

# MEXICO



## Marketing of Fruits and Vegetables

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### Currency

Peso – pesos – symbol “\$”

1US\$ is approximately 10 \$

### Measurements

metric system

### Abbreviations

ANTAD	- Asociación Nacional de Tiendas de Autoservicio y Departamentales
ASERCA	- Apoyos y Servicios a la Comercialización Agropecuaria
BANCOMEXT	- The Mexican Bank for Foreign Trade
CAADES	- <u>Confederación de Asociaciones Agrícolas del Estado de Sinaloa</u>
CEDA-DF	- <u>Central de Abasto – Distrito Federal</u>
CIESTAAM	- <u>Centro de Investigaciones Económicas, Sociales y Tecnológicas de la Agricultura y la Agroindustria Mundial</u>
FAO	- Food and Agriculture Organization [of the United Nations]
GDP	- Gross Domestic Product
Ha	- hectare
INEGI	- <u>Instituto Nacional de Estadística Geografía e Informática</u>
NAFTA	- North American Free Trade Association
PACA	- Perishable Agricultural Commodities Act
PROFECO	- <u>Procuraduría Federal del Consumidor</u>
SAGAR	- <u>Secretaría de Agricultura Ganadería y Desarrollo Rural</u>
SARH	- <u>Secretaría de Agricultura y Recursos Hidráulicos</u> [presently SAGAR]
SECOFI	- Secretaría de Comercio y Fomento Industrial
SNIIM	- <u>Sistema Nacional de Información y Integración de Mercados</u>
TLC	- <u>Tratado de Libre Comercio</u>
USDA	- United States Department of Agriculture

# Mexico

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**Limon Persa**  
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## MEXICO

### Marketing of Fruits and Vegetables

#### A. INTRODUCTION.

1. The study of which this is the report was undertaken by the World Bank as part of its ongoing program of economic sector work, in this case of marketing in Mexico's agriculture sector. Because of fundamental differences in the commercialization of their respective products, the sector's basic grains complex has been dealt with separately from the part dedicated to produce<sup>1</sup>. It is the latter, marketing of fresh fruits and vegetables, with emphasis on the domestic rather than the export market, that is the subject of this report. Industrial use of fruits, although an important market in Mexico for several products, is not dealt with here.

2. The work has been done in cooperation with the domestic marketing department of SECOFI, Mexico's federal government agency entrusted with the public sector aspects of trade and industrial development. Substantive investigative work, including original field studies, have been done by consultants, whose resulting case studies can be found in volume 2 of the report. Both these case studies and the overall work have been hampered by the absence of reliable time series of data, notably of producer prices. This has limited the extent to which price analyses could be used to get quantitative information allowing for well founded judgments about the extent of market imperfections, if any.

3. After a chapter with conclusions and recommendations, the report contains a chapter with background information on the fruits and vegetables subsectors, focusing on trade related issues. This is followed by a chapter dedicated to horticulture marketing proper, itself subdivided into 5 subchapters that deal, respectively, with: operational hypothesis about marketing that underlie the work, market structures, prices and margins, marketing channels and the plight of the small producer, and some aspects of the wholesale market of Mexico City. The four product specific cases then follow a statistical appendix and a bibliography list.

4. The research work, analyses and report writing have been done essentially by the authors listed. The support of the World Bank's Mexican office, in all aspects of the work done, is gratefully acknowledged, so are the comments received on earlier versions of the report, by peer reviewers Roberta Cook-Canela and Michel Debatisse, and by Adolfo Brizzi.

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<sup>1</sup> And is reported upon in: Varangis, Panos; Larson, Donald; Bresciani, Fabrizio and Tulais, José: Mexico – Marketing of Grains; The World Bank, mimeo, May 2000.

## B. CONCLUSIONS AND RECOMMENDATIONS

### *Principal Conclusions*

- Marketing margins and profits in Mexico's horticulture sector are a function of the type of producer concerned; of his, or her, social level. Different rural classes have different access and control conditions with respect to marketing. Strong local producers, who at the same time are often traders, can exercise a controlling influence over prices and trading margins. Poor producers, on the other hand, have no influence on the market and have to accept often adverse marketing conditions. Mexico's market for horticulture products is imperfect, both physically and economically, and competition is not fully developed.
- Certain marketing agents are able to extract extraordinary rents from the system and habitually create strong, and lasting, dependencies between traders and producers.
- Marked differences exist in the technical sophistication between producers. Relatively small numbers of growers, using the most advanced varieties and technologies, contribute disproportionate amounts of certain products and, because of equal sophistication in marketing, dominate the market. The very large number of growers, predominantly small farmers, whose technology is inadequate and whose productivity is low, have led to the overall low and stagnant productivity and profitability of horticulture production in Mexico.
- The infrastructure for horticulture marketing in Mexico is not dissimilar from that found most elsewhere in Latin America. It has a dualistic nature with a traditional network of intermediaries collecting products from a large number of small farmers, ultimately delivering to urban wholesale markets, as found predominantly in most other Latin American countries, next to a sophisticated system of well organized large scale production, collection and, often, conditioning.
- Because of the declining importance of supermarkets as sources of fresh fruits and vegetables for the Mexican consumer, the impact of Mexican supermarkets on rules and regulations of the produce trade, from grading, standardization and packaging to grower contracting and grower cooperation will probably be less than it has been elsewhere. Impetus for change in the Mexican produce trade will have to come mainly from the demands of the export markets and from the competition faced from imports.
- High correlation between wholesale and retail price series implies a fairly complete pass through of price variations, an efficiency that shows this part of the market to be competitive.
- Trading margins have declined in real terms, since 1995, for all of the products under consideration. They are in between those found elsewhere in Central America and in the US now, and are of the same order of magnitude as those found in the US 10 to 15 years ago. The latter is an indication of the relative position of the dominant part of the Mexican industry, i.e. of the small number of major producers and traders whose development, both in production and marketing, parallels that in the US, driving down the farmer's share of the retail peso, in part as a result of increasing costs of ever more sophisticated processing and marketing.

- Production data indicate a large decrease in the productivity of fruit production, at least in terms of value per unit area, and possibly in its overall profitability<sup>1</sup>. It may, thus, be expected, that the rate of conversion of land into fruit production will decrease in the future. However, given the complexity of fruit production, the nature of consumer demand for fruits, and the large number of fruits within the sector, this observation does most likely not hold for all fruits.

### ***Systemic Conclusions***

- Horticulture contributes a growing share to Mexico's agriculture production, to the extent that one can see a certain "horticulturization" of the agriculture sector. Fruits and vegetables combined accounted, in 1998, for 35% of the value of all agriculture production, close to the value of all grains [whose prices were still distorted], for 63% of agriculture exports and for 23% of total employment.
- On average over the last decade, Mexico has supplied 21% of the world market of avocados, 75% of the international trade in "limon Persa"<sup>2</sup>, 41% of the mango trade and 42% of all papaya traded internationally. In addition, Mexico exports considerable quantities of grapes, while it is a major supplier of concentrated and frozen orange juice to the international blending market.
- Still, horticulture's market is essentially local with more than 95% of Mexico's fruit production and over 75% of its vegetable production consumed in the home market, most of it fresh.
- There are two schools of thought on the impact of NAFTA on Mexico's fruit and vegetable complex: (i) while the US already had low tariffs for most produce items prior to NAFTA, limiting the potential benefits from tariff reduction, still, Mexico has diversified and expanded exports to the US under the terms of NAFTA, (ii) the success of Mexican growers in penetrating the US market, mainly against competition from Florida, has not been a result of NAFTA, but has rather been brought about by technological progress, astute marketing, economic conditions and drought in Florida.

### ***The plight of the small producer :***

***lack of research, technical assistance and extension:*** Only large producers have recourse to private technical assistance and can afford such activities as direct imports of seeds and seedlings. Government's recent retrenchment from research and extension has hurt the small farmer most.

***lack of infrastructure for transport, packaging and processing:*** Small producers have no own transport, an important element to maintain their dependence upon the intermediary, and lack the means to add value to the crop by selection and packaging.

***lack of trade regulations and enforcement:*** The small farmer is unusually vulnerable for the above ***average*** level of abuse that is universally typical in the trade in perishables. Contrary to the situation in most other countries with a long history of important perishables trading, Mexico lacks pertinent rules and regulations to mitigate malpractices in this trade, forcing producers and traders to rely upon common judicial procedures in case of trade conflicts.

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<sup>1</sup> The opposite observation can be made for the vegetable sector.

<sup>2</sup> Citrus Latifolia, a seedless small lemon, see the annexed case study on this product.

***lack of information about production and marketing:*** One of the most glaring shortcomings in Mexico is the absence of reliable, timely, information about amounts produced and shipped and about prices obtained at the various points in the marketing chain. Mexico is alone in this lack of transparency in Central America, lack of transparency that is among the most important reasons why the market perceived by the small producer is imperfect.

***financial weakness:*** The small producer is, by and large, obliged to sell immediately, for cash. Not having access to formal credit, he or she can not sell to local processors who may pay in 30 or 60 days, cannot leave fruits on the trees in expectation of better prices, but has to sell to the one paying cash, the “friendly intermediary”. The lack of access to formal credit is probably the main reason for continued dependence upon that same intermediary.

***lack of organization:*** The virtual absence of cooperation between small farmers, in Mexico, for purposes of marketing, is at the core of the “small farmer problem”. Experiences globally, over long periods of time, have shown that joint marketing, cooperatively or through a major shipper acting as a commission agent is, for small farmers, the only way, in which product conditioning, storage, packaging, presentation and promotion can be done meaningfully, through economies of scale. More important, in the context of the opaque Mexican market for perishables, the common front of a marketing cooperative, and the group marketing through major shippers, is the most effective defense against predatory practices of the middleman.

## ***Recommendations***

### ***A. Policy Related***

5. Unlike the basic grain and oilseeds sectors, the Mexican fruit and vegetable sector can be described as devoid of direct subsidies and with minimal governmental involvement, either federal or state. However, and with the risk of being misinterpreted as asking for governmental intervention in the sector, it may be argued that there is a role for government, notably to create and maintain public goods. In general, the appropriate role of the government can be seen as that of facilitator rather than interventionist in the production and marketing of fresh fruit and vegetables. In countries with a well developed and competitive produce sector government provides important services to the fresh produce industry in the form of market information; export development; varietal, agronomic and post-harvest research; and the establishment of clear guidelines on a broad range of fair trading practices and standards of various types, including quality and packaging.

6. Expressed more generally, there are six commonly recognized market facilitating functions that act in a supportive role and greatly contribute to the performance of any food marketing system. These are: market research; product research and development; development of demand; product exchange services; finance and risk bearing; and market information. In most countries with an economically important produce sector, including in the EU and in the United States, there is important institutional support for all these functions originating from both the public and private sectors. In part based on the findings reported on here, it is suggested that government consider the following operational changes and public institutional support for Mexico’s fruit and vegetables:

- ***unify marketing responsibilities:*** At present, matters of agricultural production are under the authority of SAGAR, marketing issues are under the purview of SECOFI. This would imply that all issues that arise in relation with agricultural products beyond the farm gate, i.e. proc-



essing and marketing, are dealt with by SECOFI. In reality, the border line is not drawn that clearly and many issues of importance to marketing, such as the collection of producer prices<sup>1</sup>, standardization of information collected, methods and formats of data distribution etc. fall victim to less than clear mandates and to inter-institutional rivalries. In the interest of a potentially effective public sector support for agriculture marketing it is suggested that a clear, unequivocal, mandate be given to a single institution for all matters of agriculture marketing. It is further suggested that assignation of this mandate be accompanied by complete operational guidelines that stipulate responsibilities and expectations with respect to the institution made responsible and that the mandate receives its own funding as a line item in the governmental budget.

- *market information:* In the interest of aiding market transparency, government, probably through the entity mandated as proposed in the previous point, should start a service to collect and disseminate, routinely, daily information about prices and volumes shipped of the most important horticulture products. Prices and shipment data should be collected at: (i) shipping points, often farm gate, (ii) at the largest wholesale markets and (iii), prices only, should be collected from a representative sample of retail outlets, nationwide. Present, separate, collections of prices by SAGAR, SECOFI-SNIIM and Profeco should be integrated into one service, with standardized and unified procedures for, both, collection and dissemination.
- *direct marketing support:* Based on experiences elsewhere it appears that effective governmental support for agriculture marketing falls into three main categories with activities that government may wish to emulate, as follows:
  - i. The trade in perishables is unusually susceptible to **disputes** that, in addition, have to be resolved quickly because of the nature of the product involved. Recently, and under the NAFTA umbrella, a tri-national dispute resolution corporation has been created in which Mexico, the US and Canada cooperate; see <http://www.fvdrc.com/>. This corporation offers its members fast mediation services for disputes in the produce trade, in Mexico based in part on its arbitration law. It is proposed that government extends support to this fledgling corporation to enable it to extend its services rapidly for the benefit of domestic marketing. The support in question could take the form of offering office space and office services in the formative stage of operation of the corporation in Mexico, so as to keep its operational costs low, inter alia conferring a measure of official support and recognition of the value of the services offered. Mexico has an opportunity, in this dispute resolution corporation to create a self governing interest association for the produce marketing industry that would defend its members' interests in a similar fashion as the USDA does under its PACA based mandate, essentially protecting buyers and sellers by assuring that product quality and volume delivered is as was originally negotiated.
  - ii. **Product grades and standards**, as recently introduced by SECOFI, should be further distributed and promoted and should be backed by the easy availability of inspection services. It should be noted, though, that the majority of grades and standards in most countries are not mandatory and that government is never involved in inspecting the quality of the product in the overwhelming majority of fresh produce transactions occurring every day. Rather, grades and standards, although promulgated, are not mandatory.

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<sup>1</sup> “inside or outside the gate?”

The system typically functions as follows. A buyer in a destination market negotiates a sale with a shipper in a production region. The quality of the product may be represented as say a SECOFI #1 grade, 48 count per box. Both shipper and buyer have on file the SECOFI requirements for the product to be represented as this grade and size. The shipper has employees trained to use this information when packing the product, without the need for any SECOFI inspectors on site. When the buyer receives the product, if he/she is satisfied that the product is of the quality level represented by this grade, the product is accepted and marketed without any government inspection or involvement. Non-mandatory grades and standards greatly facilitate trade without any direct cost to the firms involved. If, on the other hand, the receiver is dissatisfied with the quality of the product on arrival, then he, or she, may elect to call for an inspection. A SECOFI inspector should be available rapidly and at low cost to inspect the load for a fee and determine if the product meets the standards for the grade it was sold as. If not, the buyer should have the right to reject the load or to call for an adjustment in the terms of sale. With well-defined grades, products can be sold over the telephone without the need for physical inspection by buyers. A word of caution, though, should be voiced with a view to Mexican conditions. Small farmers may find it difficult to comply with grades and standards for product and, particularly, for packaging. Support under existing government programs, such as “Alianza para el Campo”<sup>1</sup> and “Procampo” and assistance to shippers, targeted on small growers, see below, should be considered in the context of upgrading product and packaging standards in Mexico’s produce trade.

- *marketing orders*: These, often misunderstood<sup>2</sup>, operational regulations are based on legislation that allows growers to operate collectively and request that government mandates provisions related, usually, to one of three broad categories: quality control, quantity control and market facilitation, such as advertising and research. It should be noted that growers have to take the initiative in asking government for business supporting marketing orders; these are essentially bottom-up initiatives, rather than top down orders. The costs of marketing orders are financed by the affected growers who are required by law to participate once a marketing order has been requested democratically, usually through assessments on each unit sold<sup>3</sup>. The concept is based on the realization that in certain circumstances it may be necessary to have mandated behavior for the good of the industry, since without it certain developments may not take place. For instance, this is typically the case when the introduction of grades and standards is seen by most, but not by all, to be in the interest of the industry<sup>4</sup>, or when partial adoption would lead to a free rider problem. In general, the stated purposes of mandated marketing programs include the development of more efficient and equitable marketing, demand expansion, or aid to producers in maintaining their purchasing power, for example, through yield-enhancing production research. When considering marketing orders in Mexico, though, care has to be taken to protect the small farmer as he, or she, may not always be able to fulfill the resulting mandates; a similar caution as mentioned above with respect to grades

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<sup>1</sup> Particularly under its programs “Transferencia de Tecnología” and “Sistemas de Información”.

<sup>2</sup> Notably in Mexico, whose growers have suffered from the reportedly discriminatory impact of US marketing orders that are reputed to have resulted in curtailment of Mexican exports to the US, particularly of tomatoes, and are seen as a typical non-tariff barrier to border trade.

<sup>3</sup> In California, the total budget for generic marketing programs, generated through marketing orders, is close to 1% of total production value.

<sup>4</sup> This very example is germane to Mexico where SECOFI has been struggling to introduce grades and standards in the produce sector with, so far, limited, success.

and standards. It might, for instance, be suggested to extend support under the Procampo program for beneficiaries under that program to comply with mandates that impact their production and marketing.

### ***B. Support for Private Initiative***

7. Private sector organizations are also important in extending marketing services, often in collaboration with public entities and activities. Government should consider support for three types of private sector initiatives: trade associations, cooperatives and grower/shipper combinations. Rationale for such support and proposed modalities are as follows:

- *Trade associations* have played a critical role in facilitating the advancement of the fresh fruit and vegetable industry in all countries where this industry is economically important, from the production to the consumer level. Trade associations exist that are specific to individual commodities, geographic areas, and types of firms<sup>1</sup>. Membership and participation in trade associations is always completely voluntary. Trade associations provide organized communication forums for industry participants to come together to explore solutions to common problems and to advance the diffusion of information and technology within the industry. ANTAD has led the move to introduce bar codes in Mexico for retail trade. Many trade associations hold annual trade shows and conventions to foster buyer-seller contact and to offer educational programs. The yearly ANTAD convention in Guadalajara, in particular, has increasingly become a forum for the national food distribution industry. Organized forums of this kind for industry communication have proven to be of major benefit to the modernization of the food system. They, both, protect industry interests before public policy makers and educate their members about the latest technology and management practices, contributing to a high level of progressiveness in the system. SECOFI's domestic marketing department has taken the laudable initiative of contacting and cooperating with several trade associations, including CAADES and ANTAD. These contacts should be broadened and should be made into a permanent forum of communication and cooperation between the public sector and trade associations. Government should consider giving active support to these trade associations with ways and means available to its agencies and institutions that are not always available to the associations itself. This pertains, for instance to support that governmental entities can obtain from international financial institutions or from sister organizations in other countries. Institutional Development Funds from The World Bank are an example of the former; training and technical assistance offered by the USDA is an example of the latter. Reportedly, many members of CAADES and its senior management are interested in sharing their experiences with growers and their associations elsewhere in the country and are supporting the idea to create a nation wide association of interested parties of the fruits and vegetables trade. These initiatives merit support from government through means and channels available to it as mentioned above.
- *Cooperatives* allow growers to come together and pool their input volumes to source supplies more economically, via supply cooperatives, or to market jointly. In either case they avoid the double taxation to which corporations and their stockholders are subject. Furthermore, agricultural marketing cooperatives enable growers to avoid anti-trust constraints on price-

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<sup>1</sup> CAADES is a typical example in Mexico of a geographically defined association; ANTAD is an example of an association of a specific type of firm, in this case supermarkets.

fixing<sup>1</sup>. Cooperatives have lost some of their appeal in countries where the average size of the individual grower has become such that his, or her, enterprise is large enough to market independently. In addition, the changing nature of the buying industry has made it especially critical for marketing firms to make quick selling decisions. This is complicated in cooperatives by the more consensus-based approach, often putting cooperatives at a disadvantage relative to independent handlers. The loss of appeal of cooperatives is felt, particularly, in the US and in some European countries and would, most likely, apply to the large grower segment of the Mexican industry as well. However, the continued existence of a large number of small growers in Mexico makes the cooperative concept still pertinent here. Because of this, three actions by government are proposed in support of cooperativism, with a focus on the small farmer:

- i. Two studies should be made in preparation for support to marketing cooperatives among producers: (i) an evaluation of the reasons for the success of some, or all, of the few marketing cooperatives extant in Mexico and (ii) a comparative evaluation of cooperatives' related legislation in selected countries that have demonstrably successful marketing cooperatives in agriculture, as well as an evaluation of selected cooperatives in these same countries. The legislative studies should pay particular attention to provisions that avoid double taxation to which corporations and their stockholders are subject and provisions that allow for avoidance of anti-trust constraints on price fixing.
  - ii. Based on the results from the two studies proposed, a review should be undertaken of the LEY General de Sociedades Cooperativas from March 8, 1994 with the objective to evaluate its appropriateness as compared with what appears to be best practice elsewhere. If judged pertinent, appropriate amendments to the cooperatives law might be made so as to provide Mexico with a contemporary legal framework in support of agricultural marketing cooperatives.
  - iii. A cooperatives' development program should be designed, with due regard for what appears to be working and with, at least, the following components: (i) an informational campaign about cooperativism, its challenges and its benefits, (ii) a training program for cooperative management and (iii) a financial support program that might include a subsidy to finance competent management in the cooperatives' formative stage and concessionary credits to finance start-up and initial working capital costs, matching member's capital contributions.
- *Grower – shipper combinations* are becoming increasingly an alternative to cooperatives in assisting marketing of the small and medium grower. Rather than being vertically integrated, as is a cooperative, with ownership and capital contributions by members, the grower-shipper option is merely a vertically coordinated strategy, leaving all parties independent. In the grower-shipper combination the shipper often joint ventures with growers to obtain the necessary production and then markets for a fee, often advancing cartons, controlling the harvest operations and imposing grades and standards to generate consistent quality. The shipper is in contact with market needs and has the capital to undertake marketing risks. This enables small growers to ship anywhere since their volumes are pooled with other small growers to

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<sup>1</sup> While producers marketing through the same cooperative entity are allowed to jointly set prices, they may not monopolize or restrain trade to such an extent that it would unduly enhance the price of an agricultural commodity.

achieve a critical mass. Sometimes multinationals act as the grower-shipper, such as Del Monte with its melon project in Guerrero, but also several large Mexican growers have expanded their operations this way, although most still market only their own production. The difference between a shipper as described here and the traditional “coyote” is that the shipper is essentially a commission agent, operating for a fee. He does not take title to the product. The coyote is an intermediary trader who buys, then owns, and sells the goods. The challenge appears to be to find policy options, and associated governmental actions, that would attract more large growers into the grower-shipper role, in the interest of, particularly, the small farmer. Potential policy options appear to fall into two categories:

- i. Financial incentives to entice growers into searching for, and accepting, grower clients from among the small and medium producers. Since post harvest handling, from cleaning to grading, packaging and cooling is often poor to non-existent it might be considered to make available financing for such post harvest handling assets to shippers as a quid pro quo for accepting small growers’ accounts. Appropriate value added operations at the field level will benefit all growers by offering a better, higher value, product and by reducing waste and losses.
- ii. Training and technical assistance could be made available to grower – shipper combinations in all aspects of such collaborations, notably in the modalities and ways of risk sharing between the partners and in methods of accounting for product and money flows in the partnerships. Simple accounting packages could be introduced as part of this technical assistance.

In order to increase the package of policy options, i.e. governmental action that would promote grower-shipper combinations, it may be suggested to try and draw the lessons from apparently successful cooperation between shippers and growers in Mexico, for applications elsewhere. As a first candidate for such research into success stories might be suggested an in-depth evaluation of the Sinaloa winter vegetable complex, widely regarded as a contemporary model of cooperation between growers and shippers.

## C. HORTICULTURE IN MEXICO

### i. fruits

8. This chapter contains an introduction to the Mexican fruit sector, focusing on progress and developments between 1960 and 1997, with emphasis on marketing. The sector produces 57 marketed fruits, of which 11 now cover 88% of the cultivated area and represent 95% of production<sup>1</sup>. The most salient characteristics of the sector, and of its progress during the last few decades, are the following:

- horticulture contributes a growing share to Mexico's agriculture production, to the extent that one can see a certain "horticulturization" of the agriculture sector;
- however, this growth is a result of ever more extensive areas brought under horticulture, since productivity remains low and stagnant;
- the exception is a small group of advanced producers who contribute about 30% of production and who have a leading position in the market;
- the domestic market predominates and, within that, consumption of fresh, as against processed, fruits is prevalent;
- in spite of the growth of domestic production, there are increasing imports of fruits from temperate climates;
- also in Mexico, demand for fruits is such that it depends heavily on the overall economic situation in the country.

**Table 1: Mexico - Fruits; Areas, Values, Exports and Employment; 1960 – 1998 (%)**

Products	1960-62		1980-82		1996-98			
	Area	Value	Area	Value	Area	Value	Foreign Exchange Earnings	Empl.
Grains	74.7	39.7	60.6	36.3	64.5	39.3	5.1	49.9
Fruits & Vegetables	4.1	18.3	6.1	33.2	8.6	34.6	62.7	22.6
Vegetables	2.3	6.7	2.3	18.6	3.2	20.4	48.0	10.6
Fruits	1.8	11.6	3.7	14.6	5.4	14.2	14.7	12.0
Other Products	21.2	42.0	33.3	30.5	26.9	26.1	32.2	27.5
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Own calculations based on FAO/SAGAR/IMTA y SAGAR, *Anuarios Estadísticos de la Producción Agrícola de los Estados Unidos Mexicanos*, 1996 y 1998; INEGI, *Balanza Comercial de México*, Aguascalientes Ags., Diciembre 1999, pp. 18 and 19..

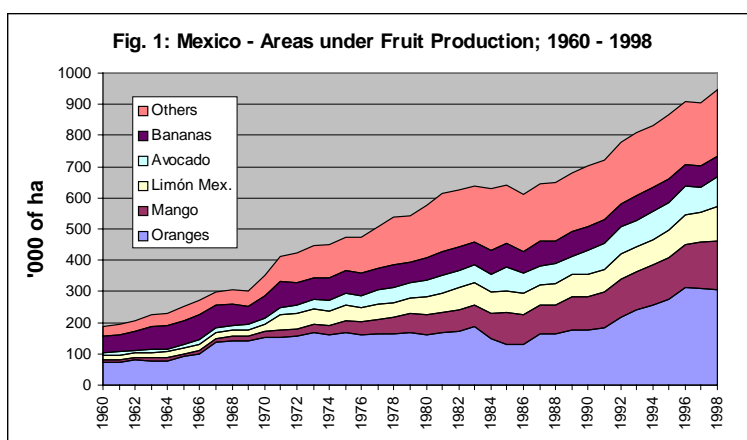
9. Up to the mid '60's, Mexico's agriculture was dominated by the production of grains which occupied almost 75% of the cultivated area and generated about 40% of the total value of production. At the same time, fruits were produced on only 1.8% of the available area and vegetables on a further 2.3%, together, though, already contributing an estimated 18%

of the total value of agricultural production. As the data in table 1 show, the relative importance of the horticulture sector has changed substantially since, with fruits alone now contributing over 14% of total production value, occupying well over 5% of the entire cultivated area and generating an estimated 12% of all employment in agriculture and almost 15% of all export proceeds<sup>2</sup>.

<sup>1</sup> These 11 fruits, about which the most complete statistical information exists, are: oranges, bananas, mangoes, avocados, lemons ["Mexicano"], peaches, apples, mandarins, grapes, pineapples and nuez encarcelada. Tuna, which occupied 37,000 ha. in 1998, limon Persa with 30,000 ha. and about 30 exotic fruits occupying an estimated 10,000 ha. are not included in these statistics.

<sup>2</sup> Most notable is that the value of horticulture production now about equals the combined value of all grains. A unit of land under horticulture production in Mexico, generates already about 7 times more than if it were under grains, in spite of the still relatively low productivity in the horticulture sector. The shift in production from grains into horticulture is, of course, a result of the higher returns to horticulture per unit area, but is also a result of the increasingly depressed grain prices in the country [see: Varangis, Panos et. al. *op. cit.*]. However, there is a limit to

10. When disaggregating the horticulture sector in its two components, fruits and vegetables, and with reference to the data in table 1, it may be noted that the value per unit area under production, between '60-'62 and '95-'97, has decreased for fruits from a factor of 6.4 to 2.9, while for vegetables it has increased from 2.9 to 6.4. In other words, the data indicate a large decrease in the productivity of fruit production, at least in terms of value per unit area, and possibly in its overall profitability<sup>1</sup>. It may, thus, be expected, that the rate of conversion of land into fruit production will decrease in the future. However, given the complexity of fruit production, the nature of consumer demand for fruits, and the large number of fruits within the sector, this observation does most likely not hold for all fruits.



11. Figure 1 shows that, since 1960, there has been a practically uninterrupted growth of the area under fruits, from somewhat under 200,000 ha to almost a million hectares now, with an average annual growth rate of 4.2%. This contrasts with the overall expansion of area cultivated, which grew during the same period, at an average annual rate of only 0.8%. The slow down in growth experienced between 1981 and 1987

was due primarily to periods of frost that damaged, particularly, the production of oranges, Mexico's most important fruit.

12. The growth in production has paralleled the increase in area cultivated, with total production increasing from 2.4 million tons in 1960 to well over 10 million tons at present, implying an

Periods	Mexican									
	Avocados	Peaches	Lemons	Mangos	Mandarines	Apples	Oranges	Pineapples	Bananas	Grapes
1960/64	12.7	13.8	8.0	20.8	n.a	10.9	10.8	22.1	12.1	6.1
1965/69	12.2	12.9	9.4	23.5	n.a	10.7	13.5	25.9	13.0	7.1
1970/74	9.5	9.1	9.5	12.7	n.a	7.9	9.7	35.3	14.6	9.0
1975/79	7.5	7.8	9.1	9.7	6.8	6.8	11.0	38.5	17.9	10.1
1980/84	8.1	6.5	10.4	10.0	11.0	7.1	11.2	45.8	22.8	9.9
1985/89	7.9	5.9	10.8	10.8	8.7	9.1	13.3	41.0	22.5	9.8
1990/94	8.7	3.8	9.3	9.5	10.8	8.6	12.1	41.7	27.6	11.2
1995/98	9.1	3.3	11.2	9.5	13.9	7.6	12.4	41.3	27.1	11.1
<b>trends</b>	down	down	up	down	up	down	up	up	up	up

Source: own calculations, based on: SAGAR, Anuario estadístico de la producción agrícola de los Estados Unidos Mexicanos, several years.

average annual growth rate of 3.9%. This is lower than the 4.2% average annual growth of the total area under fruits and, thus, might indicate an overall decrease in productivity. However, the data in table 2 indicate that most fruits have shown an increase in yields rather than a decrease, including such im-

portant fruits as lemons, oranges and bananas. The overall drop in yield appears to be driven by a few crops only, notably the important avocados and apples. Yield improvements in the others

which the very extensive areas under grains in Mexico can convert to horticulture; the latter is not a panacea for the entire grain sector.

<sup>1</sup> The opposite observation can be made for the vegetable sector, as will be commented on in the chapter on that sector.

Table 3: Mexico - Imports and Production of Selected Fruits: 1990-1998 (tons and %)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
<b>Cherries</b>									
Production	39,492	58,302	86,654	77,898	84,043	84,971	77,764	78,183	80,000
Imports	4,462	7,151	2,016	6,420	10,490	2,819	5,990	9,278	10,129
as % of prod.	11.30%	12.27%	2.33%	8.24%	12.48%	3.32%	7.70%	11.87%	12.66%
<b>Peaches</b>									
Production	161,162	132,234	133,459	153,071	153,931	120,186	150,811	128,604	150,000
Imports	10,011	19,750	13,188	12,039	25,735	16,485	13,632	22,637	20,387
as % of prod.	6.21%	14.94%	9.88%	7.86%	16.72%	13.72%	9.04%	17.60%	13.59%
<b>Apples</b>									
Production	456,538	527,373	598,230	537,774	487,698	413,223	426,713	629,277	375,000
Imports	4,456	18,833	61,184	122,275	156,110	81,886	89,425	115,017	84,067
as % of prod.	0.98%	3.57%	10.23%	22.74%	32.01%	19.82%	20.96%	18.28%	22.42%
<b>Pears</b>									
Production	19,060	44,219	39,256	40,967	35,161	29,753	38,283	39,262	31,700
Imports	34,515	35,378	31,221	42,983	74,461	31,970	37,450	41,302	49,830
as % of prod.	181.09%	80.01%	79.53%	104.92%	211.77%	107.45%	97.82%	105.20%	157.19%
<b>Grapes</b>									
Production	428,898	529,579	522,041	466,596	536,924	475,857	408,275	473,337	413,650
Imports	1,592	1,620	10,221	27,203	45,137	19,438	21,766	37,345	43,788
as % of prod.	0.37%	0.31%	1.96%	5.83%	8.41%	4.08%	5.33%	7.89%	10.59%

Source: Own calculations based on FAO statistics

tion to its domestic production, the Mexican fruit market absorbs increasing amounts of imported fruits, mostly temperate climate products such as apples pears and grapes. It should be noted, as shown in table 3 that these imported fruits compete with similar locally grown product and form only a modest part of total market supply, with the exception of pears. The competition from im-

Table 4: Mexico - Production and Exports of Selected Fruits: 1990-1998 (tons and %)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
<b>Avocados</b>									
Production	686,301	780,403	724,523	709,296	799,929	790,097	837,787	762,336	813,857
Exports	17,427	14,314	15,676	18,829	33,750	54,595	78,556	49,824	71,226
as % of prod.	2.54%	1.83%	2.16%	2.65%	4.22%	6.91%	9.38%	6.54%	8.75%
<b>Lemons</b>									
Production	695,871	741,193	816,912	758,535	849,239	984,110	1,131,303	1,126,422	1,211,486
Exports	73,140	72,614	93,500	117,445	139,417	168,937	169,163	195,640	217,679
as % of prod.	10.51%	9.80%	11.45%	15.48%	16.42%	17.17%	14.95%	17.37%	17.97%
<b>Mangos</b>									
Production	1,074,434	1,117,900	1,075,921	1,151,192	1,117,853	1,342,097	1,188,907	1,500,317	1,504,161
Exports	58,770	99,767	78,028	110,789	125,775	131,721	164,903	187,127	209,426
as % of prod.	5.47%	8.92%	7.25%	9.62%	11.25%	9.81%	13.87%	12.47%	13.92%
<b>Papayas</b>									
Production	249,545	342,035	474,193	273,219	489,014	482,968	496,849	594,134	498,000
Exports	4,852	4,732	8,117	11,615	16,855	36,410	54,208	47,618	59,638
as % of prod.	1.94%	1.38%	1.71%	4.25%	3.45%	7.54%	10.91%	8.01%	11.98%
<b>Pineapples</b>									
Production	454,668	298,526	264,147	212,402	228,580	281,180	301,406	391,491	350,000
Exports	8683	9817	9768	8184	6558	8438	10198	18337	19827
as % of prod.	1.91%	3.29%	3.70%	3.85%	2.87%	3.00%	3.38%	4.68%	5.66%
<b>Bananas</b>									
Production	1,986,394	1,889,296	2,095,355	2,206,892	2,295,450	2,032,652	2,209,550	1,714,457	1,556,586
Exports	154,114	237,960	179,558	295,384	207,931	100,066	162,914	240,230	244,992
as % of prod.	7.76%	12.60%	8.57%	13.38%	9.06%	4.92%	7.37%	14.01%	15.74%
<b>Grapes</b>									
Production	428,898	529,579	522,041	466,596	536,924	475,857	408,275	473,337	413,650
Exports	27,830	49,548	44,239	46,247	43,786	79,375	59,505	79,859	112,718
as % of prod.	6.49%	9.36%	8.47%	9.91%	8.15%	16.68%	14.57%	16.87%	27.25%

Source: Own calculations based on FAO statistics

are mostly the beneficial results of the introduction of new varieties and technological improvements.

13. At present, more than 95% of Mexico's fruit production is consumed in the home market, most of it fresh. This dominance of the local market is down only slightly from the 98% of total fruit production that was consumed locally in the early '60's<sup>1</sup>. In addition

to its domestic production, the Mexican fruit market absorbs increasing amounts of imported fruits, mostly temperate climate products such as apples pears and grapes. It should be noted, as shown in table 3 that these imported fruits compete with similar locally grown product and form only a modest part of total market supply, with the exception of pears. The competition from imports has led to an overall increase in the quality and presentation of the domestic products, although some producing areas have not been able to adapt and confront the competition from, mostly, US and Chilean sources and, increasingly, from the more progressive local producers. This lack of adaptation has been particularly noticeable in the case of apples produced in Puebla, where increasing amounts are sold to processors<sup>2</sup>.

<sup>1</sup> As will be shown later, the domestic market for fruits is even more dominant than it is for vegetables, where 75 to 80% is consumed locally.

<sup>2</sup> At present, more than 80% of Puebla's apple production is processed for juice and apple sauce, as compared with a national average of 18% processed, the rest being consumed fresh.



14. Most fruit exports are of fresh tropical fruit varieties. Mexico exports about 11% of its production of these fruits and is a leading exporter of a number of them, in spite of the overall modest importance of fruit exports from the country. On average over the last decade, Mexico has supplied 21% of the world market of avocados, 75% of the international trade in “limon Persa”<sup>1</sup>, 41% of the mango trade and 42% of all papaya traded internationally. In addition, Mexico exports considerable quantities of grapes, while it is a major supplier of concentrated and frozen orange juice to the international blending market. About 25% of Mexico’s orange production is processed into juice. An equal percentage of the production of Mexican lemons is processed for exports, in this case its essential oil. Table 4 shows production and exported percentages of the most imported fruits traded internationally. About 12.5% of agricultural export proceeds come from fruits<sup>2</sup>.

15. As elsewhere, there is also in Mexico a distinct concentration of production of certain

fruits in certain states and areas. For instance, in 1998, 87% of all avocados came from Michoacan, 70% of the national production of “limon Persa” originated in the state of Vera Cruz, as well as 57% of all pineapple, 47% of oranges and 46% of mandarins. Table 5 shows data on regional production for the most important fruits. This regional concentration also implies, most often, a strong regional economic dependence on a single, or a few, fruits and has implications for marketing. Most fruits have to be transported considerable distances to market, with the “Centrales de Abastos” of the “Distrito Federal”<sup>3</sup>, Guadalajara and Monterrey, as the main destinations and price setters. As a matter of fact, many shipments of fruits, and other products, arriving at the market in Mexico City, are transshipped to other destinations country wide.

Table 5: Mexico - Regional Concentration of Fruit Production, 1998 (%)

Product	Numbers of Producing States	Principal States	% of	
			Total Area	% of Total Production
Avocados	27	Michoacán	83%	87%
Peaches	24	Zacatecas	59%	23%
		Michoacán	5%	15%
Mexican Lemons	26	Colima	35%	43%
		Michoacán	27%	26%
		Oaxaca	20%	18%
Limón Persa	10	Veracruz	73%	73%
Mangos	23	Veracruz	22%	15%
		Michoacán	12%	8%
		Nayarit	12%	15%
		Guerrero	11%	12%
Mandarines	23	Veracruz	46%	58%
		Nuevo León	26%	21%
		SLP	21%	13%
Apples	23	Chihuahua	32%	56%
		Durango	22%	10%
		Coahuila	14%	14%
		Puebla	12%	7%
Oranges	27	Veracruz	47%	48%
		SLP	11%	9%
		Tamaulipas	9%	13%
		Nuevo León	8%	7%
Pineapple	11	Veracruz	57%	61%
		Oaxaca	21%	23%
Bananas	19	Chiapas	26%	38%
		Tabasco	19%	18%
		Veracruz	19%	11%
Grapes	8	Sonora	64%	67%
		Zacatecas	25%	24%

Source: SAGAR, Sistema anuario de la producción agrícola de los Estados Unidos Mexicanos en medio magnético 1998.

<sup>1</sup> Citrus Latifolia, a seedless small lemon, see the annexed case study on this product.

<sup>2</sup> Modest as compared with the 48% contributed by vegetables, see the next chapter.

<sup>3</sup> The Federal District that contains Mexico City; see also the chapter on its wholesale market, the “Central de Abastos”.

16. A particular characteristic of Mexico's fruit sector is the marked differences that exist in the technical sophistication between producers. Relatively small numbers of producers using the

	1993/94		1998/99	
	% of growers	% of production	% of growers	% of production
<b>Oranges*</b>				
up to 10 t/ha	82.1	49.3	66.9	49.2
more than 10 t/ha	17.9	50.7	33.1	50.8
<b>Limón Persa**</b>				
up to 10 t/ha	70.2	14.2	68.9	24.4
more than 10 t/ha	29.8	85.8	31.1	75.6
<b>Apples***</b>				
up to 10 t/ha	n.a.	n.a.	98.5	80.6
more than 10 t/ha	n.a.	n.a.	1.5	19.4

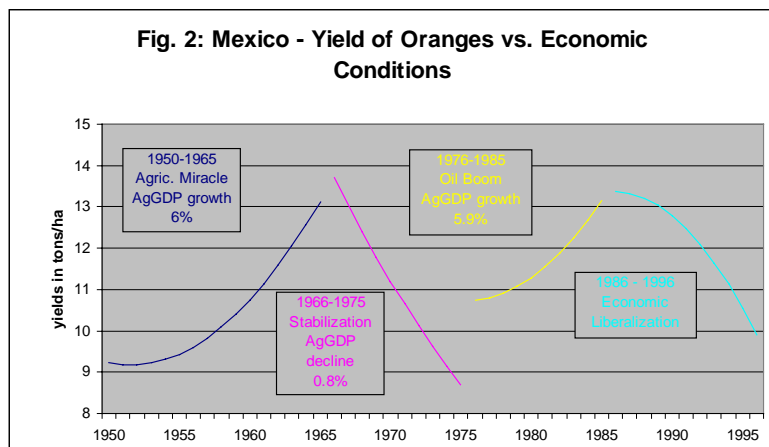
\* sample of 873 producers from Veracruz; \*\*198 producers from de Martínez de la Torre, Ver.;  
\*\*\* 1,068 producers from Coahuila.

Source: authors' field work: 1999.

most advanced varieties and technologies contribute disproportionate amounts of certain fruits. Half of Mexico's oranges, the most important fruit in the country, are produced by 20 to 30% of all orange growers, depending on the year. Fully 75 to 85% of Mexican lemons are produced by 30% of all lemon growers. Table 6 shows data on this production concentration for three important fruits. The very large number of growers, predominantly small farmers, whose technology is inadequate and whose productivity is low, have led to the overall low and stagnant productivity and profitability of

fruits production in Mexico, as was shown in the figures in table 2. It is from this segment of marginally profitable to unprofitable growers that notions of crisis in the production of one or another fruit arise periodically.

17. Finally, it should be noted that the fortunes of the fruit sector, and hence the behavior of fruit growers, is directly correlated with economic conditions in general and those of the agriculture sector in particular. Figure 2 demonstrates that dependence for oranges, Mexico's premier fruit, since 1950<sup>1</sup>. In periods of strong growth of agricultural GDP, the productivity of the national orange grove grew commensurately. The opposite has been true in periods of declining economic performance in the agriculture sector, including during the decade between 1985 and 1995.



<sup>1</sup> The sources of the data underlying figure 2 are: INEGI, *Estadísticas Históricas de México*, tomo I, pp. 397-398 and *Informes de Gobierno*, Anexes, several years.

## ii. vegetables<sup>1</sup>

18. The 3 to 4% of land cultivated with vegetables in Mexico, or 10% of all land irrigated, generates almost 20% of the total value of agricultural production in the country, see table 7,

**Table 7: Mexico - Vegetable Production, 1989 - 1999**

Year	Cultivated Area			Vegetable Production ( <sup>'000 tons</sup> )	Average Yields (tons/ha)	Value in total agr. Production (%)
	total	vegetables	% of total			
	( <sup>'000 ha</sup> )	( <sup>'000 ha</sup> )				
1989	16,617	581	3.50%	7,665	13.19	17%
1990	17,975	572	3.18%	8,056	14.08	17%
1991	17,106	586	3.43%	8,328	14.21	19%
1992	17,278	662	3.83%	8,004	12.09	21%
1993	17,423	602	3.46%	8,068	13.40	20%
1994	18,869	552	2.93%	7,768	14.07	19%
1995	18,753	572	3.05%	8,752	15.30	17%
1996	19,981	578	2.89%	8,939	15.47	17%
1997	18,728	630	3.36%	9,379	14.89	21%
1998	20,212	640	3.17%	9,401	14.69	23%

Source: SARH: Anuario de Produccion Agricola de los Estados Unidos Mexicanos.

**Table 8: Mexico - Vegetable Production and Exports, 1925/29 - 1990/94**  
(averages for five year periods - tons)

Period	Production	Imports	Exports		Apparent domestic demand
			total	% of Prod.	
1925-1929	245,906	2,185	48,506	19.73%	199,585
1930-1934	261,310	1,619	47,640	18.23%	215,289
1935-1939	295,342	2,237	30,649	10.38%	266,930
1940-1944	469,639	3,283	79,534	16.94%	393,388
1945-1949	622,992	7,507	127,649	20.49%	502,850
1950-1954	814,519	20,232	132,071	16.21%	702,680
1955-1959	1,045,451	11,301	238,334	22.80%	818,418
1960-1964	1,611,248	1,785	260,021	16.14%	1,353,012
1965-1969	2,058,702	3,433	375,607	18.24%	1,686,528
1970-1974	3,182,371	10,013	682,589	21.45%	2,509,795
1975-1979	4,080,580	10,062	801,091	19.63%	3,289,551
1980-1984	5,365,677	25,593	629,240	11.73%	4,762,030
1985-1989	5,973,706	18,488	1,378,703	23.08%	4,613,491
1990-1994	8,040,860	66,663	1,663,444	20.69%	6,444,079
1995-1998	9,784,500	165,466	2,228,221	22.77%	7,721,745

Sources: for 1925/79 production: SARH, *Econotecnia Agrícola*, septiembre 1983; for 1980-1994 production: SARH, *Anuarios Estadísticos de la Producción Agrícola de los Estados Unidos Mexicanos*; for 1994-96 production: SAGAR, *Sistema Anuario Estadístico de la Producción Agrícola en medio magnético*; for 1997 y 1998 production: FAOSTAT, database, <http://apps.fao.org/>; for border trade: INEGI, *Balanza Comercial de México*, several years, 1994-98 and BANCOMEXT, <http://mexico.businessline.gob.mx>

about half of all agriculture derived export proceeds, and a substantial part of agriculture related employment. Average annual growth rates for the 60 years through the 1980's have been almost 3%. The most important contributing factor to this growth and the main reason for the increasing importance of the sector in the country's agriculture has been strong and persistent expansion of domestic demand, see table 8. This trend, though, came to a halt in the early 1990's and actually, was reversed, with the area under vegetables contracting from 3.83% of all land under cultivation in 1992 to below 3% in 1996, see table 7. The resulting decrease in production was only in part compensated by higher yields. Among the reasons for this abrupt reverse of a long term trend were cited: the retrenchment of government from the agriculture sector, resulting in loss of subsidies and increased costs of financing, contraction of local demand by as much as 30% in 1995 and 1996 as a result of the economic crisis, and droughts in 1995 and 1996.

19. Local consumption has typically absorbed about 80% of production, although exports,

now at well over 1.5 million tons, are important and have acted as a buffer for production in

<sup>1</sup> Draws on: Schwentesius y Gomez: *Competitividad de Hortalizas Mexicanas en el Mercado Norteamericano. Tendencias Recientes en el Marco del TLC* in: Schwentesius, Gomez and Williams [coordinadores] *TLC y Agricultura - ¿Funcione el Experimento?* CIESTAAM – Universidad Autonoma Chapingo, 1998.

times of contraction of the local market. They had grown from 30% of the value of all agricultural exports, in 1980, to over 50% in the first half of the 1990's, see table 9, contracting lately, though, in relative terms vis-à-vis total agricultural exports, as a result of the increased value of coffee exports in 1995 and, in 1996, as a result of price drops in the US market. The latter demonstrates the heavy reliance upon the US as, by far, the principal export destination for Mexican vegetables, typically taking 99% of all produce exports<sup>1</sup>. Other factors that make vegetable exports vulnerable are: seasonal<sup>2</sup> and regional<sup>3</sup> concentration of production, reliance upon a limited number of vegetables<sup>4</sup> and the concentration of export production in the hands of a small number of dominant growers.

20. However, and contrary to the situation in other countries with a large vegetable production sector, such as The Netherlands, Bulgaria or Hungary, exports do not drive the sector in Mexico overall, although they do pattern production and trade in certain regions. Largely because of this trade and markets' driven production the following four categories of production, and producers, can be distinguished:

- i. summer and fall smallholder production, technically primitive, and mostly located on the outskirts of major cities or in states that are close to the large urban agglomerations;
- ii. commercial production for domestic consumption, with medium to sophisticated technology, located in various states and oriented predominantly on the wholesale markets of Mexico City, Guadalajara and Monterrey;
- iii. production specifically for exports, usually employing leading edge technology and exporting, in combination, year round<sup>5</sup>;
- iv. production for the processing industry<sup>6</sup>.

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<sup>1</sup> This distinguishes vegetable exports from fruit exports which have lately been able to diversify their markets and rely to a much lesser degree upon the US market.

<sup>2</sup> Typically, 70% of all export proceeds are earned in the first 4 months of the year.

<sup>3</sup> According to information from CAADES [Confederación de Asociaciones Agrícolas del Estado de Sinaloa], producers from the state of Sinaloa accounted, in the mid 1990's, for about 50% of all vegetable exports, including 88% of all egg plants exported, 60% of all tomatoes and 53% of all cucumbers.

<sup>4</sup> Tomatoes have, over the last decade, typically accounted for 25 to 30% of all vegetable exports, by value, melons and watermelons for an other 15 to 20%, while five products, tomatoes, melons and watermelons, cucumbers, peppers and onions have, together, typically accounted for well over three quarters of all exports proceeds for vegetables.

<sup>5</sup> Sinaloa for winter production, Sonora for early spring, Guanajuato for winter and summer supplies and Baja California for summer production.

<sup>6</sup> For instance, year round broccoli and cauliflower production in Guanajuato and tomatoes, during the winter, in Sinaloa.

## D. HORTICULTURE MARKETING

### i. hypotheses on marketing

21. The central hypothesis of the research underlying this study is that marketing margins and profits are a function of the type of producer concerned and of the state of development of the market he, or she, operates in. This central hypothesis then leads to three operational hypotheses.

22. Following Krishna Bharadwa's<sup>1</sup> thesis about rural markets in India, it is postulated that there are different access and control conditions with respect to marketing, for different rural classes. Strong local producers, who at the same time are often traders, can exercise a controlling influence over prices and trading margins. Poor producers, on the other hand have no influence on the market and have to accept often adverse marketing conditions. The major reasons for that are their constant demand for cash, as a result of chronic indebtedness, need of basic household necessities and lack of access to formal financing sources. A group in between these two extremes are the medium sized producers who, although without influence on prices, can nevertheless enter the market only at times that conditions are propitious for them and, hence, on average, can avail of better margins and profits than the small producers. Thus, the first operational hypothesis of the work reported on here was to investigate whether in the marketing of fruits and vegetables in Mexico, margins and profits are a function of the social level of the market participant.

23. A second hypothesis was related to the characteristics of the markets for perishable horticulture products in Mexico. It was postulated that markets are imperfect, both physically and economically and that competition is not fully developed<sup>2</sup>. Neo classical theory holds that perfect competition requires complete information, efficient transmission of price signals, easy and unimpeded entry and access to and from the market, lack of influence between individual market participants and full mobility of the factors of production, among others. It was hypothesized that these conditions are not the rule in Mexico's market for perishable horticulture products, but rather the exception. In consequence, it should be found that certain marketing agents, who are able to extract extraordinary rents from the system will be able to create strong, and lasting, dependencies<sup>3</sup> between traders and producers and will be able to cause extreme price variations.

24. A third, and related, hypothesis has been that the dynamics of the market, transcending and in part reacting to the monopolistic tendencies mentioned in the previous paragraph, lead to withdrawal from the market by, particularly, medium scale producers and to a concentration of

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<sup>1</sup> Bharadwaj, Krishna, A view on Commercialisation in Indian Agriculture and the Development of Capitalism, in: *Journal of Peasant Studies*, vol. 12, number. 1, 1985, pp. 7-25.

<sup>2</sup> Ellis, F., Peasant Economics. Ed. Cambridge University Press, 1992. Cited by Harris-White, Barbara, Power in Peasant Markets, in: Harris-White, Barbara, Agricultural Markets from Theory to Practice. Field Experience in Developing Countries. Ed. Macmillan Press LTD, Hampshire, USA, 1998, p. 262.

<sup>3</sup> There are two common explanations for what can be called "coercive trade" and the related rural poverty: (i) farmers are poor because they depend upon usurious lenders or (ii), as Bhaduri argues, farmers are poor because they have no alternative but to subject themselves to "coercive trade" (quoted in: Harris-White, Barbara: Agricultural Markets from Theory to Practice. Field Experience in Developing Countries; Ed. Macmillan Press Ltd., Hampshire, USA, 1998, page 269) These arguments suggest that lending sources, alternative to those of the local trader, would help improve the lot of poor farmers.

production. This process of concentration is brought about not solely by domestic market forces but, in the case of Mexico, also by the increasing competition that results from regional integration under the NAFTA.

## ii. market structure

25. The infrastructure for horticulture marketing in Mexico is not dissimilar from that found most elsewhere in Latin America. It has a dualistic nature with a traditional network of intermediaries collecting products from a large number of small farmers, ultimately delivering to urban wholesale markets, next to a sophisticated system of well organized large scale production, collection and, often, conditioning. The latter part of the system, integrated from production through wholesale, dominates the network of wholesale markets for all important products and caters to the market of large scale buyers, supermarket chains and institutions. Many of the large traders are also growers of the product sold, either on owned or leased land. They may import seeds and produce seedlings for their own use and for delivery to contract growers to assure that they will get the varieties wanted by the market, with supply staggered as needed. They may also finance their most reliable suppliers. As argued in the chapters on fruit and vegetable production, the large scale, technically sophisticated, production caters to both the domestic and export markets but mostly from distinct sources, i.e. certain growers produce exclusively for exports, others exclusively for the local market. Table 9 shows the vertical integration and the concentration of production and trade for selected major products. These data indicate that the market concentration described by the same author as that of the data in table 9, in the early '90s<sup>1</sup>, when she pointed out that 3% of all wholesalers at the CEDA-DF accounted for 58% of all sales of the 11 most important horticulture products, still holds. These are the large traders and growers that exercise a controlling influence over prices and trading margins, as postulated by Bharadwa, *op. cit.*

26. The more traditional marketing channel, used by the medium and small growers, is similar to that found elsewhere in Latin America. It consists of a network of intermediaries who collect

	#s of main traders	approx. daily throughput	market share	integrated with production <sup>2</sup>	handle other products as well	trade on other markets as well
tomatoes	8	500 tons	62%	yes <sup>3</sup>	yes	yes
avocado	7	353 tons	80% <sup>4</sup>	indirectly <sup>5</sup>	n.a.	n.a.
oranges	5 <sup>6</sup>	n.a.	80%	no <sup>7</sup>	no	no

<sup>1</sup> mostly based on field work done in 1995

<sup>2</sup> this implies in almost all cases advanced production techniques and the existence of contemporary, sophisticated marketing chains with field grading, often refrigeration, storage and packaging under own labels.

<sup>3</sup> the largest of the 8 traders had a total of 2,600 ha. under tomatoes in the states of Sonora, Baja California and Sinaloa; the second largest produced 165,000 tons of tomatoes on 2,500 ha. in 8 different locales, providing for year round supplies. Both traders exported as

<sup>4</sup> the largest trader handles fully half of all avocado entering the market.

<sup>5</sup> these traders are mostly packers who buy whole orchards, receive directly from producers or buy from middlemen

<sup>6</sup> contrary to all other products, oranges are auctioned to the main wholesalers operating on the market; the "main traders" listed here refer to the "corredores" that handle the auctions.

<sup>7</sup> most "corredores" own trucks and have purchasing relations of long standing, including financing, with middlemen who in turn have the traditional long term relationships of mutual dependence with producers.

Source: Mimeo: Flavia Echanove Huacuja: [Vínculo con el Campo y Estructura de Poder en el Abasto de Hortofrutícolas a la Ciudad de México](#)

and market products from a large number of, mostly small, farmers living dispersed over the country side, selling to other intermediaries who assemble increasingly larger volumes or selling directly at urban wholesale markets. Collection and transportation is done under often difficult circumstances, on account of road conditions, assaults and shake downs, weather and the lack of appropriate packaging and means of transport, making the system inherently costly. The relationship

<sup>1</sup> See: Flavia Echanove Huacuja: [El abasto al D.F. y el mito de la excesiva intermediación](#), in proceedings of the IV Encuentro Internacional de Investigadores en Economía Agrícola, pp. 301

between the producer and the first buyer in the marketing chain is frequently more complicated than a simple buyer – seller arrangement. There is often a “godfather like” relationship, implying a social function that is usually not well understood by the outsider. Devoid of other support structures and living in a remote country side, the producer often relies upon his, or her, middleman not only as an outlet for the product, but also as a source of inputs and of the occasional household goods and even, in times of distress or for other reasons, as a source of short term emergency financing. Efforts to supplant the middleman often fail because of the lack of understanding of his, or her, broader social role, and because the real costs of marketing are underestimated. Barring unusual circumstances, the entry barriers to the middleman trade are low, consisting of a means of transport and some working capital. In most economies the profession tends to be fiercely competitive with margins dictated by costs, rather than by an ability to charge oligopolistic rents. If systematic collusion occurs, impeding competition and raising margins, it tends to be at the end of the marketing chain, i.e. at the points of largest concentration of product, most often at the urban wholesale markets. Temporary, ad-hoc collusion at the levels closer to the producer, tends to occur as a defensive mechanism against external threats to the system, perceived by a cabal of traders who otherwise compete fiercely. The latter collusion may lead to, most often temporary, decreases in trading margins and higher prices for producers, until the external threat has been removed. This is the pattern of behavior that has doomed most attempts at cooperative marketing by small farmers, attempts that in addition to the defense by the established traders often suffer from weak, sometimes corrupt, management. The group of small farmers described here is what was earlier identified as poor producers, who have no influence on the market and have to accept often adverse marketing conditions. The major reasons for that dependency are their constant demand for cash, as a result of chronic indebtedness, need of basic household necessities and lack of access to formal financing sources.

27. Both segments of the trade, the traditional relatively small middlemen and the increasingly sophisticated large growers and traders, are dominated by individual businessmen or, at most, by extended families. The Mexican farmers, as is the case almost universally in Latin America, are by and large not organized, cooperatively or otherwise, to do joint marketing of their products and so present a common front to the ultimate buyer and eliminate most of the intermediary stages in the marketing chain<sup>1</sup>.

28. It should be noted, that the degree of competitiveness of the system also depends upon the legal, regulatory and policy framework within which it operates. If the pricing system is opaque, cartelization among traders is left unchecked and there is no system of efficient and quick resolution of conflicts in this trade of highly perishable products, the basic premise of a competitive system is destroyed, creating opportunities for, often systematic, rent seeking that otherwise would not exist.

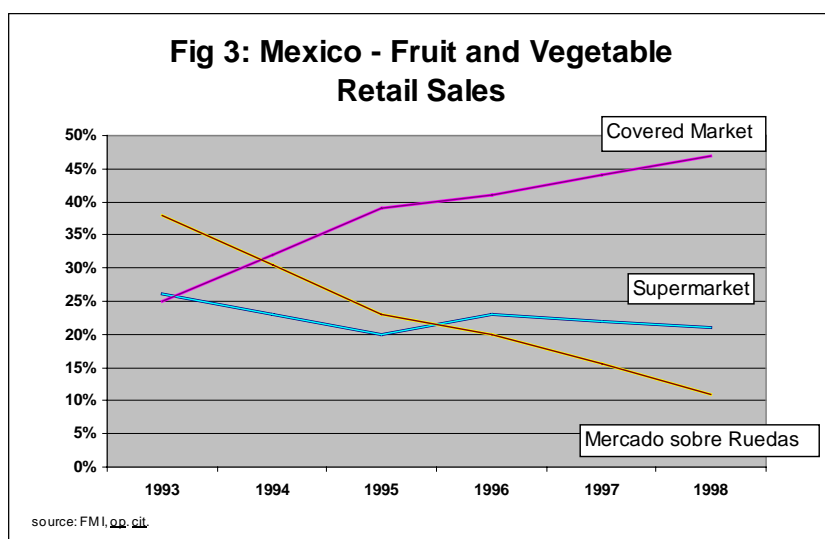
29. It would, thus, appear that the marketing system for fruits and vegetables in Mexico indeed exhibits the dichotomy between a dominant group of large traders cum producers on the one hand and a mass of small producers on the other, a system that may make margins and profits a function of the social level of the market participant. For further detailed descriptions of marketing structures, selected marketing costs and margins, reference is made to the four case studies in volume 2 of this report.

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<sup>1</sup> An issue of high priority for applied research would be a study of the reasons for success of those few marketing cooperatives that have managed to survive, notably those among small coffee growers.

### iii. Supermarkets

30. The development of supermarkets as a prime location of consumer food purchases, and particularly of fruits and vegetables, in Mexico, appears to run counter to developments most everywhere else. The 1998 report on consumer attitudes and supermarkets, done by the US Food Marketing Institute, in cooperation with ANTAD<sup>1</sup>, shows that the supermarket as prime source of food had declined from 75% of consumers surveyed in 1993, to just 57% in 1998. During the same period the number of surveyed consumers that indicated supermarkets as the preferred source of fruits and vegetables, had declined from 26 to 21%. Figure 3 shows the trend of fruit and vegetable purchases in Mexico, by the three main supply sources, between 1993 and 1998. Covered markets, “mercados establecidos” in Spanish, are favored increasingly as consumer sources for produce. Open markets and, to a lesser extent, supermarkets are losing clientele.



31. Nevertheless, Mexican supermarkets do show developments with respect to produce marketing that are similar to those found elsewhere. The Soriana chain, headquartered in Monterrey and, recently, the French owned Carrefour chain have built modern produce distribution centers and have started some product sourcing directly from growers under supply contracts. Still, both

chains depend for part of their supplies upon wholesale markets and upon the large scale traders, often growers as well, that dominate these markets as argued earlier. The fast growing covered markets, as a favored source of fruits and vegetables are supplied, by and large, through the wholesale markets.

32. Given the trends shown in figure 3 it remains questionable if supermarkets will have the same market determining influence in Mexico that they have had elsewhere over the last few decades, notably in the US and in most EU countries. In consequence, the impact of Mexican supermarkets on rules and regulations of the produce trade, from grading, standardization and packaging to grower contracting and grower cooperation will probably be less than it has been elsewhere. Impetus for change in the Mexican produce trade will have to come mainly from the demands of the export markets and from the competition faced from imports.

<sup>1</sup> Food Marketing Institute: Tendencias en Mexico – Actitudes del Consumidor y el Supermercado; Washington, D.C. 1998



#### iv. exports and NAFTA

33. Although this report is limited to domestic marketing, the importance of the US market, and by extension of the integration under NAFTA, for the Mexican fruit and vegetable growers is of such magnitude that it warrants a few comments here<sup>1</sup>. Of the approximately 100,000 horticulture producers in Mexico, an estimated 20,000 take part in exports to some degree, although there is a strong concentration of export production in the hands of a very limited number of large growers and their families<sup>2</sup>.

34. The US exported \$648 million worth of horticultural products to Mexico in 1999, making it the US's fourth largest horticultural market. The fact that these trading relationships are now established serves to lower the price spikes in Mexico and likely reduces wholesale margins as well. For example, importers know that if their margins get too high retailers will import directly, undertaking the price risk and absorbing the transaction costs that this entails. In general, produce moves to Mexico when prices are low in the US due to excess supply, and when Mexican national market prices are relatively high by Mexican standards, such that the US product can still be competitive in Mexico even after paying for freight costs.

35. Imports into Mexico's prime market for export vegetables, the US, have been grown at an annual rate of 4.3% since the early seventies. Mexico's share of the US vegetable market almost doubled from 7.6% in the early seventies to about 15% in the mid nineties, a period in which total and per capita vegetable consumption in the US increased substantially. Mexico is by far the largest foreign supplier to that market, typically accounting for 66 to 70% of all vegetable imports, by value<sup>3</sup>, increasing its shipments from about 1 million tons in 1990 to almost 1.8 million tons in 1996. In spite of this large increase in total sales, though, Mexico has been losing market share in the US import market, during the same period, mainly through competition from The Netherlands, which doubled its share of the US market from 2.5 to 5.0%, between 1990 and 1995.

36. With respect to NAFTA's influence on Mexican exports to the US, there are two schools of thought:

- i. While the US already had low tariffs for most produce items prior to NAFTA, limiting the potential benefits from tariff reduction, still, Mexico has diversified and expanded exports to the US under the terms of NAFTA. Horticulture imports into the US in 1998, from Mexico, surpassed \$3 billion, 25 % more than even the prior year. Although it is unfair to give all the credit to NAFTA, it has facilitated trade by setting the rules of the game and increasing interest and confidence in sourcing from Mexico. Additionally, those few crops with high ad valorem tariffs, such as melons and asparagus, have benefited directly. The Mexican processed fruit and vegetable sector is also benefiting with an increasing number of plants now processing items such as frozen "chile rellenos" and "guacamole" for the US foodservice market. NAFTA helped legitimize Mexico as an off-shore source<sup>4</sup>. The more

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<sup>1</sup> Most of which have been contributed by Roberta Cook-Canela.

<sup>2</sup> Not more than 30 families dominate export production in the Bajío [see Schwentesius & Gomez in: TLC y Agricultura....., op. cit. page 177]

<sup>3</sup> Second and third in importance are, resp. Canada and The Netherlands.

<sup>4</sup> This success story is mentioned here for the benefit of Mexican policy makers, despite this report's primary emphasis on the domestic market of fresh fruits and vegetables. It should be noted, inter alia, that the balance of

Mexico exports, the more technology is transferred into the agricultural sector and the more the export sector influences the domestic market. Tomatoes are a classic case, where exporters orient their product to the export market but sell sizable amounts on the domestic market as well, providing a better quality product with improved post harvest handling and lower losses.

- ii. The success of Mexican growers in penetrating the US market, mainly against competition from Florida, has not been a result of NAFTA, but has rather been brought about by:<sup>1</sup>
- adoption of the latest growing techniques on the part of the major Mexican producers, increasing yields and product quality and reducing production costs, as against a technological stagnation in Florida;
  - the creation of new marketing organizations with growers integrated with their own, cross border, trading channels;
  - the devaluation of 1994, which increased the attractiveness of exports in terms of peso receipts;
  - the contraction of local demand in Mexico as a result of the economic crisis of the early nineties;
  - unfavorable weather during Florida's main growing season for several years in the early nineties.

#### **v. prices and margins**

37. In Mexico, producer prices are collected by SAGAR and by ASERCA, though not for all products and not with sufficient geographic coverage, or frequency, to be useful as a guide to market behavior for those engaged in the trade. As a matter of fact, the absence of consistent time series of producer prices is the most glaring deficiency in Mexico's information system for agricultural prices. The SNIIM system of SECOFI collects daily wholesale prices at 39 different markets, among which 14 official wholesale markets<sup>2</sup>, for 40 different fruits and an equal number of vegetables; see <http://www.secofi-sniim.gob.mx/> for details and prices proper. In addition to the information contained on its Web page, SNIIM publishes its information at all wholesale markets and soon will have the same information available through an automated phone answering system. PROFECO, a consumer interest related entity under the SECOFI umbrella collects daily retail prices of a large number of consumer goods, including fruits and vegetables at retail establishments in all major cities; see <http://www.profeco.gob.mx/>.

38. In an effort to test the degree of market distortion, i.e. the apparent efficiency, of horticulture marketing in Mexico an analysis has been made of the price behavior of the same four products<sup>3</sup>, that have been the subject of the case studies in volume 2 of this report. For all four products, price series from PROFECO, with average weekly prices for the products concerned in retail establishments in Mexico City, have been used as "consumer prices". Weekly averages of the prices collected by the SNIIM system in the "Central de Abastos del Distrito Federal" have been

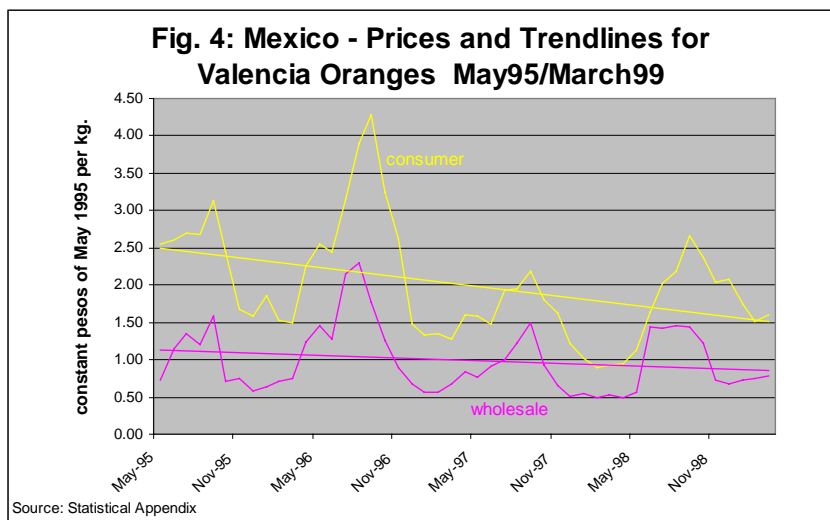
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trade in horticulture products, between the US and Mexico is heavily in favor of Mexico, in spite of the imports of US produce into Mexico.

<sup>1</sup> See Schwentesius & Gomez in: *TLC y Agricultura.....*, op. cit. pages 189 through 200 for an elaboration of the points on competitiveness of Mexican vegetable exports made here.

<sup>2</sup> "Centrales de Abasto" in Spanish.

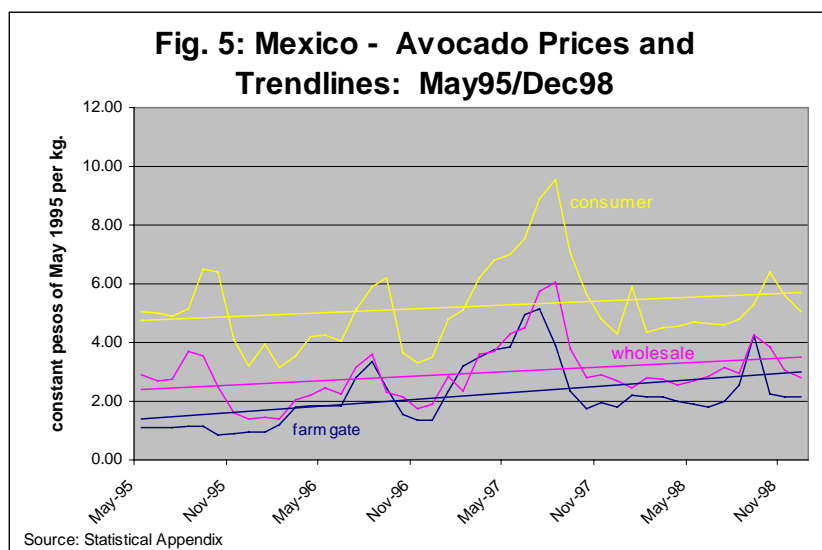
<sup>3</sup> Avocado, Valencia Oranges, Limon Persa, and Strawberries.



used as wholesale prices. Farm gate prices have been obtained only for avocado, from SAGAR's "Boletín Semanal de Información Agropecuaria". Most price series start in May of 1995 and run through early 2000. The current prices obtained have been deflated into constant prices of May 1995, using the consumer price index of Mexico's Central Bank as the deflator. All analyses have

been done in constant prices. Full details and all data are in the statistical appendix. In addition to the systematic time series of price data, further price, costs and margins information has been used as contained in the four case studies in volume 2.

39. Figure 4 shows recent price behavior for oranges, Mexico's largest fruit crop in terms of area and tonnage, while figure 5 shows similar information for avocados<sup>1</sup>, Mexico's most important fruit crop in terms of value<sup>2</sup>. The price behavior of oranges is the same as that for the other two fruits analyzed, strawberries



and limon Persa, a gradual decline in real prices and a decrease in trading margins. Price behavior of avocados has been somewhat different, with a gradual increase in real prices, although also here a decreasing trend of marketing margins. Table 10 shows average yearly trading margins for

<sup>1</sup> It should be noted that the price series for avocados ends in December of 1998. The avocado harvest in 1999 was unusually small and of poor quality, on account of adverse weather. As a result, prices were very high and were well above the long term trend, both seasonally and for the year as a whole. Moreover, the correlation between producer prices, as given by SAGAR, and wholesale and retail prices, which had been fairly good, through 1998, see e.g. fig. 5, was lost completely in 1999, with producer prices as given by SAGAR unlikely low for the entire year. Hence, and in order not to distort the longer term trend, it was decided to omit the 1999 prices from the analyses series for avocados.

<sup>2</sup> Mexico has a share of about 35% of the global production of avocados, over 90% of which is consumed locally, see the annexed case study on avocados for further details.

**Table 10: Mexico - Trading Margins for Selected Horticulture Products<sup>1</sup>; 1995 - 1999**  
(constant pesos of May 1995 and %)

year	Avocado			Valencia Oranges			Strawberries			Limon Persa		
	margins farm retail	as % of farmgate price	farmer's share of retail	margins wholes. retail	as % of wholes. price	wholesale share of retail <sup>2</sup>	margins wholes. retail	as % of wholes. price	wholesale share of retail <sup>2</sup>	margins wholes. retail	as % of wholes. price	wholesale share of retail <sup>2</sup>
1995	3.24	220%	31%	1.33	114%	47%	n.a. <sup>3</sup>	n.a.	n.a.	1.80	187%	35%
1996	3.09	162%	38%	1.14	106%	49%	7.38	114%	47%	1.69	181%	36%
1997	2.93	126%	44%	0.94	96%	51%	6.03	93%	52%	1.59	174%	36%
1998	2.78	101%	50%	0.74	83%	55%	4.67	72%	58%	1.48	168%	37%
1999				0.55	68%	59%	3.31	51%	66%	1.38	160%	38%

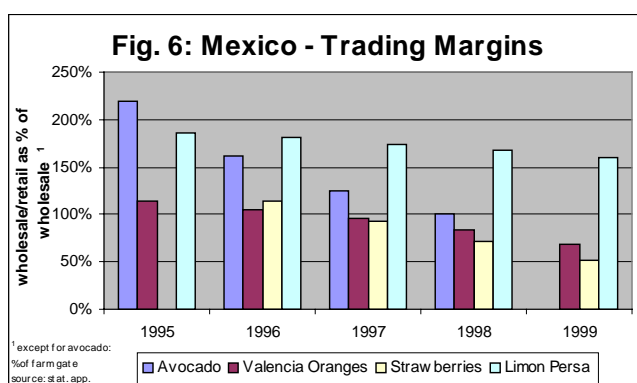
<sup>1</sup> Calculated as mid-year values between trendlines of price series for, resp. farmgate, wholesale and retail prices; see statistical appendix for details.

<sup>2</sup> Also upper bound of farmer's share of retail

<sup>3</sup> Not Available

Source: Own Calculations based on data in statistical appendix.

the last five years and for the four products considered here. Full margins between farm gate and consumer prices are shown only for avocados, since time series farm gate prices are available only for that product. Margins shown for the other three products are between wholesale and retail prices. Since wholesale prices are the upper bound of producer prices, the latter margins are also the lower bound for producer to retail margins<sup>1</sup>. Figure 6 shows graphically the trend of trading margins since 1995, declining in real terms for all of the products under consideration.



creasing margins have been accompanied by a commensurate increase of the share of the wholesale trade in the consumer peso for all four products.

41. Table 11 shows correlation coefficients between the retail and wholesale prices and between the retail prices and retail margins for the four products considered. These coefficients, as well as visual observation of figures 4 and 5, and of similar graphics for the other two products in the statistical appendix, show a high level of correlation between, both, price series and, retail prices and retail margins, for three of the four

40. Margins for avocados show that the farmer's share of the retail peso has increased, in real terms, from about 31% in 1995 to 50% in 1998. Although producer prices for the other three products are not available, the wholesale to retail price gives, at least, an indication of the upper bound to that same producer's share of the retail peso for the other products. It ranges from 35% for limon Persa in 1995 to 66% for strawberries in 1999. It should be noted that the de-

**Table 11: Mexico - Correlation between Prices and Margins for Selected Products: May '95 / Nov. '99.**

Products	Correlation Coefficients between	
	wholesale and retail prices:	retail prices and retail margins:
Avocado	0.8782	0.7717
Strawberries	0.4984	0.6713
Oranges	0.8203	0.8550
Limon Persa	0.8200	0.8901

Source: Statistical Appendix

<sup>1</sup> The wholesale to retail margin is, at once, the producer's margin for those producers who are vertically integrated with their own marketing system. This applies to a large proportion of Mexico's horticulture crop as argued earlier and in the annexed case studies.

products. The exception is strawberries, the only product of the four that faces import competition. The high correlation between wholesale and retail prices implies a fairly complete pass through of price variations, a behavior that shows this part of the market to be efficient.

42. Data in the case studies provide further information on marketing margins and also demonstrate the complexity of the pricing mechanism and the difficulty of assessing margins. A case in point is the detailed price information developed as part of the field work for the case study on limon Persa. Table 12 shows the average monthly prices paid, in 1999, for the various grades of limon Persa recognized by the main packers in the state of Vera Cruz. These prices are determined by the market destination of the fruits and can vary a factor of ten within the same month, solely as a function of the grade offered. The wide spread of prices demonstrates, among others, the extent to which growers can increase revenue by improving the average quality, i.e. grade, of their crop.

43. If assessment of prices is complex, correct interpretation of margins is even more difficult. With reference to a more complete treatment of margin calculations in the annexed case study on

	Exports to		Domestic Market				
	USA		First Grade	Second Grade	Second Grade	Third Grade	Not Graded
	Japan	France					
January	4.73	4.58	2.56	1.79	0.67	0.33	2.11
February	8.67	8.55	7.12	3.07	3.83	0.96	4.82
March	12.20	11.40	9.53	5.75	4.35	1.69	6.59
April	7.33	7.22	6.33	2.96	2.89	1.32	4.15
May	6.13	5.75	4.97	2.18	1.33	0.78	2.98
June	2.36	1.82	1.04	0.00	0.39	0.32	0.71
July	1.49	1.43	0.76	0.00	0.30	0.25	0.53
August	4.96	4.27	1.67	3.00	0.31	0.20	1.86
September	4.32	4.00	2.44	1.50	0.35	0.16	1.67
October	1.83	1.83	1.43	0.00	0.40	0.25	0.76
November	2.50	2.50	0.50	0.00	0.00	0.18	0.73
December	4.08	4.08	2.47	1.40	0.80	0.50	2.12

Source: Field Work related with annexed case study on limon Persa.

limon Persa, it may be noted that four popular misconceptions exist with respect to marketing margins. First, high margins are often equated with high profits, ignoring the marketing costs that are part of the margin. Second, and when costs are taken into account, a small margin is seen as indicative for an efficient system. Again, the margin and in this case the costs of marketing are directly related with the efforts that have to be made and with the competition in the market concerned. For instance, at the end of March this year, Californian avocado growers received 35% of the retail dollar on average in the Los

Angeles market as against 78% in the Atlanta market<sup>1</sup>. The third misconception is related with the belief that a reduction of the number of intermediaries will automatically lead to a reduction in margins and, it is thought, to an increase in the farmer's share of the retail price. This negates the fact that certain marketing services have to be performed, irrespective of who does it. Costs should be related to number and type of services required, rather than to numbers of intermediaries. Finally, an increase in margins does not necessarily imply a commensurate decrease in the farm price. It is quite possible that the added value of effective marketing increases consumer prices more than the increase in margins, leaving the farmer with a higher price. The latter is often justified by increasing demands on the quality of the product ex-farm gate, itself precipitated by consumer demands.

44. With a view to what was stated in the previous two paragraphs it would be misleading to read too much in the limited information on margins available for horticulture marketing in Mexico. However, two observations can be made: margins are decreasing and there is a popular perception that margins are high, conversely that the grower gets less than he would get under,

<sup>1</sup> See "Western Growers Association" at: <http://www.wga.com/farmgate/>.

	Average	Range	Trend
<b>Dominican Republic, 9 products<sup>1</sup> in the period '93/'98</b>	52%	27% > 72%	Down
<b>USA</b>			
all fresh fruits			
1987	26%	n.a.	Down
1997	18%	n.a.	Down
all fresh vegetables			
1987	31%	n.a.	Down
1997	21%	n.a.	Down
oranges '94/'97	20%	20% > 22%	Flat
lemons '95/'97	25%	24% > 26%	Flat
avocados '99/'00 <sup>2</sup>	56%	35% > 78%	n.a.
<b>Mexico</b>			
Avocado '95/'98	41%	31% > 50%	Up
Oranges '99	27%	n.a.	n.a.
Limon Persa '99	37%	34% > 39%	n.a.

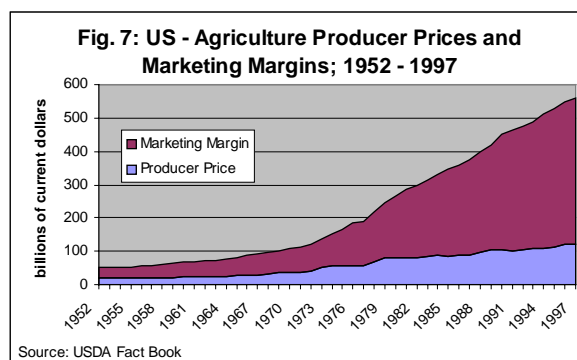
<sup>1</sup> papa blanca, yautia blanca, yuca, platano cibao, aji cubanela, ajo, cebolla roja, tomate industrial, lechosa.  
<sup>2</sup> 23 weeks between August 1999 and March 2000 - source: Western Growers Association

Sources: USDA and Western Growers Association for US data; this report for Mexican data and an unpublished consulting report for the Dominican Republic

supposedly, more competitive conditions. How, then, do Mexican margins and their trends compare with the situation elsewhere?

45. The data in table 13 indicate that margins in Mexico, at least for horticulture products are in between those found elsewhere in Central America and the US. As a matter of fact, margins to-day in Mexico are similar to those found in the US 10 to 15 years ago and are an indication of the relative development of the Mexican industry. It is a further confirmation of the earlier argument that pricing and margins in Mexico's horticulture trade are determined by a relatively small number of major producers and traders whose developments, both in

production and marketing parallel those in the US<sup>1</sup>, driving down the farmer's share of the retail peso, in part as a result of increasing costs of ever more sophisticated processing and marketing<sup>2</sup>. The small farmer has no other choice than to accept the downward trend in his, or her, share of the retail peso, without the advantage of revenue and profit gained from other activities in the marketing chain, as done by the dominant growers/traders.



<sup>1</sup> In certain products and often with European and Israeli technology, Mexican growers have outdistanced their US competitors in quality, production costs and yields.

<sup>2</sup> The farmer's share of the retail dollar in the US has steadily declined to the point where now it is under 20% for both fruits and vegetables. Figure 7 shows this development graphically, since 1952, for the combined farm product. Major cost items of perishables marketing in the US that contribute to this trend are those for labor, packaging and processing.

## vi. marketing channels and the plight of the small producer

46. The fruit and vegetable sector in Mexico has not, historically, been the subject of government intervention as has the grains sector. For that reason, government's recent retrenchment from production and marketing support as well as the liberalization of prices has not effected the produce sector to the same extent as it has effected other sectors. However, the fruit and vegetable growers have not escaped entirely unscathed. For instance, the reduction or elimination of subsidies on inputs has increased production costs substantially. Vegetable growers, who often irrigate with groundwater, have been hurt by increased power costs. Fruit growers tend to have more flexibility, since costs can be reduced by decreased maintenance of orchards, a factor included in the supply response to economic conditions, shown in figure 2 for oranges.

47. As argued earlier, the majority of small producers, those with fewer than 5 ha, market their products through intermediaries or packers. Their main problems can be summarized as follows:

- ***lack of research, technical assistance and extension***: although applied research and development with respect to horticulture, in Mexico, never was of the same level and magnitude as that for basic grains, the little that was done has been discontinued as a result of budget constraints and government's retrenchment from these activities. Only large producers have recourse to private technical assistance and can afford such activities as direct imports of seeds and seedlings. Mexico has no tradition of private support to research institutions such as those affiliated with major universities, nor does it have the symbiotic relationships between private and public sector bodies that in the US have been so beneficial for product and marketing development. Lack of technical assistance, resulting in the use of inferior or inappropriate seeds, fertilizer and pesticides is particularly detrimental for the small producer. The resulting low yields and product quality, combined with deficient selection and poor presentation relegate the small farmer to the ranks of those who receive the lowest prices and limit his, or her, choices of possible buyers<sup>1</sup>.
- ***lack of infrastructure for transport, packaging and processing***: small producers have no own transport, an important element to maintain their dependence upon the intermediary. Almost without exception, the latter purchases in bulk, offering a price that is rarely related with the real quality mix of the product. The small producer lacks the means to add value to the crop by selection and packaging. Traditional means of packaging are still widely employed<sup>2</sup>, giving rise to much abuse with respect to actual weights and volumes of product traded. Absence of refrigerated storage facilities for such products as strawberries, obligates the farmer to sell quickly, increasing his vulnerability vis-à-vis intermediaries and, eventually, increasing losses. As, for instance, the annexed case study on limon Persa showed, those producers that are located farthest from the market are most inclined to sell entire orchards, with the fruit on the trees. Although they save harvesting and transportation costs, they also forego a substantial part of potential revenue.

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<sup>1</sup> A case in point, highlighted during the field work done for the annexed case study on strawberries, is that poor growers opt for inexpensive, but highly toxic, pesticides whose use excludes them from marketing their product to the local freezing plant.

<sup>2</sup> Such as, for instance, the canastas de carizo for strawberries.

- ***lack of trade regulations and enforcement***: the trade in perishables, anywhere, is subject to an above average level of abuse, because of the very nature of the product traded and the consequent vulnerability of sellers, particularly small traders. This has long been recognized in many countries with an important produce trade and has led to specific legislation and regulations to deal with conflicts in this trade in an expeditious manner<sup>1</sup>. In addition, many countries, have private interest associations whose members subscribe to a code of ethics that tries to minimize abuse and enhance conflict resolution. Mexico does not have such legislation or regulations, forcing producers and traders to rely upon common judicial procedures in case of trade conflicts, procedures that are inappropriate for a trade in products whose useful life is counted in days<sup>2</sup>.
- ***lack of information about production and marketing***: one of the most glaring shortcomings in Mexico is the absence of reliable, timely, information about amounts produced and shipped and about prices obtained at the various points in the marketing chain<sup>3</sup>. Mexico is alone in this lack of transparency in Central America. The lack of information available to the small producer is one of the most important reasons why the market perceived by him, or her, is imperfect. In addition, it is not possible for governmental policy makers to exercise their roles effectively within this information vacuum. With few exceptions, and some are documented in this report, it is not known what the farmers' share is of the retail peso; it is not known what systematic spatial and temporal price differences exist for most all products and, hence, what inefficiencies exist in the system; there are no systematic evaluations of plantings and hence there is no statistical basis for a defense against production "boom and bust" cycles, etc.
- ***financial weakness***: the small producer is, by and large, obliged to sell immediately, for cash. Even in circumstances where product could be sold to packers or processors with, say, payment in 30 or 60 days, for an attractive price, the small grower often has to sell to his "friendly intermediary" at a lower price, but with immediate payment. Similarly, tree fruits, such as avocado, may not be left on the tree in expectation of better prices, because the need for cash is pressing. Most small producers do not have access to formal financing, be that from the development oriented bank or from the private banking sector. The small producer's recourse for financing needs is typically a combination of off-farm employment, remittances from family members abroad, and short term loans from local lenders and trading intermediaries. The latter, of course, deepens the dependency of the farmer upon his, or her, "friendly intermediary".
- ***lack of organization***: the virtual absence of meaningful cooperation between small farmers, in Mexico, for purposes of marketing, is at the core of the "small farmer problem". Experiences globally, over long periods of time, have shown that joint marketing is, for small farmers, the only way, in which product conditioning, storage,

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<sup>1</sup> The best known of these regulations and their implementing institutions are those based on the "Perishable Agricultural Commodities Act" [PACA] enacted in 1930 in the United States.

<sup>2</sup> Efforts are now underway to introduce a "PACA type" conflict resolution system within the NAFTA, based on a mixed public/private corporation whose members subscribe to binding arbitration of conflicts. This corporation is as yet not effective in Mexico. In addition to the efforts at trade facilitation under this corporation there are representatives of some of the, US based, private interest associations in Mexico who are offering similar services. None of this, though, is easily accessible for the individual small farmer.

<sup>3</sup> Exceptions are the earlier mentioned wholesale prices collected daily at selected "centrales de abasto" through the SNIIM and the consumer price information, also collected daily, by PROFECO.



packaging, presentation and promotion can be done meaningfully, through economies of scale. More important, in the context of the opaque Mexican market for perishables, the common front of a marketing cooperative is the most effective defense against predatory practices of the middleman. Two issues have to be addressed with respect to this fundamental need of small farmers' marketing: an acceptance of the need to work together on the part of the small farmers' community<sup>1</sup>, and the creation of a body of legislation that supports and strengthens the cooperative such that the whole is more than the sum of its parts, i.e. its individual members.

#### **vii. the CEDA-DF [Central de Abasto – Distrito Federal]**

48. The CEDA-DF was inaugurated in 1982, replacing an older market in Mexico City<sup>2</sup> that had become overcrowded and lacked space for expansion. Located on a site of more than 300 ha, with over 2,000 active traders and daily arrivals of about 8,000 tons of products, the CEDA-DF is arguably the world's largest wholesale market for perishable agricultural products<sup>3</sup>. Its throughput of fruits and vegetables is currently equivalent with about 13% of total domestic production. An estimated 10% of market arrivals are forwarded to other destinations nation wide<sup>4</sup>, down from the 35% of onward shipments that used to be the norm in the '80's. The fact that this market handles only 13% of the national production of fruits and vegetables, while its service area comprises about 20% of Mexico's population, with above average purchasing power at that, attests to the growing importance of trading channels that by-pass this wholesale market, notably regional produce markets, other wholesale markets and supermarket chains, in spite of the latter's declining clientele for fresh fruit and vegetables in the '90's. It is likely that supermarkets, who after all still account for about 20% of produce sales are shifting increasingly to acquisition directly from farmers and, thus, are by-passing the wholesale market for an increasing portion of their daily produce needs. The reduction of onward shipments from an estimated 35% of all arrivals ten to twenty years ago to 10% to-day is largely attributable to the growing importance of other wholesale markets, notably in Guadalajara and Monterrey and, again, to the emergence of important regional produce markets. Thus, the erstwhile dominance of the CEDA-DF and its role as national "market maker" for the perishables trade is diminishing.

49. Fewer than 100, or less than 5% of all traders, dominate the market, often individually for a particular product. This group of major traders includes a number of large producers as well, while those without own production maintain strong ties into the country side. It is estimated that at least half of all produce marketed at the CEDA-DF is from producer traders, while a substantial part of the remaining half comes through channels that closely link production and trade. The combined small producers are at best a minority supply source for the CEDA-DF. Most of the remaining wholesalers, i.e. those outside the core group of fewer than 100 large traders, buy their products from one or more of the major traders.

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<sup>1</sup> Transcending the common animosities, preconceptions and historic divisions extant in rural communities and an understanding of the need to stay together in good and bad times; in short, the creation of a social conscience that is ultimately beneficial for the individual.

<sup>2</sup> "La Merced"

<sup>3</sup> Apart from produce, the market also handles groceries, flowers and ornamental plants, and fish.

<sup>4</sup> Other, large, wholesale markets are found in Guadalajara and in Monterrey.

50. Other than SNIIM's daily collection of prices, there is no further systematic collection of prices or product arrivals that would aid in market transparency, although individual traders list offer prices on black boards. It was not until last year that access fees have begun to be levied, creating a vehicle through which movements could be monitored.

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Table SA-1: Mexico - Avocado Prices - May 1995 / December 1999

	week	current prices in pesos/kg.			CPI (May '95=100)	constant prices <sup>1</sup> in pesos/kg.			retail margins	
		Farm Gate	CEDA DF	Consumer		Farm Gate	CEDA DF	Consumer	abs.	% of wholes.
May-95	18	1.12	2.91	5.04	100.0000	1.12	2.91	5.04	2.13	73%
	19	1.12	3.04	5.08	100.7934	1.12	3.02	5.04	2.02	67%
	20	1.13	2.80	5.14	101.5869	1.12	2.76	5.06	2.30	84%
	21	1.14	2.88	5.14	102.3803	1.11	2.81	5.02	2.21	78%
Jun-95	22	1.15	2.80	5.16	103.1737	1.11	2.71	5.00	2.29	84%
	23	1.16	2.80	5.09	103.6995	1.12	2.70	4.91	2.21	82%
	24	1.17	2.84	5.05	104.2254	1.12	2.72	4.85	2.12	78%
Jul-95	25	1.17	2.80	5.26	104.7512	1.12	2.67	5.02	2.35	88%
	26	1.18	2.88	5.16	105.2770	1.12	2.74	4.90	2.17	79%
	27	1.19	2.80	5.26	105.6263	1.13	2.65	4.98	2.33	88%
	28	1.20	2.92	5.06	105.9755	1.13	2.76	4.77	2.02	73%
	29	1.20	3.24	5.10	106.3248	1.13	3.05	4.80	1.75	57%
Aug-95	30	1.21	3.42	5.17	106.6740	1.13	3.21	4.85	1.64	51%
	31	1.22	3.96	5.51	107.0233	1.14	3.70	5.15	1.45	39%
	32	1.22	4.22	5.89	107.5767	1.14	3.92	5.48	1.55	40%
	33	1.23	3.78	6.89	108.1302	1.14	3.50	6.37	2.88	82%
Sep-95	34	1.24	3.96	7.27	108.6836	1.14	3.64	6.69	3.05	84%
	35	1.25	3.90	7.11	109.2371	1.14	3.57	6.51	2.94	82%
	36	1.20	2.78	6.87	109.6866	1.09	2.53	6.26	3.73	147%
	37	1.14	2.78	7.01	110.1361	1.04	2.52	6.36	3.84	152%
	38	1.09	2.80	7.20	110.5856	0.98	2.53	6.51	3.98	157%
	39	1.03	2.80	7.79	111.0352	0.93	2.52	7.02	4.49	178%
Oct-95	40	0.98	2.80	7.13	111.4847	0.87	2.51	6.40	3.88	155%
	41	0.99	2.46	6.88	112.1719	0.88	2.19	6.13	3.94	180%
	42	1.00	2.00	5.81	112.8592	0.89	1.77	5.15	3.38	191%
	43	1.01	1.80	5.31	113.5465	0.89	1.59	4.68	3.09	195%
Nov-95	44	1.03	1.80	4.66	114.2337	0.90	1.58	4.08	2.50	159%
	45	1.04	1.57	4.45	115.1642	0.91	1.36	3.86	2.50	183%
	46	1.06	1.76	4.23	116.0946	0.92	1.52	3.64	2.13	140%
	47	1.08	1.73	3.77	117.0250	0.92	1.48	3.22	1.74	118%
Dec-95	48	1.10	1.67	3.78	117.9555	0.93	1.42	3.20	1.79	126%
	49	1.12	1.64	3.81	118.8036	0.94	1.38	3.21	1.83	132%
	50	1.13	1.62	3.76	119.6516	0.94	1.35	3.14	1.79	132%
	51	1.15	1.74	3.47	120.4997	0.95	1.44	2.88	1.44	99%
	52	1.16	1.70	3.63	121.3478	0.96	1.40	2.99	1.59	114%
Jan-96	1	1.18	1.80	4.82	122.1959	0.96	1.47	3.94	2.47	168%
	2	1.26	1.94	3.72	122.9089	1.02	1.58	3.03	1.45	92%
	3	1.34	1.96	3.93	123.6219	1.08	1.59	3.18	1.59	101%
	4	1.42	1.65	3.86	124.3349	1.14	1.33	3.10	1.78	134%
Feb-96	5	1.50	1.75	3.96	125.0479	1.20	1.40	3.17	1.77	126%
	6	1.69	1.91	4.00	125.7361	1.35	1.52	3.18	1.66	109%
	7	1.89	1.87	4.21	126.4243	1.49	1.48	3.33	1.85	125%
	8	2.08	2.14	4.43	127.1125	1.64	1.68	3.49	1.80	107%
Mar-96	9	2.28	2.63	4.55	127.8007	1.78	2.06	3.56	1.50	73%
	10	2.31	2.57	5.04	128.5273	1.80	2.00	3.92	1.92	96%
	11	2.35	2.72	5.02	129.2539	1.81	2.10	3.88	1.78	85%
	12	2.38	2.85	5.08	129.9805	1.83	2.19	3.91	1.72	78%
Apr-96	13	2.42	2.90	5.38	130.7071	1.85	2.22	4.12	1.90	86%
	14	2.45	2.88	5.53	131.4337	1.86	2.19	4.21	2.02	92%

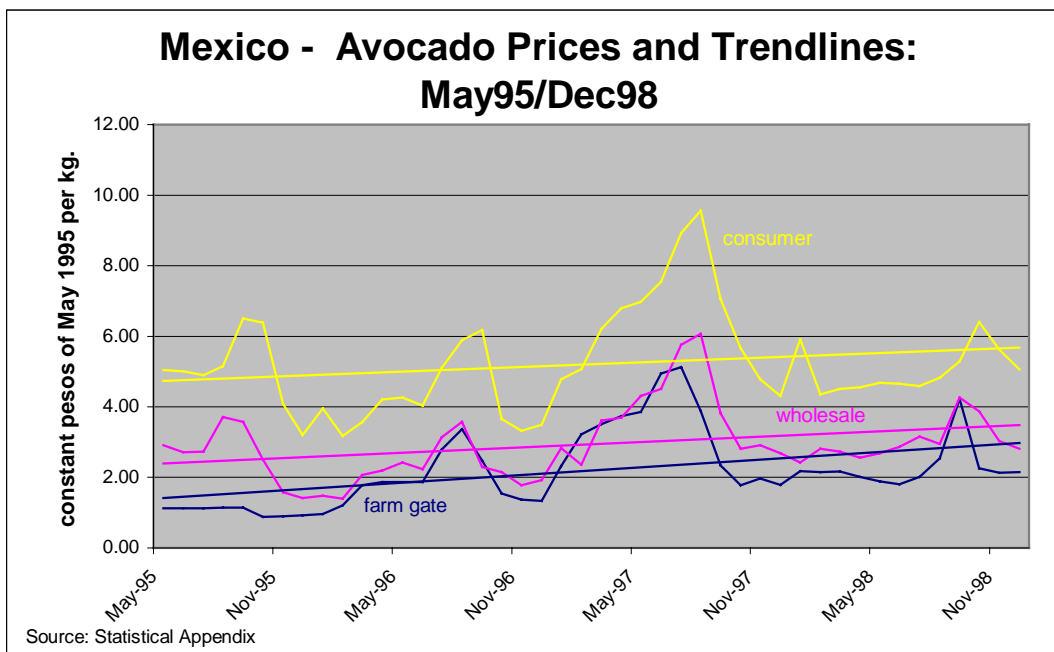
	15	2.46	2.87	5.43	132.0327	1.87	2.17	4.11	1.94	89%
	16	2.48	2.93	5.53	132.6316	1.87	2.21	4.17	1.96	89%
	17	2.49	3.20	5.67	133.2305	1.87	2.40	4.26	1.85	77%
May-96	18	2.50	3.25	5.71	133.8295	1.87	2.43	4.27	1.84	76%
	19	2.51	3.25	5.53	134.3743	1.87	2.42	4.12	1.70	70%
	20	2.53	2.89	5.59	134.9191	1.87	2.14	4.14	2.00	93%
	21	2.54	3.21	5.70	135.4639	1.87	2.37	4.21	1.84	78%
Jun-96	22	2.55	3.03	5.49	136.0087	1.87	2.23	4.04	1.81	81%
	23	2.81	3.16	5.42	136.3954	2.06	2.32	3.97	1.66	72%
	24	3.07	3.28	5.38	136.7820	2.24	2.40	3.93	1.54	64%
	25	3.33	3.64	5.57	137.1687	2.43	2.65	4.06	1.41	53%
	26	3.59	3.99	6.10	137.5554	2.61	2.90	4.43	1.53	53%
Jul-96	27	3.85	4.33	7.05	137.9421	2.79	3.14	5.11	1.97	63%
	28	4.06	4.46	7.32	138.4005	2.94	3.22	5.29	2.07	64%
	29	4.28	4.76	7.95	138.8588	3.08	3.43	5.73	2.30	67%
	30	4.49	4.93	8.12	139.3172	3.22	3.54	5.83	2.29	65%
Aug-96	31	4.70	5.00	8.23	139.7755	3.36	3.58	5.89	2.31	65%
	32	4.46	4.88	8.52	140.2225	3.18	3.48	6.08	2.60	75%
	33	4.22	3.46	8.93	140.6695	3.00	2.46	6.35	3.89	158%
	34	3.98	3.28	9.44	141.1164	2.82	2.32	6.69	4.37	188%
	35	3.74	3.23	9.59	141.5634	2.64	2.28	6.77	4.49	197%
Sep-96	36	3.50	3.25	8.78	142.0104	2.46	2.29	6.18	3.89	170%
	37	3.18	3.32	6.72	142.4535	2.23	2.33	4.72	2.39	102%
	38	2.86	3.23	5.81	142.8966	2.00	2.26	4.07	1.81	80%
	39	2.54	3.11	5.56	143.3398	1.77	2.17	3.88	1.71	79%
Oct-96	40	2.23	3.08	5.27	143.7829	1.55	2.14	3.67	1.52	71%
	41	2.17	2.93	5.12	144.3275	1.50	2.03	3.55	1.52	75%
	42	2.11	2.96	5.13	144.8722	1.46	2.04	3.54	1.50	73%
	43	2.06	2.81	5.13	145.4168	1.41	1.93	3.53	1.60	83%
Nov-96	44	2.00	2.58	4.83	145.9614	1.37	1.77	3.31	1.54	87%
	45	2.00	2.62	4.85	146.8961	1.36	1.78	3.30	1.52	85%
	46	2.00	2.82	4.86	147.8308	1.35	1.91	3.29	1.38	72%
	47	2.00	2.81	5.17	148.7654	1.34	1.89	3.48	1.59	84%
	48	2.00	2.67	4.87	149.7001	1.34	1.78	3.25	1.47	82%
Dec-96	49	2.00	2.89	5.26	150.6348	1.33	1.92	3.49	1.57	82%
	50	2.40	3.03	5.42	151.6032	1.58	2.00	3.58	1.58	79%
	51	2.80	3.49	5.62	152.5716	1.84	2.29	3.68	1.40	61%
	52	3.20	4.38	6.31	153.5400	2.08	2.85	4.11	1.26	44%
Jan-97	1	3.60	4.38	7.39	154.5084	2.33	2.83	4.78	1.95	69%
	2	3.97	4.42	7.38	155.1575	2.56	2.85	4.76	1.91	67%
	3	4.33	4.35	7.58	155.8066	2.78	2.79	4.87	2.07	74%
	4	4.70	4.15	7.57	156.4557	3.00	2.65	4.84	2.19	82%
Feb-97	5	5.06	3.70	7.98	157.1048	3.22	2.36	5.08	2.72	116%
	6	5.19	4.31	8.04	157.5936	3.29	2.73	5.10	2.37	87%
	7	5.32	5.00	8.69	158.0824	3.36	3.16	5.50	2.33	74%
	8	5.45	5.60	9.21	158.5712	3.43	3.53	5.81	2.28	64%
Mar-97	9	5.58	5.75	9.88	159.0600	3.50	3.61	6.21	2.60	72%
	10	5.66	5.56	10.12	159.4037	3.55	3.49	6.35	2.86	82%
	11	5.75	5.83	10.35	159.7474	3.60	3.65	6.48	2.83	78%
	12	5.83	6.08	10.52	160.0911	3.64	3.80	6.57	2.77	73%
	13	5.92	6.00	10.54	160.4348	3.69	3.74	6.57	2.83	76%
Apr-97	14	6.00	5.93	10.94	160.7785	3.73	3.69	6.80	3.12	84%
	15	6.06	6.60	10.90	161.1453	3.76	4.10	6.76	2.67	65%
	16	6.13	6.40	11.22	161.5121	3.79	3.96	6.95	2.98	75%
	17	6.19	6.40	11.65	161.8790	3.82	3.95	7.20	3.24	82%

May-97	18	6.25	7.00	11.32	162.2458	3.85	4.31	6.98	2.66	62%
	19	6.62	6.75	11.03	162.5337	4.07	4.15	6.79	2.63	63%
	20	6.99	6.67	11.94	162.8216	4.29	4.10	7.33	3.24	79%
Jun-97	21	7.36	7.07	11.83	163.1095	4.51	4.33	7.25	2.92	67%
	22	7.73	7.07	12.02	163.3975	4.73	4.33	7.36	3.03	70%
	23	8.10	7.38	12.35	163.6854	4.95	4.51	7.54	3.04	67%
	24	8.19	7.80	12.93	164.0419	4.99	4.75	7.88	3.13	66%
	25	8.28	9.15	13.50	164.3984	5.04	5.57	8.21	2.65	48%
Jul-97	26	8.37	9.35	14.75	164.7549	5.08	5.68	8.95	3.28	58%
	27	8.46	9.50	14.73	165.1113	5.13	5.75	8.92	3.17	55%
	28	7.96	9.70	15.41	165.4784	4.81	5.86	9.31	3.45	59%
	29	7.46	9.70	16.29	165.8454	4.50	5.85	9.82	3.97	68%
Aug-97	30	6.96	9.35	15.94	166.2124	4.19	5.63	9.59	3.96	70%
	31	6.46	10.10	15.93	166.5795	3.88	6.06	9.56	3.50	58%
	32	5.96	9.90	16.46	166.9944	3.57	5.93	9.86	3.93	66%
	33	5.45	10.70	16.65	167.4094	3.26	6.39	9.95	3.55	56%
	34	4.95	10.50	15.59	167.8243	2.95	6.26	9.29	3.03	48%
Sep-97	35	4.44	6.33	13.84	168.2393	2.64	3.76	8.23	4.46	119%
	36	3.94	6.44	11.90	168.6542	2.34	3.82	7.06	3.24	85%
	37	3.71	5.78	11.89	168.9911	2.19	3.42	7.04	3.62	106%
	38	3.47	4.72	11.76	169.3281	2.05	2.79	6.95	4.16	149%
Oct-97	39	3.24	4.33	11.12	169.6651	1.91	2.55	6.55	4.00	157%
	40	3.00	4.78	9.63	170.0020	1.76	2.81	5.66	2.85	101%
	41	3.09	4.67	9.33	170.4775	1.81	2.74	5.47	2.73	100%
	42	3.19	4.78	8.33	170.9529	1.86	2.80	4.87	2.08	74%
Nov-97	43	3.28	5.00	8.73	171.4284	1.91	2.92	5.09	2.18	75%
	44	3.37	5.00	8.23	171.9038	1.96	2.91	4.79	1.88	65%
	45	3.32	4.72	7.94	172.3855	1.93	2.74	4.61	1.87	68%
	46	3.27	4.67	8.06	172.8672	1.89	2.70	4.66	1.96	73%
	47	3.22	4.65	7.53	173.3489	1.86	2.68	4.34	1.66	62%
Dec-97	48	3.17	4.72	7.70	173.8306	1.82	2.72	4.43	1.71	63%
	49	3.12	4.67	7.50	174.3123	1.79	2.68	4.30	1.62	61%
	50	3.31	4.72	7.42	175.2604	1.89	2.69	4.23	1.54	57%
	51	3.50	4.72	7.13	176.2085	1.99	2.68	4.05	1.37	51%
Jan-98	52	3.69	4.44	7.03	177.1566	2.09	2.51	3.97	1.46	58%
	1	3.89	4.32	10.54	178.1047	2.18	2.43	5.92	3.49	144%
	2	3.89	4.72	7.91	178.7284	2.17	2.64	4.43	1.78	68%
	3	3.89	5.22	7.86	179.3520	2.17	2.91	4.38	1.47	51%
	4	3.89	5.38	7.85	179.9756	2.16	2.99	4.36	1.37	46%
Feb-98	5	3.89	5.39	7.92	180.5992	2.15	2.98	4.39	1.40	47%
	6	3.89	5.11	7.91	181.2229	2.14	2.82	4.36	1.55	55%
	7	3.91	5.00	8.06	181.7536	2.15	2.75	4.43	1.68	61%
	8	3.93	5.06	8.19	182.2843	2.16	2.78	4.49	1.72	62%
Mar-98	9	3.95	5.00	8.37	182.8150	2.16	2.74	4.58	1.84	67%
	10	3.98	5.00	8.26	183.3457	2.17	2.73	4.51	1.78	65%
	11	3.91	5.00	8.29	183.7746	2.13	2.72	4.51	1.79	66%
	12	3.85	4.94	8.25	184.2034	2.09	2.68	4.48	1.80	67%
Apr-98	13	3.79	4.89	8.35	184.6323	2.05	2.65	4.52	1.87	71%
	14	3.73	4.72	8.44	185.0611	2.02	2.55	4.56	2.01	79%
	15	3.68	4.72	8.46	185.4297	1.99	2.55	4.56	2.02	79%
	16	3.63	4.94	8.33	185.7982	1.95	2.66	4.48	1.82	69%
May-98	17	3.58	5.00	8.93	186.1667	1.92	2.69	4.80	2.11	79%
	18	3.53	5.00	8.73	186.5353	1.89	2.68	4.68	2.00	75%
	19	3.50	5.14	9.06	186.9762	1.87	2.75	4.85	2.10	76%
	20	3.48	4.94	8.77	187.4172	1.85	2.64	4.68	2.04	78%



	21	3.45	5.22	8.80	187.8581	1.84	2.78	4.68	1.91	69%
	22	3.43	5.28	8.87	188.2991	1.82	2.80	4.71	1.91	68%
Jun-98	23	3.40	5.39	8.77	188.7400	1.80	2.86	4.65	1.79	63%
	24	3.51	5.11	8.48	189.1950	1.86	2.70	4.48	1.78	66%
	25	3.63	5.00	8.45	189.6500	1.91	2.64	4.46	1.82	69%
	26	3.74	5.06	8.53	190.1050	1.97	2.66	4.49	1.83	69%
Jul-98	27	3.85	6.00	8.73	190.5600	2.02	3.15	4.58	1.43	46%
	28	4.11	6.11	8.84	191.0179	2.15	3.20	4.63	1.43	45%
	29	4.36	5.28	9.15	191.4759	2.28	2.76	4.78	2.02	73%
	30	4.62	5.50	9.01	191.9339	2.41	2.87	4.69	1.83	64%
Aug-98	31	4.88	5.67	9.28	192.3919	2.53	2.95	4.82	1.88	64%
	32	5.56	5.78	9.13	193.0159	2.88	2.99	4.73	1.74	58%
	33	6.24	6.06	9.55	193.6400	3.22	3.13	4.93	1.80	58%
	34	6.92	6.11	9.74	194.2641	3.56	3.15	5.01	1.87	59%
	35	7.60	6.61	9.65	194.8882	3.90	3.39	4.95	1.56	46%
Sep-98	36	8.28	8.33	10.34	195.5122	4.23	4.26	5.29	1.03	24%
	37	7.33	10.44	12.16	196.2127	3.73	5.32	6.20	0.88	16%
	38	6.38	11.25	13.63	196.9131	3.24	5.71	6.92	1.21	21%
	39	5.43	8.00	13.31	197.6135	2.75	4.05	6.74	2.69	66%
Oct-98	40	4.49	7.66	12.72	198.3139	2.26	3.86	6.41	2.55	66%
	41	4.45	7.22	12.17	199.0163	2.24	3.63	6.12	2.49	69%
	42	4.41	6.56	11.39	199.7187	2.21	3.28	5.70	2.42	74%
	43	4.38	6.56	11.61	200.4211	2.18	3.27	5.79	2.52	77%
	44	4.34	5.56	11.39	201.1235	2.16	2.76	5.66	2.90	105%
Nov-98	45	4.30	6.11	11.34	201.8259	2.13	3.03	5.62	2.59	86%
	46	4.34	5.89	10.82	203.0570	2.14	2.90	5.33	2.43	84%
	47	4.38	6.11	10.80	204.2881	2.14	2.99	5.29	2.30	77%
	48	4.41	5.67	10.51	205.5192	2.15	2.76	5.11	2.36	85%
Dec-98	49	4.45	5.83	10.44	206.7504	2.15	2.82	5.05	2.23	79%
	50	4.54	6.06	10.49	208.0555	2.18	2.91	5.04	2.13	73%
	51	4.63	6.00	10.64	209.3607	2.21	2.87	5.08	2.22	77%
	52	4.71	6.11	10.83	210.6659	2.24	2.90	5.14	2.24	77%
Jan-99	1	4.80	7.00	9.85	211.9711	2.26	3.30	4.65	1.34	41%
	2	4.83	8.22	11.23	212.5409	2.27	3.87	5.28	1.42	37%
	3	4.85	8.39	11.79	213.1107	2.28	3.94	5.53	1.60	41%
	4	4.88	8.67	12.34	213.6805	2.28	4.06	5.77	1.72	42%
	5	4.90	8.82	13.11	214.2503	2.29	4.12	6.12	2.00	49%
Feb-99	6	4.93	8.33	12.54	214.8201	2.30	3.88	5.84	1.96	50%
	7	4.97	8.56	13.74	215.3190	2.31	3.97	6.38	2.41	61%
	8	5.00	10.00	13.71	215.8179	2.32	4.63	6.35	1.72	37%
	9	5.04	10.88	13.69	216.3169	2.33	5.03	6.33	1.30	26%
Mar-99	10	5.07	11.33	15.11	216.8158	2.34	5.23	6.97	1.74	33%
	11	5.11	14.14	15.34	217.3133	2.35	6.51	7.06	0.55	8%
	12	5.14	14.92	16.97	217.8108	2.36	6.85	7.79	0.94	14%
	13	5.18	14.52	19.98	218.3082	2.37	6.65	9.15	2.50	38%
Apr-99	14	5.22	15.57	21.32	218.8057	2.38	7.12	9.74	2.63	37%
	15	5.26	16.71	21.70	219.1347	2.40	7.63	9.90	2.28	30%
	16	5.29	17.14	23.76	219.4638	2.41	7.81	10.83	3.02	39%
	17	5.33	18.57	25.23	219.7929	2.43	8.45	11.48	3.03	36%
May-99	18	5.37	18.92	26.11	220.1219	2.44	8.60	11.86	3.27	38%
	19	5.40	18.85	27.71	220.4112	2.45	8.55	12.57	4.02	47%
	20	5.43	19.28	27.71	220.7004	2.46	8.74	12.56	3.82	44%
	21	5.46	19.71	28.19	220.9897	2.47	8.92	12.76	3.84	43%
	22	5.49	20.71	29.03	221.2789	2.48	9.36	13.12	3.76	40%
Jun-99	23	5.52	20.71	30.21	221.5682	2.49	9.35	13.63	4.29	46%

	24	5.56	20.71	31.14	221.9343	2.51	9.33	14.03	4.70	50%
	25	5.60	20.71	30.84	222.3004	2.52	9.32	13.87	4.56	49%
	26	5.64	20.71	30.70	222.6665	2.53	9.30	13.79	4.49	48%
Jul-99	27	5.68	21.42	31.76	223.0326	2.55	9.60	14.24	4.64	48%
	28	5.72	22.28	33.98	223.2836	2.56	9.98	15.22	5.24	53%
	29	5.76	27.50	35.09	223.5347	2.58	12.30	15.70	3.40	28%
	30	5.79	29.16	36.76	223.7858	2.59	13.03	16.43	3.40	26%
Aug-99	31	5.83	31.33	40.03	224.0368	2.60	13.98	17.87	3.88	28%
	32	5.87	15.20	38.38	224.2879	2.62	6.78	17.11	10.33	153%
	33	5.91	13.75	32.78	224.8297	2.63	6.12	14.58	8.46	138%
	34	5.96	12.91	30.47	225.3715	2.65	5.73	13.52	7.79	136%
Sep-99	35	6.01	12.08	27.75	225.9133	2.66	5.35	12.28	6.94	130%
	36	6.06	8.33	24.47	226.4551	2.67	3.68	10.81	7.13	194%
	37	6.11	8.17	21.60	226.8137	2.69	3.60	9.52	5.92	165%
	38	6.16	8.33	18.91	227.1722	2.71	3.67	8.32	4.66	127%
Oct-99	39	6.20	8.17	16.19	227.5308	2.73	3.59	7.12	3.53	98%
	40	6.25	7.50	15.50	227.8894	2.74	3.29	6.80	3.51	107%
	41	6.29	6.88	14.22	228.2947	2.76	3.01	6.23	3.22	107%
	42	6.33	6.50	12.35	228.7000	2.77	2.84	5.40	2.56	90%
	43	6.36	6.39	12.15	229.1054	2.78	2.79	5.30	2.52	90%
Nov-99	44	6.40	7.00	11.44	229.5107	2.79	3.05	4.98	1.93	63%
	45	6.43	6.53	10.96	229.9160	2.80	2.84	4.77	1.93	68%
	46	6.49	6.25	10.60	230.4918	2.81	2.71	4.60	1.89	70%
	47	6.54	5.97	10.39	231.0676	2.83	2.58	4.50	1.91	74%
Dec-99	48	6.59	5.75	10.42	231.6434	2.84	2.48	4.50	2.02	81%
	49	6.64	6.25	10.05	232.2193	2.86	2.69	4.33	1.64	61%
	50		6.17	10.00	232.9988		2.65	4.29	1.65	62%
	51		5.94	9.67	233.7783		2.54	4.14	1.60	63%
	52		5.73	10.06	234.5578		2.44	4.29	1.85	76%



correlation coefficients	
	95/98
farm to wholesale:	0.767001
wholesale to retail:	0.878165
farm to retail:	0.678837
retail price to retail margin:	0.771719

trendlines and average margins:			
farmgate: $y_1 = 0.0081x + 1.4341$			
retail: $y_2 = 0.0052x + 4.6899$			
average margins [mid year on trendline]			
formula: $y_2 - y_1 = -0.0029x + 3.2558$			
	x	margins	as % of
	(weeks)		farmg. pr.
1995	5	3.24	220%
1996	58	3.09	162%
1997	111	2.93	126%
1998	164	2.78	101%

Table SA-2: Mexico - Strawberry Prices - May 1995 / December 1999

	week	current prices in pesos/kg.			CPI (May '95=100)	constant prices <sup>1</sup> in pesos/kg.			retail margins	
		Farm Gate	CEDA DF	Consumer		Farm Gate	CEDA DF	Consumer	abs.	% of wholes.
May-95	18		3.56		100.0000	0.00	3.56			
	19		3.63		100.7934	0.00	3.60			
	20		3.53		101.5869	0.00	3.47			
Jun-95	21		6.44		102.3803	0.00	6.29			
	22		6.80		103.1737	0.00	6.59			
	23		7.60		103.6995	0.00	7.33			
	24		7.28		104.2254	0.00	6.98			
	25		8.72		104.7512	0.00	8.32			
Jul-95	26		9.04		105.2770	0.00	8.59			
	27		9.20		105.6263	0.00	8.71			
	28		9.12		105.9755	0.00	8.61			
	29		9.92		106.3248	0.00	9.33			
Aug-95	30		10.92		106.6740	0.00	10.24			
	31		12.80		107.0233	0.00	11.96			
	32		12.00		107.5767	0.00	11.15			
Sep-95	33		11.00		108.1302	0.00	10.17			
	34		11.00		108.6836	0.00	10.12			
	35		10.80		109.2371	0.00	9.89			
	36		9.48		109.6866	0.00	8.64			
	37		9.40		110.1361	0.00	8.53			
	38		9.60		110.5856	0.00	8.68			
	39		9.60		111.0352	0.00	8.65			
Oct-95	40		9.12		111.4847	0.00	8.18			
	41		9.24		112.1719	0.00	8.24			
	42		10.24		112.8592	0.00	9.07			
	43		9.28		113.5465	0.00	8.17			
Nov-95	44		6.88		114.2337	0.00	6.02			
	45		6.23		115.1642	0.00	5.41			
	46		6.53		116.0946	0.00	5.62			
	47		6.25		117.0250	0.00	5.34			
Dec-95	48		6.60		117.9555	0.00	5.60			
	49		5.70		118.8036	0.00	4.80			
	50		4.80		119.6516	0.00	4.01			
	51		5.03		120.4997	0.00	4.17			
	52		5.83		121.3478	0.00	4.80			
Jan-96	1		5.75		122.1959	0.00	4.71			
	2		5.77	15.88	122.9089	0.00	4.69	12.92	8.23	175%
	3		5.37		123.6219	0.00	4.34			
	4		5.13		124.3349	0.00	4.13			
Feb-96	5		5.08		125.0479	0.00	4.06			
	6		4.83		125.7361	0.00	3.84			
	7		4.70		126.4243	0.00	3.72			
	8		4.27		127.1125	0.00	3.36			
Mar-96	9		4.27		127.8007	0.00	3.34			
	10		4.13		128.5273	0.00	3.21			
	11		4.29		129.2539	0.00	3.32			
	12		4.47		129.9805	0.00	3.44			
Apr-96	13		4.67		130.7071	0.00	3.57			
	14		4.23		131.4337	0.00	3.22			
	15		4.47		132.0327	0.00	3.39			
	16		4.63		132.6316	0.00	3.49			

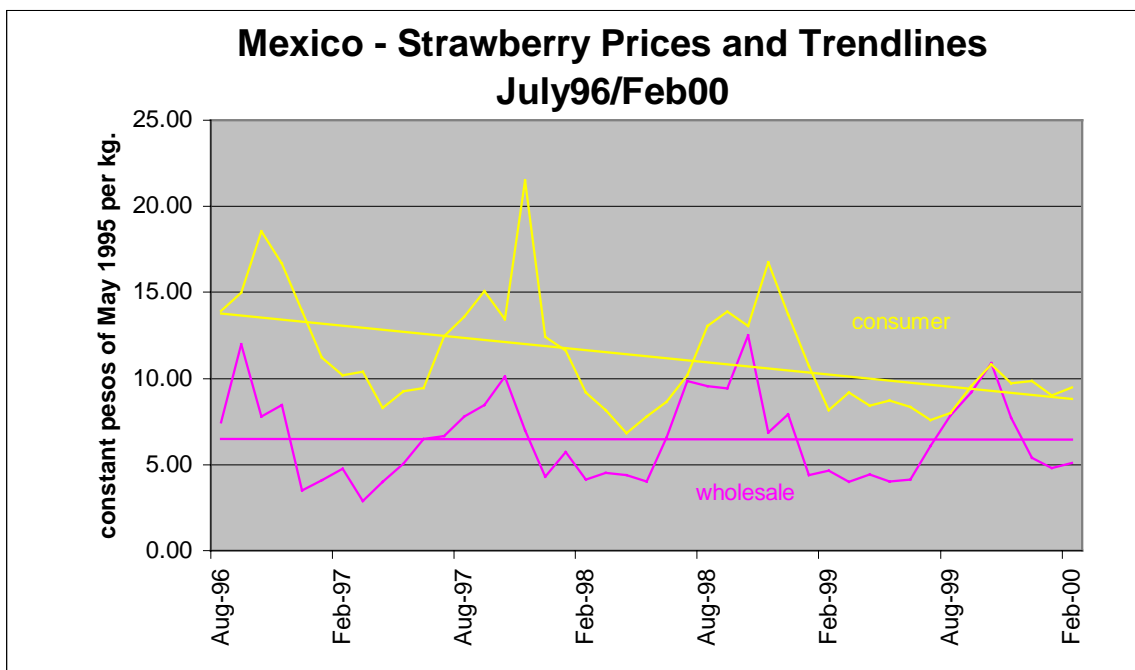
	17	4.42		133.2305	0.00	3.32			
May-96	18	4.87		133.8295	0.00	3.64			
	19	4.90		134.3743	0.00	3.65			
	20	5.00		134.9191	0.00	3.71			
	21	5.23		135.4639	0.00	3.86			
Jun-96	22	5.13		136.0087	0.00	3.77			
	23	9.40		136.3954	0.00	6.89			
	24	9.72		136.7820	0.00	7.11			
	25	13.00		137.1687	0.00	9.48			
	26	12.00		137.5554	0.00	8.72			
Jul-96	27	11.40		137.9421	0.00	8.26			
	28	10.12		138.4005	0.00	7.31			
	29	10.40	19.51	138.8588	0.00	7.49	14.05	6.56	88%
	30	10.28	20.30	139.3172	0.00	7.38	14.57	7.19	97%
Aug-96	31	10.40	19.47	139.7755	0.00	7.44	13.93	6.49	87%
	32	10.80	19.94	140.2225	0.00	7.70	14.22	6.52	85%
	33	12.00	19.70	140.6695	0.00	8.53	14.00	5.47	64%
	34	15.20	19.79	141.1164	0.00	10.77	14.02	3.25	30%
	35	16.20	20.24	141.5634	0.00	11.44	14.30	2.85	25%
Sep-96	36	17.00	21.29	142.0104	0.00	11.97	14.99	3.02	25%
	37	14.80	21.96	142.4535	0.00	10.39	15.42	5.03	48%
	38	12.60	23.78	142.8966	0.00	8.82	16.64	7.82	89%
	39	12.40	24.79	143.3398	0.00	8.65	17.29	8.64	100%
Oct-96	40	11.20	26.65	143.7829	0.00	7.79	18.53	10.75	138%
	41	11.20	25.36	144.3275	0.00	7.76	17.57	9.81	126%
	42	10.20	23.22	144.8722	0.00	7.04	16.03	8.99	128%
	43	10.20	24.35	145.4168	0.00	7.01	16.74	9.73	139%
Nov-96	44	12.32	24.33	145.9614	0.00	8.44	16.67	8.23	97%
	45	8.13	22.79	146.8961	0.00	5.53	15.51	9.98	180%
	46	6.83	23.12	147.8308	0.00	4.62	15.64	11.02	239%
	47	6.67	22.41	148.7654	0.00	4.48	15.06	10.58	236%
	48	5.73	22.57	149.7001	0.00	3.83	15.08	11.25	294%
Dec-96	49	5.27	20.94	150.6348	0.00	3.50	13.90	10.40	297%
	50	5.42	19.45	151.6032	0.00	3.58	12.83	9.25	259%
	51	5.42	18.48	152.5716	0.00	3.55	12.11	8.56	241%
	52	5.63	17.36	153.5400	0.00	3.67	11.31	7.64	208%
Jan-97	1	6.33	17.33	154.5084	0.00	4.10	11.22	7.12	174%
	2	5.67	16.86	155.1575	0.00	3.65	10.87	7.21	197%
	3	6.20	16.36	155.8066	0.00	3.98	10.50	6.52	164%
Feb-97	4	7.29	15.14	156.4557	0.00	4.66	9.68	5.02	108%
	5	7.50	15.98	157.1048	0.00	4.77	10.17	5.40	113%
	6	6.33	17.38	157.5936	0.00	4.02	11.03	7.01	175%
	7	5.10	16.82	158.0824	0.00	3.23	10.64	7.41	230%
	8	5.00	18.69	158.5712	0.00	3.15	11.79	8.63	274%
Mar-97	9	4.60	16.50	159.0600	0.00	2.89	10.37	7.48	259%
	10	4.92	15.13	159.4037	0.00	3.09	9.49	6.41	208%
	11	5.56	15.07	159.7474	0.00	3.48	9.43	5.95	171%
	12	6.77	13.31	160.0911	0.00	4.23	8.31	4.09	97%
	13	6.10	13.04	160.4348	0.00	3.80	8.13	4.33	114%
Apr-97	14	6.43	13.32	160.7785	0.00	4.00	8.28	4.29	107%
	15	6.50	14.32	161.1453	0.00	4.03	8.89	4.85	120%
	16	8.50	15.73	161.5121	0.00	5.26	9.74	4.48	85%
	17	10.05	14.52	161.8790	0.00	6.21	8.97	2.76	44%
May-97	18	8.20	14.99	162.2458	0.00	5.05	9.24	4.19	83%
	19	7.60	15.03	162.5337	0.00	4.68	9.25	4.57	98%
	20	8.60	14.66	162.8216	0.00	5.28	9.00	3.72	70%
	21	9.00	15.51	163.1095	0.00	5.52	9.51	3.99	72%

	22	10.40	16.23	163.3975	0.00	6.36	9.93	3.57	56%
Jun-97	23	10.60	15.47	163.6854	0.00	6.48	9.45	2.98	46%
	24	11.32	14.89	164.0419	0.00	6.90	9.08	2.18	32%
	25	11.40	16.61	164.3984	0.00	6.93	10.10	3.17	46%
	26	11.80	17.87	164.7549	0.00	7.16	10.85	3.68	51%
Jul-97	27	11.00	20.57	165.1113	0.00	6.66	12.46	5.80	87%
	28	15.60	21.28	165.4784	0.00	9.43	12.86	3.43	36%
	29	15.00	21.19	165.8454	0.00	9.04	12.78	3.73	41%
	30	13.80	22.41	166.2124	0.00	8.30	13.48	5.18	62%
Aug-97	31	13.00	22.64	166.5795	0.00	7.80	13.59	5.79	74%
	32	12.80	27.49	166.9944	0.00	7.66	16.46	8.80	115%
	33	17.80	25.15	167.4094	0.00	10.63	15.02	4.39	41%
	34	16.80	23.25	167.8243	0.00	10.01	13.85	3.84	38%
	35	13.00	25.04	168.2393	0.00	7.73	14.88	7.16	93%
Sep-97	36	14.25	25.43	168.6542	0.00	8.45	15.08	6.63	78%
	37	14.60	24.16	168.9911	0.00	8.64	14.30	5.66	65%
	38	16.60	24.47	169.3281	0.00	9.80	14.45	4.65	47%
	39	16.60	25.89	169.6651	0.00	9.78	15.26	5.48	56%
Oct-97	40	17.20	22.84	170.0020	0.00	10.12	13.44	3.32	33%
	41	20.00	29.17	170.4775	0.00	11.73	17.11	5.38	46%
	42	16.40	33.63	170.9529	0.00	9.59	19.67	10.08	105%
	43	14.60	35.65	171.4284	0.00	8.52	20.80	12.28	144%
Nov-97	44	12.03	36.97	171.9038	0.00	7.00	21.51	14.51	207%
	45	10.63	37.42	172.3855	0.00	6.17	21.71	15.54	252%
	46	8.50	25.95	172.8672	0.00	4.92	15.01	10.09	205%
	47	8.33	27.40	173.3489	0.00	4.81	15.81	11.00	229%
	48	7.33	24.55	173.8306	0.00	4.22	14.12	9.91	235%
Dec-97	49	7.50	21.62	174.3123	0.00	4.30	12.40	8.10	188%
	50	6.67	21.41	175.2604	0.00	3.81	12.22	8.41	221%
	51	8.54	23.16	176.2085	0.00	4.85	13.14	8.30	171%
	52	9.36	20.07	177.1566	0.00	5.28	11.33	6.05	115%
Jan-98	1	10.17	20.72	178.1047	0.00	5.71	11.63	5.92	104%
	2	9.07	18.52	178.7284	0.00	5.07	10.36	5.29	104%
	3	7.17	19.15	179.3520	0.00	4.00	10.68	6.68	167%
	4	8.17	18.35	179.9756	0.00	4.54	10.20	5.66	125%
	5	7.28	18.90	180.5992	0.00	4.03	10.47	6.43	160%
Feb-98	6	7.50	16.64	181.2229	0.00	4.14	9.18	5.04	122%
	7	7.60	14.79	181.7536	0.00	4.18	8.14	3.96	95%
	8	9.00	15.14	182.2843	0.00	4.94	8.31	3.37	68%
	9	8.50	13.41	182.8150	0.00	4.65	7.34	2.69	58%
Mar-98	10	8.33	14.94	183.3457	0.00	4.54	8.15	3.61	79%
	11	8.17	15.47	183.7746	0.00	4.45	8.42	3.97	89%
	12	8.17	16.41	184.2034	0.00	4.44	8.91	4.47	101%
	13	8.67	13.06	184.6323	0.00	4.70	7.07	2.38	51%
Apr-98	14	8.11	12.62	185.0611	0.00	4.38	6.82	2.44	56%
	15	5.67	13.07	185.4297	0.00	3.06	7.05	3.99	131%
	16	7.17	13.68	185.7982	0.00	3.86	7.36	3.50	91%
	17	6.67	14.68	186.1667	0.00	3.58	7.89	4.30	120%
May-98	18	7.50	14.53	186.5353	0.00	4.02	7.79	3.77	94%
	19	12.80	17.41	186.9762	0.00	6.85	9.31	2.47	36%
	20	15.40	17.24	187.4172	0.00	8.22	9.20	0.98	12%
	21	14.00	16.40	187.8581	0.00	7.45	8.73	1.28	17%
	22	10.80	17.10	188.2991	0.00	5.74	9.08	3.35	58%
Jun-98	23	12.40	16.35	188.7400	0.00	6.57	8.66	2.09	32%
	24	13.40	15.65	189.1950	0.00	7.08	8.27	1.19	17%
	25	13.00	17.52	189.6500	0.00	6.85	9.24	2.38	35%
	26	13.40	17.98	190.1050	0.00	7.05	9.46	2.41	34%

Jul-98	27	18.80	19.38	190.5600	0.00	9.87	10.17	0.30	3%
	28	18.20	21.31	191.0179	0.00	9.53	11.16	1.63	17%
	29	16.80	21.14	191.4759	0.00	8.77	11.04	2.27	26%
	30	19.80	22.15	191.9339	0.00	10.32	11.54	1.22	12%
Aug-98	31	18.40	25.12	192.3919	0.00	9.56	13.06	3.49	37%
	32	20.80	27.30	193.0159	0.00	10.78	14.14	3.37	31%
	33	20.00	25.87	193.6400	0.00	10.33	13.36	3.03	29%
	34	18.20	26.14	194.2641	0.00	9.37	13.46	4.09	44%
	35	18.00	26.53	194.8882	0.00	9.24	13.61	4.38	47%
Sep-98	36	18.40	27.13	195.5122	0.00	9.41	13.88	4.47	47%
	37	18.50	26.51	196.2127	0.00	9.43	13.51	4.08	43%
	38	18.20	25.79	196.9131	0.00	9.24	13.10	3.85	42%
	39	22.60	25.02	197.6135	0.00	11.44	12.66	1.22	11%
Oct-98	40	24.80	25.86	198.3139	0.00	12.51	13.04	0.53	4%
	41	31.00	27.65	199.0163	0.00	15.58	13.89	-1.68	-11%
	42	21.80	29.04	199.7187	0.00	10.92	14.54	3.63	33%
	43	20.00	38.29	200.4211	0.00	9.98	19.10	9.13	91%
	44	20.75	35.07	201.1235	0.00	10.32	17.44	7.12	69%
Nov-98	45	13.83	33.80	201.8259	0.00	6.85	16.75	9.89	144%
	46	13.33	32.09	203.0570	0.00	6.56	15.80	9.24	141%
	47	16.80	27.92	204.2881	0.00	8.22	13.67	5.44	66%
	48	16.40	27.25	205.5192	0.00	7.98	13.26	5.28	66%
Dec-98	49	16.40	28.35	206.7504	0.00	7.93	13.71	5.78	73%
	50	10.17	29.28	208.0555	0.00	4.89	14.07	9.19	188%
	51	10.21	25.40	209.3607	0.00	4.88	12.13	7.26	149%
	52	10.42	25.26	210.6659	0.00	4.95	11.99	7.04	142%
Jan-99	1	9.33	22.74	211.9711	0.00	4.40	10.73	6.32	144%
	2	9.00	25.71	212.5409	0.00	4.23	12.10	7.86	186%
	3	9.67	23.03	213.1107	0.00	4.54	10.81	6.27	138%
	4	9.60	17.74	213.6805	0.00	4.49	8.30	3.81	85%
	5	9.38	17.33	214.2503	0.00	4.38	8.09	3.71	85%
Feb-99	6	10.00	17.52	214.8201	0.00	4.66	8.16	3.50	75%
	7	9.67	18.40	215.3190	0.00	4.49	8.55	4.06	90%
	8	9.83	19.03	215.8179	0.00	4.56	8.82	4.26	94%
	9	8.50	18.62	216.3169	0.00	3.93	8.61	4.68	119%
Mar-99	10	8.67	19.91	216.8158	0.00	4.00	9.18	5.19	130%
	11	8.67	19.13	217.3133	0.00	3.99	8.80	4.82	121%
	12	8.00	19.10	217.8108	0.00	3.67	8.77	5.10	139%
	13	10.55	17.88	218.3082	0.00	4.83	8.19	3.36	69%
Apr-99	14	9.69	18.40	218.8057	0.00	4.43	8.41	3.98	90%
	15	8.83	17.95	219.1347	0.00	4.03	8.19	4.16	103%
	16	9.00	16.94	219.4638	0.00	4.10	7.72	3.62	88%
	17	8.67	15.99	219.7929	0.00	3.94	7.28	3.33	85%
May-99	18	8.83	19.23	220.1219	0.00	4.01	8.74	4.72	118%
	19	8.54	18.19	220.4112	0.00	3.88	8.25	4.38	113%
	20	8.50	17.79	220.7004	0.00	3.85	8.06	4.21	109%
	21	9.00	17.75	220.9897	0.00	4.07	8.03	3.96	97%
	22	10.50	17.16	221.2789	0.00	4.75	7.75	3.01	63%
Jun-99	23	9.17	18.53	221.5682	0.00	4.14	8.36	4.23	102%
	24	7.71	18.51	221.9343	0.00	3.47	8.34	4.87	140%
	25	8.50	16.56	222.3004	0.00	3.82	7.45	3.63	95%
	26	13.80	20.48	222.6665	0.00	6.20	9.20	3.00	48%
Jul-99	27	13.60	16.92	223.0326	0.00	6.10	7.59	1.49	24%
	28	14.33	18.26	223.2836	0.00	6.42	8.18	1.76	27%
	29	13.50	17.74	223.5347	0.00	6.04	7.94	1.90	31%
	30	13.80	18.54	223.7858	0.00	6.17	8.28	2.12	34%
	31	17.20	18.54	224.0368	0.00	7.68	8.28	0.60	8%

Aug-99	32	17.60	17.89	224.2879	0.00	7.85	7.98	0.13	2%
	33	17.60	21.48	224.8297	0.00	7.83	9.55	1.73	22%
Sep-99	34	18.50	22.49	225.3715	0.00	8.21	9.98	1.77	22%
	35	22.00	22.99	225.9133	0.00	9.74	10.18	0.44	5%
	36	20.80	21.65	226.4551	0.00	9.19	9.56	0.38	4%
	37	19.20	21.47	226.8137	0.00	8.47	9.47	1.00	12%
Oct-99	38	23.20	26.16	227.1722	0.00	10.21	11.52	1.30	13%
	39	22.00	24.76	227.5308	0.00	9.67	10.88	1.21	13%
	40	24.80	24.67	227.8894	0.00	10.88	10.83	-0.06	-1%
	41	22.00	27.21	228.2947	0.00	9.64	11.92	2.28	24%
	42	18.20	24.29	228.7000	0.00	7.96	10.62	2.66	33%
Nov-99	43	18.50	24.63	229.1054	0.00	8.07	10.75	2.68	33%
	44	16.00	22.79	229.5107	0.00	6.97	9.93	2.96	42%
	45	17.75	22.35	229.9160	0.00	7.72	9.72	2.00	26%
	46	16.80	19.69	230.4918	0.00	7.29	8.54	1.25	17%
	47	16.66	20.55	231.0676	0.00	7.21	8.89	1.68	23%
	48	11.66	23.19	231.6434	0.00	5.03	10.01	4.98	99%
Dec-99	49	12.50	22.91	232.2193	0.00	5.38	9.87	4.48	83%
	50	13.61	20.42	232.9988		5.84	8.76	2.92	50%
	51	13.05	22.49	233.7783		5.58	9.62	4.04	72%
	52	13.50	19.80	234.5578		5.76	8.44	2.69	47%
Jan-00	1	11.25	21.24	235.3374		4.78	9.03	4.24	89%
	2	11.11	21.84	235.7549		4.71	9.26	4.55	97%
	3	12.50	25.20	236.1724		5.29	10.67	5.38	102%
	4	10.83	24.89	236.5899		4.58	10.52	5.94	130%
	5	10.41	26.47	237.0074		4.39	11.17	6.78	154%
Feb-00	6	12.08	22.55	237.4249		5.09	9.50	4.41	87%





correlation coefficients	
	95/99
wholesale to retail:	0.498396
retail price to retail margin:	0.671328

trendlines and average margins:			
wholesale: $y_1 = -0.0002x + 6.4822$			
retail: $y_2 = -0.0258x + 13.814$			
average margins [mid year on trendline]			
formula: $y_2 - y_1 = -0.0256x + 7.3318$			
	x (weeks)	margins	as % of wholes. pr.
1996	-2	7.38	114%
1997	51	6.03	93%
1998	104	4.67	72%
1999	157	3.31	51%
2000	210	1.96	30%

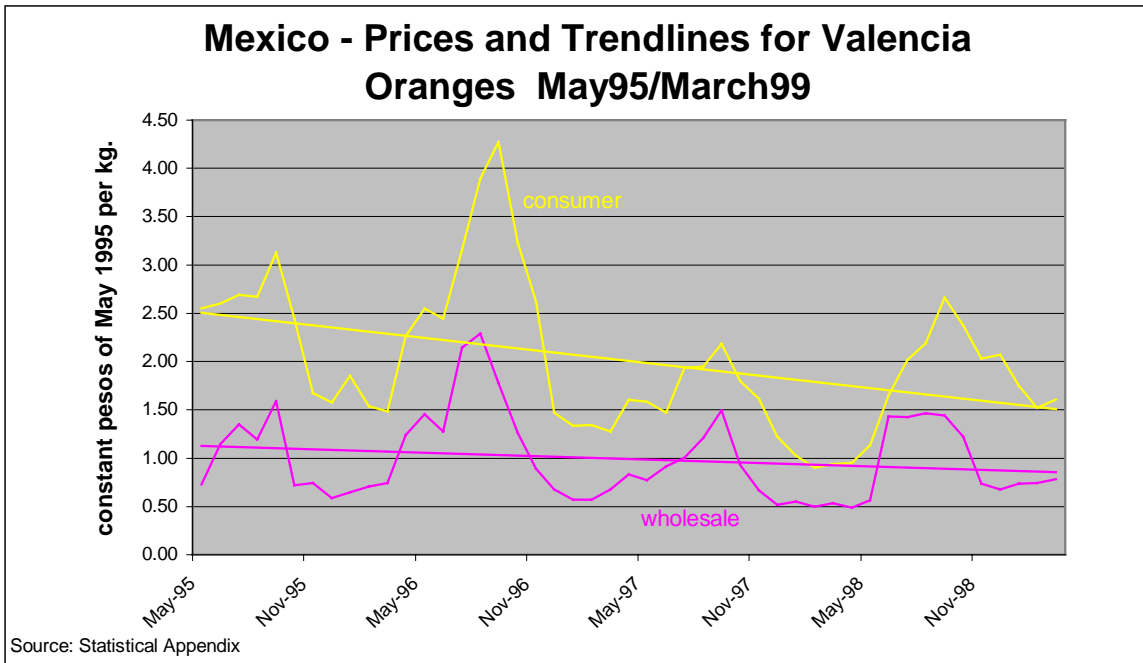
Table SA-3: Mexico - Prices for Valencia Oranges - May 1995 / December 1999

	week	current prices in pesos/kg.			CPI (May '95=100)	constant prices <sup>1</sup> in pesos/kg.			retail margins	
		Farm Gate	CEDA DF	Consumer		Farm Gate	CEDA DF	Consumer	abs.	% of wholes.
May-95	18		0.73	2.55	100.0000	0.00	0.73	2.55	1.82	249%
	19		0.69	2.82	100.7934	0.00	0.68	2.80	2.11	309%
	20		1.07	2.57	101.5869	0.00	1.05	2.53	1.48	140%
	21		0.97	2.74	102.3803	0.00	0.95	2.68	1.73	182%
Jun-95	22		1.18	2.68	103.1737	0.00	1.14	2.60	1.45	127%
	23		1.56	3.19	103.6995	0.00	1.50	3.08	1.57	104%
	24		1.56	3.18	104.2254	0.00	1.50	3.05	1.55	104%
	25		1.50	2.88	104.7512	0.00	1.43	2.75	1.32	92%
Jul-95	26		1.42	2.83	105.2770	0.00	1.35	2.69	1.34	99%
	27		1.28	2.82	105.6263	0.00	1.21	2.67	1.46	120%
	28		1.29	3.04	105.9755	0.00	1.22	2.87	1.65	136%
	29		1.20	2.92	106.3248	0.00	1.13	2.75	1.62	143%
Aug-95	30		1.10	2.89	106.6740	0.00	1.03	2.71	1.68	163%
	31		1.28	2.86	107.0233	0.00	1.20	2.67	1.48	123%
	32		1.46	2.89	107.5767	0.00	1.36	2.69	1.33	98%
	33		1.70	3.02	108.1302	0.00	1.57	2.79	1.22	78%
Sep-95	34		1.70	3.12	108.6836	0.00	1.56	2.87	1.31	84%
	35		1.74	3.42	109.2371	0.00	1.59	3.13	1.54	97%
	36		1.90	3.57	109.6866	0.00	1.73	3.25	1.52	88%
	37		1.58	3.17	110.1361	0.00	1.43	2.88	1.44	101%
	38		1.50	3.39	110.5856	0.00	1.36	3.07	1.71	126%
	39		1.20	3.10	111.0352	0.00	1.08	2.79	1.71	158%
Oct-95	40		0.80	2.73	111.4847	0.00	0.72	2.45	1.73	241%
	41		0.77	2.51	112.1719	0.00	0.69	2.24	1.55	226%
	42		0.74	2.03	112.8592	0.00	0.66	1.80	1.14	174%
	43		0.77	1.97	113.5465	0.00	0.68	1.73	1.06	156%
Nov-95	44		0.85	1.91	114.2337	0.00	0.74	1.67	0.93	125%
	45		0.91	2.03	115.1642	0.00	0.79	1.76	0.97	123%
	46		0.88	1.91	116.0946	0.00	0.76	1.65	0.89	117%
	47		0.84	1.97	117.0250	0.00	0.72	1.68	0.97	135%
Dec-95	48		0.69	1.86	117.9555	0.00	0.58	1.58	0.99	170%
	49		0.65	1.96	118.8036	0.00	0.55	1.65	1.10	202%
	50		0.72	1.86	119.6516	0.00	0.60	1.55	0.95	158%
	51		0.72	1.79	120.4997	0.00	0.60	1.49	0.89	149%
	52		0.83	2.01	121.3478	0.00	0.68	1.66	0.97	142%
Jan-96	1		0.79	2.26	122.1959	0.00	0.65	1.85	1.20	186%
	2		0.81	1.99	122.9089	0.00	0.66	1.62	0.96	146%
	3		0.84	1.88	123.6219	0.00	0.68	1.52	0.84	124%
	4		0.85	1.87	124.3349	0.00	0.68	1.50	0.82	120%
Feb-96	5		0.88	1.92	125.0479	0.00	0.70	1.54	0.83	118%
	6		0.90	1.91	125.7361	0.00	0.72	1.52	0.80	112%
	7		0.88	2.05	126.4243	0.00	0.70	1.62	0.93	133%
Mar-96	8		0.88	1.95	127.1125	0.00	0.69	1.53	0.84	122%
	9		0.95	1.90	127.8007	0.00	0.74	1.49	0.74	100%
	10		1.10	1.81	128.5273	0.00	0.86	1.41	0.55	65%
	11		1.18	2.10	129.2539	0.00	0.91	1.62	0.71	78%
	12		1.51	2.43	129.9805	0.00	1.16	1.87	0.71	61%
	13		1.45	2.55	130.7071	0.00	1.11	1.95	0.84	76%
Apr-96	14		1.63	2.97	131.4337	0.00	1.24	2.26	1.02	82%

	15	1.86	3.06	132.0327	0.00	1.41	2.32	0.91	65%
	16	1.92	3.13	132.6316	0.00	1.45	2.36	0.91	63%
	17	1.92	3.45	133.2305	0.00	1.44	2.59	1.15	80%
May-96	18	1.95	3.41	133.8295	0.00	1.46	2.55	1.09	75%
	19	1.96	3.40	134.3743	0.00	1.46	2.53	1.07	73%
	20	2.00	3.39	134.9191	0.00	1.48	2.51	1.03	70%
	21	1.76	3.29	135.4639	0.00	1.30	2.43	1.13	87%
Jun-96	22	1.74	3.33	136.0087	0.00	1.28	2.45	1.17	91%
	23	1.84	3.38	136.3954	0.00	1.35	2.48	1.13	84%
	24	2.44	3.45	136.7820	0.00	1.78	2.52	0.74	41%
	25	2.60	3.68	137.1687	0.00	1.90	2.68	0.79	42%
	26	2.70	4.07	137.5554	0.00	1.96	2.96	1.00	51%
Jul-96	27	2.96	4.36	137.9421	0.00	2.15	3.16	1.01	47%
	28	3.18	4.77	138.4005	0.00	2.30	3.45	1.15	50%
	29	3.18	5.00	138.8588	0.00	2.29	3.60	1.31	57%
	30	3.22	5.06	139.3172	0.00	2.31	3.63	1.32	57%
Aug-96	31	3.20	5.44	139.7755	0.00	2.29	3.89	1.60	70%
	32	3.52	7.06	140.2225	0.00	2.51	5.03	2.52	101%
	33	2.64	5.84	140.6695	0.00	1.88	4.15	2.27	121%
	34	3.00	5.94	141.1164	0.00	2.13	4.21	2.08	98%
	35	2.70	6.01	141.5634	0.00	1.91	4.25	2.34	123%
Sep-96	36	2.52	6.07	142.0104	0.00	1.77	4.27	2.50	141%
	37	2.36	6.06	142.4535	0.00	1.66	4.25	2.60	157%
	38	2.30	5.32	142.8966	0.00	1.61	3.72	2.11	131%
	39	2.10	4.73	143.3398	0.00	1.47	3.30	1.83	125%
Oct-96	40	1.82	4.65	143.7829	0.00	1.27	3.23	1.97	155%
	41	1.58	4.48	144.3275	0.00	1.09	3.10	2.01	184%
	42	1.42	4.64	144.8722	0.00	0.98	3.20	2.22	227%
	43	1.14	4.33	145.4168	0.00	0.78	2.98	2.19	280%
Nov-96	44	1.30	3.83	145.9614	0.00	0.89	2.62	1.73	195%
	45	1.12	3.56	146.8961	0.00	0.76	2.42	1.66	218%
	46	1.12	2.85	147.8308	0.00	0.76	1.93	1.17	154%
	47	1.10	2.42	148.7654	0.00	0.74	1.63	0.89	120%
	48	1.00	2.16	149.7001	0.00	0.67	1.44	0.77	116%
Dec-96	49	1.02	2.22	150.6348	0.00	0.68	1.47	0.80	118%
	50	1.02	2.15	151.6032	0.00	0.67	1.42	0.75	111%
	51	1.12	2.16	152.5716	0.00	0.73	1.42	0.68	93%
	52	0.98	2.13	153.5400	0.00	0.64	1.39	0.75	117%
Jan-97	1	0.88	2.06	154.5084	0.00	0.57	1.33	0.76	134%
	2	0.95	1.73	155.1575	0.00	0.61	1.11	0.50	82%
	3	0.96	2.16	155.8066	0.00	0.62	1.39	0.77	125%
	4	0.88	2.24	156.4557	0.00	0.56	1.43	0.87	155%
Feb-97	5	0.90	2.11	157.1048	0.00	0.57	1.34	0.77	134%
	6	0.90	1.96	157.5936	0.00	0.57	1.24	0.67	118%
	7	0.92	2.10	158.0824	0.00	0.58	1.33	0.75	128%
	8	1.20	2.03	158.5712	0.00	0.76	1.28	0.52	69%
Mar-97	9	1.08	2.03	159.0600	0.00	0.68	1.28	0.60	88%
	10	1.10	2.15	159.4037	0.00	0.69	1.35	0.66	95%
	11	1.08	1.95	159.7474	0.00	0.68	1.22	0.54	81%
	12	1.10	2.11	160.0911	0.00	0.69	1.32	0.63	92%
	13	1.10	2.25	160.4348	0.00	0.69	1.40	0.72	105%
Apr-97	14	1.34	2.58	160.7785	0.00	0.83	1.60	0.77	93%
	15	1.22	2.65	161.1453	0.00	0.76	1.64	0.89	117%
	16	1.26	2.78	161.5121	0.00	0.78	1.72	0.94	121%

	17	1.26	2.56	161.8790	0.00	0.78	1.58	0.80	103%
May-97	18	1.25	2.57	162.2458	0.00	0.77	1.58	0.81	106%
	19	1.20	2.66	162.5337	0.00	0.74	1.64	0.90	122%
	20	1.30	2.42	162.8216	0.00	0.80	1.49	0.69	86%
	21	1.40	2.45	163.1095	0.00	0.86	1.50	0.64	75%
	22	1.44	2.50	163.3975	0.00	0.88	1.53	0.65	74%
Jun-97	23	1.50	2.41	163.6854	0.00	0.92	1.47	0.56	61%
	24	1.66	2.57	164.0419	0.00	1.01	1.57	0.55	55%
	25	1.66	2.84	164.3984	0.00	1.01	1.73	0.72	71%
	26	1.63	3.07	164.7549	0.00	0.99	1.86	0.87	88%
Jul-97	27	1.66	3.20	165.1113	0.00	1.01	1.94	0.93	93%
	28	1.72	3.08	165.4784	0.00	1.04	1.86	0.82	79%
	29	1.72	3.17	165.8454	0.00	1.04	1.91	0.87	84%
	30	1.98	3.19	166.2124	0.00	1.19	1.92	0.73	61%
Aug-97	31	2.02	3.24	166.5795	0.00	1.21	1.95	0.73	60%
	32	2.26	3.27	166.9944	0.00	1.35	1.96	0.60	45%
	33	2.46	3.31	167.4094	0.00	1.47	1.98	0.51	35%
	34	2.56	3.82	167.8243	0.00	1.53	2.28	0.75	49%
	35	2.58	3.72	168.2393	0.00	1.53	2.21	0.68	44%
Sep-97	36	2.52	3.68	168.6542	0.00	1.49	2.18	0.69	46%
	37	1.68	3.41	168.9911	0.00	0.99	2.02	1.02	103%
	38	1.70	3.28	169.3281	0.00	1.00	1.94	0.93	93%
	39	1.68	3.22	169.6651	0.00	0.99	1.90	0.91	92%
Oct-97	40	1.58	3.06	170.0020	0.00	0.93	1.80	0.87	94%
	41	1.48	2.68	170.4775	0.00	0.87	1.57	0.70	81%
	42	1.34	2.44	170.9529	0.00	0.78	1.43	0.64	82%
	43	1.32	2.59	171.4284	0.00	0.77	1.51	0.74	96%
Nov-97	44	1.14	2.78	171.9038	0.00	0.66	1.62	0.95	144%
	45	1.18	2.29	172.3855	0.00	0.68	1.33	0.64	94%
	46	0.98	2.30	172.8672	0.00	0.57	1.33	0.76	135%
	47	0.93	2.08	173.3489	0.00	0.54	1.20	0.66	124%
	48	0.90	2.37	173.8306	0.00	0.52	1.36	0.85	163%
Dec-97	49	0.90	2.13	174.3123	0.00	0.52	1.22	0.71	137%
	50	1.02	1.88	175.2604	0.00	0.58	1.07	0.49	84%
	51	1.12	1.78	176.2085	0.00	0.64	1.01	0.37	59%
	52	1.10	1.61	177.1566	0.00	0.62	0.91	0.29	46%
Jan-98	1	0.98	1.83	178.1047	0.00	0.55	1.03	0.48	87%
	2	0.94	2.91	178.7284	0.00	0.53	1.63	1.10	210%
	3	0.92	1.58	179.3520	0.00	0.51	0.88	0.37	72%
	4	0.92	1.76	179.9756	0.00	0.51	0.98	0.47	91%
	5	0.90	1.78	180.5992	0.00	0.50	0.99	0.49	98%
Feb-98	6	0.90	1.63	181.2229	0.00	0.50	0.90	0.40	81%
	7	0.89	1.63	181.7536	0.00	0.49	0.90	0.41	83%
	8	0.90	1.75	182.2843	0.00	0.49	0.96	0.47	94%
	9	0.90	1.62	182.8150	0.00	0.49	0.89	0.39	80%
Mar-98	10	0.98	1.72	183.3457	0.00	0.53	0.94	0.40	76%
	11	0.98	1.67	183.7746	0.00	0.53	0.91	0.38	70%
	12	0.94	1.81	184.2034	0.00	0.51	0.98	0.47	93%
	13	0.95	1.73	184.6323	0.00	0.51	0.94	0.42	82%
Apr-98	14	0.90	1.76	185.0611	0.00	0.49	0.95	0.46	96%
	15	1.18	1.77	185.4297	0.00	0.64	0.95	0.32	50%
	16	1.00	1.81	185.7982	0.00	0.54	0.97	0.44	81%
	17	1.03	1.83	186.1667	0.00	0.55	0.98	0.43	78%
May-98	18	1.05	2.12	186.5353	0.00	0.56	1.14	0.57	102%

	19	1.22	2.15	186.9762	0.00	0.65	1.15	0.50	76%
	20	1.58	1.99	187.4172	0.00	0.84	1.06	0.22	26%
	21	1.72	2.07	187.8581	0.00	0.92	1.10	0.19	20%
	22	2.72	2.26	188.2991	0.00	1.44	1.20	-0.24	-17%
Jun-98	23	2.70	3.11	188.7400	0.00	1.43	1.65	0.22	15%
	24	2.72	3.19	189.1950	0.00	1.44	1.69	0.25	17%
	25	2.80	3.59	189.6500	0.00	1.48	1.89	0.42	28%
	26	2.76	3.70	190.1050	0.00	1.45	1.95	0.49	34%
Jul-98	27	2.72	3.85	190.5600	0.00	1.43	2.02	0.59	42%
	28	2.70	3.88	191.0179	0.00	1.41	2.03	0.62	44%
	29	2.72	4.02	191.4759	0.00	1.42	2.10	0.68	48%
	30	2.80	4.29	191.9339	0.00	1.46	2.24	0.78	53%
Aug-98	31	2.82	4.22	192.3919	0.00	1.47	2.19	0.73	50%
	32	3.00	4.27	193.0159	0.00	1.55	2.21	0.66	42%
	33	3.00	4.50	193.6400	0.00	1.55	2.32	0.77	50%
	34	3.04	4.59	194.2641	0.00	1.56	2.36	0.80	51%
	35	2.92	4.75	194.8882	0.00	1.50	2.44	0.94	63%
Sep-98	36	2.82	5.20	195.5122	0.00	1.44	2.66	1.22	84%
	37	2.70	4.82	196.2127	0.00	1.38	2.46	1.08	79%
	38	1.96	4.61	196.9131	0.00	1.00	2.34	1.35	135%
	39	2.94	4.59	197.6135	0.00	1.49	2.32	0.83	56%
Oct-98	40	2.42	4.71	198.3139	0.00	1.22	2.38	1.15	95%
	41	2.06	4.76	199.0163	0.00	1.04	2.39	1.36	131%
	42	1.92	4.88	199.7187	0.00	0.96	2.44	1.48	155%
	43	1.77	4.57	200.4211	0.00	0.88	2.28	1.40	158%
	44	1.63	4.30	201.1235	0.00	0.81	2.14	1.33	165%
Nov-98	45	1.48	4.10	201.8259	0.00	0.73	2.03	1.30	177%
	46	1.48	4.15	203.0570	0.00	0.73	2.04	1.31	180%
	47	1.58	4.23	204.2881	0.00	0.77	2.07	1.30	168%
	48	1.60	4.14	205.5192	0.00	0.78	2.01	1.24	159%
Dec-98	49	1.40	4.28	206.7504	0.00	0.68	2.07	1.39	206%
	50	1.46	4.21	208.0555	0.00	0.70	2.02	1.32	188%
	51	1.48	3.85	209.3607	0.00	0.71	1.84	1.13	160%
	52	1.43	3.77	210.6659	0.00	0.68	1.79	1.11	164%
Jan-99	1	1.56	3.71	211.9711	0.00	0.74	1.75	1.01	138%
	2	1.60	3.58	212.5409	0.00	0.75	1.68	0.93	124%
	3	1.60	3.45	213.1107	0.00	0.75	1.62	0.87	116%
	4	1.60	3.38	213.6805	0.00	0.75	1.58	0.83	111%
	5	1.60	3.04	214.2503	0.00	0.75	1.42	0.67	90%
Feb-99	6	1.60	3.26	214.8201	0.00	0.74	1.52	0.77	104%
	7	1.60	3.09	215.3190	0.00	0.74	1.44	0.69	93%
	8	1.53	3.25	215.8179	0.00	0.71	1.51	0.80	113%
	9	1.59	3.08	216.3169	0.00	0.74	1.42	0.69	94%
Mar-99	10	1.70	3.49	216.8158	0.00	0.78	1.61	0.83	105%



correlation coefficients	
	95/99
wholesale to retail:	0.820315
retail price to retail margin:	0.855039

trendlines and average margins:			
wholesale: $y_1 = -0.0017x + 1.1797$			
retail: $y_2 = -0.0054x + 2.546$			
average margins [mid year on trendline]			
formula: $y_2 - y_1 = -0.0037 * x + 1.3663$			
	x	margins	as % of
	(weeks)		wholes. pr.
1995	9	1.33	114%
1996	62	1.14	106%
1997	115	0.94	96%
1998	168	0.74	83%
1999	221	0.55	68%

Table SA-4: Mexico - Prices for Limon Persa - May 1995 / December 1999

	week	<u>current prices in pesos/kg.</u>			CPI (May '95=100)	<u>constant prices<sup>1</sup> in pesos/kg.</u>			<u>retail margins</u>	
		Farm Gate	CEDA DF	Consumer		Farm Gate	CEDA DF	Consumer	abs.	% of wholes.
May-95	18		0.93	2.80	100.0000	0.00	0.93	2.80	1.87	201%
	19		0.78	2.94	100.7934	0.00	0.77	2.92	2.14	277%
	20		0.72	3.33	101.5869	0.00	0.71	3.28	2.57	363%
Jun-95	21		0.77	3.89	102.3803	0.00	0.75	3.80	3.05	405%
	22		0.82	4.02	103.1737	0.00	0.79	3.90	3.10	390%
	23		0.58	3.99	103.6995	0.00	0.56	3.85	3.29	588%
	24		0.50	3.03	104.2254	0.00	0.48	2.91	2.43	506%
Jul-95	25		0.46	2.08	104.7512	0.00	0.44	1.99	1.55	352%
	26		0.39	1.72	105.2770	0.00	0.37	1.63	1.26	341%
	27		0.40	1.63	105.6263	0.00	0.38	1.54	1.16	308%
	28		0.44	1.55	105.9755	0.00	0.42	1.46	1.05	252%
	29		0.48	1.53	106.3248	0.00	0.45	1.44	0.99	219%
Aug-95	30		0.44	1.67	106.6740	0.00	0.41	1.57	1.15	280%
	31		0.50	1.67	107.0233	0.00	0.47	1.56	1.09	234%
	32		0.70	1.59	107.5767	0.00	0.65	1.48	0.83	127%
	33		0.56	1.80	108.1302	0.00	0.52	1.66	1.15	221%
	34		0.66	2.48	108.6836	0.00	0.61	2.28	1.67	276%
Sep-95	35		0.60	2.56	109.2371	0.00	0.55	2.34	1.79	327%
	36		0.56	2.75	109.6866	0.00	0.51	2.51	2.00	391%
	37		0.60	2.75	110.1361	0.00	0.54	2.50	1.95	358%
	38		0.60	2.84	110.5856	0.00	0.54	2.57	2.03	373%
	39		0.58	2.58	111.0352	0.00	0.52	2.32	1.80	345%
Oct-95	40		0.50	2.77	111.4847	0.00	0.45	2.48	2.04	454%
	41		0.50	2.40	112.1719	0.00	0.45	2.14	1.69	380%
	42		0.49	2.54	112.8592	0.00	0.43	2.25	1.82	418%
	43		0.50	2.16	113.5465	0.00	0.44	1.90	1.46	332%
Nov-95	44		0.49	1.95	114.2337	0.00	0.43	1.71	1.28	298%
	45		0.56	1.98	115.1642	0.00	0.49	1.72	1.23	254%
	46		0.52	1.91	116.0946	0.00	0.45	1.65	1.20	267%
	47		0.50	2.02	117.0250	0.00	0.43	1.73	1.30	304%
Dec-95	48		0.50	1.87	117.9555	0.00	0.42	1.59	1.16	274%
	49		0.64	1.97	118.8036	0.00	0.54	1.66	1.12	208%
	50		0.76	1.83	119.6516	0.00	0.64	1.53	0.89	141%
	51		1.24	2.01	120.4997	0.00	1.03	1.67	0.64	62%
	52		1.48	3.20	121.3478	0.00	1.22	2.64	1.42	116%
Jan-96	1		1.70	3.36	122.1959	0.00	1.39	2.75	1.36	98%
	2		1.56	4.88	122.9089	0.00	1.27	3.97	2.70	213%
	3		1.50	4.37	123.6219	0.00	1.21	3.53	2.32	191%
	4		2.22	4.22	124.3349	0.00	1.79	3.39	1.61	90%
Feb-96	5		2.68	5.56	125.0479	0.00	2.14	4.45	2.30	107%
	6		3.83	6.15	125.7361	0.00	3.05	4.89	1.85	61%
	7		3.18	6.12	126.4243	0.00	2.52	4.84	2.33	92%
Mar-96	8		3.20	7.16	127.1125	0.00	2.52	5.63	3.12	124%
	9		3.78	6.80	127.8007	0.00	2.96	5.32	2.36	80%
	10		3.22	7.34	128.5273	0.00	2.51	5.71	3.21	128%
	11		3.42	7.15	129.2539	0.00	2.65	5.53	2.89	109%
	12		2.65	6.79	129.9805	0.00	2.04	5.22	3.19	156%
	13		2.34	7.05	130.7071	0.00	1.79	5.39	3.60	201%

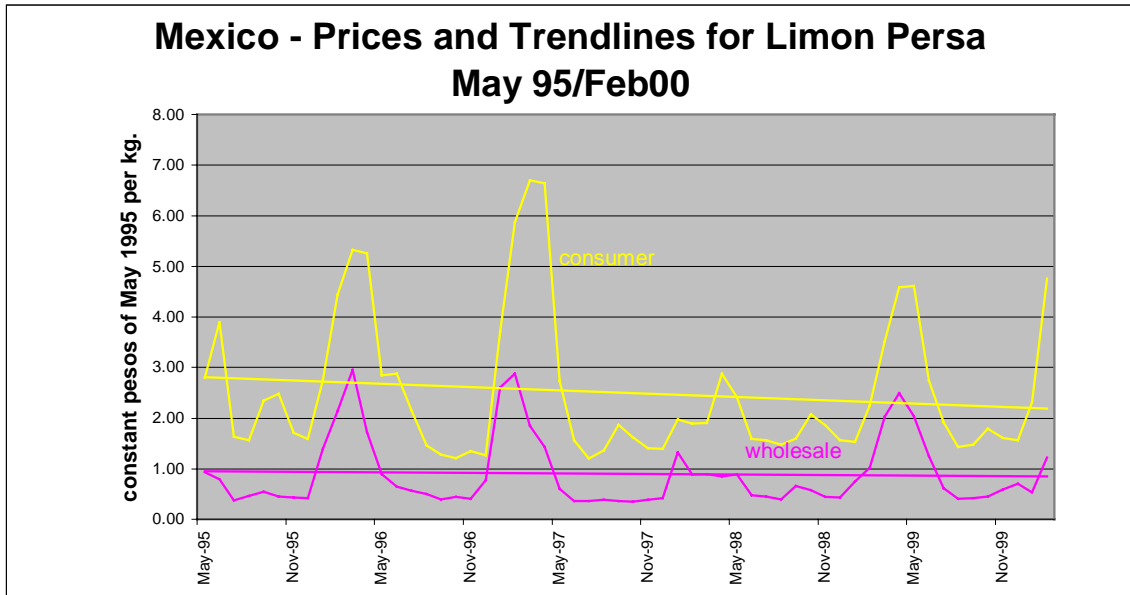
Apr-96	14	2.27	6.91	131.4337	0.00	1.73	5.26	3.53	204%
	15	1.88	7.00	132.0327	0.00	1.42	5.30	3.88	272%
	16	1.38	5.84	132.6316	0.00	1.04	4.40	3.36	323%
	17	1.12	4.50	133.2305	0.00	0.84	3.38	2.54	302%
May-96	18	1.20	3.80	133.8295	0.00	0.90	2.84	1.94	217%
	19	1.02	4.02	134.3743	0.00	0.76	2.99	2.23	294%
	20	0.92	3.89	134.9191	0.00	0.68	2.88	2.20	323%
	21	0.82	3.98	135.4639	0.00	0.61	2.94	2.33	385%
Jun-96	22	0.88	3.91	136.0087	0.00	0.65	2.87	2.23	344%
	23	0.90	4.33	136.3954	0.00	0.66	3.17	2.51	381%
	24	0.80	4.11	136.7820	0.00	0.58	3.00	2.42	414%
	25	0.78	3.06	137.1687	0.00	0.57	2.23	1.66	292%
	26	0.76	3.06	137.5554	0.00	0.55	2.22	1.67	303%
Jul-96	27	0.78	2.95	137.9421	0.00	0.57	2.14	1.57	278%
	28	0.74	2.55	138.4005	0.00	0.53	1.84	1.31	245%
	29	0.74	2.09	138.8588	0.00	0.53	1.51	0.97	182%
	30	0.73	2.19	139.3172	0.00	0.52	1.57	1.05	200%
Aug-96	31	0.70	2.04	139.7755	0.00	0.50	1.46	0.96	191%
	32	0.70	1.99	140.2225	0.00	0.50	1.42	0.92	184%
	33	0.72	1.89	140.6695	0.00	0.51	1.34	0.83	163%
	34	0.60	1.92	141.1164	0.00	0.43	1.36	0.94	220%
	35	0.60	1.93	141.5634	0.00	0.42	1.36	0.94	222%
Sep-96	36	0.56	1.82	142.0104	0.00	0.39	1.28	0.89	225%
	37	0.52	1.82	142.4535	0.00	0.37	1.28	0.91	250%
	38	0.50	1.78	142.8966	0.00	0.35	1.25	0.90	256%
	39	0.60	1.72	143.3398	0.00	0.42	1.20	0.78	187%
Oct-96	40	0.64	1.75	143.7829	0.00	0.45	1.22	0.77	173%
	41	0.70	1.80	144.3275	0.00	0.49	1.25	0.76	157%
	42	0.60	1.99	144.8722	0.00	0.41	1.37	0.96	232%
	43	0.60	1.85	145.4168	0.00	0.41	1.27	0.86	208%
Nov-96	44	0.60	1.97	145.9614	0.00	0.41	1.35	0.94	228%
	45	1.00	1.88	146.8961	0.00	0.68	1.28	0.60	88%
	46	0.82	1.91	147.8308	0.00	0.55	1.29	0.74	133%
	47	0.93	2.02	148.7654	0.00	0.63	1.36	0.73	117%
	48	1.10	2.02	149.7001	0.00	0.73	1.35	0.61	84%
Dec-96	49	1.16	1.91	150.6348	0.00	0.77	1.27	0.50	65%
	50	2.02	2.24	151.6032	0.00	1.33	1.48	0.15	11%
	51	2.74	2.87	152.5716	0.00	1.80	1.88	0.09	5%
	52	4.38	3.67	153.5400	0.00	2.85	2.39	-0.46	-16%
Jan-97	1	4.03	5.72	154.5084	0.00	2.61	3.70	1.09	42%
	2	4.46	4.68	155.1575	0.00	2.87	3.02	0.14	5%
	3	4.64	7.21	155.8066	0.00	2.98	4.63	1.65	55%
	4	5.04	9.02	156.4557	0.00	3.22	5.77	2.54	79%
Feb-97	5	4.52	9.23	157.1048	0.00	2.88	5.88	3.00	104%
	6	5.88	9.56	157.5936	0.00	3.73	6.07	2.34	63%
	7	4.62	9.74	158.0824	0.00	2.92	6.16	3.24	111%
	8	4.30	10.01	158.5712	0.00	2.71	6.31	3.60	133%
Mar-97	9	2.94	10.66	159.0600	0.00	1.85	6.70	4.85	263%
	10	3.68	8.97	159.4037	0.00	2.31	5.63	3.32	144%
	11	3.78	9.85	159.7474	0.00	2.37	6.17	3.80	161%
	12	4.18	11.13	160.0911	0.00	2.61	6.95	4.34	166%
	13	3.77	11.13	160.4348	0.00	2.35	6.94	4.59	195%
Apr-97	14	2.30	10.68	160.7785	0.00	1.43	6.64	5.21	364%
	15	1.98	8.98	161.1453	0.00	1.23	5.57	4.34	354%



	16	1.38	6.75	161.5121	0.00	0.85	4.18	3.32	389%
	17	1.24	5.33	161.8790	0.00	0.77	3.29	2.53	330%
May-97	18	0.98	4.43	162.2458	0.00	0.60	2.73	2.13	352%
	19	0.83	4.36	162.5337	0.00	0.51	2.68	2.17	425%
	20	0.72	3.64	162.8216	0.00	0.44	2.24	1.79	406%
	21	0.78	2.98	163.1095	0.00	0.48	1.83	1.35	282%
	22	0.68	2.41	163.3975	0.00	0.42	1.47	1.06	254%
Jun-97	23	0.60	2.56	163.6854	0.00	0.37	1.56	1.20	327%
	24	0.66	2.07	164.0419	0.00	0.40	1.26	0.86	214%
	25	0.64	2.04	164.3984	0.00	0.39	1.24	0.85	219%
	26	0.62	1.96	164.7549	0.00	0.38	1.19	0.81	216%
Jul-97	27	0.60	1.99	165.1113	0.00	0.36	1.21	0.84	232%
	28	0.70	1.96	165.4784	0.00	0.42	1.18	0.76	180%
	29	0.62	1.99	165.8454	0.00	0.37	1.20	0.83	221%
	30	0.62	2.17	166.2124	0.00	0.37	1.31	0.93	250%
Aug-97	31	0.64	2.27	166.5795	0.00	0.38	1.36	0.98	255%
	32	0.76	2.29	166.9944	0.00	0.46	1.37	0.92	201%
	33	0.68	2.59	167.4094	0.00	0.41	1.55	1.14	281%
	34	0.64	2.79	167.8243	0.00	0.38	1.66	1.28	336%
	35	0.64	3.10	168.2393	0.00	0.38	1.84	1.46	384%
Sep-97	36	0.62	3.16	168.6542	0.00	0.37	1.87	1.51	410%
	37	0.60	2.92	168.9911	0.00	0.36	1.73	1.37	387%
	38	0.63	2.71	169.3281	0.00	0.37	1.60	1.23	330%
	39	0.58	2.64	169.6651	0.00	0.34	1.56	1.21	355%
Oct-97	40	0.60	2.76	170.0020	0.00	0.35	1.62	1.27	360%
	41	0.66	2.17	170.4775	0.00	0.39	1.27	0.89	229%
	42	0.98	2.04	170.9529	0.00	0.57	1.19	0.62	108%
	43	0.76	2.41	171.4284	0.00	0.44	1.41	0.96	217%
Nov-97	44	0.66	2.42	171.9038	0.00	0.38	1.41	1.02	267%
	45	0.60	2.23	172.3855	0.00	0.35	1.29	0.95	272%
	46	0.62	2.40	172.8672	0.00	0.36	1.39	1.03	287%
	47	0.70	2.21	173.3489	0.00	0.40	1.27	0.87	216%
	48	0.68	2.36	173.8306	0.00	0.39	1.36	0.97	247%
Dec-97	49	0.74	2.43	174.3123	0.00	0.42	1.39	0.97	228%
	50	0.76	2.35	175.2604	0.00	0.43	1.34	0.91	209%
	51	1.96	2.37	176.2085	0.00	1.11	1.34	0.23	21%
	52	1.53	2.66	177.1566	0.00	0.86	1.50	0.64	74%
Jan-98	1	2.36	3.52	178.1047	0.00	1.33	1.98	0.65	49%
	2	1.46	3.49	178.7284	0.00	0.82	1.95	1.14	139%
	3	1.42	3.77	179.3520	0.00	0.79	2.10	1.31	165%
	4	1.68	3.84	179.9756	0.00	0.93	2.13	1.20	129%
	5	1.53	3.70	180.5992	0.00	0.85	2.05	1.20	142%
Feb-98	6	1.60	3.43	181.2229	0.00	0.88	1.89	1.01	114%
	7	1.64	3.57	181.7536	0.00	0.90	1.96	1.06	118%
	8	1.68	3.54	182.2843	0.00	0.92	1.94	1.02	111%
	9	1.88	3.27	182.8150	0.00	1.03	1.79	0.76	74%
Mar-98	10	1.64	3.49	183.3457	0.00	0.89	1.90	1.01	113%
	11	1.54	4.33	183.7746	0.00	0.84	2.36	1.52	181%
	12	1.64	4.87	184.2034	0.00	0.89	2.64	1.75	197%
	13	1.60	5.02	184.6323	0.00	0.87	2.72	1.85	214%
Apr-98	14	1.57	5.32	185.0611	0.00	0.85	2.87	2.03	239%
	15	2.48	4.72	185.4297	0.00	1.34	2.55	1.21	90%
	16	1.78	4.48	185.7982	0.00	0.96	2.41	1.45	152%
	17	1.70	4.65	186.1667	0.00	0.91	2.50	1.58	174%

May-98	18	1.65	4.51	186.5353	0.00	0.88	2.42	1.53	173%
	19	1.12	4.59	186.9762	0.00	0.60	2.45	1.86	310%
	20	1.14	4.25	187.4172	0.00	0.61	2.27	1.66	273%
	21	1.02	4.27	187.8581	0.00	0.54	2.27	1.73	319%
Jun-98	22	0.86	3.73	188.2991	0.00	0.46	1.98	1.52	334%
	23	0.90	2.99	188.7400	0.00	0.48	1.58	1.11	232%
	24	1.00	3.22	189.1950	0.00	0.53	1.70	1.17	222%
	25	0.96	3.25	189.6500	0.00	0.51	1.71	1.21	239%
Jul-98	26	0.90	3.23	190.1050	0.00	0.47	1.70	1.23	259%
	27	0.86	2.98	190.5600	0.00	0.45	1.56	1.11	247%
	28	0.78	2.93	191.0179	0.00	0.41	1.53	1.13	276%
	29	0.80	2.93	191.4759	0.00	0.42	1.53	1.11	266%
Aug-98	30	0.78	2.79	191.9339	0.00	0.41	1.45	1.05	258%
	31	0.76	2.84	192.3919	0.00	0.40	1.48	1.08	274%
	32	0.78	2.76	193.0159	0.00	0.40	1.43	1.03	254%
	33	0.76	2.85	193.6400	0.00	0.39	1.47	1.08	275%
Sep-98	34	0.92	2.80	194.2641	0.00	0.47	1.44	0.97	204%
	35	0.84	3.02	194.8882	0.00	0.43	1.55	1.12	260%
	36	1.28	3.13	195.5122	0.00	0.65	1.60	0.95	145%
	37	1.68	3.23	196.2127	0.00	0.86	1.65	0.79	92%
Oct-98	38	1.20	3.18	196.9131	0.00	0.61	1.61	1.01	165%
	39	1.20	3.73	197.6135	0.00	0.61	1.89	1.28	211%
	40	1.14	4.11	198.3139	0.00	0.57	2.07	1.50	261%
	41	1.12	4.17	199.0163	0.00	0.56	2.10	1.53	272%
Nov-98	42	0.98	4.19	199.7187	0.00	0.49	2.10	1.61	328%
	43	1.06	3.79	200.4211	0.00	0.53	1.89	1.36	258%
	44	0.98	3.62	201.1235	0.00	0.49	1.80	1.31	269%
	45	0.90	3.75	201.8259	0.00	0.45	1.86	1.41	317%
Dec-98	46	1.03	3.47	203.0570	0.00	0.51	1.71	1.20	237%
	47	0.84	3.25	204.2881	0.00	0.41	1.59	1.18	287%
	48	0.86	3.09	205.5192	0.00	0.42	1.50	1.09	259%
	49	0.90	3.23	206.7504	0.00	0.44	1.56	1.13	259%
Jan-99	50	1.44	3.09	208.0555	0.00	0.69	1.49	0.79	115%
	51	1.40	3.34	209.3607	0.00	0.67	1.60	0.93	139%
	52	1.38	3.47	210.6659	0.00	0.66	1.65	0.99	151%
	1	1.59	3.24	211.9711	0.00	0.75	1.53	0.78	104%
Feb-99	2	1.79	6.92	212.5409	0.00	0.84	3.26	2.41	286%
	3	2.00	4.22	213.1107	0.00	0.94	1.98	1.04	111%
	4	1.96	4.56	213.6805	0.00	0.92	2.13	1.22	133%
	5	2.20	4.64	214.2503	0.00	1.03	2.17	1.14	111%
Mar-99	6	2.18	4.85	214.8201	0.00	1.01	2.26	1.24	122%
	7	3.53	5.31	215.3190	0.00	1.64	2.47	0.83	51%
	8	3.80	6.06	215.8179	0.00	1.76	2.81	1.05	59%
	9	4.20	6.89	216.3169	0.00	1.94	3.19	1.24	64%
Apr-99	10	4.40	7.65	216.8158	0.00	2.03	3.53	1.50	74%
	11	4.60	9.95	217.3133	0.00	2.12	4.58	2.46	116%
	12	4.90	11.57	217.8108	0.00	2.25	5.31	3.06	136%
	13	5.75	10.83	218.3082	0.00	2.63	4.96	2.33	88%
May-99	14	5.45	10.03	218.8057	0.00	2.49	4.58	2.09	84%
	15	5.15	9.99	219.1347	0.00	2.35	4.56	2.21	94%
	16	4.93	9.73	219.4638	0.00	2.25	4.43	2.19	97%
	17	4.72	10.56	219.7929	0.00	2.15	4.80	2.66	124%
May-99	18	4.50	10.15	220.1219	0.00	2.04	4.61	2.57	126%
	19	4.06	9.43	220.4112	0.00	1.84	4.28	2.44	132%

	20	3.14	8.03	220.7004	0.00	1.42	3.64	2.22	156%
	21	2.85	7.79	220.9897	0.00	1.29	3.53	2.24	173%
	22	2.90	6.54	221.2789	0.00	1.31	2.96	1.64	126%
Jun-99	23	2.76	6.07	221.5682	0.00	1.25	2.74	1.49	120%
	24	2.18	5.40	221.9343	0.00	0.98	2.43	1.45	148%
	25	1.80	4.41	222.3004	0.00	0.81	1.98	1.17	145%
	26	1.63	4.42	222.6665	0.00	0.73	1.99	1.26	172%
Jul-99	27	1.36	4.28	223.0326	0.00	0.61	1.92	1.31	215%
	28	1.42	3.93	223.2836	0.00	0.64	1.76	1.12	177%
	29	1.04	3.75	223.5347	0.00	0.47	1.68	1.21	261%
	30	1.03	3.28	223.7858	0.00	0.46	1.47	1.00	218%
	31	0.90	3.27	224.0368	0.00	0.40	1.46	1.06	263%
Aug-99	32	0.92	3.21	224.2879	0.00	0.41	1.43	1.02	249%
	33	0.90	3.10	224.8297	0.00	0.40	1.38	0.98	244%
	34	0.96	3.15	225.3715	0.00	0.43	1.40	0.97	228%
	35	0.86	3.17	225.9133	0.00	0.38	1.40	1.02	269%
Sep-99	36	0.94	3.34	226.4551	0.00	0.42	1.47	1.06	255%
	37	0.92	3.46	226.8137	0.00	0.41	1.53	1.12	276%
	38	0.90	3.44	227.1722	0.00	0.40	1.51	1.12	282%
	39	0.78	3.57	227.5308	0.00	0.34	1.57	1.23	358%
Oct-99	40	1.04	4.08	227.8894	0.00	0.46	1.79	1.33	292%
	41	1.07	4.18	228.2947	0.00	0.47	1.83	1.36	292%
	42	1.10	4.07	228.7000	0.00	0.48	1.78	1.30	270%
	43	1.30	4.41	229.1054	0.00	0.57	1.92	1.36	239%
	44	1.48	4.01	229.5107	0.00	0.64	1.75	1.10	171%
Nov-99	45	1.35	3.71	229.9160	0.00	0.59	1.61	1.03	175%
	46	1.20	3.51	230.4918	0.00	0.52	1.52	1.00	193%
	47	1.73	3.76	231.0676	0.00	0.75	1.63	0.88	118%
	48	2.14	3.69	231.6434	0.00	0.92	1.59	0.67	72%
Dec-99	49	1.63	3.64	232.2193	0.00	0.70	1.57	0.86	123%
	50	1.46	3.63	232.9988		0.63	1.56	0.93	149%
	51	1.60	4.43	233.7783		0.68	1.89	1.21	177%
	52	1.87	4.98	234.5578		0.80	2.12	1.33	167%



correlation coefficients	
	95/99
wholesale to retail:	0.819958
retail price to retail margin:	0.890066

trendlines and average margins:			
wholesale: $y_1 = -0.0005x + 0.9687$			
retail: $y_2 = -0.0025x + 2.7869$			
average margins [mid year on trendline]			
formula: $y_2 - y_1 = -0.002*x + 1.8182$			
	x	margins	as % of
	(weeks)		wholes. pr.
1995	9	1.80	187%
1996	62	1.69	181%
1997	115	1.59	174%
1998	168	1.48	168%
1999	221	1.38	160%