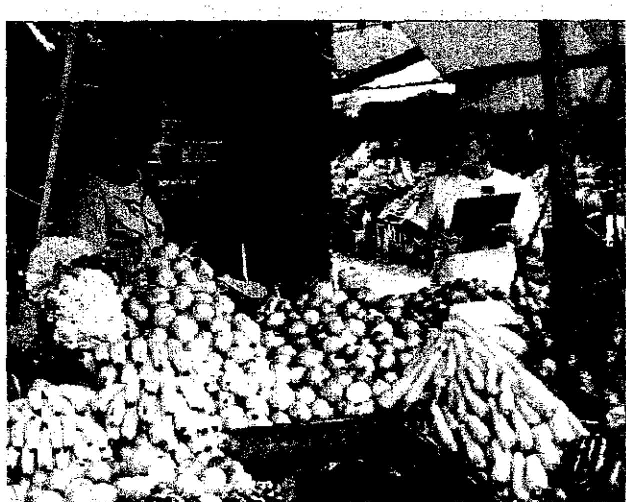
No, 2

Facultad de Ciencias Agrarias
Universidad Nacional de Asunción

JICA Japan International Cooperation Agency

STUDY OF THE DISTRIBUTION AND COMMERCIALIZATION OF AGRICULTURAL PRODUCTS IN PARAGUAY



FINAL REPORT

SAN LORENZO - PARAGUAY
MARCH 2003

Facultad de Ciencias Agrarias
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STUDY OF THE DISTRIBUTION AND COMMERCIALIZATION OF AGRICULTURAL PRODUCTS IN PARAGUAY

FINAL REPORT

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SAN LORENZO – PARAGUAY

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ABREVIATIONS AND ACRONYMS

	DESCRIPTYON
DGEEC	Dirección General de Estadística, Encuestas y Censos
CEASA	Central de Abastecimiento Sociedad Anónima
DGA	Dirección General de Aduanas
DDV	Dirección de Defensa Vegetal
MAG	Ministerio de Agricultura y Ganadería
DAMA	Dirección de Abastecimiento de la Municipalidad de Asunción
CECOPROA	Central de Comercialización de Productores Asociados
FUNDECA	Fundación para el Desarrollo Campesino
FCA	Facultad de Ciencias Agrarias
JICA	Agencia de Cooperación Internacional del Japón
BCP	Banco Central del Paraguay
CEPACOOP	Central Paraguaya de Cooperativas
DC	Dirección de Comercialización
UNA	Universidad Nacional de Asunción
DCEA	Dirección de Censos y Estadísticas Agropecuarias

CONTENTS

LIST OF TABLES

LIST OF FIGURES

STUDY OF THE DISTRIBUTION AND COMMERCIALIZATION OF AGRICULTURAL PRODUCTS IN PARAGUAY

EXECUTIVE SUMMARY

The Study of the Distribution and Commercialization of Agricultural Products in Paraguay was carried out by the College of Agricultural Sciences of the National University of Asunción, responding to a request of the Japan International Cooperation Agency (JICA).

The main objective of the study is to know the current situation of the distribution and commercialization of agricultural products in the main consumption centers of Paraguay, including products entrance not registered in the official statistics. Moreover, consumer characteristics of selected agricultural products and their purchase preferences are to be determined.

In order to carry out the study, thirteen items were selected: tomato, pepper, carrot, pumpkin, onion, potato, manioc, bean, orange, pineapple, banana, watermelon and melon. The markets analyzed were Great Asunción's (Asunción, Luque, San Lorenzo, Fernando of the Mora and Mariano Roque Alonso), Ciudad del Este and Encarnación.

The study is organized in three sections. The first section presents an analysis of the commercialization process of the agricultural items under study, specifically this section describes the commercialization flows of items considering the different participant agents. The corresponding data were obtained through interviews with key informants (technicians, administrative, and directive of institutions), sellers (wholesalers and retailers), truck drivers, producers and consumers. The marketed volumes of the items studied refer to the year 2002.

The second section of the study considers the consumer's characteristics and their preferences when purchase the agricultural products studied. To collect dates on consumer's behavior 694 surveys to consumers were applied in the main purchase places: supermarkets, municipal markets, groceries and municipal fairs of Great Asunción, Ciudad del Este and Encarnación.

General aspects on the studied items such as the per-cápita consumption of fruits and vegetables shows that in Paraguay consumption is relatively low compared with levels other countries. The study found that rural residents have smaller levels of consumption compared to urban residents.

Also, data available indicate that per-cápita daily consumption of the products studied vary. For example consumption of onion, pumpkin, carrot, pepper and tomato is around 34 to 44 grams, while potato and manioc is around 172 grams daily per person. In rural areas, manioc consumed is approximately 500 grams per-cápita daily. Pineapple, watermelon and melon are consumed 12,6 grams; on the other hand, banana 58,5 and orange 53 grams per-cápita daily, respectively.

The study highlights the marketed volume of agricultural products entered from Brazil and Argentina, especially potato (37.500 tons), onion (26.400 tons), tomato (25.900 tons) and pepper (11.752 tons). Moreover, it can be added approximately 4.100 tons of garlic that have entered from outside constituting around 84% of the garlic marketed in Paraguay. The study

remarks the high percentages of these products that have entered to Paraguay without being registered in the official statistics.

The analysis of the commercialization and distribution of the studied produce indicates that Gran Asunción is the most important gathering area, standing out DAMA since it is the main receiver and distributor of the products, especially through wholesalers who marketed a total volume estimated in 373.300 tons for the year 2002, representing a monetary flow of approximately 433.000 millions of Guaraníes.

Globally, from the total volume marketed by wholesalers stands out of manioc (204.970 tons), orange (12.900 tons), tomato (37.000 tons), banana (29.500 tons), onion (23.700 tons), watermelon (20.700 tons), potato (19.400 tons), pepper and carrot (16.500 and 16.700 tons), respectively.

Regarding retailers, supermarkets stand out due to the high volumes that market comparatively with other retailers. The study found that through this channel around 20.900 tomato tons, 15.500 onion tons, 12.600 potato tons are marketed; and, among the horticultural items 10.400 carrot tons and 8.900 of pepper, respectively.

Considering the other retailers, bigger volumes of agricultural products are marketed by municipal markets, for instance, 200.200 tons of manioc, 25.900 orange, 17.300 tomato, 17.100 watermelon, 14.200 banana and 12.200 tons of potato among those with higher marketed volumes.

In general, the producers fairs (retailers) are characterized for trading low volumes of products. Some producers fairs, like Ciudad del Este, are relatively important for the area, even the volume marketed can be increased. The study estimated that the fairs of producers mobilize approximately a total of 4.800 tons of the produce analyzed. Therefore, it is necessary to invigorate the fairs because they could be an alternative channel of commercialization for the national producer.

In relation to estimated values of commercialization, there is a close relationship with the volumes marketed by the different commercialization agents. For example, from the total marketed in DAMA (433.000 millions of Guaraníes), stand out the values estimated for tomato, manioc and orange, 86.019, 81.225 and 70.431 millions of Guaraníes, respectively.

Regarding norms to standardized perishable products, there are not advances, norms enforcement for products quality and classification do not exist. Moreover, there are scarce investments to construct conservation infrastructure, both at the producers and sellers' level.

To construct consumers' profile, the main reason of preference to purchase agricultural products at a specific place (supermarket or other places) was used as discriminatory variable. One of the results indicate that consumers that purchase in supermarkets make it for comfort, while consumers that prefer other locals, look for better prices.

The level of income influence the decision to purchase at a determined place. In this sense, consumers with income levels surpassing 800.000 Guaraníes monthly prefer to purchase in supermarkets, while consumers with smaller income levels prefer to carry out their purchases at other locals.

Considering areas where families live, exists similar preferences to buy in supermarkets among those that live in the Metropolitan area and in Encarnación.

It is noticeable that at the moment to decide purchases of fruits and vegetables, the factor that had more importance, for the families with income levels inferior to 1.500.000 Guaraníes, is the price.

Finally, it is important to highlight that institutions involved in processes of commercialization should enlarge the human and financial resources to implement data collection systems, considering the need for better analysis and diffusion of information about the commercialization of the agricultural products in the Paraguay.

STUDY OF THE DISTRIBUTION AND COMMERCIALIZATION OF AGRICULTURAL PRODUCTS IN PARAGUAY

I. INTRODUCTION

The present document corresponds to the Final Report of the Study of Distribution and Commercialization of Agricultural Products in Paraguay carried out by the College of Agricultural Science (FCA), National University of Asunción (UNA), responding to a request of the Japan International Cooperation Agency (JICA). The document describes the commercialization of thirteen agricultural products in the main centers of consumption of Paraguay: Encarnación (Department of Itapúa), Ciudad del Este (Department Alto Paraná) and Gran Asunción, including Asunción, Luque, Mariano Roque Alonso, San Lorenzo and Fernando of the Mora (Central Department).

Produce studied were: tomato, pepper, carrot, pumpkin, onion, potato, manioc, bean, orange, pineapple, banana, watermelon and melon. The study considered an objective analysis of the complex relationships between buyers and commercialization agents along the chains of commercialization of each product. The presentation of the results of the study is carried out in three sections.

The first section corresponds to an analysis of the general aspects of the commercialization and distribution. The section focus on, consumption patterns, characterization of the commercialization processes, presence of norms and purchase procedures, and the infrastructure and transport available to distribute the products.

The second section, flow charts of the commercialization processes at the country level are presented, under two forms and for each item in study: to) Flow charts of the volumes marketed by the different agents with their respective percentages in relation to the supply; b) Flow charts of the monetary values of marketed volumes, in Guaraníes. In addition, this section presents the methodologies to estimate the quantities marketed by item and the commercialization channels are described, moreover, prices, seasonality and the margins of the different commercialization agents that participate in the process of commercialization of the analyzed items are discussed.

The third section shows a description of consumers characteristics that buy the agricultural products analyzed. Consumers' characteristics are based on the results of a survey applied to consumers when buying at retailers' locals located in Gran Asunción, Ciudad del Este and Encarnación.

II. OBJECTIVES

The study main objective is to know and describe the current situation of the distribution and commercialization processes of selected agricultural products in the main centers of consumption of Paraguay, including the commercialization of products not registered in the existent official statistics.

Moreover, the study objective is to increase the level of information generating data to add to existing statistics, including the available statistics that the Ministry of Agriculture and Ganadería (MAG), through the Dirección of Commercialization can provide, and to determine the characteristics of consumers and their purchase preferences.

III. METHODOLOGY

To fulfill the objectives of the study three main commercialization centers were considered Gran Asunción, including Asunción, Luque, San Lorenzo, Fernando de la Mora and Mariano Roque Alonso (Central Department); the markets of Ciudad del Este (Department Alto Paraná) and Encarnación (Department of Itapúa). These areas have the biggest population concentration, and, consequently it is presumed that the higher volumes of the items under study are traded in these markets.

The work concentrates on the study and analysis of two main ambits: a) The process of commercialization of the agricultural items selected for the study, and b) The characterization of consumers and their purchase preferences.

In the first ambit, the general aspects and the commercialization flow of the agricultural items are analyzed in relation to the different participant agents of the process.

For this purpose, information generated by the Ministry of Agriculture and Cattle raising (MAG), especially from the Address of Commercialization and the Address of Vegetable Defense (DDV) there is been considered, also from Central the Bank of the Paraguay (BCP) local and Municipalities. Furthermore, interviews using pre-established questions' guide were carried out with the different commercialization agents: wholesalers, retailers, transport personnel, gatherers, and producers (Annex A).

Flow charts were elaborated for each item studied: one corresponds to the volumes marketed by the different agents and the estimate percentages corresponding to the participation quotas in the process of product distribution from its origin to consumers. Another flow chart corresponds to the monetary value in Guaraníes, elaborated on the marketed volumes and the prices of the different commercialization agents. The flow charts were elaborated considering four main divisions: i) the total produce supply (available national production and product of foreign origin), in volumes and percentages ii) volumes and percentages of produce marketed through wholesalers, iii) volumes and percentages marketed by retailers and iv) volumes and acquired percentages for consumption (including human, animal and industry) and export volumes.

The estimates of supply volumes for each item were carried out based on data from official statistics and information obtained through the interviews carried out with wholesalers and retailers (see the list of people interviewed in Annex B) at the main centers of commercialization of the country, and the markets of commercialization of Foz of Yguazú (Brazil).

The second ambit of the investigation considers consumers ' characteristics in relation to their preferences when purchasing the agricultural products studied. To surveys were applied to consumers in the main purchase places: supermarkets, municipal markets, groceries and producers and municipal fairs.
The questionnaire applied was elaborated including questions with the main variables of interest for the study, see Annex C. A total of 694 surveys was applied to consumers, distributed as showed below:

Place	***Quantity***
Asunción	*229*
San Lorenzo	*102*
Fernando de la Mora	*50*
Mariano Roque Alonso	*33*
Luque	*60*
Ciudad del Este	*120*
Encarnación	*100*
Total	***694***

The results corresponding to the application of the survey are presented in Annex D, and, the respective analysis are summarized with figures and tables in the Third Section of the report.

The data analysis were carried out based on the following aspects:

1) First, the grouping of consumers in segments conformed by the preference reasons by the local of purchase of the agricultural products.

The identified segments were crossed with the consumers' characteristics such as age, sex, level of instruction and family income level, using contingency tables. Moreover, Pearson's χ^2 test was applied to determine if the segments and each one of the given characteristics were or not independent from each other.

2) Second, consumers were categorized according to their preferences for local of purchase: to) costumers preferring to purchase in supermarkets, and b) costumers preferring to buy in other places (municipal markets, minimarkets, groceries, fairs and other places.

These segments were crossed with: age, sex, instruction level and consumers' income level and city of the study (Gran Asunción, Ciudad del Este and Encarnación). Also, the test of independence (Pearson's χ^2) was applied.

3) Finally, considering the income levels of the consumers, the approaches used were analyzed considering the moment to decide the purchase of vegetables, fruits, beans and manioc.

SECTION I

IV. RESULTS

SECTION I
GENERAL ASPECTS OF THE PRODUCE STUDIED

1.1. Per –capita consumption

The per-layer consumption of fruits and vegetables in Paraguay is relatively low compared with levels of consumption of other countries (JICA/MAG, 2002). Studies carried out in the country indicate that marked consumption differences related to places of residence exist. For instance, the consumption per-cápita of the rural population is much lower compared with that of the urban population (DGCEE, 2000), excepting some traditional produce as manioc.

On the other hand, the survey applied to consumers in Great Asunción, Ciudad del Este and Encarnación revealed per-capita consumptions superiors in comparison to the study carried out by the DGCEE at a country level, however, it is pointed out the high variability in the consumptions average for each one of the items studied, *Table 147.*

1.2. Channels of commercialization

The traditional chains of commercialization have suffered some changes with the appearance of new commercialization agents. For example, wholesalers were able to develop to give answer to markets of the retailers, especially supermarkets that constitute one of the most important channels of commercialization of fruits and vegetables in the last years.

The system of commercialization wholesaler-retailer prevalent for the supermarkets, presents some particular characteristics generally referred to certain demands that should be accepted and fulfilled mainly for the wholesalers, among those that stand out the following:

· To supply a continuous volume of products, national or foreign, during the whole year.
· To emit countable receipts for the purchase-sale transactions.
· To accept refunds of products with physical deterioration not marketed in the gondolas of the retailers
· To operate with future payments commitments that can reach up to 90 days.
· To accept verbal commercial agreements, that is to say, purchase-sale contracts where commitments are specified regarding prices, quality, packing, provision exclusivity and permanency like supplier for a certain time are not signed.
· The wholesaler establishes the price bases for delivery of his product that later on is negotiated.

Regarding product supply, wholesalers provide agricultural products to supermarkets based on orders took previously by them. The deliveries of the requested quantities of the products are carried out to supermarkets reception places to be sold later on to final consumers.

These mentioned characteristics on the wholesaler-retailer commercial transactions, impact on the commercialization system in the sense that retailers (mainly supermarkets) prefer wholesalers as their suppliers, since they can fulfill the established supermarket norms. This preference goes in detriment of the producers who practically are excluded from transactions because they have not the financial and accounting capacity, and to continuously supply the different items demanded by supermarkets to be able to establish commercial bonds with them.

Some changes that has been happening in the marketing of agricultural fresh products are: the increase of new species and varieties demanded, the commercialization of big volumes through the supermarkets, the consolidation of wholesalers and the more and more important volume of the imports. These changes have reinforced the prevalent commercialization processes, dominated by big wholesaler-suppliers and supermarkets in detriment of other commercialization agents, especially the small producers, municipal markets and other retailers.

1.3. Norms and buying procedures

Norms regarding standards of quality and time of delivery in all the commercialization flow do not exist in written form. Transactions are based on verbal agreements. At the moment of reception of the products, the produce quality is evaluated visually by the reception personnel, and, delivery generally respond to the requirements of the retailers (supermarkets), carried out in any moment.

The transaction price of products settles down by agreements between wholesalers and retailers, they are based on an initial price outlined by the wholesaler. The fixed price includes costs of acquisition, transport, classification, refund, etc., and the percentage margin of gain that, in general, varies between 20% and 30%. This margin fluctuates according to shortages or supply excess of products in the market.

Another characteristic of the wholesaler-retailer system is the form of debt cancellation; in general, the payments are carried out previous presentation of formal countable receipts, checks charged later on, that in certain cases reach until ninety days; some retailers pay in eight days but they demand lower prices.

Daily refund for deterioration of the product is around 10% and it is absorbed by wholesalers who receive from supermarkets debit ticket to be discounted. The biggest deterioration in the products is caused by the manipulation during the process of purchase and comes out and during transportation.

The payment mechanism of transactions is one of the most restrictive characteristic for small producers that, generally, do not have formal receipts and cannot await until 90 days to receive the payments for products sale.

1.4. Infrastructure

The infrastructure more used in the system of fresh products commercialization as fruits and vegetables are refrigerating cameras. The cameras are used by wholesalers for the conservation of fruits, mainly. In this sense, it is noticeable the big investments carried out by supermarkets who have sophisticated cameras for the conservation of perishable products.

Important investments were carried out in the banana sector; for instance, the assembly of cameras for banana maturation, that at the moment, is one of the few items of national origin supplied during the whole year. The cameras capacity are related to the volume of the product marketed, for example, in the city of Encarnación exist four big banana suppliers, each of them has refrigerating cameras with capacity of approximately 500 boxes (20 dozens / box).

1.5. Transport

The different means of transport for the analyzed items pertain to wholesaler. For example, big wholesalers have their own fleet of vehicles to purchase in origin and to transport later on.

The types of transport used for the internal distribution from wholesalers to retailers are trucks of four to five tons. On the other hand, wholesalers use trucks of 20 to 25 tons, for their purchases and transport from Brazil, and Argentina and directly from producers farms.

Transportation costs vary according to distribution distances. For example, the cost of the transport of oranges (120.000 to 150.000 fruits) from Otaño to DAMA-Asunción, in the month of February was 1.500.000 Guaraníes, that is to say, approximately 62,5 Gs/Kg.

Data collected also indicate that the cost of tomato transport from San Cosme to Encarnación (60 Km) was 83 Gs/Kg and transport costs for carrots from María Auxiliadora to DAMA-Asunción were 115 Gs/Kg. Wholesalers ' transportation costs to DAMA-Asunción, from Foz of Yguazú (Brazil), reached on average 3.000 Guaraníes (bag of 20 to 25 kilograms).

It is of important to notice that the readiness of trucks for the transport and the distribution of the products does not constitute a problem since important fleets that can cover the requirements of transport exist.

SECTION II

SECTION II: FLOW CHARTS OF THE PRODUCTS

2.1. Tomato

The tomato (Licopersicum esculentum) is one of the vegetables consumed in fresh in Paraguay. Data published by the DGEEC indicate that per-cápita daily consumption of tomato in the metropolitan area is 44,4 grams. The main varieties consumed in the country belong to the Santa Cruz group to the Liso type.

The most important areas in tomato production are located in the departments of Caaguazú, Caazapá and Central. These departments produced in 2002 approximately 41.516 tons of tomato that representing 68% of the total national production for that year, *Table E-1, Annex E.*

The tomato sow is technically possible to carried out during the whole year in our country, however, farmers sow in the months of August September employing to traditional system of cultivation. The national production supply begins in September extends until January, the biggest volume of tomato offered take place on October, November December, *Table E–2, Annex E.*

2.1.1. Channels of commercialization

The main agents involved in the tomato commercialization are national producers, wholesalers, retailers consumers. The commercialization flow chart presented in Figures 1 and 2 illustrates the commercialization market according to the main agents involved at national level. The study considered that in the commercialization process a global loss of 10% on the total offer exists (6.786 tons).

The methodology used to estimate volumes values for the construction of the commercialization flow chart is presented:

Table 1-A: Methodology to estimate tomato commercialization volume – National supply. Year 2002

Oferta	*Volumen (Tn)*	*Metodología de estimación*	*Fuente*
Producción Nacional Disponible	41.884	1. Promedio de los últimos años (1996-2001), de la producción nacional (55.845 Tn) 2. Se estima una pérdida por cosecha de 25%. (13.961 Tn) 3. Producción Nacional Disponible (1-2) = 41.884 Tn	▪ DCEA
Importación Registrada	14.024	4. Datos sistematizados en base a registros de Aduanas (Sistema SOFIA) = 14.024 Tn	▪ DGA
Importación No Registrada	11.950	**(A). Estimación de volumen ingresado al país, de origen brasilero, no registrado:** 5. Volumen comercializado en CEASA-PR (Foz de Yguazú), año 2002 (25.325 Tn), se estima un 80% que ingresa al país = 20.260 Tn 6. Estimación de ingreso desde otros mercados de Foz de Iguazú. Se estima un 15% del volumen ingresado desde CEASA (20.260 x 15%) = 3.039 Tn 7. Volumen Total estimado de ingreso desde Brasil (5 + 6) = 23.299 Tn 8. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen brasilero: 12.139 Tn 9. Volumen de ingreso de origen brasilero No Registrado: (7 - 8) = 11.160 Tn **(B). Estimación de volumen ingresado al país, de origen argentino, no registrado:** 10. Se consideran las proporciones de ingreso de tomate de origen extranjero en DAMA: Brasil (89,7 %) y Argentina (10,3 %) como iguales a las proporciones de ingreso al Paraguay desde Argentina y Brasil. 11. Estimación del volumen total ingresado al Paraguay, en base al cálculo de lo ingresado desde el Brasil (23.299 x 100/89,7) = 25.974 Tn 12. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen argentino: 1.885 Tn. 13. Volumen total estimado de ingreso desde Argentina (11- 7) = 2.675 Tn 14. Volumen no registrado desde la Argentina (13-12) = 790 Tn. **(C). Volumen Total de Ingreso No Registrado (9 + 14) = 11.950 Tn**	▪Registros de CEASA-PR (Central de Curitiba) y estimación dada por Directivos de CEASA-PR (Foz de Yguazú) ▪DGA
Total	**67.858**		

Table 1-B: Methodology to estimate volume of tomato marketed by wholesalers. Year 2002

Mayoristas	*Volumen (Toneladas)*	*Metodología de estimación*	*Fuente*
DAMA	28.673	1. Los 52 mayoristas identificados fueron clasificados en grupos, según el volumen promedio anual que comercializan. Grupo / Numero / Prom/año / Total I / (2) / 3.078 / 6.156 II / (12) / 622 / 7.464 III / (38) / 396,13 / 15.053 2. Volumen Total comercializado en DAMA (GI +GII + GIII) = 28.673 Tn	Entrevistas a Mayoristas de DAMA Observación directa en DAMA
Fuera de DAMA (Gran Asunción)	4.264	3. Promedio de venta anual x 3 mayoristas individualizados 1.335 x 3 = 4.005 Tn 4. Mayoristas de San Lorenzo = 259 Tn. 5. Total fuera DAMA (3 + 4) = 4.264 Tn	Entrevistas a mayoristas ubicados fuera de DAMA Mayoristas de San Lorenzo
Ciudad del Este	900	6. Promedio de venta anual x 3 mayoristas: 300 x 3 = 900 Tn	Entrevistas a mayoristas de Ciudad del Este
Encarnación	2.112	7. Promedio de venta anual x 10 mayoristas: 211,2 x 10 = 2112 Tn	Entrevistas a mayoristas de Encarnación
Coronel Oviedo	1.176	8. Promedio de venta anual x 3 mayoristas: 392 x 3 = 1.176 Tn	Entrevistas a mayoristas de Coronel Oviedo
Total	**37.125**		

Table 1-C: Methodology to estimate volume of tomato marketed by retailers. Year 2002

Minoristas	*Volumen (Ton)*	*Metodología de estimación*	*Fuente*
Supermercado (A) Directo de oferta	2.499	(A) 1. Se estimó un 5% sobre el volumen total de ingreso extranjero (25.974 x 5%) =1.299 tn 2. Se estima un volumen de compra directa de productores: 1.200 Tn 3. Total de compra directa (1+2) = 2.499 Tn	Entrevistas a Gerentes de Supermercados
(B) A través de mayoristas	18.436	(B)1. Mayoristas DAMA: Se estimó un porcentaje promedio de venta a supermercados por mayoristas para los grupos II y III, en base al volumen total comercializado en DAMA. Para el Grupo I se determinó según lo manifestado por cada mayorista:	Entrevistas con Mayoristas

	Volumen venta a Super (tn)	Porcentaje Promedio (%)	Total (tn)
GI Mayorista1	12.700	80	2.160
Mayorista	3.456	30	1.037
GII	7.464	70	5.225
GIII	15.053	30	4.516
Total			12.938

		2. Mayoristas No-DAMA: Se estimó en base al porcentaje promedio de venta supermercados por los 3 mayoristas del Gran Asunción ubicados fuera de DAMA (no incluye el volumen comercializado por mayoristas de San Lorenzo) : 4.005 x 92,08% = 3.688 Tn.	Entrevistas a Gerentes de supermercados
		3. Estimación del porcentaje promedio de venta a supermercados por mayoristas de Otras Localidades. Ciudad del Este = 0 tn Encarnación: 2.112 x 69% = 1.457 Tn. Cnel.Oviedo: 1.176 x 30% = 353 Tn.	Entrevista a técnico del MAG

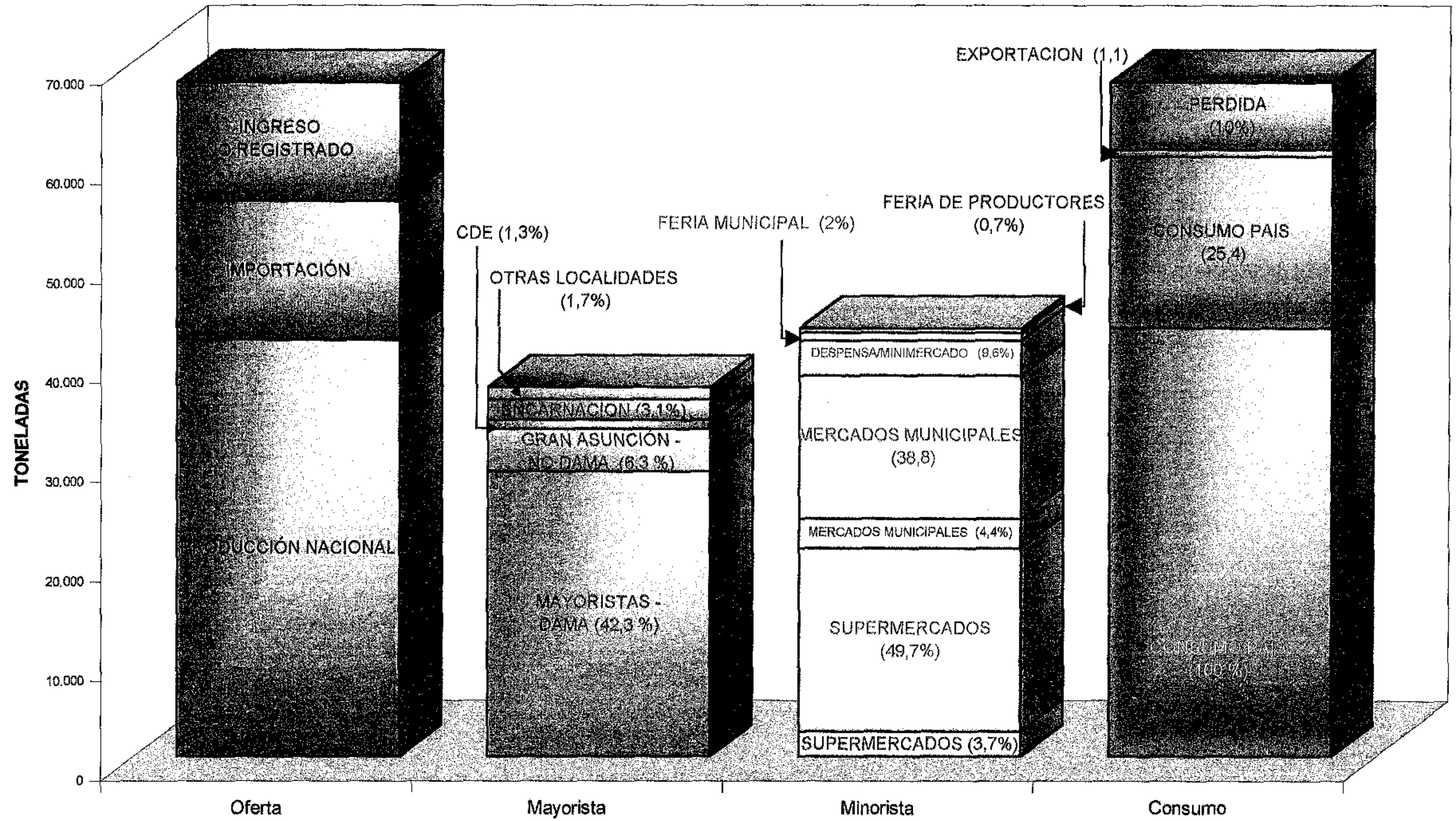
Cuadro 1-C: (Continuation)

		Del volumen total comercializado por mayoristas se resta las ventas a supermercados: 37.125 - 18.436 = 18.689 Tn. Este volumen se distribuye proporcionalmente en base a preferencia por lugar de Compra según la encuesta a consumidores: Mercado Municipal (77 %); Despensa/Minimercado (19%) y Feria Municipal (4%).	Entrevistas a vendedores de Mercados Municipales Encuesta a consumidores
Mercado Municipal (C) A través de mayoristas	14.391	(C) 18.689 x 77% = 14.391 Tn	
(D) Directo de oferta	3.000	(D) Volumen estimado según entrevistas a vendedores de Mercados Municipales: 3.000 Tn	
Despensa / Minimercado	3.551	18.689 x 19% = 3.551 Tn	Encuesta a consumidores
Feria Municipal	748	18.689 x 4% = 748 Tn	Encuesta a consumidores
Feria de Productores	476	Sumatoria de volumen comercializado por las Ferias de Productores, determinado en base a datos proveídos por feriantes e informantes calificados	
Total	**43.101**		

Table 1-D: Methodology to estimate tomato consumption volume. Year 2002

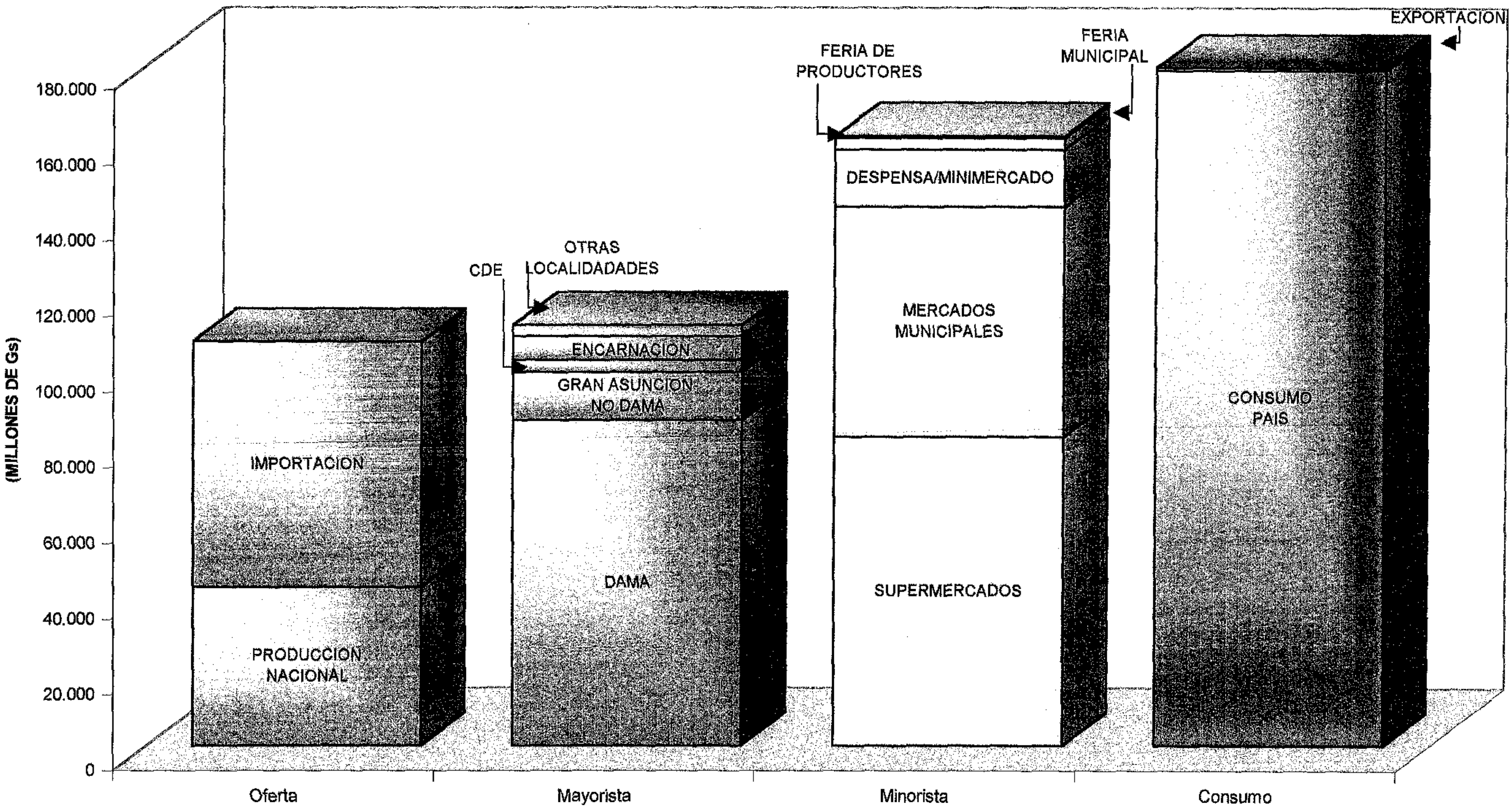
Consumidores	***Volumen (Ton)***	***Metodología de estimación***	***Fuente***
Consumo pais	60.346	1. Se determina el volumen total comercializado por los minoristas: 43.100 Tn. 2. Se estima un nivel de consumo resultante de la diferencia entre la oferta total y el volumen de la sumatoria de lo comercializado por minoristas, las exportaciones y las pérdidas en la comercialización: Consumo: 67.858 – (43.100 + 726 + 6.786) = 17.246 Tn. 3. Volumen total de Consumo país (1 + 2) = 60.346 Tn	
Exportación	726	Es el volumen de exportación registrado por el Banco Central del Paraguay: 726 Tn. **Observación:** El estudio no detectó exportación no registrada.	▪ BCP
Pérdida	6.786	Se estima una pérdida del 10% de la oferta total por manipuleo en el proceso de comercialización: (67.858 x 10%) = 6.786 Tn.	
Total	**67.858**	Se obtiene del cuadro de oferta total (producción nacional disponible más oferta de origen extranjero)	

Figure 1: Flow chart of tomato commercialization in Paraguay (Volume in tons). Year 2002



Ref. Las letras y porcentajes dentro del gráfico tienen el mismo color de las columnas de valores de donde proviene cada segmento

Figure 2: Flow chart of tomato commercialization in Paraguay (in millions of Guaraníes). Year 2002



The supply of tomato in Paraguay is constituted by the available national production for tomato of foreign origin. The available annual national production on average reaches around 42.000 tons, *Table E–3, Annex E.*

The tomato of foreign origin contributes to the product supply with 25.974 tons, composed by imports not registered entrances, *Table 2.*

Table 2. Estimate of tomato supply by origin in Paraguay. Year 2002

Origin	*Volume (Ton)*	*Percentaje (%)*
National Production Available	41.884	61,7
Imports	14.024	20,6
Not Registered entrances	11.950	17,7
Total	***67.858***	***100***

Source: Elaborated on data of DGA, CEASA (Brazil) DDV/MAG.

Data registered by the Dirección General de Aduanas indicate that in the year 2002 entered to the country approximately 14.000 tons of tomato, of which around 12.000 tons entered from Brazil the rest from Argentina, *Table E-4, Annex E.*

It is important to highlight that, according to estimates of the study, of the total marketed volume of foreign tomato, 46% corresponds to entrance volumes from Brazil Argentina not registered officially, *Table E-5, Annex E.*

The distribution of tomato varies according to its origin. The national production is distributed by farmers to wholesalers located in or outside DAMA, to municipal markets wholesalers located in towns to consumers in municipal markets, producers fairs, sale posts located by route sides, or directly on farm, a small volume (726 tons) is exported to Argentina, Figure 1.

Moreover, the study found that the national tomato offered in DAMA is mainly marketed by producers associated to organizations like NIKKEI, CEPACOOP, CECOPROA FUNDECA, *Table 3.*

Table 3. Volume of national tomato marketed in DAMA by Association, Year 2002

Association	*Marketed Volume (Ton)*
NIKKEI	1.608,60
CECOPROA	756,40
CEPACOOP	842,02
FUNDECA	36,00
Total	***3.243,02***

Source: Elaborated based on interviews to managers of the associations.

On the other hand, foreign tomato that enters to the country is channeled mainly by wholesalers , in some cases, by retailers (supermarkets) who acquire the product in origin, specifically from CEASA other markets of Foz of Yguazú (Brazil), Supply Markets of Posadas local stores of Clorinda (Argentina).

Table 4 shows the volume of tomato acquired by wholesalers according to their location area. It stands out the amount of tomato offered through wholesalers located in DAMA.

Table 4. Volume of tomato acquired by wholesalers, according to location area. Year 2002

Zona de ubicación	*Volume (Ton)*	*Percentage (%)*
DAMA	28.673	77,23
GRAN ASUNCIÓN (EXCLUDED DAMA)	4.264	11,48
OTHER CITIES OF PARAGUAY		
Ciudad del Este	900	
Encarnación	2.112	
Coronel Oviedo	1.176	
Sub total OTHER CITIES	4.188	11,29
Total	***37.125***	***100***

Source: Elaborated based on interviews to wholesalers located in DAMA, Great Asunción, Ciudad del Este, Encarnación and Colonel Oviedo.

From the total offer of tomato 55% is channeled thorough wholesalers that distribute the product to supermarkets other retailers, Figure 1. Currently, the importance of the supermarkets stands out capturing 49,6% of the total volume marketed by wholesalers. The remaining volume is sold to other retailers located in DAMA, Municipal fairs, groceries mainly in municipal markets as it can be observed in the *Table 5.*

Table 5. Volume of tomato distribution from wholesalers to retailers. Year 2002

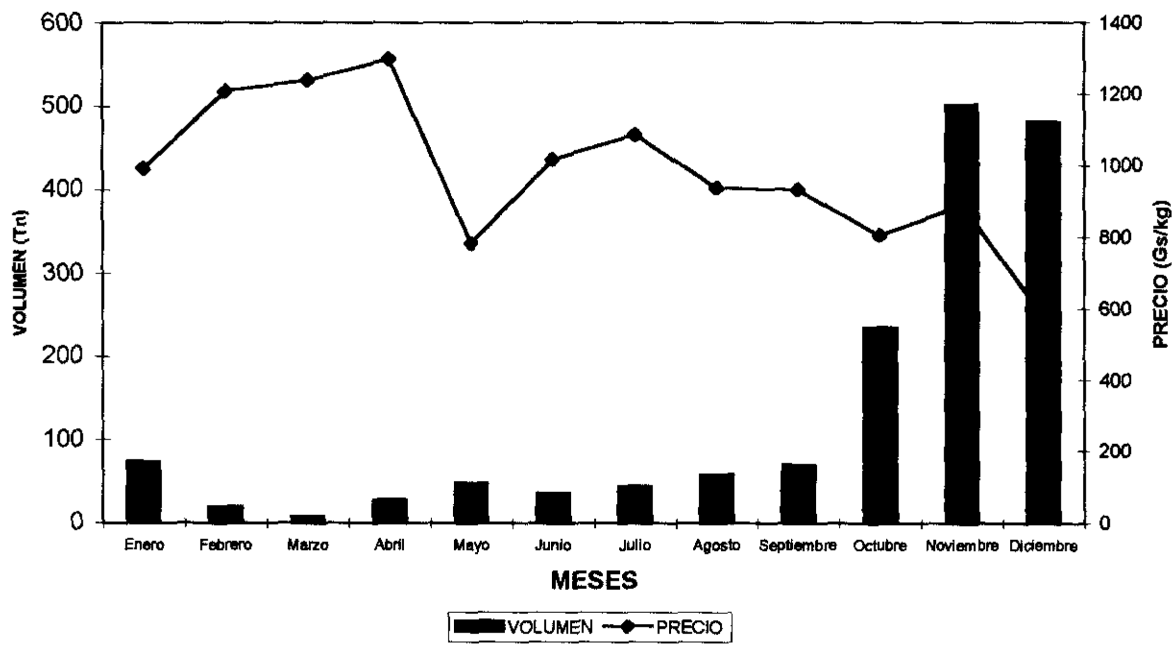
Retailers	*Volume (Ton)*	*Percentage (%)*
SUPERMARKETS	18.436	49,6
OTHER RETAILERS		
Municipal Markets	14.391	
Groceries /Minimarkets	3.551	
Municipal Fairs	748	
Sub Total OTHER RETAILERS	18.690	50,4
Total	***37.126***	***100***

Source: Elaborated based on interviews to supplying wholesalers of supermarkets, feriantes other retailers.

2.1.2. Prices and seasonality

The monthly prices behavior of tomato was analyzed with data provided by CECOPROA CEPACOOP, year 2002. The analysis allowed to identify price fluctuations that reflect correlation with the seasonality of the supply. This way, from January to September low monthly volumes of commercialization are operated, the prices are higher in this period, except in the month of May, *Figure 3.*

Figure 3: Volume monthly price of tomato. 2002



The volume of tomato marketed during the months of October to December reached 75% of the total annual marketed, coincident with the depression in the price levels, *Table E-6,Annex E.*

2.1.3. Value of commercialization according to origin and channel

2.1.3.1. Value of commercialization by origin

The value of nationally produced and foreign marketed tomatoes was estimated in 106.819 millions of Guaraníes, *Figure 2 and Table 6.* The higher value of commercialization comes from the foreign product that, in spite of being marketed in smaller volume it has a price average 2,5 times that the national product.

Table 6. Estimate of tomato commercialization value by origin. Year 2002

Origin	*Volume (Ton)*	*Price (Gs/Kg)*	*Value (Millions of Gs)*	*Percentage (%)*
National	41.884	1.000	41.884	39,20
Foreign	25.974	2.500	64.935	60,80
Total	***67.858***		***106.819***	***100***

It is presented in the following table the sources of estimate of tomato prices:

Table 7: Prices established for tomato commercialization. March 2003

Origin	*Price (Gs/Kg)*	*Observation*
National	1.000	It corresponds to on farm price, according to producers interviews
Foreign	2.500	It corresponds to purchase price based on data provided by wholesalers importers.
WHOLESALERS		
DAMA	3.000	Estimate based on interviews with wholesalers of DAMA.
Gran Asunción	3.000	Estimate based on interviews with wholesalers located outside of DAMA.
Ciudad del Este	3.450	Estimate based on interviews with wholesalers of Ciudad del Este Municipal Market.
Encarnación	3.000	Estimate based on interviews with wholesalers of Encarnación's Municipal Market.
Coronel Oviedo	2.500	Sale price provided by technicians and wholesalers of the area.
RETAILERS		
Supermarkets	3.900	Estimate based on sale prices average of Great Asunción's main supermarkets and Encarnación.
Municipal Markets	3.500	Estimate based on sale prices average in San Lorenzo's Municipal Markets and Encarnación.
Groceries/Minimarkets	4.300	Estimate based on sale prices average in Groceries and Minimarkets of San Lorenzo and Encarnación.
Municipal Fairs	4.000	Estimate based on sale prices average in Asunción's Municipal Fairs and Encarnación.
Farmers Fairs	1.300	Estimate based on sale prices average in Farmers fairs of Ciudad del Este and Encarnación.

2.1.3.2. Value of commercialization according to wholesalers

DAMA continues being the main place where tomato sales are carried out, considering wholesalers sales by location. 77,36% of the marketed total value is carried out through wholesalers located in DAMA. It is noticeable that the markets wholesalers located in other towns like Ciudad del Este, Great Asunción, and Coronel Oviedo market for a value that reaches 11,13% of the total, *Table 8*.

Table 8. Estimate of tomato sales by wholesalers according to location area. Year 2002.

Zone	*Volume (Tons)*	*Price * (Gs/Kg)*	*Value (Millions de Gs)*	*Percentage (%)*
DAMA	28.673	3.000	86.019	77,36
GRAN ASUNCIÓN	4.264	3.000	12.792	11,50
OTHER CITIES				
Ciudad del Este	900	3.450	3.105	2,79
Encarnación	2.112	3.000	6.336	5,70
Coronel Oviedo	1.176	2.500	2.940	2,64
Sub total OTHER CITIES	4.188		12.381	11,13
Total	**37.125**		***111.192***	***100,00***

* *It corresponds to price of March of 2003, based on interviews with wholesalers of the different study areas.*

2.1.3.3. Value of commercialization according to retailers

In relation to sales carried out by retailers to consumers it reached a total value of 161.395 millions of Guaraníes, of which 50,59% corresponds to tomato sales in supermarkets that represent 81.647 millions of Guaraníes, *Table 9.*

The estimates also indicate that the tomato sales carried out by other retailers are minor in relation to supermarkets. It is noticeable that among other retailers that marketed through the municipal markets and grocery stores, together they represent 95,47% of the value marketed by this channel, *Table 9.*

Table 9. Estimate of tomato sales by retailers. Year 2002

Retailers	*Volume (Tons)*	*Price* (Gs/Kg)*	*Value (Millions de Gs)*	*Percentage (%)*
SUPERMARKETS	20.935	3.900	81.647	50,59
OTHER RETAILERS				
Municipal Markets	17.391	3.500	60.869	37,71
Groceries/Minimarkets	3.551	4.300	15.269	9,46
Municipal Fairs	748	4.000	2.992	1,85
Farmers Fairs	476	1.300	619	0,38
Sub Total OTHER RETAILERS	22.166		79.749	49,41
Total	***43.101***		***161.395***	***100,00***

* *Correspond to price of March of 2003, based on prices collected in the purchase places.*

2.1.3.4. Value of commercialization according to final consumption destination

The value of consumers purchases through all the commercialization channels reached 178.641 millions of Guaraníes approximately coming from the sales to consumers (161.395 millions of Guaraníes) more the sales of 17.246 tons of tomato valorized with the price received by the farmer (1.000 Gs/Kg).

Finally, the exports were valued using the annual average price and the volume total annual exported, these data were provided by the BCP, *Table 10.*

Table 10. Estimated tomato commercialization value according to final consumption destination. Year 2002

Destine	*Volume (Tons)*	*Price (Gs/Kg)*	*Valor (Millions de Gs)*
Country Consumption (through retailers)	43.101	3.744,58*	161.395
Country Consumption (on farm)	17.246	1.000,00	17.246
Exportation	726	1.062,00	771

** Correspond to average prices weighted by retailers sales volume(see Table 9).*

2.1.4. Margins of commercialization of a representative channel

The commercialization margins, according to the origin of the supply, indicate that the difference among the price paid by consumers and the average price received on farm by farmers is 2.900 Gs/Kg, equal to 74 (%), *Table 11.*

Table 11. Total margin of commercialization of tomato. 2002

Concept	*Price* (Gs/Kg)*	*Margin (%)*
On farm price	1.000	
Wholesalers selling price	3.000	
Retailers selling price	3.900	2.900 (74%)

** Estimate based on data provided by wholesalers, retailers producers.*

2.2. Pepper

The pepper (Capsicum annum L) is a vegetable of high consumption in the country. Data of the DGEEC indicate that per-cápita daily consumption of pepper in the metropolitan area is 37,1 grams.

The most important areas in pepper production are located in the departments of Caaguazú and Concepción that together produced approximately 3.565 tons in 2001. This volume represented 43% of the total national production for that year, *Table E-1, Annex E.*

The sow of pepper is technically possible to be carried out during the whole year in Paraguay, however, the sowing is mainly done in the months of August to September, with a traditional cultivation system. The offer of national pepper begins in October and extends until February, The supply concentrates on the months of October, November and December, *TableE-2, Annex E.*

2.2.1. Channels of commercialization

The main agents involved in the commercialization of pepper are the national producers, wholesalers, retailers and consumers. The commercialization flow chart presented in Figure 4 and 5 illustrates the commercialization market considering the main agents involved at national level. The study estimated that in the commercialization process a global loss of 10% on the total offer exists (2.050 tons).

The methodology used to estimate volumes for the construction of the commercialization flow chart is presented:

Table 12-A-: Methodology to estimate pepper commercialization volume – National supply. Year 2002

Oferta	*Volumen (Tn)*	*Metodología de estimación*	*Fuente*
Producción Nacional Disponible	8.750	1. Promedio de los últimos años (1996-2001), de la producción nacional (10.295 tn) 2. Se estima una pérdida por cosecha de 15% : (1.544 tn) 3. Producción Nacional Disponible (1-2) = 8.750 tn	DCEA
Importación Registrada	8.846	4. Datos sistematizados en base a registros de Aduanas (Sistema SOFIA)= 8.846 tn	DG
Importación No Registrada	2.906	**(A) Estimación de volumen ingresado al país, de origen brasilero, no registrado:** 5. Volumen comercializado en CEASA-PR (Foz de Yguazú), año 2002 (7.892 tn), se estima un 90% que ingresa al país = 7.103 tn 6. Estimación de ingreso desde otros mercados de Foz de Iguazú. Se estima un 63,63% del volumen ingresado desde CEASA (7.103 x 63,63%) = 4520 tn 7. Volumen Total estimado de ingreso desde Brasil (5 + 6) = 11.623 tn 8. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen brasilero: 8.844 Tn 9. Volumen de ingreso de origen brasilero No Registrado = (7 - 8) = 2.779 tn **(B) Estimación de volumen ingresado al país, de origen argentino, no registrado:** 10. Se consideran las proporciones de ingreso de pimiento de origen extranjero en DAMA: Brasil (98,9%) y Argentina (1,1%) como iguales a las proporciones de ingreso al Paraguay desde Argentina y Brasil. 11. Estimación del volumen total ingresado al Paraguay, en base al cálculo de lo ingresado desde el Brasil (11.623 x 100/98,9) = 11.752 tn 12. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen argentino (2 tn). 13. Volumen total estimado de ingreso desde Argentina (11- 7) = 129 tn 14. Volumen no registrado desde la Argentina (13-12) = 127 tn **(C) Volumen Total de Ingreso No Registrado (9 + 14) = 2.906 tn**	Registros de CEASA-PR (Central de Curitiba) y estimación dada por Directivos de CEASA-PR (Foz de Yguazú) y Entrevistas a mayoristas de DAMA DGA
Total oferta	**20.502**		

Table 12-B: Methodology to estimate volume of pepper marketed by wholesalers. Year 2002

Mayoristas	*Volume (Tn)*	*Metodología de estimación*	*Fuente*
DAMA	14.386	1. Los 52 mayoristas identificados fueron clasificados en grupos, según el volumen promedio anual que comercializan. Grupo Numero Prom/año Total I (2) 990 1.980 II (12) 460,8 5.530 III (38) 180,95 6.876 2. Volumen Total comercializado en DAMA (GI +GII + GIII) = 14.386 tn	Entrevistas a Mayoristas de DAMA Observación directa en DAMA
Fuera de DAMA (Gran Asunción)	881	3. Promedio de venta anual x tres mayoristas individualizados 293,7 x 3 = 881 tn **Observación**: Los mayoristas de San Lorenzo no comercializan este rubro.	Entrevistas a mayoristas ubicados fuera de DAMA
Ciudad del Este	630	4. Promedio de venta anual x 3 mayoristas: 210 x 3 = 630 tn	Entrevistas a mayoristas de Ciudad del Este
Encarnación	600	5. Promedio de venta anual x 10 mayoristas: 60 x 10 = 600 tn	Entrevistas a mayoristas de Encarnación
Coronel Oviedo	42	6. Promedio de venta anual x 3 mayoristas: 14 x 3 = 42 tn	Entrevistas a mayoristas de Coronel Oviedo
Total mayoristas	**16.539**		

Table 12-C: Methodology to estimate volume of pepper marketed by retailers. Year 2002

<table>
<tr><th>Minoristas</th><th>Volumen (Tn)</th><th>Metodología de estimación</th><th>Fuente</th></tr>
<tr><td>Supermercado
(A) Directo de oferta</td><td>888</td><td>(A) 1. Se estima un 5% sobre el volumen total de ingreso extranjero (11.752 x 5%) = 588 Tn
2. Se estima un volumen de compra directa de productores: 300 Tn
3. Total de compra directa (1+2) = 888 Tn</td><td>Entrevistas a Gerentes de Supermercados</td></tr>
<tr><td>(B) A través de mayoristas</td><td>8.035</td><td>(B) 1. Mayoristas DAMA: Se estima un porcentaje promedio de venta a supermercados por mayoristas para los grupos II y III, en base al volumen total comercializado en DAMA. Para el Grupo I se determinó según lo manifestado por cada mayorista:
<table>
<tr><th></th><th>Volumen venta a Super (Tn)</th><th>Porcentaje Promedio (%)</th><th>Total (Tn)</th></tr>
<tr><td>GI Mayorista 1</td><td>540</td><td>80</td><td>432</td></tr>
<tr><td>Mayorista 2</td><td>1.440</td><td>30</td><td>432</td></tr>
<tr><td>GII</td><td>5.530</td><td>70</td><td>3.871</td></tr>
<tr><td>GIII</td><td>6.876</td><td>30</td><td>2.063</td></tr>
<tr><td>Total</td><td>14.386</td><td></td><td>6.798</td></tr>
</table>
2. Mayoristas No-DAMA: Se estimó en base al porcentaje promedio de venta a supermercados por mayoristas del Gran Asunción ubicados fuera de DAMA: 881 x 92% = 810 Tn

3. Estimación del porcentaje promedio de venta a supermercados por mayoristas de Otras Localidades.
Ciudad del Este = 0 tn
Encarnación: 600 x 69% = 414 tn
Cnel.Oviedo: 42 x 30% = 13 tn</td><td>Entrevistas con Mayoristas

Entrevistas a Gerentes de supermercados

Entrevista a técnico del MAG</td></tr>
</table>

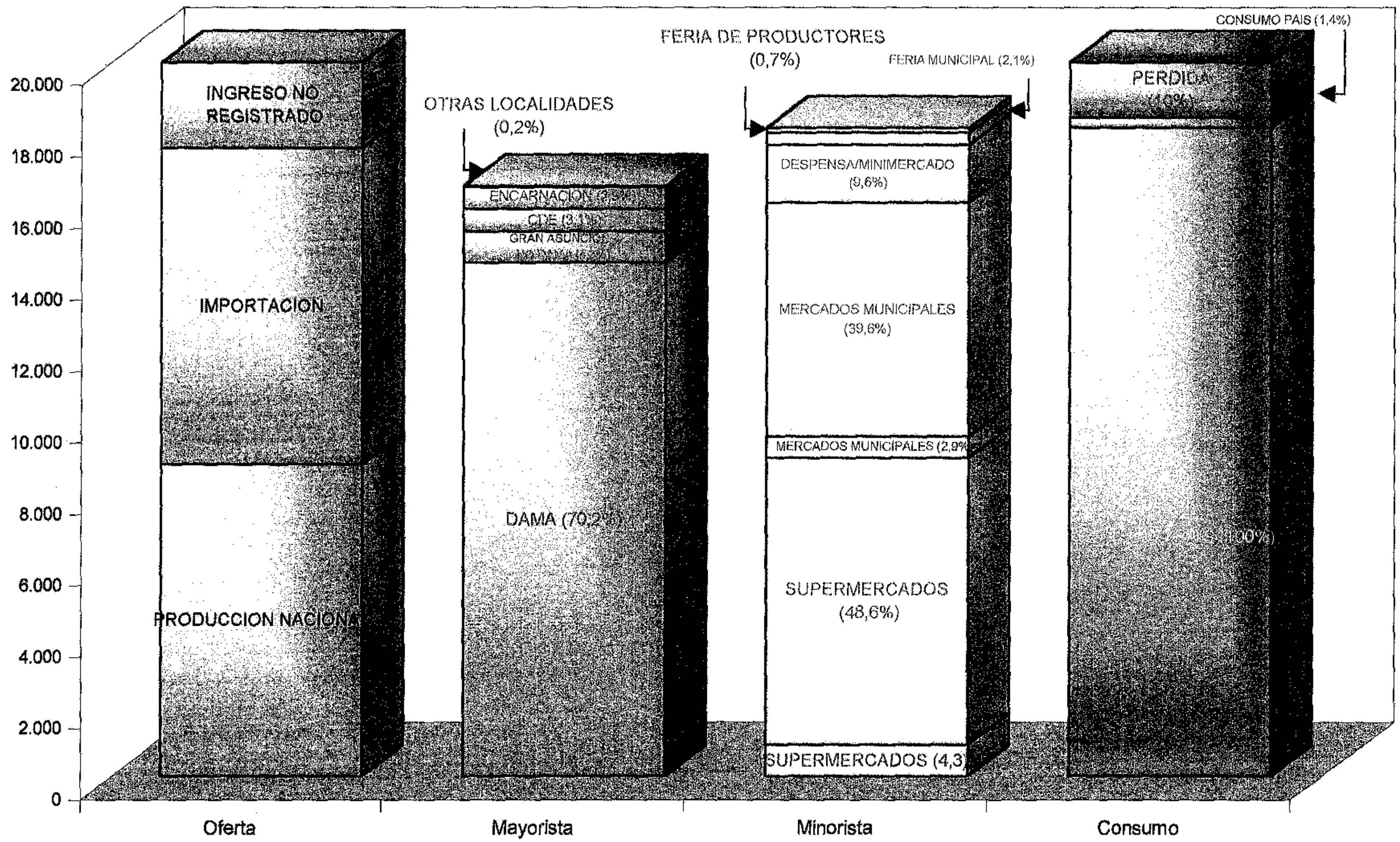
Table 12-C: (Continuation)

Otros minoristas		Del volumen total comercializado por mayoristas se resta las ventas a supermercados: 16.539 – 8.035 = 8.504 tn	Entrevistas a vendedores de Mercados Municipales
		Este volumen se distribuye proporcionalmente en base a preferencia por lugar de compra según la encuesta a consumidores: Mercado Municipal (77 %); Despensa/Minimercado (19%) y Feria Municipal (4%).	Encuesta a consumidores
▪ Mercado Municipal			
(C) A través de mayoristas	6.548	(C) 8.504 x 77% = 6.548	
(D) Directo de oferta	600	(D) Volumen estimado según entrevistas a vendedores de los Mercados Municipales. 600	
▪ Despensa / Minimercado	1.616	8.504 x 19% = 1.616	Encuesta a consumidores
▪ Feria Municipal	340	8.504 x 4% = 340	Encuesta a consumidores
▪ Feria de Productores	145	Sumatoria de volumen comercializado por las Ferias de Productores, determinado en base datos proveídos por feriantes e informantes calificados	
Total minoristas	**18.172**		

Table 12-D: Methodology to estimate pepper consumption volume. Year 2002

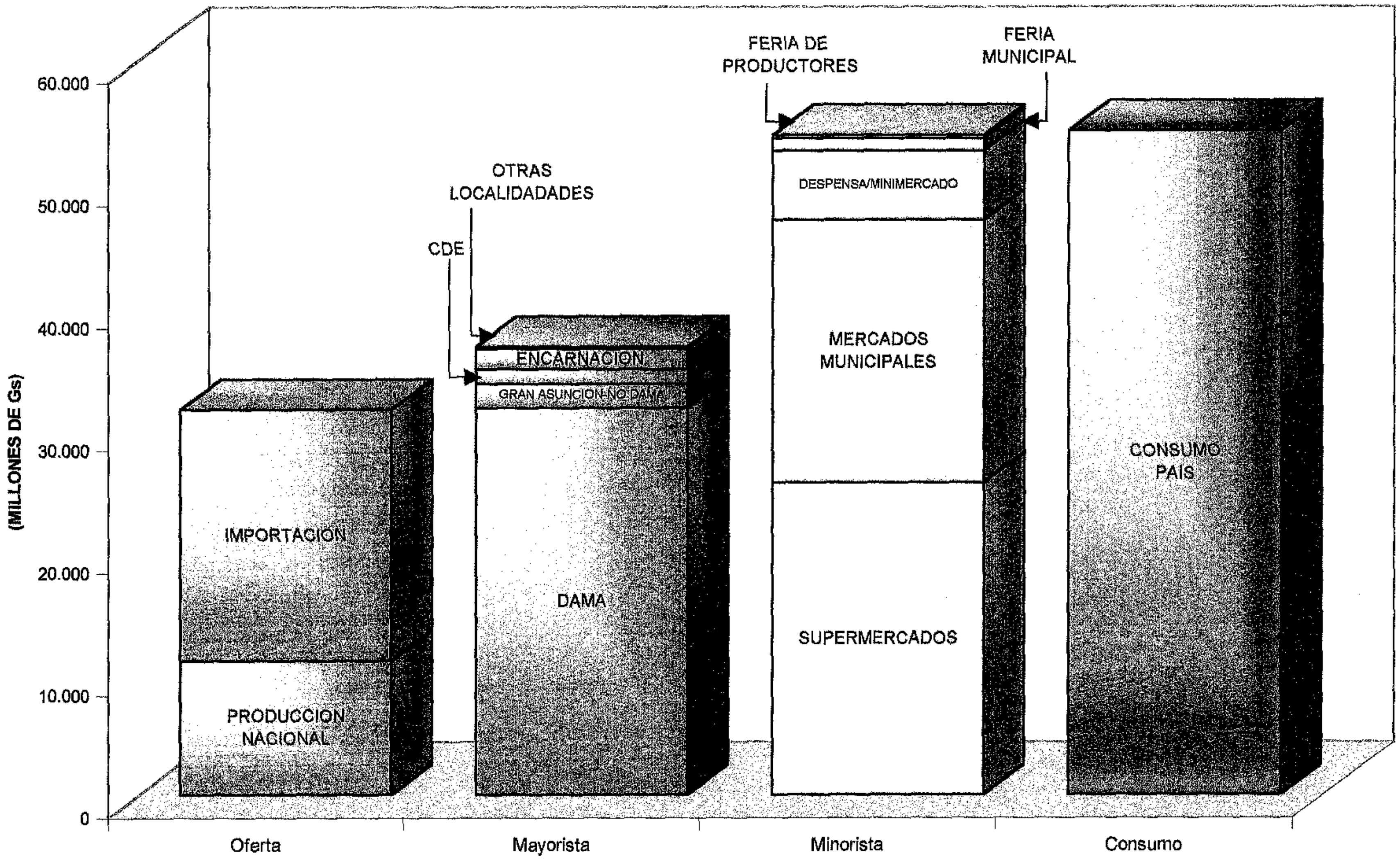
Consumidores	*Volumen (Tn)*	*Metodología de estimación*	*Fuente*
Consumo país	18.452	1. Se determina el volumen total comercializado por los minoristas: 18.172 Tn 2. Se estima un nivel de consumo resultante de la diferencia entre la oferta total y el volumen de la sumatoria de lo comercializado por minoristas, las exportaciones y las pérdidas en la comercialización: Consumo: 20.502 – (18.172 + 0 + 2.050) = 280 tn 3. Volumen total de Consumo país (1 + 2) = 18.452 tn	
Exportación	0	El Banco Central del Paraguay no registra exportación: 0 tn	BCP
Pérdida	2.050	Se estima una pérdida del 10% de la oferta total por manipuleo en el proceso de comercialización: (20.502 x 10%) = 2.050 tn	
Total	**20.502**		

Figure 4: Flow chart of pepper commercialization in Paraguay (Volume in tons). Year 2002



Ref. Las letras y porcentajes dentro del gráfico tienen el mismo color de las columnas de valores de donde proviene cada segmento

Figure 5: Flow chart of pepper commercialization in Paraguay (in millions of Guaranies). Year 2002



The pepper supply in Paraguay is represented by the available national production and pepper of foreign origin. The available annual national production reached around 8.750 tons in the year 2002, *Table E-3, Annex E.*

The other sector that contributes to the supply is the product of foreign origin that reached a volume of 11.752 tons in 2002, a main portion of the pepper entered to the country were mainly not registered, *Table 13.*

Table 13. Estimate of pepper supply by origin in Paraguay, Year 2002

Origin	*Volume (Tons)*	*Percentage (%)*
National Production Available	8.750	42,68
Imports	8.846	43,15
Not Registered entrances	2.906	14,17
Total	*20.502*	*100,00*

Source: Elaborated on DGA, CEASA (Brazil) and DDV/MAG data

Data registered by the Dirección General de Aduanas indicate that in the year 2002 entered to the country approximately a total of 8.846 tons of pepper coming mainly from Brazil, only two tons entered from Argentina, *Table E-4, Annex E.*

It is important to highlight that, according to estimates of the study, from the total volume marketed of foreign pepper, approximately 24,7% not corresponds to volumes registered officially, either of Brazilian or Argentinean origin, *Table C-5, Annex C.*

Regarding the distribution of pepper, it differs according to its origin. Thus, the national production is distributed by producers to wholesalers located in or outside DAMA, to wholesalers of municipal markets in the interior towns and to consumers in the municipal markets, or its sold directly on farm, Figure 4.

In DAMA, the national pepper is marketed mainly by organizations like NIKKEI, CEPACOOP, CECOPROA, integrated by producers associated to them. These organizations market approximately 12% of the national available production, *Table 14.*

Table 14. Volume of national pepper marketed in DAMA, by association. Year 2002

Association	*Volume (Tons)*
NIKKEI	901,9
CECOPROA	98,35
CEPACOOP	52,46
Total	*1.052,71*

Source: Elaborated based on interviews to managers of the associations.

On the other hand, the foreign pepper entered to the country is channeled mainly through wholesalers and, in some cases, by retailers (supermarkets) who acquire the product in origin, specifically from CEASA, other markets of Foz of Yguazú (Brazil); Market of Posadas and from shops of Clorinda (Argentina).

Table 15 shows the volume of pepper acquired by wholesalers according to their location zone. It stands out the concentration of supply through wholesalers located in DAMA.

Table 15. Volume of pepper acquired by wholesaler, according to location area. Year 2002

Zone	*Volume (Tons)*	*Percentage (%)*
DAMA	14.386	86,98
GRAN ASUNCIÓN (EXCLUDED DAMA)	881	5,33
OTHER CITIES OF THE COUNTRY		
Ciudad del Este	630	
Encarnación	600	
Coronel Oviedo	42	
Sub total OTHER CITIES OF THE COUNTRY	1.272	7,69
Total	*16.539*	*100,00*

Source: Elaborated based on interviews to wholesalers located in DAMA, Gran Asunción, Ciudad del Este, Encarnación y Coronel Oviedo

From the total offer of pepper 81% is channeled by wholesalers who distribute the product to supermarkets and other retailers, Figure 4. Nowadays supermarkets are important commercialization agents capturing 48,58% of the total volume marketed by wholesalers. The remaining volume 51,42% is sold to other retailers located in DAMA, municipal fairs, groceries and municipal markets, *Table 16.*

Table 16. Volume of pepper distributed from wholesalers to retailers. Year 2002

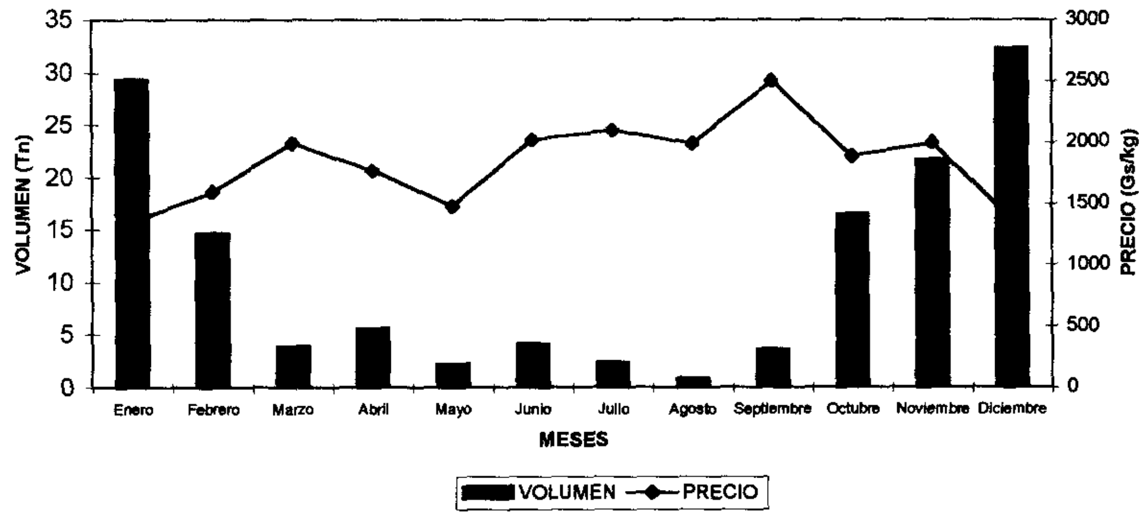
Retailers	*Volume (Tons)*	*Percentage (%)*
SUPERMARKETS	8.035	48,58
OTHER RETAILERS		
Municipal markets	6.548	
Despensas/Minimercados	1.616	
Municipal Fairs	340	
Sub Total OTHER RETAILERS	8.504	51,42
Total	*16.539*	*100,00*

Source: Elaborated based on interviews to wholesalers supplier of supermarkets, feriantes other retailers.

2.2.2. Prices and seasonality

The analysis of the pepper monthly prices behavior with data from CECOPROA and CEPACOOP of the year 2002 indicate the existence of price fluctuations reflecting a correlation with the seasonality of the supply. This way, from March to September monthly marketed volume is low, the highest prices in the year is observed during the months of June to September, as can be observed in *Figure 6.*

Figure 6: Volume and monthly price of pepper. Year 2002



The volume marketed during the months of October to February reaches 83% of the annual total, coincident with a depression in the levels of prices, *Table E-6, Annex E.*

2.2.3. Value of commercialization according to origin and channel

2.2.3.1 Value of commercialization by origin

The commercialization value of the pepper produced in the country and that of foreign origin was estimated in 31.504 millions of Guaranies, *Figure 5 and Table 17.* Most of the total value of commercialization comes from the sale of the foreign pepper, this is so because bigger volumes of foreign pepper are marketed, and because of higher prices than the national pepper.

Table 17. Estimate of pepper commercialization value by origin. Year 2002

Origin	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millions of Gs)*	*Percentage (%)*
National	8.750	1.250	10.938	34,72
Foreign	11.752	1.750	20.566	65,28
Total	***20.502***		***31.504***	***100,00***

It is presented in the following Table the sources of estimate of pepper prices.

Table 18: Prices established for pepper commercialization. March 2003

Origin	*Price (Gs/Kg)*	*Observations*
National	1.250	It corresponds to on farm price, according to producers interviews
Foreign	1.750	It corresponds to purchase price based on data provided by importers wholesalers.
WHOLESALERS		
DAMA	2.200	Price estimated based on interviews with wholesalers of DAMA.
Gran Asunción	2.200	Price estimated based on interviews with wholesalers located outside DAMA.
Ciudad del Este	1.930	Price estimated based on interviews with wholesalers of the Municipal Market of Ciudad del Este.
Encarnación	2.800	Price estimated based on interviews with wholesalers of the Municipal Market of Encarnación
Coronel Oviedo	3.500	Price provided by technicians and wholesalers of the area.
RETAILERS		
Supermarkets	2.860	Price estimated based on sale average prices of the Great Asunción and Encarnación supermarkets
Municipal markets	3.000	Price estimated based on prices sale average in San Lorenzo's Municipal Markets and Encarnación.
Despensas/Minimercados	3.500	Price estimated based on average price sale in groceries and Minimercados of San Lorenzo and Encarnación.
Municipal Fairs	3.000	Price estimate based on prices sale average in Asunción's Municipal Fairs and Encarnación.
Farm Fairs	1.700	Price estimate based on average sale prices in the Fairs of Encarnación and Ciudad del Este.

Source: Estimate based on data of the DGA, CEASA (Brazil) and DDV/MAG.

2.2.3.2. Value of commercialization according to wholesalers

DAMA continues being the main place where pepper sales are carried out, considering wholesalers sales by location. 86 % of the marketed total value is carried out through wholesalers located in DAMA. It is noticeable that the markets wholesalers located in other towns like Ciudad del Este, Great Asunción, and Coronel Oviedo market for a value that reaches only 8,31 % of the total, *Table 19.*

Table 19. Estimate of pepper sales by wholesalers, according to location area. Year 2002

Zone	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millones de Gs)*	*Percentage (%)*
DAMA	14.386	2.200	31.649	86,40
GRAN ASUNCIÓN	881	2.200	1.938	5,29
OTHER CITIES OF THE COUNTRY				
Ciudad del Este	630	1.930	1.216	3,32
Encarnación	600	2.800	1.680	4,59
Coronel Oviedo	42	3.500	147	0,40
Sub Total OTHER CITIES OF THE COUNTRY	1.272		3.043	8,31
Total	*16.539*		*36.630*	*100,00*

Source: Elaborated based on interviews to wholesalers.

2.2.3.3. Value of commercialization according to retailers

Sales carried out by retailers to consumers were estimated on 53.886 millions of Guaraníes, of which 47,36% corresponds to pepper sales carried out in supermarkets, valued approximately in 25.520 millions of Guaraníes.

The estimates also indicate that the pepper sales carried out by retailers other than supermarkets are minor, except the marketed in the municipal markets that reached 75,5% of the total commercialized by this channel, *Table 20.*

Table 20. Estimate of pepper sales by retailers. Year 2002.

Retailers	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millions de Gs)*	*Percentage (%)*
SUPERMARKETS	8.923	2.860	25.520	47,36
OTHER RETAILERS				
Municipal markets	7.148	3.000	21.444	39,79
Despensas/Minimercados	1.616	3.500	5.656	10,50
Municipal markets	340	3.000	1.020	1,89
Fairs of Producers	145	1.700	247	0,46
Sub Total OTHER RETAILERS	9.249		28.367	52,64
Total	*18.172*		*53.886*	*100,00*

Source: Elaborated based on interviews with wholesalers and retailers.

2.2.3.4. Value of commercialization according to final consumption destination

The value of consumers' purchases through all commercialization channels reached 54.237 millions of Guaraníes approximately, this amount come from the sales to consumers (53.886 millions of Guarani) and the corresponding sale value of 281 tons valued at on farm prices (1.250 Gs/Kg), *Table 21.*

Table 21. Estimated pepper commercialization value according to final consumption destination. Year 2002

Destination	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millions of Gs)*
Country Consumption (through retailers)	18.172	2.965,33*	53.886
Country Consumption (on farm)	281	1.250,00	351

** Correspond to average prices weighted by retailers sales volume(seeTable20).*

2.2.4. Margins of commercialization of a representative channel

The commercialization margins according to the origin of the supply indicate that the difference among the price paid by the consumer and the average price received by producers on farm is 1.610 Gs/Kg representing a total commercialization margin of 56,2%, *Table 22.*

Table 22. Total margin of commercialization of pepper. Year 2002

Prices and margins	*Value (Gs/Kg)*	*Margin (%)*
On farm price	1.250	
Wholesaler selling price	2.200	
Retailer selling price	2.860	1610 (56,2%)

Source: Elaborated based on data provided by wholesalers, retailers and producers.