

## **BRAZILIAN FRUIT PRODUCTION: IN SEARCH OF AN EXPORT MODEL**

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## **Abstract**

This study analyses the production of fruit within Brazil from various angles, emphasizing the obstacles to establishing a large-scale export strategy.

The world market for fresh fruit is growing rapidly, but is heavily influenced by government policies among the main importing countries, as well as by extremely intense competition. International competitiveness appears to be increasingly dependent on efficient systems of commercialization, which are the result of both public and private-sector initiatives, albeit in varying combinations. Brazil has not yet succeeded in assembling such a system, a fact that is largely to blame for its poor export performance.

Since 1986, various analyses have been made, that are largely in agreement with each other, and that were written with the aim of exposing various factors that are responsible for the timid action of producers, the market and the government.

All in all, the Brazilian fruit sector lacks the coordinating effects of markets and public policies that would permit the establishment of a productive chain with the infrastructure and mechanisms of commercialization that cater to the needs of both domestic and foreign markets. These are necessary for it to realize its potential.

## **Introduction**

The fascination that fruit holds for human beings was first described by the earliest religious scribes, and continues throughout the whole of history, incorporating the most diverse forms of symbolism, that are always linked to pleasure, beauty and health.

Starting from this symbolism, man has continued to invent a wide range of ways of consuming fruit: in juices, ice cream, biscuits, yogurts, alcoholic and non-alcoholic beverages, an enormous range of confectionery/desserts, as well as in shampoos and beauty creams, always with the aim of capturing the special taste or health-giving properties of each fruit. Having said this, nothing equals the pleasure of the natural taste of fruit.

The availability of a fruit in this form nevertheless demands a complex system of planting, cultivation, harvesting, treatment, post-harvest processing, storage, transport and display in points of sale. The entire system aims to deal with the limited life and intrinsic fragility of fruit. It is not by chance that only 10% of fruit production reaches the hands of consumers in its natural form, without industrial processing.

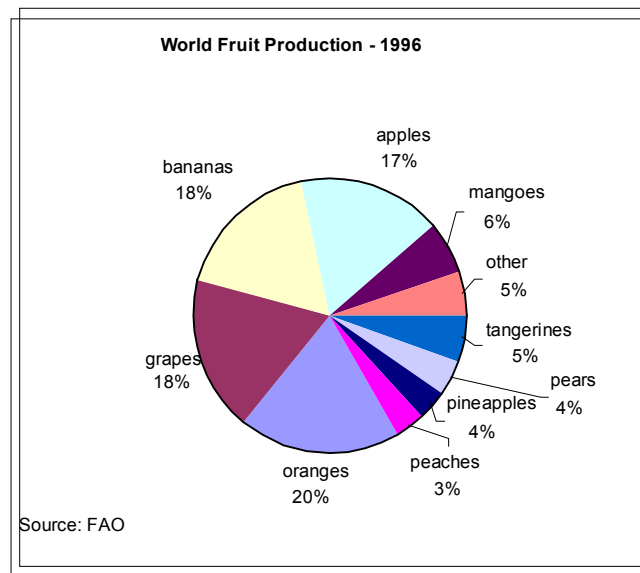
The potential of Brazilian fruit production is undeniable, most notably in its irrigated form. Having said this, bottlenecks at each stage of the process, from production to sale still await suitable solutions despite having been detected many years ago.

This study provides a panorama of the sector, emphasizing the production of fresh fruit, most notably with regard to its commercialization, and attempts to trace developments that could aid the Brazilian fruit sector to realize its export potential.

## **International Trade**

The sector is characterized by an enormously wide diversity of products, of which only a small part is sold internationally on a large scale. Since the diversity of fruit makes it difficult to compile statistics, we have decided to concentrate on analyzing the more traditional varieties of fruit for consumption, namely: citrus, apples, grapes, bananas, pears, pineapples and peaches.

**Graph 1**



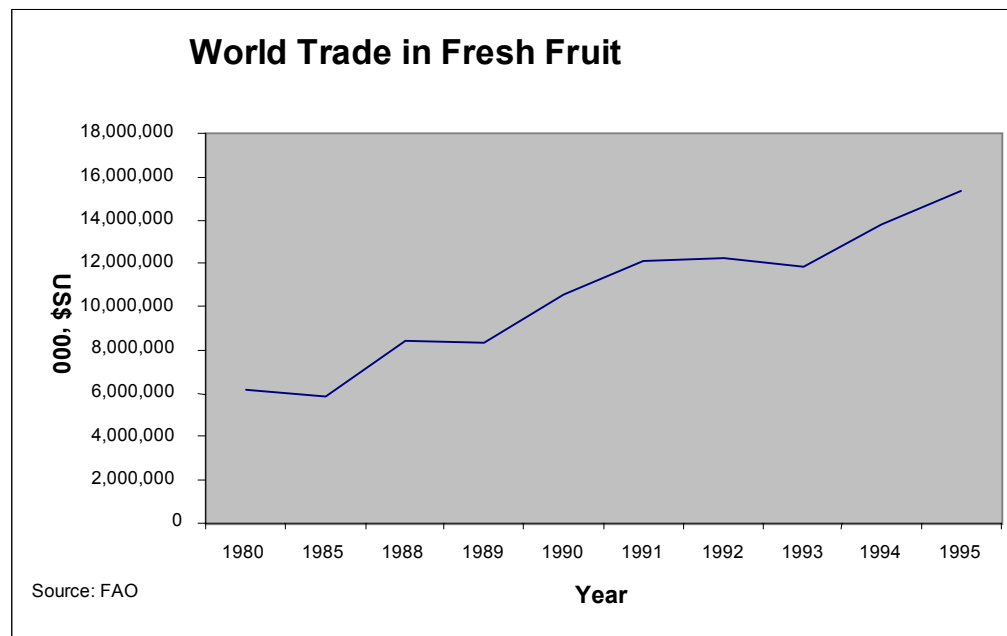
The varieties of fruit analyzed represent 84% of world production, with four of these, from a temperate climate (apples, grapes, pears and peaches) accounting

for 42%. Of typically tropical varieties of fruit, only bananas, pineapples and mangoes are produced in significant quantities, representing 28% of world production.

### ***Recent Developments***

International trade in fruit has grown rapidly since the mid-1980s, with the annual rate of growth of international exports averaging 10% between 1985-95, albeit with a slight fall to 7.7% during the period 1990-95.

**Graph 2**



According to the OECD (1997a), fruit and nuts<sup>1</sup> form the largest category of agroindustrial imports by OECD countries, as well as the fastest growing category over the period 1980/82 to 1990/92, the total value of which increased from less than US\$ 10 billion to over US\$ 20 billion, including fresh (70%) and processed products (30%). Most notable among fresh products were bananas, which accounted for some 30% of total exports, and among processed products, fruit juices, which represented half of all imports in this category.

In addition to the growing demand for natural products, international trade in fruit expanded significantly during the 1990s due to a series of other factors [see OECD (1996)], the most notable of which are:

- efforts by developing countries to increase the value of their exports – the fall in tropical commodities during the 1980s led to initiatives to diversify production as a way of sustaining incomes of countries and producers;
- a general trend towards trade liberalization – the conclusion of the Uruguay Round, and the signing of bilateral and regional agreements aided in reducing barriers to international trade, even if such developments are still far from eliminating them;

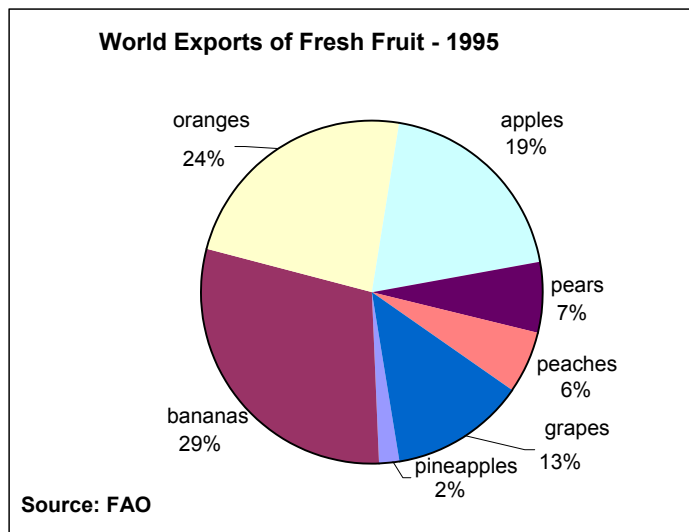
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<sup>1</sup> It is not always possible to break down the categories of classification of foreign trade.

- diversification of production, adopted as a response to the reform of agricultural policies, a reduction in government support, and an increase in supply in both hemispheres; and
- technical progress in storage and transport – low temperatures and controlled atmosphere techniques, that have led to an increase in warehousing times, a reduction of costs, due to less need for post-harvest treatment, and an improvement in quality, due to the scope for harvesting fruit at a later stage, when it is more mature.

International trade is dominated by temperate varieties of fruit, that are most heavily consumed in the large markets such as Europe and the United States, even if bananas show the fastest growth in consumption during the 1990s (11% per year), and peaches the lowest (2% per year). World production of such fruit is around 261 million tons per year, with China, Brazil, the United States and Italy the principal producers that together account for some 37% of world production.

**Graph 3**



During the 1990s, growth averaged 3% per year, with China achieving outstanding annual growth rates that averaged 20% per year, and that have transformed it from the fourth largest producer at the start of the decade into the world's largest producer of fruit. Another country that has achieved extremely high rates of production growth is Ecuador (12% per year), with this figure represented principally by growth in banana production.

For production of fruit, apples and pears showed the greatest increase, with average annual growth rates of 7% and 6% respectively. Among apple producing countries, the fastest growth rates were achieved by China (26%), Egypt (50%) and Poland (9%), while notable among pear producing countries were China (14%), Chile (12%) and Egypt (11%).

Less than 10% of production is sold internationally in the form of fresh fruit, even if there is no precise data on consumption in the domestic markets of the principal producer countries. This is due to the fact that data reflects import volumes, but does not identify the use of fruit, which after having been imported, may be used in pulp, fresh juices, ice creams, confectionery or other processed products.



Table 1

## Leading International Producers and Exporters, by variety of fruit

	Pineapples		Bananas		Oranges		Apples		Pears		Peaches		Grapes	
	Country	%	Country	%	Country	%	Country	%	Country	%	Country	%	Country	%
<b>Producers</b>	Thailand	17	India	18	Brazil	37	China	30	China	43	China	22	Italy	16
	Philippines	13	Brazil	10	United States	18	United States	9	Italy	7	Italy	16	France	13
	Brazil	9	Ecuador	10	Mexico	6	France	5	United States	5	Greece	10	United States	9
	China	7	China	6	China	4	Germany	5	Spain	4	United States	9	Spain	8
<b>Exporters</b>	Costa Rica	20	Ecuador	17	Spain	49	France	17	Argentina	13	Italy	43	Italy	22
	Belgium/Luxembourg	15	Belgium/Luxembourg	16	United States	10	United States	14	Holland	13	France	13	Chile	18
	Ivory Coast	14	Costa Rica	12	Morocco	5	Italy	10	Belgium/Luxembourg	12	United States	8	United States	18
	France	14	Colombia	9	South Africa	4	Holland	9	South Africa	11	Chile	7	Holland	6

Source: FAO.

The largest exporters of fresh fruit are Spain, the United States, Italy, Holland, France and Ecuador, which together account for 54% of sales by value. Holland/Belgium/Luxembourg and France act as distribution centers for Europe, which accounts for 47% of exports, while the United States has a 36% share.

With regard to imports, Germany, the United States, Britain and France absorb 42% of international trade in fresh fruit, with Germany the largest importer (16%), followed by the United States (11%).

The leading example of specialization is Spain, which supplies the world table orange market, a specific niche, since most orange production is processed into juice (Brazil is a typical case). Spain, responsible for 49% of world orange supply, is the world's largest exporter of fresh fruit. Despite the fact that its production has been declining at an annual rate of 2%, exports have risen by an average of 5% per year over the last decade.

Another case of specialization is Ecuador, the world's third largest producer of bananas, whose contribution to world trade is limited to this product, even if it has a 17% share of the market for supplying this, the most widely sold variety of fresh fruit. As a result of its banana production, Ecuador is the fourth largest international exporter of fresh fruit, with production having increased at a rate of 2% per year, and exports by as much as 12% a year.

The United States provide the leading example of diversification, with a significant share of all the markets analyzed: import, export and production (with the exception of banana production). Most notable is the reversion of the US position in the orange market, having boosted production at a rate of 7% per year, while imports have fallen (by 13% per year), and exports risen (by 11% per year), in a market that has grown at 5% per year.

Holland is active in this market, as it is in several others, as a commercial distribution center, although it is absent from trade in table oranges, peaches and grapes, all markets dominated by other European countries and by the United States. In the markets where it is present, it has increased the value of its exports at a rate of 39% per year.

France also acts as a European distribution center for pineapples and bananas. In the case of pineapples, it has a clear strategy of increasing imports for re-export, while in the case of bananas, its increased share of international trade seems to have been determined by the reduction in domestic consumption, since imports have remained stable.

Another notable example is China, which has significantly increased its production of the most widely sold varieties of fruit at international level, namely: bananas (growth of 13% per year), oranges (7% per year), apples (26% per

year), pears (14% per year) and peaches (15% per year). While the country has increased its imports of peaches (29% per year), and has a net deficit in apples, the overall increase in production (18% per year), and its share of world supply (12% per year), suggests that it has adopted a strategy of supplying the world market, most notably with temperate fruits (apples and pears) as well as with table oranges.

Argentina has increased its exports by some 11% per year, as a result of Mercosul (most notably of Brazil), even if it has reduced its overall production. Higher incomes have nevertheless encouraged the country to plant new orchards, which have not yet begun producing on a commercial scale.

In the case of pears, the data indicates that new markets have opened to South Africa, which, while having increased its production by only 2% per year, has boosted exports by 14% per year. The end of the boycott of the country's former *apartheid* regime explains most of the growth during the 1990s.

Chile, despite a considerable increase in production (12% per year) has witnessed a fall in its total exports of fruit at a rate of 5% per year, as a result of lower prices in the European market.

### ***Principal Characteristics***

It is possible to define, in general terms, the principal characteristics of international trade in fresh fruit, as well as future trends. It should be noted that several of the factors mentioned also apply to other food products, whether fresh or processed.

### **Predominance of Temperate Varieties of Fruit**

The principal varieties of fruit sold and consumed throughout the world are oranges, apples, grapes, banana, peaches, pears and pineapples. Of these, bananas, pears and pineapples are predominantly consumed in their natural state, oranges and apples as juice, while most grape production is transformed into wine or juice, and peaches into nectar or canned fruit in syrup. This explains why the largest producers are not the main exporters of these products in their natural state (with the exception of Italy, which is the leading producer of grapes and also the largest exporter).

Despite the preference for varieties of fruit traditionally consumed in Europe and the United States, there has been an increase in recent years of imports of so-called exotic fruit, typically from tropical climates, such as guavas, mangoes, papayas and kiwifruit.

According to the FAO [cited in *Agra Europe* (June 1998, p. 3)], international consumption of tropical fruit should increase by around 40% between 1995 and

2005, equivalent to an annual growth rate of 3.5%. This growth should be accompanied by an increase in supply, although prices may decline due to intense competition between exporters.

Most of the 56 million tons of production (1997 data) is directed towards domestic consumption by producer countries. Mangoes (40%), pineapples (23%), papayas (9%) and avocados (4%) are the principal products. International trade accounted for only 1.8 million tons in 1996, representing some 3% of production.

In order to realize the growth potential of this segment, the FAO has suggested a series of measures to increase the efficiency of the production and distribution chain. Improvements in packaging, transport and commercialization are fundamental, as is the establishment of strategic alliances by exporters, in such a way as to ensure the acceptance, wide availability and efficient distribution of their products.

### **Imports Concentrated in the United States and Europe**

Demand for fresh fruit is concentrated in Europe and the United States, which absorb around 60% and 11% respectively of international imports. The European and US markets are extremely dynamic, and are notable as major producers and exporters of fresh fruit. Since they are located in temperate zones, it is natural that their domestic markets should demand varieties of fruit with characteristics in line with the cultural traditions of those markets, which in turn influence the rest of the world market. In this way, among the most frequently consumed kinds of fruit, only bananas and pineapples are not typical of temperate climates.

### **High Standards of Quality**

Growing demands for quality translate into patterns of standardization that already transcend national borders, due to the globalization of markets. These may be divided into two areas:

- the intrinsic value of fruit: appearance, taste and color, in such a way as to provide a degree of predictability that caters to consumer tastes; and
- the form of commercialization: uniformity (size and format), which is important for packaging, transport and display processes, as well as for permitting a higher degree of visibility to the consumer, and higher standards of hygiene that minimize waste.

### **Major Importance of Sanitary Regulations**

International trade in food products is heavily conditioned by the various sanitary regulation mechanisms. Almost all countries impose restrictions on transport of

food products, on the basis of concerns for consumers, and most notably, for their own producer regions.

In the case of fresh products, these concerns are multiplied, since an infected cargo can jeopardize efforts to eradicate infestations and diseases, that took years to achieve and that cost millions of dollars. It should be noted that the countries with the most rigorous control procedures are precisely the major exporters – the US, the European Union and Japan – giving new exporters only very selective access to international trade flows.

### **Significant Trade Barriers**

In addition to sanitary restrictions, fruit is subject to a series of tariff and non-tariff barriers in developed countries. Among the instruments used by some of the major importing countries are: minimum quality requirements; privileged status agreements for certain regions (which is the case for trade in bananas between the European Union and some of its former colonies); limits on imports during the local harvest period; the imposition of minimum prices for imports, and compulsory advance licenses for importers.

While the Uruguay Round has imposed the requirement that all barriers be translated into tariffs, international trade in agricultural products continues to be one of the most restrictive. Even if unwarranted barriers are removed in the future, various factors remain in place to limit the free movement of goods, and thus restrict the growth potential of exports from non-traditional producer countries.

### **Production Structure**

Production is fragmented at national and regional level, in accordance with the soil and climatic conditions that are suitable for each variety.

In almost all countries, cultivation of fruit is carried out by small- and medium-sized producers, and due to the labor-intensive nature of production, which is much greater than is the case of cereals, economies of scale are limited. The use of family labor is one of the major strong points of small landowners, allowing specialized cultural characteristics and permitting flexibility of costs in the face of price variations, due to the low cash outlay.

Production of fruit for export is based on small landowners with a trading system linked to large companies or government structures that organize the distribution of products in the international market.

### **Presence of Large Export Companies**

Some of the larger players in this market achieve annual revenues in excess of US\$ 1 billion, notably the two US groups, Dole Foods (US\$ 4 billion) and Chiquita (US\$ 2.4 billion in 1997). According to Rabobank International (1997), four trading companies control 80% of world trade in fruit.

Such companies are often both producers and distributors, although there are also organizations that specialize in commercialization, such as the 'boards' of New Zealand. Production is often carried out on the basis of contracts with integrated producers, although the large banana companies have significant plantations of their own. Their activities extend from research into different varieties to transport logistics, and include definition of quality standards and advertising.

### **Growth in Market Share of Modern Retail Chains**

The retail sector is in a major phase of concentration throughout the world. Supermarkets and hypermarkets have gained market share from traditional distribution systems, such as street markets and small stores. Within the supermarket segment, the leading companies are accounting for an increasing share.

This trend is increasing the demands on suppliers, both in terms of quality and delivery times, leading to a reduction in the profit margins of intermediary agents and producers. In response to the difficulties of negotiating with retailers, the large export companies have attempted to control costs and reduce the number of suppliers. Another strategy has been to undertake mergers to increase their size of operation, and as a result, their bargaining power with distributors.

### **Increases in Volume and a Reduction in the Seasonal Nature of Supply**

While production remains subject to limitations of climate, except in a few irrigable regions, there has been an observable trend towards the expansion of supplies of fresh fruit beyond the traditional harvest periods. This is due to the wider distribution of producer areas throughout the world, most notably the growth of supply of temperate fruit by the Southern Hemisphere, as well as advances in preservation technology, that have extended the warehousing times and shelf life of perishable products.

In the case of out-of-season temperate products, where Southern Hemisphere production supplies Northern countries during the inter-harvest period, technical advances have served to reduce the so-called 'windows' in the market.

In addition to this trend, international trade has grown more than total production (by 7.7% per year against 3% per year during the 1990s), leading to increased supply of products and a consequent downward pressure on prices that has tended to depress margins. Mangoes are a good example, with prices in Europe

falling 30% since 1988 [*Agra Europe* (April 1998)], in conjunction with a 66% increase in import volumes.

### **Demand for Baskets of Products and New Products**

The large retail chains, in their desire to optimize their logistical systems, reduce their costs and gain more customers, have demanded the supply of baskets of fruit, composed of different products. In this way, they maximize the use of their installations, and thus reduce their average cost.

Export firms are attempting to diversify their sources of supply, in order to satisfy this trend. The demand for baskets also increases the range of opportunities for tropical fruit, which is a minor component of such packages, and which can thereby succeed in increasing its visibility to consumers in developed countries. It has nevertheless been noted that tastes change slowly, even with an increase in international tourism, and that the consolidation of a market for a new fruit may take several years.

The demand for new products has generated heavy pressure for the continuous development of new varieties, making research activity a decisive variable for ensuring competitiveness. There has also been an increase in investment in production, since it is becoming necessary to renew orchards at ever shorter intervals, before their productivity begins to fall.

### **Logistics**

Since fresh fruit is a delicate product that matures and deteriorates rapidly, it requires special care in harvesting to avoid damage, as well as selection in controlled environments, adequate packaging to prevent contamination of deterioration, refrigeration to slow maturation, and storage in dedicated warehouses.

**Table 2**  
**Chile: Price Levels in the Supply Chain for Fruit and Vegetables – 1995**

(In US\$ per 10 kg Case)				
DOMESTIC MARKET PRICE	PRICE RECEIVED BY THE PRODUCER OF EXPORT GOODS	PRICE AT THE PORT OF ORIGIN	PRICE AT THE PORT OF DESTINATION	PRICE IN FOREIGN MARKETS
7.8 (7%)	29.1 (26%)	56.0 (50%)	95.2 (85%)	112.0 (100%)

Source: Tejo (1997).

NB: Tejo's estimates are based on average price by variety of product.

Table 2 shows that the supply chain for fruit and vegetables shows a very steep 'scale of prices'. At each point, the value of the product increases as a result of the services carried out at each stage, as well as of the bargaining power of each

of the economic agents. The largest difference in price occurs at the level of the producer. The prices received for export products, which have higher standards of quality and treatment, can be up to four times higher than prices in the domestic market. From this stage on, logistical services such as refrigerated sea freight, unloading at the port, warehousing, commercialization and distribution to the retailer, assume a crucial importance.

From the point of origin to the final consumer, the product price may double. While the table does not explain the margins at each stage, it does suggest that a verticalization strategy makes sense, since over 70% of the final value is added outside the plantation. This is the principal justification for the assembly of sophisticated logistical systems by the leading international export companies.

### ***The Brazilian Trade Balance***

Brazilian foreign account transactions in fresh fruit are characterized by the export of tropical, and the import of temperate varieties of fruit that are only produced domestically in small quantities. Apples form an exception to the rule, since in addition to a significant level of domestic production, there is also scope for exports.

Brazilian exports are principally composed of oranges, melons, mangoes and bananas, which accounted for two thirds of exports by value over the course of the 1990s. After having grown 165% between 1990 and 1993, exports contracted by 16% until 1997, a trend observed for all varieties of fruit, with the exception of papaya, that showed constant export growth, and that could now jump to a much higher level of sales, due to the liberalization of the US market from 1998 onwards.

**Table 3**  
**Brazilian Exports of Fresh Fruit – 1990/97**

(In US\$ Million)								
FRESH FRUIT	1990	1991	1992	1993	1994	1995	1996	1997
Oranges	18	21	18	18	27	29	20	23
Melons	8	16	16	31	29	16	25	21
Mangoes	3	5	7	20	16	22	29	20
Bananas	8	18	17	15	11	4	6	8
Apples	2	2	21	12	15	6	2	11
Grapes	2	6	8	15	8	10	6	5
Pineapples	3	5	5	10	7	4	4	4
Papayas	2	2	2	3	4	4	5	7
Tangerines	1	2	2	2	2	3	3	5
Figs	1	1	1	1	1	1	2	2
Guavas	0	0	0	0	0	0	0	0
Other Fruit	2	3	4	4	3	2	3	3



<b>TOTAL</b>	<b>49</b>	<b>81</b>	<b>101</b>	<b>130</b>	<b>123</b>	<b>102</b>	<b>105</b>	<b>109</b>
Source: Secex.								

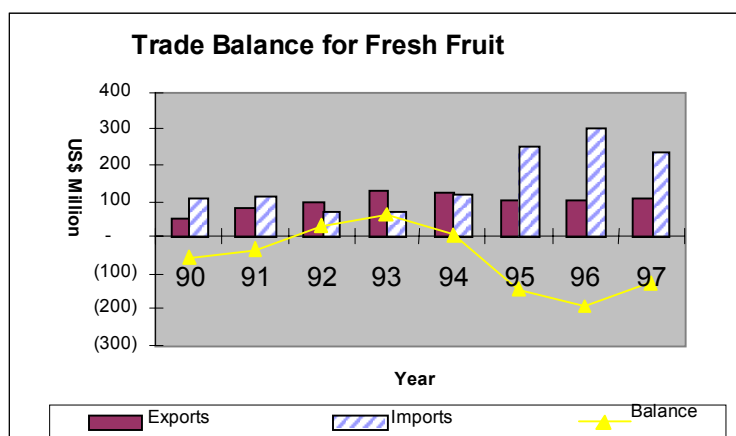
The export performance of bananas, apples and grapes has been irregular, with bananas losing space among exports since 1993. Apples and pears, which until 1994, represented three quarters of Brazilian imports of fresh fruit, reduced this relative share to two thirds from 1995 onwards, even if the value of exports of these products has doubled. This relative decline is due to increased imports of grapes, plums and kiwifruit. While Brazilian apple production has grown over the last two decades, it has not kept pace with the increase in domestic demand.

**Table 4**  
**Brazilian Imports of Fresh Fruit – 1990/97**

(In US\$ Million)								
<b>FRESH FRUIT</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>
Apples	45	55	29	24	48	88	87	57
Pears	38	34	25	26	35	77	98	92
Grapes	12	10	4	4	8	20	32	26
Plums	6	8	6	6	11	21	29	23
Nectarines	2	1	2	1	3	6	10	8
Peaches	0	1	1	1	2	7	10	7
Cherries	1	2	1	1	3	5	7	4
Kiwifruit	-	-	-	-	-	-	-	14
Other Fruit	3	3	2	4	9	24	24	5
<b>TOTAL</b>	<b>107</b>	<b>114</b>	<b>70</b>	<b>68</b>	<b>119</b>	<b>248</b>	<b>296</b>	<b>237</b>
Source: Secex.								

Since fresh fruit has a high-income elasticity, the growth of purchasing power among the population of Brazil is reflected in the sector's trade balance, most notably with regard to fluctuations of imports and availability of fruit for export.

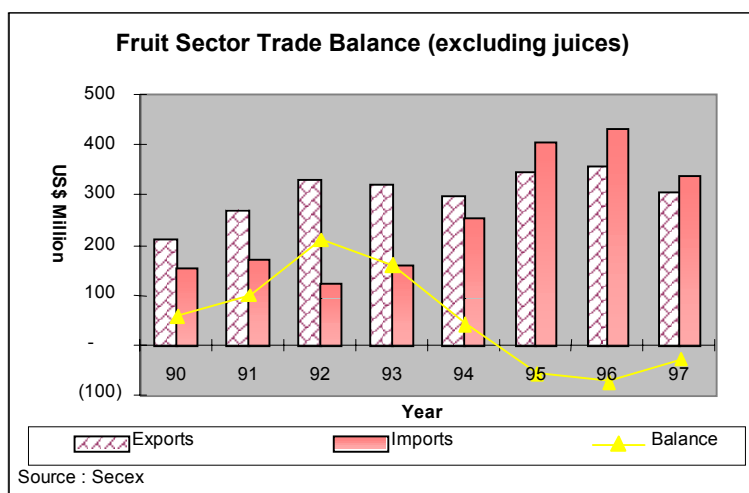
**Graph 4**



As may be observed from Graph 4, the trade balance was negative for most of the period in question. The implementation of Mercosul, the liberalization of trade, and the effects of the Real Plan (appreciation of the currency and improvement in the purchasing power of the population) explain the accelerated growth in imports from 1994 onwards, with the average value increasing from US\$ 90 million per year (1990-93) to US\$ 225 million per year (1994-97), representing growth of 150%.

In addition to fresh fruit, Brazil also exports significant quantities of cashew nuts and Brazil nuts, and imports nuts and dried fruit (grapes, plums, apricots and figs), with a positive trade balance in this segment. Brazil's overall trade balance for the fruit sector<sup>2</sup>, excepting juices, was in surplus until 1995, when the significant increase in imports of apples, pears and grapes stemming from growth in domestic demand pushed it into deficit.

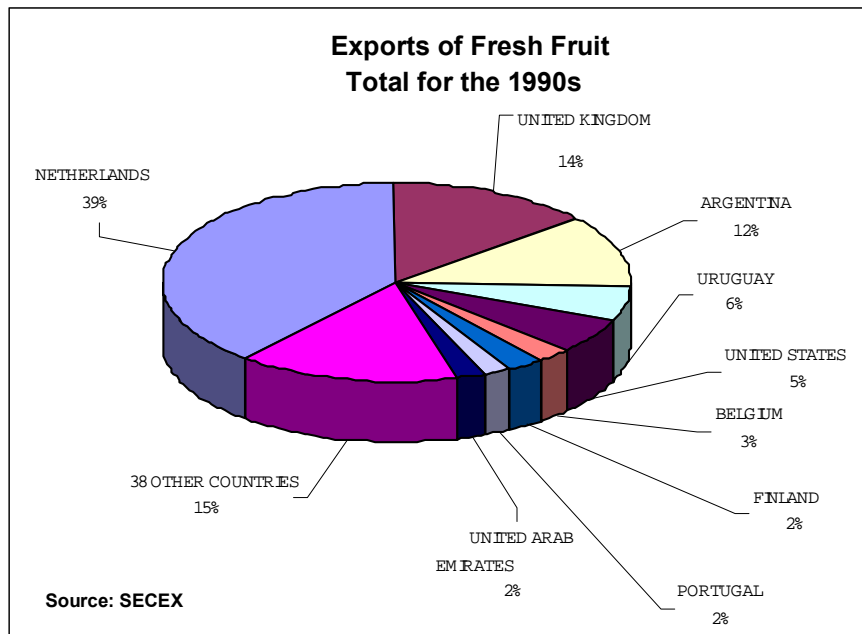
**Graph 5**



Most Brazilian fruit exports (63%) go to the European market, followed by Mercosul (18%). The main importer is Holland, which, as for other products, acts as a distributor to the rest of Europe. The largest direct consumer of Brazilian imports is the United Kingdom, followed by Argentina and Uruguay.

<sup>2</sup> Juices are excluded from the fruit sector trade balance due to the large annual volumes of orange juice sold, with these distorting the view of the sector, given that orange cultivation has taken a different path and is regarded as a commodity.

**Graph 6**



Imports of fresh fruit are predominantly sourced from three countries, that account for 90% of total imports: Argentina (pears, apples and plums), Chile (grapes, plums and kiwifruit) and the United States (pears and apples). Argentina is alone responsible for 55% of supply volumes.

Brazil is thus a marginal nation in the international fresh fruit trade, even if it is the second largest producer in the world. Only melons are exported in significant quantities: around 42% of 1997 production, according to Secex data (1998, p. 7). For other kinds of fruit, exports account for less than 3% of production.

In addition, Brazilian export companies handle very low export volumes by comparison with the leading international companies. While the sector is highly concentrated, that is, with few companies accounting for the majority of trade, its overall revenues are too low to fund the establishment of logistical systems that would guarantee international competitiveness on a large scale (Table 5).

**Table 5**

**Degree of Concentration and Revenues of the Largest Brazilian Export Company, by Variety of Fruit - 1997**

<b>Fruit</b>	<b>Degree of Concentration CR 3 (%)</b>	<b>Export Revenues (US\$ Million)</b>
Pineapples	40	0.7
Bananas	51	1.9
Oranges	85	13.5
Apples	53	3.0
Papayas	72	3.3
Mangoes	34	3.2
Melons	62	9.1
Grapes	26	0.6

Source: Secex.

### **Foreign Trade Institutions**

Competition in the international market for fresh fruit has been growing ever greater. While consumption is growing, supply has expanded rapidly, both through traditional suppliers as well as due to the entry of new exporters. Competitiveness appears to be increasingly dependent on the establishment of efficient systems of commercialization, that include both public and private-sector agents.

This section presents some ideas regarding the demands of fruit cultivation in terms of the organization of the international chain. It suggests that isolated producers face almost insurmountable difficulties in gaining access to foreign markets, due to the nature of the sector itself. In order to overcome such difficulties, governments of various countries have established sophisticated support systems for the private sector, and some have even developed public-sector commercialization schemes.

### **Market Failures**

Cultivation of fruit is the victim of a classic market failure – asymmetry of information. The market does not always supply all the information that is necessary for well-founded decisions by producers and consumers. This implies that a country may well export less than it could in theory, simply because producers are not aware of the basic characteristics of foreign demand, which at times do not manifest themselves in the form of higher profits.

On this point, fruit cultivation shares the same problems as small- and medium-sized businesses across the world. Since the cost of generating and analyzing

information on foreign markets generally exceeds the financial capacities of such companies, they tend to underexport. In this way, the Brazilian preference for Ceagesp (the main wholesale fruit market in Metropolitan São Paulo) may reflect an incomplete evaluation of the international market, rather than lack of competitiveness on the part of local producers.

Another defect that appears to inhibit domestic fruit production and hinder its export efforts is the existence of incomplete markets. A market is said to be incomplete when supply is inferior to demand, even when prices offer attractive margins. Fruit cultivation suffers from problems associated with complementary markets, in which the supply of a product is affected by the insufficient supply of its complement (a typical example would be the complementarity between coffee and sugar or sweetener).

Deficiencies in logistical services fall into this category. A portion of domestic production is not exported since the supply of transport and commercialization services is insufficient, making these expensive. Logistical systems thus do not develop due to the small scale of operations.

This is essentially a problem of coordination, since the volume of each individual firm is small, but the sharing of services by several companies could aid to rationalize transport and warehousing costs, thereby increasing their bargaining power and helping to reduce costs. There is no reasonable explanation for the continuing absence of a specialized fruit handling port in the Northeast, with Natal, Cabedelo and Suape competing for scarce and uncoordinated cargoes. Competition between ports would be ideal for producers, if they could choose between efficient alternatives. The shared use of refrigeration facilities also falls into this category. Having said this, since no logistical service has achieved a scale of operation that is compatible with low costs, the result is painful for all concerned.

### ***From Market Failures to the Role of the Government***

In order to compensate for market failures, and minimize the inefficiencies that result from them, governments have frequently established support systems for the private sector. Government activity is required in such areas as collecting and publishing market information, export financing, research into varieties of fruit and systems of sanitary protection, in some cases because the private sector is unable to provide such services, and in others, because the supply of such services by the private sector is inadequate (and the action of the government is complementary).

By way of example, we may consider a restricted sample of the instruments made available by the US Department of Agriculture (USDA):

- since 1915, the USDA has provided daily information on prices and volumes sold in various US cities, and throughout the world, in such a way as to increase the transparency of price setting. The market does not always offer such services at suitable prices, which undermines the bargaining position of sellers of perishable products;
- the first set of quality standards was established in 1917 for potatoes, with such standards currently covering 158 items for 85 fresh products; through such standards, the government lowers the transaction costs in markets for these products, since it minimizes divergences on their characteristics;
- the Perishable Agricultural Products Act was established in 1930, prohibiting fraudulent and unjust sale practices, defining ways of resolving disputes between buyers and sellers, and attempting to minimize the effect on the supplier of bankruptcy on the part of the buyer; and
- purchase and sale agreements between groups of producers were authorized in 1937, imposing compulsory regulations on qualities and quantities of various products in various regions, under the supervision of USDA technicians.

The European Union has established similar mechanisms. We shall merely mention mechanisms for withholding products in order to regulate prices, in addition to granting various privileges to producer organizations.

Intervention is not restricted to domestic markets, but also affects international trade. Preferred status agreements, setting of quality standards, quarantine restrictions, import licenses, safeguard clauses and reference prices are used by the United States and/or the European Union to protect their markets, whether openly or covertly. To the despair of liberal economists, such policies go well beyond what is recommended to deal with market failures. Having said this, the repeated alerts with regard to the excessive fiscal costs of such interventions, and the negative impact on the well being of consumers have not had the effect that was hoped for.

Table 6 presents the principal policies for the fruit and vegetable sector adopted by the European Union and the United States.

**Table 6**  
**Principal Government Aid Policies for the Fruit and Vegetable Sector in the United States and the European Union**

	United States	European Union
<b>Domestic Measures</b>		
• Quantitative Controls	- Market Controls - Farm Merchandise Purchase Act	- Withholding Schemes
• Qualitative Controls	- Market Controls - Quality Standards	- Quality Standards

• Income Support	- No	- Withholding Schemes (Financial Compensation for Producer Organizations)
<b>Trade Measures</b>		
• Aid to Exporters	- Export Credit Guarantee Schemes - Export Promotion Schemes	- Reimbursement of Exports
• Protection from Imports	- Customs Duties - Quarantine - Quality Standards	- Reference Price Schemes - Import Duties - Import Licenses - Safeguard Clauses - Quality Standards
• Trade Agreements	- 'Omnibus Trade and Competitiveness Act' - Generalized Preferred Status System - Caribbean Basin Initiative	- Generalized Preferred Status System - Lomé Convention
<b>Measures aimed at Production</b>		
• Management of Supply	- No	- No
• Aid to Processing Industries	- No	- Yes

Source: OECD (1996).

In addition to erecting barriers, many countries adopted export promotion schemes. Typical examples are the countries of the Southern Hemisphere that succeeded in qualifying themselves as leading international suppliers over the last few decades, such as Chile, South Africa and New Zealand, and that spared no expense in assembling systems to support their activities, with a view to circumventing the difficulties of penetrating complex markets.

South Africa and New Zealand, perhaps on account of a common heritage, bet on the creation of public sector institutions for commercialization, that operate through 'boards'. The South African system was established in 1939, with the creation of the Deciduous Fruit Board, that held a monopoly over foreign trade, as well as powers to regulate and monitor quality. In the 1980s, the board decided to appoint the Universal Frustrate Cooperative (Unifruco) as the exclusive export agent. While its exclusive status was abolished in 1997, Unifruco inherited a favored position, and even today accounts for 85% of all South African fruit exports.

New Zealand also organized foreign trade under the aegis of the government through fruit boards, of which the main ones are for kiwifruit, apples and pears. The legislation that regulated the sector permitted, at the request of producers and exporters, the establishment of boards on a product-by-product basis, which, once constituted, acquired monopoly powers over exports, in such a way as to increase New Zealand's bargaining power in international markets, as well as to guarantee the quality of that country's products. According to the OECD (1997*b*, p. 20), 'both boards are well known for their strong and successful commercialization policies, that are based on standardization of quality, and differentiation of products and services to buyers, most notably to large retailers'.

A common characteristic of the two examples was the establishment of internationally recognized brands, which even today allow them to command a premium to reference prices.

In the last few years, public sector systems have been revised and reformulated, both because they did not conform in full to the rules of the World Trade Organization (WTO), and because their home countries considered them to be expensive. Having said this, their basic principles appear to be perfectly adapted to the characteristics of the world market.

In Chile, private systems of commercialization prevail, with both domestically owned companies and large international groups. At the same time, the government has taken an active role in researching varieties of fruit, as well as in improving the administrative skills of producers through the 'Chile Foundation', in financing them through the Production Promotion Corporation (Corfo), and in applying protective sanitary measures, as well as generating information on the main import markets through its Export Promotion Directorate (Prochile). The signing of the 'Phytosanitary Agreement'<sup>3</sup> with the USDA also removed important practical obstacles to increasing exports.

In short, government intervention has a major influence on the international fruit trade, both creating obstacles, and pursuing a positive agenda of promoting competitiveness. In both cases, countries that lack the necessary structures are placed in a more difficult position.

In the case of Brazil, our own shortcomings compound external difficulties. Historically, intervention by the Brazilian government has concentrated on cereal production, to the neglect of fruit and vegetables, that have received some assistance in research, irrigation and commercialization – in the latter

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<sup>3</sup> The exceptional geographical location of Chile's production region should not be overlooked, as it is protected by natural barriers (the Andes to the East, the Pacific to the West and the Atacama Desert to the North). The Chileans merely needed to establish rigorous border monitoring to guarantee sanitary conditions for products.



case through the ill-fated experiment with Supply Centers (Ceasa), but that have been largely excluded from systems of funding, guaranteed prices and regulatory purchases.

Credit systems used for fruit cultivation are the same as those available to cereal producers, and thus do not take into consideration the maturation times needed for fruit production. Such projects require a higher degree of capital intensity, or financial subsidies, which partly explain the excessively high levels of debt, and the constant demands for subsidies.

The Brazilian government has failed to respond in an organized way to almost every example of market failure in the fruit sector, making the plight of producers even more dramatic, when one considers the extensive and sophisticated nature of the instruments available to European and US producers, a fact that presents considerable impediments to efforts by Brazilian producers to export.

### **Brazil: A Balance Sheet of Analyses and Proposals**

Without doubt, the potential for fruit cultivation in Brazil is considerable. The scale of production, its diversity, the climate and the strategic seasonal timing of harvests point to the scope for capturing a share of the international market on the basis of the comparative advantages of the country. Having said this, national production for export in the fresh fruit segment has failed to take off, and the industry has not succeeded in establishing a sustainable production and commercialization model, even if analyses do not diverge significantly from each other<sup>4</sup>. We present a series of tables grouped by principal theme, that summarize the situation.

#### **Advantages**

Item/Analysis	1	2	3	4	5	6	7	8	9	10	Σ
Climatic Conditions	x			x		x	x		x	x	6
Possibility of Selling in the Inter-harvest Period		x		x				x		x	4
Major Consumption of Fresh Product in the European Union and the United States	x	x						x	x		4
Receptivity to Tropical Fruit	x							x		x	3

Advantages of climate refer to the existence of different climates within the country that provide production conditions for all kinds of fruit, both tropical and temperate, making it possible to produce fruit throughout the year. The semi-arid climate is particularly interesting as it is unique to Brazil, both on

<sup>4</sup> The following analyses completed over the period 1986-98 were analyzed: 1) Carvalho Jr. (1986); 2) BNDES (1994); 3) Ibraf (1996); 4) Ministry of Agriculture and Supply (1996 e 1997); 5) Banco do Nordeste do Brasil (1996); 6) Dantas (1997); 7) Ministry of Industry, Commerce and Tourism (1998); 8) Neves (1998); 9) Agricultural Federation of the State of Minas Gerais (1997); e 10) Gonçalves *et al.* (1995).

account of its high level of sunshine that is favorable to fruit production, since it permits a high level of productivity and reduces harvest times, and due to the low incidence of infestations on account of low humidity, that consequently reduces the use of pesticides.

The Brazilian harvest of temperate fruits occurs during the inter-harvest period in the Northern Hemisphere, thus presenting an opportunity to sell our production in these markets. This has already been occurring on a small scale, since Brazilian production is still lower than the absorptive capacity of the domestic market. For these reasons, the production of temperate fruit faces a double challenge: to reach levels that permit both the supply of the domestic market and the generation of a surplus for export to countries of the Northern Hemisphere during the inter-harvest period.

On this point, the domestic market is seen as the major frontier, with immense untapped potential, while the international market is considered as a source of support for production on a large scale, as well as the funding mechanism for efficient logistical systems. Another challenge for the Brazilian fruit producer is to exploit the growing potential of the European and US markets.

The growth in life expectancy, and the greater degree of concern with the production of healthy foods with a low fat and cholesterol content, as well as with suitable amounts of vitamins and minerals, has led to the emergence of the so-called 'health generation', that places increased importance on the habit, already well established among Europeans and Americans of consuming products in their natural state. This expands the scope for selling additional quantities of fruit into these markets, both of traditional and of so-called exotic varieties, for which Brazil has major production potential, and which have been well-received in test marketing.

Starting this decade, the fruit sector has come to be seen in Brazil as a commercial activity, starting a trend towards modernization, despite all the obstacles presented in the analyses. These point towards other important advantages, such as, for example, the high rate of generation of employment and income by the sector, and the multiplier effect in social and economic terms; the high levels of water supply in the Northeast, despite low levels of rainfall; the growth of the domestic market; and the activities of multinationals in producing juices and fruit pulp for the domestic market and for Mercosul, with the interest that these have shown in the consumption potential of a population of 200 million people.

Also of note are the high rates of growth in world consumption of fresh fruit and vegetables, which is expected to double by 2010, as well as the 25% increase in consumption of frozen products and juices over the same period. Included in these projections is the estimated increase of 5% in consumption of tropical fruit.

During the 1990s, fruit production has become the most rapidly changing area of the food processing industry, and is in major upheaval. The evolution in the form of supply to the consumer from fresh fruit to products that make use of advances in preservation technology, packaging and transport, has allowed the industry to make available high quality fresh fruit and vegetables in locations far removed from the point of production.

In addition, the growing interrelation between domestic and international market standards is highlighted in analyses, that not only point to the potential of the domestic market, but also to the scope for adapting its requirements and tastes to international models.

### ***Production***

Item/Analysis	1	2	3	4	5	6	7	8	9	10	$\Sigma$
Absence of Sanitary Controls	x	x		x	x	x		x	x	x	8
Low Quality Standards for Fruit	x	x	x	x				x	x		6
Lack of Research into Varieties, Fertilizers and Management		x	x		x					x	4
Lack of Standardization of Fruit	x				x				x	x	4
Financing of Cost Base/Difficulties with Investment and Guarantees				x	x				x	x	4
Lack of Knowledge of Quality Standards and of International Market		x				x		x			3
Lack of Specialized Labor		x		x						x	3
Inadequate Use of Pesticides					x			x		x	3

The main production problem highlighted by the analyses is the poor state of sanitary conditions of cultivation, that have repercussions throughout the production chain, and that place serious constraints on exports.

Diseases invade orchards, transmitted by elements present in producer regions or carried by cuttings, seeds or other external factors, causing losses to production ranging from the premature death of fruit trees to the reduction of productivity and the presence of contaminated fruit, imposing the need to use pesticides, which in turn compromise the quality and homogeneity of fruit produced and reduce the profitability of the harvest. This leads to the imposition of sanitary barriers to prevent the spread of diseases to importing regions, causing enormous difficulties for exporters.

All of the above is facilitated by the inadequacy of sanitary control and defense policies that guide producers and explain the most common diseases that affect their crops, as well as the most effective ways of fighting them. It is also necessary to prevent the appearance of new infestations and diseases through government actions that establish regulations for transport of products, with sanitary checkpoints on similar lines to inspection checkpoints.

The sector is also lacking in studies on the development of new varieties that are more appropriate to international standards, but that are little known by producers, who need guidance on the best forms of fertilizer and crop management, as well as on planting density of fruit trees, in order to maximize the use and productivity of their land.

Lack of continuity in research policies and lack of coordination between centers of learning make it difficult to achieve results at the necessary pace. In addition, the abolition of the coordinating body for rural development (Embrater) has been extremely harmful, and has led to increased unevenness in the spread of new techniques.

Amateurish management of fruit cultivation projects as well as the lack of availability of cultural information and adequate land area is reflected at all stages of the production process, and is an indicator of the lack of interest in training specialized manpower, whether for treating plants or for the harvest and post-harvest stages. It is interesting to note that the analyses merely refer to the lack of specialized labor in a generalized fashion, with few identifying the lack of specialization of producers in particular crops as the cause of the problem.

Lack of available capital is another factor highlighted as hindering the development of production. Indeed, the available funding mechanisms are not adapted to the peculiarities of the sector. The diversity of characteristics of different varieties of fruit, whether annual, semi-perennial or perennial, militates against a uniform funding treatment. This raises the cost of credit analysis and dissuades banks from servicing this segment.

For perennial and some semi-perennial crops, there is the additional difficulty of securing suitable guarantees, since these require more time for the formation of orchards, require investments over several years, and must offer guarantees that usually exceed the value of the underlying land.

Other problems of production that were highlighted included: a defective and obsolescent model of technical assistance, most notably for small producers; lack of co-ordination between producers and institutions responsible for technology transfer and education, as well as rural research and development institutions; lack of a cooperative culture among producers, resulting from previous unsuccessful experiences; difficulties in compiling information to provide reliable statistics due to the fragmentation of production, the existence of a large number of different varieties, and of losses to production; as well as conflicts of interest between large and small producers.

### ***Infrastructure***

Item/Analysis	1	2	3	4	5	6	7	8	9	10	$\Sigma$
Poor State of Post-Harvest Equipment and Techniques	x	x		x	x			x	x	x	7
Transport Equipment in Poor Condition	x	x		x	x			x	x	x	7
Lack of Scale in Warehousing and Commercialization	x	x	x	x				x		x	6
Unsuitable Refrigeration Facilities	x	x			x			x		x	5
Excessive Manipulation leading to Major Loses	x	x						x	x	x	5
High Port and Airport Charges					x	x		x		x	4
Excessive Emphasis/Poor Use of Irrigation Systems					x	x					2

Most authors consider logistics to be the main reason for the Brazilian fruit sector's lack of competitiveness, and failure to modernize and make progress. The sector's problems begin at the production stage, or more appropriately, the lack of it, since the quantity of saleable fresh fruit produced does not reach a sufficient scale to justify appropriate warehousing facilities. Since fresh fruit is a highly perishable product, it must reach the consumer in a short period of time in order to be preserved in peak condition, or be stored under adequate conditions of climate.

In addition, primary equipment for transporting and selecting fruit for sale is only available on a limited scale (modern techniques of post-harvest treatment are still relatively rare), diminishing even further the quantity of fruit that is fit for the consumer's table. It should be noted that the use of inappropriate packaging, both at the harvest and at the post-selection stage, is also responsible for the deterioration of a further portion of production.

The lack of a chain of refrigerated warehouses available for production and distribution places demands for agility on the commercialization sector that exceed its capacity to respond. This factor, in conjunction with the poor quality of roads, and the lack of suitable transport, increases costs and disincentivizes both commercial agents that are already active within the sector as well as the emergence of new agents.

Inadequate transport is not only restricted to trucks without refrigeration facilities and poorly conserved highways, but also applies to the lack of refrigerated facilities at ports and airports, to the low degree of availability of ships that transport refrigerated containers, and the to lack of suitable facilities for maintaining these containers within ports, until bulk cargoes of fresh fruit are loaded into refrigerated ships.

The level of port and airport handling charges is another factor that inhibits not only exports, but also the transport by sea or air of cargoes between different parts of the country. While this is not an exclusive characteristic of fruit cultivation, this point is of particular importance here since fruit requires special storage and handling facilities at the point of embarkation. From the

orchard to the consumer's table, fruit is subject to a series of treatments, which are often unnecessary, due to the logistics of transport, storage and distribution that do not take into consideration the fragile nature of the product.

Another point criticized in the analyses is the idea that has taken root within Brazil that since irrigated fruit cultivation is more productive than dry cultivation, then it follows that the only solution is irrigation. It has nevertheless been found that in locations where irrigation infrastructure has already been installed, the technique is not always used in the most appropriate way. There have thus been criticisms to the effect that more attention had been paid to the construction of the facilities than to the agricultural activities themselves.

To the basic problems, we may add the following failures: lack of information on markets into which the fruit will be sold; large distances between the points of production (in the interior of the country) and the consumer market (in the coastal region of Brazil or abroad); wide variations in channels of commercialization that cause or aggravate logistical problems; and the inadequacy, or lack of standardization of existing packaging. In addition to such questions, producers face difficulties in obtaining funding for the post-harvest system, as well as for training.

### **Commercialization**

Item/Analysis	1	2	3	4	5	6	7	8	9	10	$\Sigma$
Sanitary Barriers to Exports	x	x	x	x	x		X	x	x		8
Consumer Unfamiliar with Tropical Fruit/ <i>Marketing</i>	x	x	x		x	x		x	x		7
Tariff Barriers to Exports	x				x	x	X	x		x	6
Low Brazilian Share of International Market	x			x				x		x	4
Few Channels of Commercialization		x			x			x			3
Lack of Information on the Dynamics of the International Market		x			x				x		3
Predatory Competition from Imported Fruit						x		x		x	3
Lack of Funding for Commercialization				x	x						2
Concentrated Import Market	x	x									2
Demanding International Market		x		x							2

Almost all of the authors believe that the sanitary barriers imposed by importing countries are excessively severe extrapolations of the underlying technical grounds, and are often merely another form of protectionism, becoming the main obstacle to the development of trade in Brazilian fruit, even if the same authors have highlighted genuine sanitary problems in production. These barriers are accompanied by tariff barriers that, in the opinion of certain authors, are set to decline, due to WTO negotiations, and should be increasingly replaced by sanitary restrictions.

Despite being one of the world's largest producers of fruit, Brazil has an insignificant share of international trade. The main reasons highlighted for this are: a) little of the fruit produced arrives at the market in a condition suitable

for export; *b*) there is only limited concern within Brazil with producing fruit to the standards demanded by export markets, which in many cases, will not even be known to the producers; *c*) the volume of temperate fruit produced is small; and *d*) there has been a lack of promotion of exotic fruit produced within the country.

In the opinion of the authors, the institutional effort to market Brazilian fruit is still in its infancy, particularly with regard to varieties of tropical fruit, many of which are unknown to Europeans, but which are well received when test marketed. In this way, the country suffers from the low capacity of government agents to organize a combined marketing program by producers, distributors, government and non-government institutions, that would raise the profile of Brazilian fruit in the international market, most notably of tropical varieties.

An attempt to use brands that identify the origin of products has become more widespread, not just as an element of marketing, but also as a way of giving products a reliable image that will permit the opening of the market to other products sold under the same brand.

International trade gravitates around the European and US markets, with four companies accounting for 80% of commercial transactions. The analyses point to the difficulties of negotiating with such companies that normally work with baskets of products deriving from countries with a tradition of exporting fresh fruit to the extremely high standards of those markets.

The dynamics of international trade is leading to an invasion of our own domestic markets, raising the possibility of the sale of products at prices below the cost of production of national products. This is evidently driven in many cases by heavy subsidies to production or commercialization, leading to a predatory competition that harms Brazil's chances of developing and consolidating its temperate fruit segment.

Aside from the most frequent points in the analysis, the major question posed regards the necessity of modernization of management within the current competitive environment. The interchangeability of certain varieties of fruit is a cause of stability of international prices, and imposes a need for competent cost management (at the level of both production and the post-harvest stage), in order that the company remains competitive in the international market, as well as being capable of launching new products on an ongoing basis, and taking advantage of niche markets.

From this point of view, the upgrading of procedures and types of packaging may be exploited as a marketing vehicle, in addition to allowing better conservation and presentation of fruit. This situation also entails a series of obstacles resulting from the lack of scale in commercialization, as well as from

amateurish practices on the part of many of the Brazilian companies that operate within the sector.

In addition, traditional intermediation continues to dominate commercialization, based on the principle of extracting advantages from producers. The growing share of supermarkets in distributing fruit within Brazil has not modified this situation in a significant way, and has merely concentrated supply among 'supermarket suppliers', even if there are cases of integration between producers and this important distribution channel.

### ***Other Questions***

<b>Item/Analysis</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b><math>\Sigma</math></b>
Lack of Vision in the Productive Chain					x	x		x		x	4
Amateurish Management of Enterprises					x			x		x	3
Lack of Combined Government/Private Sector Action		x		x						x	3

On the basis of the analyses presented, the precarious nature of interactions between the various stages of the productive chain – production, warehousing, distribution and commercialization – becomes evident. In essence, the sector is not organized as a chain, with competition prevalent between the different stages.

The idea of a productive chain presupposes the existence of partnerships between the agents responsible for the different stages of the process, from production to retailing, as well as the dissemination of information, in a way that the demands of the consumer, the rules of the market, and logistics of transport, warehousing, distribution and supply of products, are known to all.

This has not happened in the fruit cultivation sector. The information that each agent has is not shared with other links in the chain, but is used as a bargaining chip in negotiations. This behavior weakens and hinders relationships within the sector, in addition to limiting an overall dynamism, that is vital to a sector that deals with highly perishable products.

A number of analyses have pointed to centralized and paternalistic management by the Government as a factor that inhibits the organization of the production chain, while others have proposed that the Government should intervene in order to restructure the sector. These different interpretations, in addition to highlighting divergences between analysts of the sector, point to an undeniable lack of clarity with regard to the most appropriate model for government intervention in the development of fruit production.

Combined action by the Government and the private sector is suggested in a generic way as the most suitable approach, principally because there has



been no clear definition of the respective roles that these agents should play. This point underscores the need to define a model for the Brazilian fruit sector.

According to the authors that highlight it, the question of management is not exclusive to fruit cultivation, but of all agribusiness sectors that are not structured in a way that emphasizes exports. The country as a whole lacks a tradition of training specialists in the management of agribusiness. Agriculture is still treated as an activity that does not require professional qualifications on the part of its agents. From this stems the tendency to treat fruit cultivation businesses in an empirical and amateurish fashion.

A serious point raised by the analyses is the idea that fruit cultivation has accommodated itself to a paternalistic, aid-based and centralized approach on the government's part, and that this represents a serious obstacle to the development of the sector and is responsible for the failure of producers to organize themselves. The same studies also criticize the government's activities within the sector, which have been restricted to technological improvements, as well as the excessive tax burden on inputs and agricultural products, which is a further obstacle to sector development. This illustrates the diversity of opinions as to what is really the main problem.

The perception that producers have not found adequate channels for organizing and commercializing their production is confirmed by the lack of a suitable forum for such activities.

Another relevant point that has been raised is the high cost of information, most notably for low income producers, who have neither access to specialized consultants nor the capacity to carry out or sponsor research, nor the ability to access markets that would provide the information that would allow them to direct their activities more efficiently.

Indeed, the analyses consider the question of information in its most varied forms: from the empirical evaluation of the harvest to the lack of transparency regarding the state of the market. This lack of information leads to its use, by those who have it, as a bargaining tool in negotiations. Having said this, few analyses mention the more democratic use of information as an essential element in the formation of the production chain.

Finally, it is important to observe that even in discussing the size of the domestic market and its potential, the growth of fruit consumption within Brazil is directly linked to the growth in per capita income, and that furthermore, national production has so far been directed towards domestic consumption.

## **Conclusions**

No one can doubt the static advantages that Brazil enjoys in the fruit cultivation sector, most notably with regard to irrigated cultivation. On the basis of these advantages, many analysts and producers have suggested that Brazil could, in a few years become a major exporter of fruit, easily overtaking such small countries as Chile and South Africa. According to the dominant opinion among analysts, it would be necessary to add certain elements to these natural advantages in order to obtain these greatly desired competitive advantages.

It is nevertheless necessary to inject a note of caution, since fruit cultivation takes time. It could perhaps be concluded that a strategy that gives priority to the domestic market and that works systematically on developing export markets would take at least a decade to work., At the same time, note must be taken of local and international market characteristics, which indicate the need for sustained growth in Brazilian exports.

It is unrealistic to expect major increases in exports in the short term, since short-term business initiatives do not succeed in this highly competitive market, that is based on consistency and reliability. While plantations can be built up rapidly and harvests are abundant, the building of market confidence is necessarily a slow process.

### ***History as an Example***

The repeated reference to the success of Chilean exports as a possible model for Brazil must be viewed with caution.

Chile was a clean slate that was designed to suit the international consumer. It lacks both a domestic market that is capable of absorbing significant volumes of production and the varieties of fruit present in Brazil. The country assembled an export system with the aid of US institutions, with a limited basket of products, and handed responsibility for the operation of the commercialization process to the large trading companies. The Chilean fruit production sector was thus born as an export machine, and was from its outset directed towards the world market. This required the installation of sophisticated support systems, and led to the establishment of an entrepreneurial mentality that conformed to the needs of this market.

Brazil may in turn be compared to a construction project in progress that must be converted for new uses that were not originally planned by the designers. The country has a large internal market and an extraordinary variety of fruit, with the ability to produce almost any kind, and many with more than one harvest a year.

Our fruit sector nevertheless has an indelible 'birthmark': fruit is a local product suited to local tastes. In particular, the old tradition of a yard with fruit trees has

conditioned consumers to prize fruit in the forms that they find them. If fruit from the Northern Hemisphere is consumed in the South, and fruit from the Southern Hemisphere in the North, it is because they are both consumed throughout the world. It was never necessary to persuade Brazilians to eat mangoes, since they were always available. 'Working the market' was thus always a superfluous activity. Like an old companion, we have accepted fruit with all its defects and qualities without ever imagining that it might be different.

The extreme examples of such idiosyncrasies are bananas. 'Yes, we've lots of bananas' – to sell or give away – but to whom? The main variety of banana sold internationally, the 'Cavendish' or 'Nanicão' is not on the national menu, and thus domestic production of this variety is virtually nil. In order to contemplate the export of bananas, and give the world's second largest producer a significant share of the market in a fruit that accounts for around 30% of all fresh fruit exports, it would be necessary to reinvent the national banana industry.

This is not only a question of varieties. Production methods are different and much more demanding. Blotches on a banana? Impossible to contemplate, even if Brazilians don't even recognize a banana without blotches. Could producers of '*banana prata*' produce 'Cavendish' bananas? Not necessarily, since these new methods imply greater expenditure and new forms of management that are not accessible to every producer. These are thus other products for other markets.

In particular, it is impossible to ignore market signals. Whether to sell to Holland or to Ceagesp is a decision regarding profitability. Where does the producer earn more? Some replies by producers may be biased by the occurrence of market failures. To a large degree, however, Brazil exports little because the domestic market pays well for products that require lower expenditure on cost structures and investment.

**Table 7**  
**Retail Prices for Certain Kinds of Fresh Fruit in Frankfurt and Brasília**  
**October 1996**  
**(In US\$)**

<b>Product</b>	<b>Frankfurt</b>	<b>Brasília</b>
Melons	3.50/kg	1.00/kg
Bananas	2.00/kg	1.50/kg
'Vitória' Grapes	2.70/kg	3.90/kg

Source: FAO, cited in Firjan and Campo (1998).

Once again, we return to history. In the absence of a significant price differential in favor of exports, Brazil will remain a 'sleeping giant', that is, a major producer and insignificant exporter. Businessmen should not be blamed

for this, since they are merely acting rationally, in accordance with all the current economic models.

### ***In Search of an Export Model***

As if the above problems were not enough, it should be remembered that the model for commercialization of agricultural products is undergoing profound and rapid changes. The concentration process within the retail sector has reached an advanced stage in Europe and has accelerated within Brazil. As a consequence, commercialization intermediaries are searching for defensive strategies. In the fruit sector, wholesalers and trading companies are seeking ways of dealing with this trend, from increases in scale to improve their bargaining position to intercompany operating agreements, for example, to offer diversified baskets of products on a regular basis throughout the year.

The narrowing of export channels points to a further Brazilian weakness: the lack of definition of an export model. Those countries that have achieved a relevant share of the world fresh fruit market over the last few decades have essentially adopted two models of centralization of commercialization channels: through organizations under Government or mixed ownership, such as *marketing boards* (which is the case of New Zealand and South Africa), or through the leadership of large international companies (such as Chile, even if this does not exclude small and medium-sized local companies).

Despite their many differences, both models attempt to cater to the basic requirements of international trade in fresh products. Through large-scale structures, intermediaries gain in scale, and thereby succeed in forming efficient logistical systems that both lower the cost of gathering and disseminating information, and increase their bargaining power with retailers.

In both cases, concentration on the intermediate links in the chain appear to be necessary for the preservation of the small local producer's position. The New Zealand model always gave priority to this objective, and even the Chilean model does not exclude it, since the Government provides a series of services that permit the participation of small local companies in international trade.

Export of fruit from Brazil, on the other hand, has been carried out by a small number of producer companies, with the exception of the 'Valexport' cooperative. This model unites the undesirable characteristics of both models: the unfair economies of scale of large plantations, and the reduced size of export operations (with the consequences for information, bargaining power, etc.).

### ***What is to be done?***

An important conclusion emerges from the above discussion: Brazil is unprepared to face the challenges of the international fresh fruit trade. This is not to say that it faces an impossible task, merely that we should produce the varieties that the market wants (or persuade the market to favor our fruit as New Zealand did in the case of kiwifruit), and structure the essential support systems appropriately. These are necessarily slow tasks that will require a major effort by both public and private sectors for several years.

It might be convenient to conceive a strategy that combined the assembly of export structures with the development of a domestic market that has major growth potential, but considerable efficiency problems. Minimizing this domestic inefficiency could constitute a relatively cheap source of expansion for the fruit cultivation sector, with a strategy that 'takes the line of least resistance'. In addition, it should not be overlooked that even if quality fruit is produced, part of the harvest will not be suitable for the market in its fresh form, regardless of how demanding consumers are.

What is to be done? Should the loss be unloaded onto producers, renewing the cycle of instability of production, or should the system be linked to industrial processing activities? After all, high quality fruit that does not conform to standards, or that results from excess production, may easily be used for production of pulp, juices, ice creams or for other industrial uses.

On the other hand, not all fruit production can be directed towards consumption in its fresh form, at the risk of undermining production. In this way, varieties suitable for industrial uses should also be researched and cultivated so as to make possible the formation of a quality industrial mix.

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