influence of SPS and TBTs on trade between exporting countries. We therefore interact SPS and TBTs with four dummy variables respectively set to 1 if exporting countries are ACP, LA8 or other Latin American or Asian countries. Results on these interaction variables show strong differences between exporting countries. Only imports from ACP and LA8 countries are affected significantly by SPS and TBT measures. Estimated coefficients for other Latin American and Asian countries are not significant. Furthermore, ACP countries are much more affected than LA8 countries (–0.66 vs. –0.36). We observe here the dual effect of SPS and TBTs: they can increase trade by reducing informational asymmetries between consumers and producers, but they can also reduce trade.

Table 5.1. Trade Effects of SPS and TBT Measures – General Overview

DEPENDENT VARIABLE	LN (IMPORTS)		
MODEL	(1)	(2)	(3)
SPECIFICATION	FE		
IMPORTERS	MAIN DEVELOPED COUNTRIES		
EXPORTERS	COUNTRIES EXPORTING TROPICAL AND DIVERSIFICATION PRODUCTS		
Ln distance	-0.61***	-0.62***	-0.65***
	(0.09)	(0.09)	(0.09)
Common border	1.96***	1.95***	1.83***
	(0.18)	(0.18)	(0.19)
Common language	-0.03	-0.03	-0.04
	(0.11)	(0.11)	(0.11)
Colonial links	0.20	0.20	0.14
	(0.15)	(0.15)	(0.14)
Bilateral tariff	-0.02	-0.01	-0.01
	(0.06)	(0.06)	(0.06)
= 1 if at least 1 SPS or TBT at the HS6 level		-0.30***	
		(0.09)	
= 1 if at least 1 SPS or TBT at the HS6 level × ACP			-0.66***
			(0.14)
= 1 if at least 1 SPS or TBT at the HS6 level × LA8			-0.36**
			(0.15)
= 1 if at least 1 SPS or TBT at the HS6 level × other Latin American country			0.02
			(0.19)
= 1 if at least 1 SPS or TBT at the HS6 level × Asia			-0.11
			(0.12)
Number of observations	18507	18507	18507
R^2	0.718	0.719	0.719

FE, fixed effects.
*Standard errors (importing country-exporting country clustered) in parentheses, with ***, ** and * respectively denoting significance at the 1%, 5% and 10% levels. Specifications include importer and sector-specific exporter fixed effects.*

We also study the impact of SPS and TBTs on trade flows by sector. To estimate the sector trade effect, we interacted the SPS and TBT variable with sector dummies. Table 5.2 shows the results. The first column includes all the exporting countries. Columns 2–5 focus on different sub-samples of exporters (ACP, LA8 and other Latin American and Asian countries). Due to the small number of observations, we do not report results for HS 23 (Residues and waste from the food industries; Prepared animal fodder). Tropical and diversification products belonging to HS 33 (Essential oils and resinoids; Perfumery, cosmetic or toilet preparations) are not affected by SPS and TBTs. This sector is therefore not included in our results.

Results suggest strong variations between sectors and sub-samples of exporters. Column 1 shows that the trade effect is not significant for 10 sectors:

- HS 07 – Edible vegetables and certain roots and tubers
- HS 09 – Coffee, tea, mate and spices
- HS 10 – Cereals

- HS 11 – Milling products, malt, starches, inulin, wheat gluten
- HS 13 – Lac, gums, resins, vegetable saps and extracts
- HS 14 – Vegetable plaiting materials, vegetable products
- HS 17 – Sugars and sugar confectionery
- HS 21 – Miscellaneous edible preparations
- HS 22 – Beverages, spirits and vinegar
- HS 24 – Tobacco and manufactured tobacco substitutes

The effect is negative and significant for six sectors:

- HS 06 – Live trees, plants, bulbs, roots, cut flowers
- HS 08 – Edible fruit, nuts, peel of citrus fruit, melons
- HS 12 – Oil seed, oleaginous fruits, grain, seed, fruit
- HS 15 – Animal, vegetable fats and oils, cleavage products
- HS 18 – Cocoa and cocoa preparations
- HS 20 – Vegetable, fruit, nut, food preparations

If we focus on coefficient estimates for each sub-sample of exporters, we see that, for some sectors and exporters, the trade effect of SPS and TBT seems to be positive (HS 10 – Cereals, for LA8 or other Latin American exporters; HS 14 – Vegetable plaiting materials, vegetable products, for LA8 countries; and HS 24 – Tobacco and manufactured tobacco substitutes, for Asian countries).

Furthermore, ACP countries are the sub-sample of exporters for which the most sectors are influenced negatively and significantly by SPS and TBTs (HS 08 – Edible fruit, nuts, peel of citrus fruit, melons, HS 10 – Cereals, HS 12 – Oil seed, oleaginous fruits, grain, seed, fruit, HS 18 – Cocoa and cocoa preparations, HS 20 – Vegetable, fruit, nut, food preparations and HS 21 – Miscellaneous edible preparations).

Finally, our results show differences in terms of affected sectors between exporters. For example, if we focus on HS 07 (Edible vegetables and certain roots and tubers) and HS 15 (Animal, vegetable fats and oils, cleavage products), only Asian countries' exports are affected by SPS and TBTs. Similarly, for sectors HS 11 (Milling products, malt, starches, inulin, wheat gluten) and HS 13 (Lac, gums, resins, vegetable saps and extracts), only other Latin American countries' exports are affected.

Table 5.2. Trade Effects of SPS and TBT Measures – Sector Analysis

	(1)	(2)	(3)	(4)	(5)
EXPORTER	**ALL EXPORTERS**	**ACP**	**LA8**	**OTHER LATIN AMERICAN COUNTRIES**	**ASIAN COUNTRIES**
HS 06 Live trees, plants, bulbs, roots, cut flowers	-0.56**	-0.39	-0.68*	0.34	-0.80*
HS 07 Edible vegetables and certain roots and tubers	-0.15	0.06	0.50	0.52	-0.75***
HS 08 Edible fruit, nuts, peel of citrus fruit, melons	-0.49***	-0.79**	-0.31	-0.35	-0.25
HS 09 Coffee, tea, mate and spices	-0.09	-0.08	-0.18	-0.13	0.04
HS 10 Cereals	0.16	-1.86**	3.30***	5.11***	0.15
HS 11 Milling products, malt, starches, inulin, wheat gluten	-0.02	-0.28	-0.02	-0.79***	0.26
HS 12 Oil seed, oleaginous fruits, grain, seed, fruit	-0.32*	-0.67**	-0.20	-0.37	-0.01

	(1)	(2)	(3)	(4)	(5)
EXPORTER	**ALL EXPORTERS**	**ACP**	**LA8**	**OTHER LATIN AMERICAN COUNTRIES**	**ASIAN COUNTRIES**
HS 13 Lac, gums, resins, vegetable saps and extracts	-0.52	-1.50	-0.39	-1.39**	0.52
HS 14 Vegetable plaiting materials, vegetable products	-0.43	-0.65	1.42***	-	-0.55
HS 15 Animal, vegetable fats and oils, cleavage products	-0.48**	-0.13	-0.53	-0.17	-0.56*
HS 17 Sugars and sugar confectionery	-0.44	-0.49	1.31	-0.33	-0.35
HS 18 Cocoa and cocoa preparations	-0.55*	-1.91**	0.11	0.32	-0.27
HS 20 Vegetable, fruit, nut, food preparations	-0.24*	-0.72**	-0.27	-0.19	-0.09
HS 21 Miscellaneous edible preparations	-0.04	-0.73*	-0.14	0.19	0.19
HS 22 Beverages, spirits and vinegar	0.12	0.27	-1.86*	-0.14	0.73
HS 24 Tobacco and manufactured tobacco substitutes	0.14	-0.17	-0.31	-0.46	0.65**
Number of observations	18 507	5275	3031	2988	7213
R^2	0.719	0.735	0.736	0.737	0.705

FE, fixed effects.
*Standard errors (importing country-exporting country clustered) in parentheses, with ***, ** and * respectively denoting significance at the 1%, 5% and 10% levels. Specifications include importer and sector-specific exporter fixed effects.*

Our results suggest that special attention should be paid to some sectors and groups of exporters in the next WTO negotiations.

First, ACP countries should be supported in their efforts to comply with SPS and TBT requirements. Provisions on technical assistance and special and differential treatment included in the SPS and TBT agreements should be maintained and reinforced in order to help them to implement and take advantage of the agreements. In particular, support should be provided in the cocoa sector, which is the most affected sector by SPS and TBTs. Latin American countries should also be supported, although their situation is less worrying.

However, differences in terms of affected sectors between exporters will probably represent a difficulty for the negotiations. Both groups of countries will not have the same interests in each sector.

6. CONCLUSION

Almost all surveyed producers and exporters report that they have to deal with SPS and TBT measures.[28] They also highlight the increasing number of requirements, and especially private sector requirements. It appears that the constant change in tolerance levels of agrochemical residues in the product, as well as permitted agrochemicals, represent significant obstacles. Furthermore, it seems that the ability to cope with SPS and TBTs varies with the size of the business, and a market segmentation is increasingly appearing between small and large producers. In general, for small businesses it is very difficult, if not impossible, to comply with the most stringent SPS and TBT requirements from developed markets, while for big businesses the difficulty is less marked. This finding is expected in all industries with all shocks or extra business costs. Essentially, the transaction costs of assimilating and implementing new information and technologies are spread too thickly on smaller businesses. Yet in agribusiness, and particularly with respect to a development agenda in developing countries, this calls for policy on building institutions that can mimic larger business – such as cooperatives, marketing organizations and so on.

Compliance with SPS and TBT measures implies higher costs, in either production or export, and often induces a shift in the mode of production but does not cause a product shift. However, it should be acknowledged that farmers and exporters that have stopped or changed their production are not included in our surveys.

The higher production or export cost does not mean that the businesses lost export markets. It can also represent an opportunity to access more profitable markets and to improve business competitiveness. Interviewed producers and exporters recognize that practices and inputs demanded by certifiers raise product durability and create better working conditions, increasing also productivity and company discipline. Finally, despite recent trade liberalization, tariffs remain a significant export barrier.

On the other hand, statistical and econometric analyses suggest that the purposes of SPS and TBT notifications vary across importing countries. Main developed countries included in our sample (the EU, Canada, the US, Japan, Australia and Switzerland) do not (i) use the same SPS and TBT measures, (ii) adduce the same motives or (iii) notify the same products. These differences can reinforce the difficulty of exporting countries to comply with SPS and TBT requirements.

At the micro-level, case studies show that small businesses face the most difficulties in complying with SPS and TBT measures and private requirements. At the macro-level, the statistical and econometric analyses suggest that less developed countries are the most affected by such measures. Special attention should be paid to small producers and exporters in future. Furthermore, provisions on technical assistance and special and differential treatment included in the SPS and TBT agreements should be maintained and reinforced in order to help them to implement and take advantage of the agreements. Latin American countries should also be supported, although their situation is less worrying.

The rise of private standards as de facto precursors to conducting business means that this is only one part of the story.

7. RECOMMENDATIONS

7.1 Reinforcement of Existing Programmes

7.1.1 Technical Assistance Programmes

Results of case studies and the empirical analysis suggest that assistance should be provided to farmers and exporters of developing countries in order to help them conform with SPS and TBT requirements adopted by main developed markets. Such assistance is currently provided by international organizations such as WTO, 29 UNCTAD, FAO and the World Bank or by country members of these organizations through technical assistance programmes.

As mentioned by Cerrex (2003), until recently, most of the assistance was aimed at developing and improving infrastructure projects (transport, banking sector reform and public sector reform). However, today, more assistance goes directly to the private business sector. Furthermore, as noted by Cerrex (2003), the improvement of infrastructures also helps indirectly the private business sector to meet SPS and TBT requirements.

Assistance programmes could be global or sector-specific. We briefly described two examples:

Standards and Trade Development Facility (STDF)

This programme, launched in 2002 by FAO, the World Organization for Animal Health, the World Bank, the Codex Alimentarius, WHO and WTO, aims to enhance the capacity of developing countries and LDCs to participate in negotiations and implement SPS measures.

The STDF programme acts as both a coordinating and a financing mechanism. Regarding coordination, the STDF ensures the sharing of information on SPS-related technical cooperation activities and the dissemination of good practice in relation to both the provision and receipt of SPS-related technical cooperation. Two main forms of grant financing are provided: (i) project preparation grants, which aim to bridge the gap between the identification of needs and their articulation into sustainable projects; and (ii) grants for projects addressing underlying issues of SPS capacity building in developing countries or on a regional basis.

Pesticides Initiative Programme (PIP)

This programme aims to help private businesses from the fresh fruit and vegetable export sector of ACP countries to meet the European food safety (pesticides residues) and traceability requirements and to consolidate the position of small producers in the ACP horticultural export sector.

The programme was set up by the EU in 2001, following a request from ACP countries, and based on a five-year funding contract of €28 807 000. Its implementation is managed by Comité de Liaison Europe-Afrique-Caraïbes-Pacifique (COLEACP).

The PIP currently includes 111 companies in 23 ACP countries. This programme covers a variety of crops (including pineapple, green beans, mango, avocado, okra, cherry tomato, melon, passion fruit, papaya, lychee, yam and chilli peppers). About 80 percent of ACP companies' exports of fruit and vegetables are covered by this programme. Almost all ACP companies that benefit from this programme now have a product traceability system.[30]

Existing technical assistance programmes suffer from three main weaknesses: (i) insufficient amount of assistance, (ii) fragmentary assistance and (iii) insufficient integration into national activities.

To improve these programmes, five suggestions have been made recently in a joint ITC/ Commonwealth Secretariat study: [31]

- The amount of assistance should be increased.
- The assistance provided by different donators and/or different programmes should be better coordinated.
- The assistance should be better targeted towards difficulties faced by developing countries.
- The specificities of developing countries should be considered: existing capacities of developed countries should not be replicated but new capacities should be created.
- The specific needs of each developing country should be considered.

One can also add that assistance should be adapted to the size of businesses (small vs. big farmers or exporters).

7.1.2 WTO Negotiations and Aid for Trade

Aid for Trade is a WTO programme created by the Sixth Ministerial Conference. Its aim is to help developing countries to build the supply-side capacity and infrastructure they need in order to take advantage of trade liberalization and increase their participation in the world trading system. Box 7.1 describes the European SPS trade related assistance.

OECD data show trade-related official development assistance (ODA) commitments running at about USD25–30 billion a year in the past few years (around 30 percent of total ODA). In 2005, the distribution of available trade-related technical assistance was as follows: [32]

- Trade policy and regulation (USD0.9 billion): this amount was used to build local capacities to development of national trade policies, participate in trade negotiations and implement trade agreements.
- Building productive capacity (USD9.5 billion): this includes trade development spending of about USD2 billion a year. This assistance helps enterprises to trade and to create a favourable business environment.
- Economic infrastructure spending (USD12.1 billion): this assistance helps countries build the physical means – transport and storage, communications and energy – to produce and move goods and export them.
- Assistance for trade-related structural adjustment (about USD3–6 billion): this assistance helps to compensate transition costs from liberalization (preference erosions, loss of fiscal revenue or declining terms of trade).

Aid for Trade could help developing countries to meet SPS and TBT standards. Two examples focusing on tropical and diversification products are cited on the WTO website.[33]

Cut flowers from Kenya

Growth in this sector increased, partly as a result of investments in Aid for Trade, such as:

- new cold storage and transportation facilities;
- improved cargo facilities at Nairobi's airport;
- more efficient air transportation and increased frequency of flights;
- technology transfers.

Mangoes from Mali

Mali's exports of Mangoes increased following investments in Aid for Trade:

- innovative business partnerships formed;
- improved testing facilities and met international standards;
- increased cold storage facilities (reducing post-harvest loss);
- new transport corridor (reducing shipping time from 25 days to 12 days) built.

Suggestions for future agricultural negotiations

This and previous chapters suggest that future agricultural negotiations should:

- support ACP and Latin American countries, and in particular LDCs, in their efforts to comply with SPS and TBT requirements;
- pay special attention to specific sectors that are very important for these countries (e.g. cocoa, live trees and cut flowers, edible fruits and nuts; see Table 5.2);
- reinforce the existing technical assistance programmes and the Aid for Trade programme. These programmes could help developing countries to implement and take advantage of the SPS and TBT measures;
- focus on private sector requirements. The development of private standards is recent but very rapid. Developing countries and LDCs claim that private standards are not transparent and created without input from exporters. They also state that some standards are restrictive on market access, acting as NTBs. As mentioned previously, the SPS agreement is not explicit on the relationship between private standards schemes and the SPS Agreement. The SPS committee should therefore clarify whether the SPS Agreement also applies to private sector standards.

Box 7.1. European SPS Trade-Related Assistance

This helps in implementing the EU's commitment to Aid for Trade, strengthening the Integrated Framework and increasing the EU's contribution to trade-related capacity-building and complementing activities of other EU Directorates-General. The objective is to enable the developing country to reach the required level of food safety in order to be able to export their products to the EU, providing jobs and economic value and raising the food standards in the developing country.

This budget is divided into three sections:

- to assist experts from developing countries to attend meetings of the three organizations officially recognized in the SPS Agreement for standard-setting, i.e. the Office International des Epizooties, the International Plant Protection Convention and Codex Alimentarius in the fields of animal health, plant health and food safety and quality respectively;
- to send technical experts from Member States to developing countries to provide on-the-spot advice on action needed to satisfy EU import sanitary requirements;
- to bring staff from developing countries to training facilities within the EU for centralized training on specific SPS topics.

The budget for 2006 is more than €2 300 000, of which €600 000 is reserved for the Office International des Epizooties, the International Plant Protection Convention and the Codex.

In 2006, special training in the area of residues, aflatoxins and EU SPS legislation was organized for technical experts and administrators of developing countries in Europe, with the following objectives:

- to explain the EU legislation for export to the EU of products of animal or plant origin;
- to advise on administrative issues, for example how to set up a residue-monitoring plan;
- to help overcome any technical difficulties (e.g. laboratory techniques, analytical methods) that they may have experienced in the past when trying to export these products to the EU.

Source: http://ec.europa.eu/trade/issues/sectoral/agri_fish/sps/trta_en.htm

7.2 Additional Policy Responses

As well as the reinforcement of the existing technical assistance and Aid for Trade programmes, additional policy responses could be suggested from our study.

7.2.1 SPS and TBT Measures should be Justifiable from a "Risk" Basis

Countries producing tropical and diversification products encounter difficulties in applying SPS and TBT measures. However, the main impediments faced by these countries, and in particular by ACP countries, are not only the costs induced by the implementation of standards but also that these standards may not be justifiable from a risk basis or may be disproportionate. Consequently, their implementation requires measures far outside what is provided for.

In addition to the offer of a special and differential treatment and aid, WTO should therefore make sure that SPS and TBT measures are not implemented disproportionately to the level of risk and should control that conditions set by importing countries are not beyond SPS and TBT agreements.

7.2.2 The Relationship of Private Standards Schemes with SPS and TBT Agreements should be Improved

Private standards are becoming so important and widespread that one can question whether today they do not influence more trade than do public standards. Private standards are voluntary. However, they are required for doing business, thus making them *de facto* mandatory.

Producers and exporters of tropical and diversification products point out that one of the main obstacles in applying these requirements is the constant change in their definition. Furthermore, producers and exporters often argue that such requirements are not transparent as they are not notified to the WTO and not science-based. Private standards also often conflict with those set by governments and international organizations.

These observations lead to some questions and suggest possible policy actions:

- Are private standards seen by firms as a way to fill in a void left by the slow process of public sector standards setting and implementation? Should the development of private standards therefore be encouraged?
- What about if private standards encroach on aspects that are the preserve of public sector (such as consumer safety)?
- Could that be actionable in some way at WTO (possible subventions by states to use private standards to do what the state should be doing)?

In the coming years, the transparency of private standards would need to be improved, as would the relationship of private standards schemes with the SPS and TBT agreements.

7.2.3 Benefits of Upgrading Standards should be Put Forward

SPS and TBT measures, as well as private requirements, can afford market access or deny it.

As highlighted in our study, compliance with such requirements implies higher costs, either in production or in export. However, interviewed producers and exporters pointed out that standards helped them to improve their competitiveness. They recognized that practices and inputs demanded by certifiers created safer working conditions and also increased productivity and company discipline. For Kenyan producers of

flowers, standards induced a shift in their mode of production (such as water and pesticide usage) but did not cause a product shift.

Public and private requirements could also be trade-enhancing by providing access to new and more profitable markets.

These potential positive effects explain partly why producers in exporting countries try to fulfil standards, despite the cost associated with. Business is a balance between risks, costs and benefits. Our study also suggests that national governments and international organizations should encourage farmers and exporters to implement public and private standards.

7.2.4 Size Matters should be Included in Policy Responses

The ability to cope with public and private requirements varies with the size of the business. It seems that large businesses may be able to cope, while medium-sized and small businesses find it more difficult, if not impossible, to comply with the most stringent measures from developed markets. A market segmentation is increasingly appearing between small and large producers.

One solution for small producers and exporters could be to act in cooperatives. Another aspect in coping with these standards is the growing importance of export contracts (between farmers and exporters) to establish long-term business relationships that ensure quality controls.

Our study also highlights a divide between most advanced developing countries and less developed countries. ACP countries are also the sub-sample of exporters for which the most sectors are influenced negatively and significantly by standards. This result suggests that special attention should be paid to ACP countries in the next WTO negotiations. These countries should be supported in their efforts to comply with SPS and TBT requirements.

7.2.5 What Role for Unions and Governments?

Governments and unions of exporting countries should help their small producers and exporters in implementing public and private standards notified by importing countries.

However, as suggested by our study, if the role played by either government or union is too large, then it could obscure the market requirements of international buyers from the producers, who have little direct knowledge of market trends other than price.

This result highlights the role of transparency in international trade and of public and private standards in conveying market-related information.

APPENDIX 1: ECUADOR: EXPORTER FIRMS (COOPERATIVES, ASSOCIATIONS) – SURVEY ON SPS AND TBTS[34]

Name of firm (association, cooperative):

Address:

1. Years in export business:

2. Types and names of agricultural products exported:

Raw commodities (e.g. bananas, plantains, pineapples):

Processed agricultural goods:

Other:

3. Major destinations of your exports:

(a)

(b)

(c)

(d)

4. What types of transportation do you usually use?

(a) Vessel

(b) Air

(c) Other

5. Average annual export sales: USD

6. Percentage of main export product on average annual export sales:

7. Have you faced any of the following technical measures, customs rules, standards and procedures? Tick all that apply:

1	Technical measures	
	(a) Sanitary and phytosanitary requirements	
	(b) Labelling regulations	
	(c) Quarantines	
	(d) Certification and testing requirements	
2	Customs rules and procedures	
	(a) Excessive documentation required	
	(b) Slow customs clearance	

	(c) Complex regulations	
	(d) Arbitrary enforcement of rules	
	(e) Lack of harmonization	
3	Labour requirements	
4	Environmental rules and requirements	
5	Competition-related restrictions on market access	
6	Quantitative restrictions	
7	Procedures and administration (general)	
8	Public procurement practices	
9	Investment restrictions or requirements	
10	Transport regulations or costs	
11	Restrictions of services	
12	Local marketing regulations	
13	Other(s) (please specify) _____	

8. Which of the items in Question 7 have been the most frequently faced in the past five years?

(a)

(b)

(c)

9. Which of the items in Question 7 are the most difficult to comply with?

(a)

(b)

(c)

10. Are you confronted with private sector standards (from export markets)? Which ones?

11. The general trend in these technical measures, customs rules, standards and procedures is

(a) Increasing

(b) Decreasing

(c) About the same

12. Indicate the importance of each of the following aspects in terms of your business's ability to satisfy SPS requirements when exporting _____ (please indicate which agricultural product) to the EU:

(a) Insufficient access to scientific/technical expertise	1	2	3	4	5
(b) Incompatibility of SPS requirements with domestic production/marketing methods	1	2	3	4	5
(c) Poor awareness of SPS requirements within agriculture	1	2	3	4	5
(d) Poor access to information on SPS requirements	1	2	3	4	5
e) Period of time permitted for compliance is relatively short	1	2	3	4	5

1 = very insignificant; 2 = insignificant; 3 = no impact; 4 = significant; 5 = very significant.

13. Indicate the importance of each of the following aspects in terms of your business's ability to satisfy SPS requirements when exporting _____ (please indicate which agricultural product) to the US:

(a) Insufficient access to scientific/technical expertise	1	2	3	4	5
(b) Incompatibility of SPS requirements with domestic production/marketing methods	1	2	3	4	5
(c) Poor awareness of SPS requirements within agriculture	1	2	3	4	5
(d) Poor access to information on SPS requirements	1	2	3	4	5
(e) Period of time permitted for compliance is relatively short	1	2	3	4	5

1 = very insignificant; 2 = insignificant; 3 = no impact; 4 = significant; 5 = very significant.

14. Indicate the importance of each of the following aspects in terms of your business's ability to satisfy SPS requirements when exporting _____ (please indicate which agricultural product) to other important markets (please specify which country _____):

(a) Insufficient access to scientific/technical expertise	1	2	3	4	5
(b) Incompatibility of SPS requirements with domestic production/marketing methods	1	2	3	4	5
(c) Poor awareness of SPS requirements within agriculture	1	2	3	4	5
(d) Poor access to information on SPS requirements	1	2	3	4	5
(e) Period of time permitted for compliance is relatively short	1	2	3	4	5

1 = very insignificant; 2 = insignificant; 3 = no impact; 4 = significant; 5 = very significant.

15. How have you dealt with the technical measures, customs rules, standards and procedures?

16. Degree of competition with other exporting firms is

(a) Increasing

(b) Decreasing

(c) About the same

17. Do these standards increase your costs?

18. Do these standards increase the time needed to export the product?

19. How do you prove that you respect the standards?

20. Do these standards affect the choice of the country you export to?

21. If you export more than one agricultural product, for what products is the situation the most difficult?

22. Do you consider the standards as a trade barrier? Or, on the contrary, when your firm complies with them, does it increase your exports?

23. Did you lose export markets because of these standards? Which ones?

24. Potential markets/regions for your exports in the near future:

25. Major difficulties in establishing new markets:

26. What type of assistance have you received from your local or central government?

27. What types of assistance have you received from private firms (e.g. consulting firms)?

28. Are these standards the main limitations for your exports? Or, do tariff barriers constitute more important problems than the standards?

Comments

APPENDIX 2: ECUADOR: FARMERS – SURVEY ON SPS AND TBTS[35]

Name of producer:

Address:

1. Years in farm business:

2. Types and names of agricultural produce (e.g. bananas, plantains, pineapples):

3. To whom do you sell your produce?

(a) Distributor

(b) Export company

(c) Direct export

(d) Other (whom?)

4. If you export your produce yourself, what are the major destinations of your exports?

(a)

(b)

(c)

(d)

5. Average annual production sales: USD

6. Is your production required to comply with any of the following technical measures, customs rules, standards and procedures? Tick all that apply:

1	Technical measures	
	(a) Sanitary and phytosanitary requirements	
	(b) Labelling regulations	
	(c) Quarantines	
	(d) Certification and testing requirements	
2	Customs rules and procedures	
	(a) Excessive documentation required	
	(b) Slow customs clearance	
	(c) Complex regulations	
	(d) Arbitrary enforcement of rules	
	(e) Lack of harmonization	
3	Labour requirements	
4	Environmental rules and requirements	
5	Competition-related restrictions on market access	
6	Quantitative restrictions	
7	Procedures and administration (general)	
8	Public procurement practices	

9	Investment restrictions or requirements	
10	Transport regulations or costs	
11	Restrictions of services	
12	Local marketing regulations	
13	Others (please specify) _____	

7. Which of the items in Question 6 have been the most frequently faced in the past five years?

(a)

(b)

(c)

8. Which of the items in Question 6 are the most difficult to comply with?

(a)

(b)

(c)

9. Does your production (exports) face private sector standards (from export markets)? Which ones?

10. Do the standards you identified in Question 7 conflict with private sector standards? Which ones?

11. The general trend in these technical measures, customs rules, standards and procedures is

(a) Increasing

(b) Decreasing

(c) About the same

12. How have you dealt with the technical measures, customs rules, standards and procedures?

13. What are the difficulties you face so that your produce complies with standards imposed by the importing countries?

14. Does this affect you costs of production? How?

15. Does this affect your choice of products? How?

16. Does this affect your mode of production? How?

17. Did you lose export markets because of these standards? Which ones?

18. Do you consider the standards as a trade barrier? Or, on the contrary, when your business complies with them, does it increase your production?

19. Are these standards the main limitations for your production (exports), or do tariff barriers constitute more important problems than the standards?

20. Indicate the importance of each of the following aspects in terms of your business's ability to satisfy SPS requirements when exporting _____ (please indicate which agricultural product) to the EU:

(a) Insufficient access to scientific/technical expertise	1	2	3	4	5
(b) Incompatibility of SPS requirements with domestic production/marketing methods	1	2	3	4	5
(c) Poor awareness of SPS requirements within agriculture	1	2	3	4	5
(d) Poor access to information on SPS requirements	1	2	3	4	5
e) Period of time permitted for compliance is relatively short	1	2	3	4	5

1 = very insignificant; 2 = insignificant; 3 = no impact; 4 = significant; 5 = very significant.

21. Indicate the importance of each of the following aspects in terms of your business's ability to satisfy SPS requirements when exporting _____ (please indicate which agricultural product) to the US:

(a) Insufficient access to scientific/technical expertise	1	2	3	4	5
(b) Incompatibility of SPS requirements with domestic production/marketing methods	1	2	3	4	5
(c) Poor awareness of SPS requirements within agriculture	1	2	3	4	5
(d) Poor access to information on SPS requirements	1	2	3	4	5
(e) Period of time permitted for compliance is relatively short	1	2	3	4	5

1 = very insignificant; 2 = insignificant; 3 = no impact; 4 = significant; 5 = very significant.

22. Indicate the importance of each of the following aspects in terms of your business' ability to satisfy SPS requirements when exporting _____ (please indicate which agricultural product) to other important markets (please specify which country _____):

(a) Insufficient access to scientific/technical expertise	1	2	3	4	5
(b) Incompatibility of SPS requirements with domestic production/marketing methods	1	2	3	4	5
(c) Poor awareness of SPS requirements within agriculture	1	2	3	4	5
(d) Poor access to information on SPS requirements	1	2	3	4	5
(e) Period of time permitted for compliance is relatively short	1	2	3	4	5

1 = very insignificant; 2 = insignificant; 3 = no impact; 4 = significant; 5 = very significant.

23. What type of assistance have you received from your local or central government?

Comments

APPENDIX 3: COSTA RICA: QUESTIONNAIRE FOR PRODUCERS, DISTRIBUTORS AND EXPORTERS

Name of company:

Address:

1. Which difficulties have you faced in complying with standards in terms of SPS and TBTs imposed by importer countries?

2. Regarding such TBT or SPS measures:

(a) Are they public or private?

(b) What are the differences of perception between public and private standards?

(c) Are you affected by the choices of the products you cultivate?

(d) Are you affected by the way of production?

(e) Are they the main limitation for your exports, or are the tariffs and taxes imposed to exports by certain countries the worst barrier?

3. Have you lost export markets because of this type of measure? Which ones?

4. How have you overcome these measures?

5. How do you prove that you comply with TBT or SPS measures?

6. Regarding implemented measures to overcome or comply with SPS or TBT:

(a) Does the time of the production process increase before exporting?

(b) Does the choice of the country to which you wish to export affect the results?

(c) For which products is the situation most difficult?

(d) Do you consider these standards as trade barriers, or do your exports increase when you comply?

7. Do you know other producers or distributors that have faced SPS or TBT in developed countries?

APPENDIX 4: ETHIOPIA: COFFEE COOPERATIVES AND EXPORTERS – SURVEY ON SPS AND TBTS

Name of cooperative or company:

Address:

1. How many quintals of coffee you buy from farmers/collectors/suppliers?

2. Do you impose specific standards for buying coffee?

3. If yes, what are the standards you imposed?

(a)

(b)

(c)

(d)

4. Among all the standards, which are considered to be very important?

(a)

(b)

(c)

(d)

5. How do you prove that sellers respect the standards?

6. To which countries do you export coffee?

(a)

(b)

(c)

(d)

7. Do your buyers have specific standards for buying your product (coffee)?

8. If yes, what are the standards imposed by your buyers?

(a)

(b)

(c)

(d)

9. Do these standards and technical regulations preclude you from exporting coffee to the EU/ Japan/US/Canada?

10. Which standards are relatively easy to obey?

11. Which standards are relatively difficult to attain?

12. How do your buyers prove that you respect the standards?

13. Did you have to adapt your products and/or manufacturing practices to meet the technical regulation and standard requirements, such as:

(a) Design

(b) Certification

(c) Testing

(d) Labelling and packaging

14. Did you experience any other obstacles impacting your export activities? Please provide details.

15. What third-party conformity assessment service organization did you use? Why?

16. What additional costs did you incur in complying with the technical regulation or standards requirements in the target markets? Please provide financial details, both initial and ongoing data, and also in relation to the total production costs:

(a) Design

(b) Certification

(c) Testing

(d) Labelling and packaging

(e) Production

17. What is the extent of any duplication to meet both domestic and foreign technical requirements? Please provide details, including cost data.

18. Do the export market technical requirements have any beneficial impact on sales at home? Please provide details.

19. If the local technical requirements are different from those of the export markets, please indicate the financial implications of compliance for your enterprise.

20. Please provide information regarding the standards used as the basis for the technical regulations in the export markets. Are they international standards, e.g. ISO, IEC, Codex, or are they national/regional standards? Please provide details.

21. Are the international standards different from the standards used in the local market? If so, please provide details.

22. Due to the costs involved to meet the standards, do you change your mode of production?

23. Do these problems cause a product shift?

24. If you answer to Question 23 is yes, to which product(s)?

(a)

(b)

(c)

(d)

25. Do you lose (any) market due to a failure to meet standards?

26. If your answer to Question 25 is yes, how many kilograms do you lose?

27. Do you take any orientation and/or training about quality standards?

28. Which organization provided the orientation/training?

(a) Government

(b) NGO

(c) Cooperative

(d) Other (please specify) _____

29. What is your perception about the quality standards and technical regulations?

(a) Very bad

(b) Bad

(c) Fair

(d) Good

(e) Very good

30. List the major efforts you made, and estimated costs incurred, to meet the standards set by your purchaser.

(a)

(b)

(c)

(d)

31. What price do you obtain for the coffee you sell without those mentioned standards?

32. What price do you obtain for the coffee you sell by meeting those mentioned standards?

33. Estimated cost of production?

APPENDIX 5: KENYA: CUT–FLOWER PRODUCERS AND EXPORTERS – SURVEY ON SPS AND TBTS

Name of company:

Address:

1. Do you buy flowers from other producers?

2. If yes, how many tons of flowers do you buy from farmers/collectors/suppliers?

3. Do you impose specific standards when buying these flowers?

4. If yes, what are the standards you imposed?

(a)

(b)

(c)

(d)

5. Among all the standards, which are considered to be very important?

(a)

(b)

(c)

(d)

6. How do you prove that sellers respect the standards?

7. To which countries do you export flowers?

(a)

(b)

(c)

(d)

8. Do your buyers impose specific standards when buying your product (cut flowers)?

9. If yes, what are the standards imposed by your buyers?

(a)

(b)

(c)

(d)

10. Do these standards and technical regulations preclude you from exporting cut flowers to the EU/Japan/US/Canada?

11. Which standards are relatively easy to obey?

12. Which standards are relatively difficult to attain?

13. How do your buyers prove that you respect the standards?

14. Did you have to adapt your products and/or manufacturing practices to meet the technical regulation and standard requirements, such as:

(a) Design

(b) Certification

(c) Testing

(d) Labelling and packaging

15. Did you experience any other obstacles impacting your export activities? Please provide details.

16. What third-party conformity assessment service organization did you use? Why?

17. What additional costs did you incur in complying with the technical regulation or standards requirements in the target markets? Please provide financial details, both initial and ongoing data, and also in relation to the total production costs.

(a) Design

(b) Certification

(c) Testing

(d) Labelling and packaging

(e) Production

18. What is the extent of any duplication to meet both domestic and foreign technical requirements? Please provide details, including cost data.

19. Do the export market technical requirements have any beneficial impact on sales at home? Please provide details.

20. If the local technical requirements are different from those of the export markets, please indicate the financial implications of compliance for your enterprise.

21. Please provide information regarding the standards used as the basis for the technical regulations in the export markets. Are they international standards, e.g. ISO, IEC, Codex, or are they national/regional standards? Please provide details.

22. Are the international standards in Question 21 different from the standards used in the local market? If so, please provide details.

23. Due to the costs involved in meeting the standards, do you change your mode of production?

24. Do these problems cause a product shift?

25. If yes, to which product(s)?

(a)

(b)

(c)

(d)

26. Do you lose (any) market due to a fail in meeting standards?

27. If yes, how many tons do you lose?

28. What is your perception about the quality standards and technical regulations?

(a) Very bad

(b) Bad

(c) Fair

(d) Good

(e) Very good

29. List the major efforts you made, and the estimated costs incurred, to meet the standard set by your purchaser.

(a)

(b)

(c)

(d)

ENDNOTES

1 Diversification products refer to "products of particular importance to the diversification of production from the growing of illicit narcotic crops" (preamble in the Agreement on Agriculture and Paragraph 43 of the Agreed Framework).

2 See document WT/L/59.

3 They included (i) tropical beverages (cocoa, coffee and tea); (ii) spices, flowers and plants; (iii) some oilseeds, vegetable oils and oilcakes (e.g. palm and coconut oil); (iv) tropical roots, rice and tobacco; (v) tropical fruits and nuts (e.g. plantains, pineapples and peanuts); (vi) tropical wood and rubber; and (vii) jute and hard fibres.

4 Due to the unavailability of data, Timor-Leste is excluded from the study.

5 South Africa has a specific free trade agreement with the EU but has signed the 2005 agreement. Somalia and Cuba are not part of the Agreement. See Council Decision 8851/05 ACP 63 OC 269, Brussels, 7 June 2005.

6 www.wto.org/english/tratop_e/sps_e/sps_agreement_cbt_e/c1s5p1_e.htm

7 www.standardsfacility.org/

8 www.wto.org/english/tratop_e/dispu_e/cases_e/ds237_e.htm

9 www.unctad.org/trade_env/test1/meetings/wto1/Summary%20of%20SPS%20Committee%20Discussion%20on%20Private%20Standards.pdf

10 www.unctad.org/Templates/Page.asp?intItemID=2188&lang=1

11 The price for producers also varies depending on whether a banana producer sells in the spot market, by contract or directly to their own export companies.

12 The criterion adopted to sample the companies was to try to cover companies that represented as much as possible (>50 percent) of exports of bananas and pineapples in Ecuador. This goal was reached by interviewing all but one of the big banana export companies (which happen to also be pineapple exporters). For medium-sized and small producers we interviewed just a very small sample, aiming mainly at presenting anecdotal evidence of the situation faced by these medium-sized and small producers regarding SPS and technical standards. Knowing that we had very few interviews with small and medium-sized farmers, we combined the interviews with data from the last agricultural census (year 2000) regarding cultural practices (irrigation, use of fertilizers, SPS practices). Census data present a picture that shows most (if not all) big and medium-sized banana and pineapple producers having cultural practices such as irrigation, use of fertilizers and use of SPS measures, in contrast with small producers, which mostly lack these cultural practices.

13 In this section, SPS and TBT requirements include public and private sector requirements.

14 CORPEI has a special programme called "Programa Fitosanitario para el Agro para la Mitigacion de Barreras Tecnicas de Acceso al Mercado de EE.UU. (PROFIAGRO). Its main goal is to help farmers and exporters to mitigate technical barriers to trade.

15 Interview with Mr Alexander Arana, Manager of the group ACON.

16 *Kebele* is the smallest administrative unit in Ethiopia.

17 www.learningafrica.org.uk/trade_activities.htm

18 About 20 percent of total flower production in Kenya is small-scale and increasing.

19 However, this preferential treatment is due to expire by 2008, after which Kenya, as a non-LDC, will be subject to the generalized system of preferences, which specifies a 5 percent tariff.

20 One company, which produces at least 30 percent of total Kenyan exports, is not part of KFC. KFC membership is the most significant in the flower sector (about 37 members). FPEAK has about 20 members. At least 60 percent of all flower volume is in the two associations.

21 www.unctad.org/Templates/Page.asp?intItemID=2188&lang=1

22 http://r0.unctad.org/trains_new/tcm_link.shtm

23 As mentioned in Section 4.1, WTO Members have to notify only changes to their SPS and TBT regimes. Measures that have been in place without change do not need to be notified and are not captured in our study.

24 www.cepii.fr/anglaisgraph/bdd/baci.htm

25 Results of regressions at the four-digit level are available upon request from the authors.

26 www.cepii.fr/anglaisgraph/bdd/distances.htm

27 www.cepii.fr/anglaisgraph/bdd/macmap.htm

28 Only Ethiopia's coffee farmers and exporters have little knowledge about SPS and TBT measures.

29 For example, WTO provides information on the TBT-related technical assistance activities of the Committee on TBT, the WTO Secretariat and Observer Organizations, as well as information on the assistance activities of Country Members (www.wto.org/english/tratop_e/tbt_e/tbt_tech_e.htm).

30 www.coleacp.org/

31 www.tradeforum.org/news/fullstory.php/aid/460/Technical_Assistance_for_SPS_Measures:_Protect_

32 www.wto.org/english/tratop_e/devel_e/a4t_e/a4t_factsheet_e.htm

33 www.wto.org/english/tratop_e/devel_e/a4t_e/what_why_how_e.ppt#13

34 This questionnaire is based on the questionnaire found in Mattson et al. (2004) and questions suggested by the ICTSD.

35 This questionnaire is based on the questionnaire found in Mattson et al. (2004) and questions suggested by the ICTSD.

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