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**PARAGUAYAN SUPERMARKET DEVELOPMENT AND ITS IMPLICATIONS
FOR THE PRODUCE INDUSTRY**

By

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ABSTRACT

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In the 1990s, the supermarket sector grew outpacing several times the economy's growth. Even when the sector was dominated by domestic firms and per capita income fell considerable, supermarkets increased their share on national Fresh Fruit and Vegetable (FFV) consumption from 10% in 1992 to 30% in 2001. The article analyses the rise of supermarkets and the impact of its procurement system on the produce industry using a value chain approach. It shows that as supermarket supply chains are buying less from domestic traditional wholesale markets and shifting toward importing, that means steadily falling demand for local suppliers. Also the implementation of international procurement systems put the growers in direct competition with the export markets but in their domestic markets.

This work is dedicated to Lourdes Garcia for her sweet companion, to my father Juan and mother Mucky for their constant support, family and friends.

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1. Introduction

Recently, supermarkets became the major players at the retail level in Latin American Countries. Supermarkets moved from having 10-20% participation in overall food retail in 1992 to 50-60% in 2002. One important implication of the supermarket development is that they are driving concentration at the farm level and to certain extent excluding the small farmers (Reardon, Berdegue, 2002). Similarly, the supermarket sector in Paraguay is gaining importance in food retailing. Supermarkets moved from having 19% participation in urban food retail in 1992 to 45% in 2003 (CAPASU 2002).

The implications of supermarkets growth for the produce industry have been only partially explored as prior research on produce marketing in Paraguay has mainly focused on the traditional retailers and on the wholesale market of Asuncion (The capital city). There are three main studies of the produce industry in Paraguay: (1) Borda (2002) found that supermarkets and producers make small or no use of the information systems (SIMA) developed by the Paraguayan Government to report FFV prices from wholesale markets to producers in the rural areas. Borda also found that on average 70% of FFV sold at supermarkets are imported. (2) Kurita (2002) focused on consumer's increasing preference to buy FFV in supermarkets. He reported that if FFV open air markets are to survive supermarket competition they need to improve several aspects of produce operations such as their cleanness and security. (3) Vasconellos (2001)

reported that bigger logistical platforms were constructed by wholesalers at the wholesale market of Asuncion to supply supermarkets.

Even though these three studies considered briefly the supermarket sector, none of them addressed how supermarkets have become important markets for FFV and what strategies they are implementing to procure their FFV. The consequences for FFV growers have not been explored despite the fact that their income depends on the production and commercialization of FFV. Hence, this study addresses the three following questions: (1) What have been the determinants of Paraguayan Supermarket Development? (2) How have supermarket's procurement systems changed in the past decade? (3) What are the implications of supermarket development for growers in term of FFV standards, competitiveness and volume of FFV?

Achieving answers to the previous questions is important for the consumers and producers of FFV. Each Paraguayan consumer spends on average 5% of its income on FFV (DGEEC, 1997/98, 1999, 2001). Also, FFV production has been a source of income and poverty alleviation for people in the rural areas and ensuring their FFV markets should be a high priority in the agenda of public policy authorities. This is evident in the following:

The 1990s have been a dismal decade for Paraguay. Between 1990 and the year 2000 per capita income has fallen by 8%. The deterioration has gotten worse since 1995. An extended bank crisis, falling agricultural prices and other shocks have combined to produce an extended recession in which per capita income has fallen in each of the last five years. Since 1995 Paraguay has the worst macroeconomic performance in all Latin America. This recession has seriously exacerbated the problem of rural poverty (Morley, 2001).

This paper starts with a brief description of the method used and data collection activities. Then, it presents the results regarding supermarket's patterns, determinants and diffusion characteristics. The following section discusses the traditional retailers and supermarket FFV procurement systems. The last section discusses the key conclusions and the main implications for growers.

2. Data collection and methods

This study used the value chain method to systematize the results and to determine the primary information needs beyond what was available from secondary information sources. The method of enquiry provided the flexibility for mapping the consumption of FFV into its marketing channels.

Some considerations deserve some attention when mapping FFV consumption along its supply chains. First, in this study the total value of consumption of FFV in Paraguay was estimated using the disappearance method (FFV production plus imports and minus exports) from national account statistics (Paraguayan Central Bank, 2002). Also, results from three different national household surveys (with high levels of statistical significance) were used to complement the information about FFV national per capita consumption and characteristics. (DGEEC, 1997/98, 1999, 2001).

Second, consumers usually acquire their FFV in three ways: through home-consumption of own household production, through purchases of FFV in food service, and retail stores. Food Service pertains mostly to catering services

such as restaurants, hotels and fast food service companies. Retail stores selling groceries take several formats: First, the mom and pop small stores (both self-service and full-service); Second, open air markets grouping a great numbers of small independent retailers; Fourth, street sellers; Fifth, supermarkets defined by the Paraguayan Supermarket Chamber (CAPASU) as a self-service stores with an area of 350M² to 3000M² with 2 or more cash registers. Hypermarkets falls within the supermarket format as they are supermarkets with an area greater than 3000M².

Third, the relative importance in the way that FFV are acquired differs by rural and urban areas. Since in 2001, Paraguay had 45% of its population living in the rural area (one of the most rural countries in Latin America), it accounted for a significant share of national FFV consumption. Home-consumption of FFV in the rural areas can be significant (e.g. Morley, 2001 found that 43% of total area of cultivation of cassava is home-consumed), hence the share of FFV consumed via purchases in food service companies and retailers over total FFV consumption in the rural areas is less than the share in urban areas (where home-consumption is minimal or inexistent). On the other hand, the consumption of FFV via supermarkets in the rural areas has been minimal since no supermarkets have located in the rural areas. Nevertheless, some people from the rural areas commute to their neighbourhood cities to buy their food; hence some of them buy their FFV in supermarkets.

Fourth, mapping the supply chains value of FFV beyond food service and retailers includes the careful consideration of their procurement strategies since

they may choose among several alternatives depending on their incentives and capacities. Some of their FFV procurement strategies might included one or more of the following options (but not restricted to): First, buying from individual growers or from a group of growers (cooperatives or associations); Second, buying from wholesale markets and/or open air markets; and third, outsourcing their procurement FFV activities to specialized wholesalers.

Finally, given the complexity of the FFV supply chains and that the supermarket sector is gaining importance within the FFV value chain, this study attempts to explain some of the research questions by formulating the following hypothesis:

(1) What have been the determinants of Paraguayan Supermarket Development?

H1: Cheaper FFV and higher number of SKUs at supermarkets have a positive effect on supermarket sales.

H2: Urbanization and women joining the labour force has been favourable while decreasing per capita income has not favoured the supermarket development.

H3: Supermarket are growing based on its greater competitiveness over other traditional retailers (small stores, open air markets).

(2) How supermarket's procurement systems changed in the last decade?

H4: Fierce competition within the retail sector has increased the pressure on supermarkets to reduce their FFV procurement systems costs.

H5: Supermarkets have shifted away from buying in traditional wholesale markets towards outsourcing to specialized wholesalers as the later provides greater level of services (FFV quality and per store delivery).

H6: Supermarkets have developed regional procurement systems to reduce the costs of FFV.

(3) What are the implications of the supermarket development for growers in term of FFV standards, competitiveness and volume of FFV?

H7: Supermarkets impose to their FFV suppliers higher quality/price ratio than other traditional retailers.

H8: Becoming a supermarket's FFV supplier (e.g. significant slotting fees, extended payment periods) is extremely costly and excludes small producers.

H9: Supermarkets require greater volume and consistency (all year around) of FFV from their FFV suppliers which represents serious challenges for producers.

The field work activities included one intensive month of in-person and phone interviews. After extensive review of the information available and 15 key informant interviews, data collection activities included as the unit of analysis of this study the supermarket firm (both independent and in chains) and their FFV suppliers. The survey instrument included questions about supermarket general characteristics and about FFV department and procurement strategies (**See appendix B: survey instrument**).

The study sample included 25 supermarket firms (10% of the supermarket firms) accounting for more than 40% of the supermarket sector sales and with a total of 75 supermarket stores (20% of supermarket stores population). The study includes supermarket firms growing faster and with highest market share (measured by sales and number of stores) in reasoned rather than random sample. The sample represent those supermarket firms becoming the driving force and with the greatest share of the value chain and highest buyer power impact on the produce industry. For the sample of FFV suppliers, we asked the supermarket firms who were their FFV suppliers and we interviewed them. On one side, since all supermarket chains participating in this study had only 6 FFV suppliers in total we interviewed the 3 most important. On the other hand, as independent supermarkets were mostly procuring their FFV from wholesale markets, interviews were not made but those markets are briefly described in this study.

3. Results Regarding Retailer Patterns

3.1. Reshaping the FFV Retail Landscape

In the past decade, supermarkets grew with double digit growth rate per year while the economy remained stagnant. Total sales of the supermarket sector grew at 15.9% per year during the period 1992-2001 outpacing the economy's growth rate of 0.7% per year during the same period. Supermarket sector's FFV sales grew even faster at 17.2 per year during the period 1992-

2001. While in 1992, 130 supermarket stores were operating in Paraguay, by 2001 the number of stores were 320.¹

The supermarket sector moved from having 12% participation in national food consumption in 1992 to 35% in 2001. It also moved from having 10% participation in national FFV consumption in 1992 to 30% in 2001. During 2001, the supermarket sector was already the major player in the urban areas with 44% participation in urban FFV consumption but only had 12% participation in the rural FFV consumption (**See table 1 for details**). Note that by 2001, the supermarket sector in Paraguay had achieved almost equal levels of share in national food consumption (35%) and national FFV consumption (30%) because the supermarket chains were able to reduce their FFV procurement costs and be more competitive than the traditional FFV markets (see more later). This is different of what has been observed in the neighbour countries in the MERCOSUR, in which the supermarket sector share on FFV was about one half of their share on food consumption. During 2000, Argentina's supermarket sector share on food retailing was 71% and its share on FFV retailing was only 23%. Brazil's supermarket sector share on food retailing was 75% and its share on FFV retailing was 50%. And Chile's supermarket sector share on food retailing was 62% and its share on FFV retailing was 3-9% (Gutman, 2002), (Farina, 2002), (Faiguenbaum et al., 2002).

During 2001, the value of total domestic FFV consumption was 286.5 million of US dollars. This study estimated the supermarket sector FFV sales in

¹ The first supermarket called "El País" appeared in year 1963, and the second called "Supermercado Total" in 1972.

87.4 million of US dollars (30%). Home consumption has been roughly estimated in 36.1 million of US dollars (12%), which is 25% of total FFV consumption of the population in the rural areas. Unfortunately since there are no reliable statistics or research done about the share of other market channels in Paraguay, the value of FFV consumption left of 162.95 million of US dollars (58%) is divided among 30,000 small stores (most important traditional FFV retailer), open air markets, several food service companies and direct markets (street sales and street fair sales).

Supermarkets have partially displaced other traditional FFV retail markets. This has been shown by Kurita (2002) in the capital area where 7 out of 9 FFV open air markets were seen their sales decreasing in the period 1995-2001 and are minor players in the capital city as well as in other secondary cities. Also, Aguilera (2001) estimated that while 40,000 small stores were operating nationwide in 1990, 10, 000 went out of business and only 30,000 small stores we left in 2001. Although some of these difficulties can be explained by the Paraguayan economy's poor performance, new supermarket stores growing rapidly in areas where traditional retailers operate might at least explain part of the story.

Although some additional research is needed, there are at least three elements of supermarket FFV operations that support their higher level of competitiveness over their small store competitors. First, supermarket chains have greater gross profit margins and still sell their FFV cheaper than small stores (see more later). Second, greater volume of FFV operation of supermarket

increases their purchasing power. Third, supermarket's more capital intensive technology generates economies of scale for supermarkets, which is evident from the fact that supermarkets selling area is on average 24 times bigger than those of the small stores; supermarket stores employ 18 times more people in their stores and their total sales are 55 times the small store's sales (**See details in table 2**).

3.2. Determinants of Supermarkets Expansion

There are six variables that have been the key determinants of the development of supermarket chains in Paraguay (and to a lesser extend of independent supermarkets). First, supermarkets implemented a low cost strategy to attract consumers to its stores becoming a significantly cheaper (than small stores) option for certain basic food items (with same or better FFV quality). During the period 1995-2001, the eight most important FFV products (Cassava, orange, Banana, lettuce, green peppers, onion, potato, tomato) were at least 15% cheaper in supermarkets as compared to their smaller competitors. The two most important FFV products cassava and lettuce (for the consumer's diet) were usually sold significantly cheaper than others FFV in an attempt to attract consumers to their stores (**See table 3**). The FFV price competition among supermarkets and against small stores drove prices down benefiting even more consumers. Supermarket chains have not taken losses (with some exceptions) have improved their procurement systems driving their product and transaction costs down. During 2001, consumer FFV prices found at supermarkets were at

the same levels encountered at the traditional wholesale markets were small stores were procuring their FFV (SIMA, 1995-2001).

Second, supermarkets diversified their product selection to increase their sales (strategy that small store's weak capacity was not able to counterbalance). On the one side, over the period 1992-2001, they increased their number of SKUs in their produce department from 60 to 150 introducing new products (e.g. Kiwi) and on the other side supermarkets diversified their overall product selections (both independents and chains) moving away from the food-only concept towards one-stop-shopping experience for consumers. By offering virtually everything from pharmacy to food courts, in-store bakeries, public phone service, photo processing, barber shops as well as other type of services supermarkets became a very attractive option for consumers.

Third, the rising urban share of the population is spurring the rise of the share of the supermarket sector in national retail. As people are moving to urban areas they reduce their home consumption and need to purchase their food in the urban areas. The 57% share of urban population in 2001 is expected to rise to 65% by 2015.

Fourth, increase in per capita income has been found to be one of the key determinants of supermarket growth in other Latin American Countries (Reardon, Berdegue, 2002). Nevertheless, in the Paraguayan case, the supermarket sector development has not been discontinued by the sharp decline of the per capita income from 1,238 US dollars in 1992 to 1,033 US dollars in 2001, decreasing - 16.5%.

Fifth, women joining the labour force have favoured the supermarket growth. Two elements contribute to explain this better. First, in 2002 there were 3 times more women working than in 1982 (2002 Paraguayan Census results). Second, in the same period, the share of homes with refrigerators over total homes increased from 45.2% to 66.2%. Busier women with less time to do shopping and with greater capacity to store food are most likely to shop at supermarkets where more items are available.

During the 90's, supermarket chains professional staff permitted to increase the size of their operations while reducing per unit cost by introducing new and improved procurement and merchandizing strategies. On the one side, the concepts of category management, efficient consumer response (ECR), and electronic data interchange (EDI) were implemented by the leading chains. On the other side, supermarkets implemented formal procedures that enhanced their product selection according to consumer purchasing habits.

3.3. Supermarket Diffusion Characteristics

There are four key diffusion characteristics of supermarket development in Paraguay. First, the supermarket sector has consolidated rapidly. The top 5 (out of 7) supermarket chains moved from having 20% of supermarket sector sales in 1992 to 40% in 2001 reaching exact the same concentration level as in the to US. Supermarket chains moved from having 10% of national supermarket stores in 1992 to 20% in 2001. This means that on average in 2001, each store of the 5 top chains was selling about 3.5 as much as an independent supermarket store,

and each supermarket chain on average was selling over 25 times more than an independent supermarket firm. This is the logic, why even though in Paraguay the supermarket sector still has 250 independent supermarkets (firms), understanding the chains is extremely important because they are the driving force and are setting the pace and rules of the market. The chains have been able to increase significantly their buying power relatively to their suppliers. Also, higher volume of sales has permitted to achieve economies of scale by reducing their per unit fix cost in expenditures such as those of advertisement and information technology (author's estimates).

Second, the supermarket sector grew based mainly on domestic investment. The supermarket sector moved from none foreign direct investment (FDI) in 1992 to 10% in 2001 and back to none in 2003. The Dutch retailer Royal Ahold entered the Paraguayan market in 1994 and left it in 2003. Royal Ahold did not leave Paraguay because of difficulties associated to this particular market, but because it was part of broader global business decision in which the multinational decided to leave some international markets that included their operations in Asian and South American countries. The low level of FDI in Paraguay is only similar in the MERCOSUR to Chile's supermarket sector that is 13% owned by multinationals but way below multinational investments of over 40% share of the supermarket sector in Brazil and over 60% in Argentina (Gutman, 2002) (Farina, 2002). Belik (2002) noted that all countries have been part of the liberalization process in which FDI is free to flow without restrictions and also that the region is looked as a single unit when multinationals enter the

MERCOSUR regional market. Faiguenbaum et al. (2002) provided the explanation for low FDI in Chile by saying that Brazil and Argentina were preferred markets as they were bigger and also because Chilean companies were at their peak expanding aggressively. In the Paraguayan case, the current low FDI (and pessimistic future investment expectations) can be explained by the economy's small size and falling per capita income but unfortunately not necessarily by the strength of the domestic competitors. On the other side, the supermarket sector registered significant domestic investments approvals within the Law 60/90 of investments incentives.²

Third, during the 90's the supermarket firms started to differentiate their formats constructing state of the art stores. Independent supermarkets introduced a smaller format for the lower income segment of the market with 2 cashiers, with an area of 350-1000M2 and with only basic food and non-food items but with high turnover. The hypermarket format was introduced by the supermarket chains in the capital city. First hypermarket opened in 1998, and by 2002 there were 10 hypermarkets operating in Paraguay (9 of them in the capital city). Hypermarkets are characterized by having an area of over 3000M2, 15 plus cashiers and several sections of non-food items, food courts and other business associated.

Fourth, supermarkets moved from being exclusively in the capital city Asuncion to other cities. The supermarket sector moved from having 90 stores in

² Under the benefits of the "Law of Incentive to Investments 60/90" firms pay only 5% of their corporate taxes during a period of 5 to 10 years. In Paraguay corporate taxes are 30% of firm's net income. Getting the fiscal incentives requires going through formal procedures that are very challenging for the smaller informal operators. Statistics register approvals which don't necessarily mean that the investments were made.

the capital city and 40 in interior cities (that is all cities excluding the capital) in 1992 to 150 stores in the capital city and 170 in interior cities in 2001. Although it is evident that the expansion in secondary as been much more important, it has mainly been accomplish by independent supermarkets (smaller formats).

Supermarket chains expanded mostly in the capital city and expanded moderately to other cities that are located close to the capital (In 2001, the leading supermarket chains had 30% of their stores in secondary cities). This explains why the density of supermarkets per million of inhabitants is increasing rapidly in secondary cities but still not catching up the capital city (**See table 4**). The expansion to interior cities has been observed in other MERCOSUR countries (e.g. Chile has 70% of its supermarket stores outside the capital city Santiago).

4. Results Regarding FFV Procurement Systems

4.1. Traditional FFV Procurement Systems

During the 60's and 70's the principal retail markets for FFV were the open air markets and small stores. Open air markets were both retail and wholesale markets of FFV. Small stores procured their FFV from the open air markets.

During the 80's, wholesale markets were constructed by the Paraguayan government. Since then, small stores shifted their procurement of FFV away from the open air markets and towards wholesale markets. Open air markets became only retailers of FFV and procured their FFV from wholesale markets.

By 2001, small stores were procuring 80% of their FFV directly from the wholesale markets and 20% from distributors that bought at the wholesale markets and facilitated the transportation of FFV to the small stores (Aguilera, 2001) **(See figure 1)**.

Unfortunately, there are no national statistics that permits to establish the relative share of the FFV market channels. Nevertheless, the 3 main wholesale markets (The wholesale market of Asuncion at the border of the capital city; the wholesale market of Ciudad Del Este bordering with Brazil and the wholesale market of Encarnación, bordering with Argentina) maintain FFV price statistics and the wholesale market of Asuncion also maintain volume statistics.

The most striking finding is that the volume of the wholesale market of Asuncion fell 37% from 278,687 tons in 1997 to 176,815 tons in 2001 (DAMA 2002). This is extremely important because the wholesale market of Asuncion is located at the border of Asuncion and also serving as wholesale market for other 4 big cities (Fernando de La Mora, Luque, San Lorenzo and Lambaré). The capital city and these 4 other cities account for 42% of the urban population in Paraguay. The dramatic reduction of volume of the wholesale market of Asuncion has alerted the government authorities because it is the main market for FFV producers.

The reduction of the volume of the wholesale market of Asuncion can't be explained by migration and only partially by 3% reduction of total FFV per capita consumption from 681 pounds in 1992 to 659 pounds in 2001. The per capita consumption of fruits fell 25% but was counterbalance by an increase of the per

capita consumption of vegetables (increase of 11%) and cassava (increase of 22%). This is basically a substitution effect of more expensive fruits by cheaper vegetables and cassava because of the reduction 16.5% of per capita income but still can't explain why the volume has fallen 37% fall in volume of the wholesale market of Asuncion.

4.2. Supermarket Procurement Systems

This study has identified two types of procurement systems used by the supermarket sector. The first type of procurement system is: total reliance on wholesales markets used by independent supermarkets. Of all 20 independent supermarkets interviewed, 19 were buying directly from wholesale markets. This is similar to the traditional FFV procurement systems with the difference that independent supermarkets bought bigger volume of FFV, which permitted them to benefit from their higher buying power and get FFV price discounts and better quality compared to what small stores would get.

On the other side, the exception was an independent supermarket not procuring its FFV from wholesale markets. This independent supermarket was importing directly its FFV from Brazil. This firm explained that by using its own truck and importing directly from Brazil it had 35% gross profit margin and also was able to sell its FFV cheaper to what those FFV costs in the wholesale market (where, this independent supermarket normally used to procure its FFV). The produce section of this supermarket was its strategy to compete against fierce competition of chains locating in the same area.

The second type of FFV procurement systems has been implemented by all supermarket chains in Paraguay. The chains outsource their FFV procurement to specialized wholesalers. By 2001 all supermarket chains shifted away (making the shift in the 90's) from wholesale markets towards outsourcing their FFV procurement activities to specialized wholesalers. We found that 5 (author's interviews) out of 7 supermarket chains operating in Paraguay outsourced their FFV procurement to a total of 6 FFV specialized wholesalers. On one side, each supermarket chain outsourced its FFV procurement to one or two specialized wholesalers. On the other side we found that 3 (author's interviews) out of the 6 specialized wholesalers were supplying to at least two supermarket chains.

The 3 specialized wholesalers were initially wholesalers operating in the traditional wholesale markets during the 70's and 80's and selling to small supermarket chains. During the 90's because their clients (supermarket chains) started to demand increasingly greater quantities of FFV they expanded their logistical platforms at the wholesale markets and also constructed distribution centres outside the wholesale markets. They all contracted with supermarket chains and pay them a significant lump-sum fee (per store) to gain access to the "right to sell to their consumers" and also paid slotting fees and provided labour to work in each of the supermarket chain's store produce department. In the relation, supermarket chains set the rules and then monitor and enforce them.

Supermarket chains received greater levels of service from the specialized wholesalers as compared to traditional wholesalers. Among the many services,

specialized wholesalers were: (1) Logistics: daily (for freshness) delivering of FFV to each of the chain's stores at the time specified by the chains and locating them on the shelves; (2) Enhanced presentation and form of FFV: cleaned, classified, processed and packed; (3) Inventory coordination: coordinating and supplying the right volume of FFV in a consistent (year around) manner of all SKU requested by the supermarket chain; (4) Differentiation: higher quality (homogeneous colour and low levels of FFV damages) and greater variety of FFV (new products); (5) Competitive pricing measured by FFV prices in other supermarket chain competitors; (6) Extended payment periods from 30 to 45 days which differs from the usual practice in the traditional markets (cash markets); and (7) Losses of FFV not sold were absorbed by the specialized wholesalers.

4.3. Specialized Wholesaler Procurement Strategies

Given the level of service that specialized wholesalers provided to their clients (supermarket chains) compared to traditional wholesale markets, they are under pressure to reduce their operating costs and the cost of their FFV. They use a mix of three different procurement strategies to reduce their costs of FFV and meet the volume and quality of FFV demanded by their clients.

First, they moved from procuring 80% of their total FFV requirements from traditional wholesale markets in 1992 to 50% in 2001 (author's interviews). As they have logistical platforms and market information they procure mainly

domestic FFV from the three main traditional wholesale markets of Paraguay depending on price levels (that is, arbitraging).

Second, they moved from procuring 10% of their total FFV requirements in 1992 to 40% in 2001 from international wholesale markets in Brazil and in Argentina. They have two reasons to procure internationally: First, there are some products such as onion, potato and garlic that are not produced locally (or very little) and it is far cheaper to import them rather than to buy from an importer agent. Second, some products are cheaper in those markets (including transport costs) even when there is domestic production. In 2001, the value of FFV that specialized wholesalers procured internationally was approximately 10.2 million of US dollars (author's estimates from interviews). Since in 2001, total national imports of FFV were 15.1 million of US dollars, the share of supermarket chains sales of imported FFV over total national imports of FFV was 68%. The international procurement strategy explains the Paraguayan increase on total imports of FFV during the past decade. Also, part of the increase in FFV imports can be explained by capturing the momentum gains in competitiveness of exports from Argentina and Brazil because of the shocks originated by the devaluation of their currencies. During the 1990s, both economies implemented exchange rate systems in which the US dollar exchanged close to a one-for-one rate. On the one side, during early February of 1999, the Brazilian government devaluated its currency (Real) by approximately 30%. On the other side, during early January of 2002, the Argentinean government devaluated its currency (Argentinean Peso) by over 30%.

Third, specialized wholesalers procured 10% of their total FFV requirements from medium-big growers in 1992 and 2001 (author's interviews). The weak link between growers and specialized wholesalers can be explained by three reasons. First, growers have failed repeatedly to meet FFV volume requested by their buyers (specialized wholesalers). Second, limited grower's access to input markets and technical assistance support has been not favourable to enhance their capacity to increase their operations and meet higher quality standards. Third, the specialized wholesalers pay lower price (43% less) to growers compared to traditional wholesale markets, hence growers still have greater price incentives to sell their FFV to the wholesale markets (**see table 5**).

5. Conclusions

The supermarket sector development in Paraguay has been characterized by three principal diffusion patters: First, the number of supermarket stores grew extremely rapidly in the last decade moving from 130 supermarket stores in 1992 to 320 in 2001. They moved from having 12% participation in overall food consumption in 1992 to 35% in 2001. The supermarket sector moved from having 10% participation in FFV consumption in 1992 to 30% in 2001. The supermarket sector in Paraguay had achieved similar levels of share in national food and FFV consumption which has been atypical in other countries in the MERCOSUR. Second, the top 5 supermarket chains reached achieved similar level of concentration as in the US increasing their share on total supermarket sector from 20% in 1992 to 40% in 2001. Third, format differentiation included on

the one side the construction of several smaller format stores (by independent supermarket) in interior cities Third, a higher number of supermarket stores were constructed in interior cities (that is all cities excluding the capital) while the bigger hypermarket format was introduced in the capital city by the supermarket chains (First hypermarket opened in 1998, and by 2002 there were 10 hypermarkets operating in Paraguay).

Six determinants have been the key factors of the development of supermarket sector (mainly driven by the supermarket chains) in Paraguay during the past decade (partially displacing other traditional FFV retail markets). First, supermarkets implemented a low cost strategy to attract consumers to its stores becoming a significantly cheaper (than small stores) option for certain basic food items (with same or better FFV quality). Second, supermarkets diversified their overall product selection and increased the number of SKUs in their produce department. Third, the rising urban share of the population is spurring the rise of the share of the supermarket sector in national retail. Fourth, increase in per capita income has been found to be one of the key determinants of supermarket growth in other Latin American Countries (Reardon, Berdegue, 2002). Nevertheless, in the Paraguayan case, the supermarket sector development has not been discontinued by the sharp decline of the per capita income from 1,238 US dollars in 1992 to 1,033 US dollars in 2001, decreasing - 16.5%. Fifth, women joining the labour force have favoured the supermarket growth as they are busier and have less time to do shopping. Six, during the

90's, supermarket chains professional staff improved their overall and FFV procurement systems and merchandizing strategies.

Supermarket chains changes in their FFV procurement systems and product specifications were extremely important. By 2001, all supermarkets chains shifted away from procuring directly from traditional wholesale markets towards outsourcing their FFV procurement systems to specialized wholesalers (which paid a significant lump-sum to gain their privilege to sell to the chain's consumers). Supermarket chains were able to reduce their FFV procurement costs and receive higher levels of service from these specialized wholesalers as compared to traditional wholesalers. Services such as: (1) per store delivery of FFV; (2) Enhanced presentation and form of FFV: cleaned, classified, processed and packed; (3) Supply of FFV volume required in a consistent (all year around); (4) Differentiation: higher quality and greater variety of FFV; (5) Competitive FFV prices; (6) Acceptance of extended payment periods and absorption of losses of FFV (not sold) by the supermarket chains.

In 2001, specialized wholesalers were using 3 strategies to procure FFV: First, they were still buying 50% of their FFV from wholesale market but shifting away from them; Second, they were shifting towards procuring internationally and by 2001, 40% of their FFV requirements were acquired directly from Brazil and Argentina; Third, specialized wholesaler were buying only 10% of their FFV requirements directly from growers because of three reasons: First, growers were not capable to fulfil the volume of FFV requested; Second, growers require greater levels of technical assistance and input support to enhance their capacity

to increase their operations and meet higher quality standards. Third, growers still have greater incentives to sell their FFV to the traditional wholesale markets.

Finally there are two clear implications of the rapidly growing supermarket chains procurement systems: First, as specialized wholesalers are buying less from local and regional wholesale market and shifting toward importing from Argentina and Brazil, there will be a steadily decline in demand for local suppliers. Second, supermarket chains procurement systems (via their specialized wholesalers) have implemented international procurement systems that put the growers in direct competition with the export markets.

APPENDIX A: Tables and Figures

Table 1: Estimates of Paraguayan Food and FFV Consumption

	1992	2001	Var. (%)
Value of total domestic food consumption ^b (million of US dollars)	1,830.1	2,097.8	14.6
Value of total domestic FFV consumption ^c (million of \$)	225.9	286.5	26.8
Number of supermarket stores ^d	130	320	146.2
Sales of an average supermarket store ^e (million of US dollars)	1.7	2.6	52.9
Supermarket sector sales ^e	221	832	276.5
Share of food sales over total sales of an average supermarket ^e (%)	95	86	-
Share of FFV sales over total sales of an average supermarket ^e (%)	9.5	10.5	-
Value of supermarket sector food sales ^e (million of US dollars)	210	715.5	240.7
Value of supermarket sector FFV sales ^e (million of US dollars)	21	87.4	316.2
Supermarket share of total domestic food consumption (%)	12	35	-
Supermarket share of total domestic FFV consumption (%)	10	30	-

Notes: ^a **Exchange rate:** For 1992, 1 US dollar = 1,500 Guaraníes (Paraguayan currency); and for 2001, 1 US dollar = 4,105 Guaraníes; ^b **Value of total domestic food consumption:** From Paraguayan National Accounts, consumer expenditures for 1992 were 5,228.8 million of US dollars and for 2001 were 5,993.7 million of US dollars (National Accounts, Paraguayan Central Bank, 2002). For both years, consumer expenditures were multiplied by the share of food expenditures over total consumer expenditures. The share of food expenditures over total consumer expenditures was estimated in 35% from 3 national consecutive household surveys implemented by the National Bureau of Statistics, Surveys and Census (DGEEC) during 1997, 1999, and 2001. Includes consumption in both formal and informal rural and urban areas and also home consumption of own production; ^c **The value of total domestic FFV consumption:** Estimated by disappearance method (Production plus Imports and minus exports) using production data from Paraguayan National Accounts and trade statistics from FAOSTAT (National Accounts, Paraguayan Central Bank, 2002; FAOSTAT web page: <http://apps.fao.org/default.htm>, 1992-2001). For 1992, the value of the FFV production was 226.7 million of US dollars, imports were 5.1 million of U dollars and exports were 6 million of US dollars. For 2001, the value of the FFV production was 219.9 million of US dollars, imports were 15.4 million of U dollars and exports were 4.96 million of US dollars. Also Includes consumption in both formal and informal rural and urban areas and also home consumption of own production; ^d **The number of supermarket stores:** was estimated from 4 sources: First, from author's interviews; Second, from the Paraguayan Chamber of Supermarkets (CAPASU, 2001); Third, from geographic information offices of Asunción, and from private companies distribution reports; ^e Estimates from author's interviews.

Table 2 : Comparative Performance Indicators between Supermarket and Small Stores (2001)

	Supermarkets ^b	Small Stores ^c	(Supermarket/Small Store) Ratio
M2 (Average)	1500	62	24.2
Employees (Average)	45	2.5	18.0
Average sales per store (US dollars)	2,6000,000	46,998	55.3
Sales / M2 (US dollars)	1,733	758	2.3
Sales/employees (US dollars)	57,777	18,799	3.1

Notes: ^a Exchange rate for 2001, 1 US dollar = 4,105 Guaraníes; ^b Estimates from author's interviews; ^c Estimates from Aguilera, 2001. "Program for the re-conversion of the small store of Paraguay" (PRAP). This study included 76 small stores located in Asuncion (The capital city) and other principal cities: Luque, Lambare, Nemby, San Antonio and Mariano Roque Alonso. Note those 2.5 employees working in a small store means 2 full time employees and 1 working half time.

Table 3: Comparison of Ratios of Annual FFV Average Prices between Small Stores (numerator) and Supermarket Chains (denominator)^a

(If ratio >1, the product is more expensive at the small store; If ratio<1, the product is cheaper at the small store; and if ratio=1, the product price in small stores on average is equal to the product price in supermarket chains)

Product	1995	1996	1997	1998	1999	2000	2001	1995-2001 (simple average)
Orange	1.13	1.02	n.a.	0.92	1.24	1.26	0.99	1.10
Banana	1.05	0.99	n.a.	1.03	1.28	1.18	1.04	1.09
Lettuce	1.31	1.33	n.a.	1.28	1.22	1.02	0.98	1.19
Green peppers	1.05	1.05	n.a.	1.03	1.16	1.29	1.14	1.12
Tomato	1.00	1.10	n.a.	1.04	1.13	1.14	1.13	1.09
Onion	1.06	1.54	n.a.	1.31	1.68	1.20	1.10	1.32
Potato	1.28	1.17	n.a.	1.17	1.16	1.08	1.14	1.17
Cassava (Yuka)	1.27	1.27	n.a.	1.48	1.42	1.12	1.58	1.36
FFV Level Prices	1.15	1.18	n.a.	1.16	1.29	1.16	1.14	1.18

Notes:^a Data: Monthly FFV prices data coming from three small stores (A,B,C) and from three supermarket chains (A,B,C) were obtained for the period: January 1995-December 2001. These series of prices are part of the Paraguayan Central Bank database used to construct the Paraguayan Consumer Price Index (IPC) to measure the economy's inflation rates (Department of Monetary Studies, Paraguayan Central Bank, 2002); ^b Calculations: First, simple annual arithmetic average for each product was calculated for small stores and separately for supermarket chains. Second, the ratios were calculated using the simple annual arithmetic average FFV prices of the small stores as the numerator and the simple annual arithmetic average FFV prices of the supermarket chains as denominators.

Table 4: Spatial Distribution of Supermarkets (2001)

City	Number of Supermarkets^a	Population^b (POP)	POP Rank^b	Number of Supermarkets per million of inhabitants
Asunción	150	568,026	1	264
Fernando De la Mora	25	152,533	6	164
Luque	20	194,284	4	103
San Lorenzo	16	261,214	3	61
Lambaré	12	165,036	5	73
In Other 15 Cities	97	--	--	--

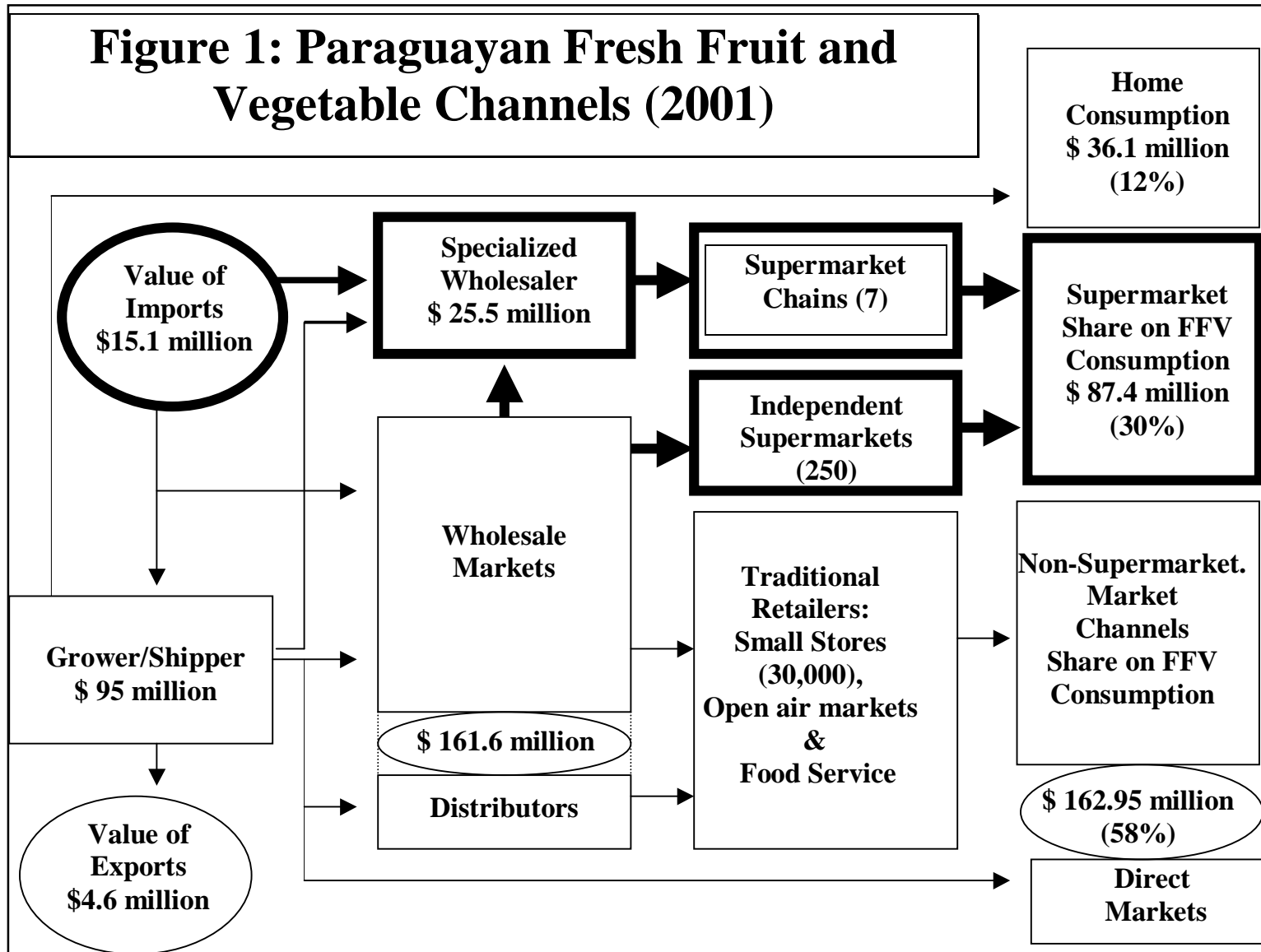
Notes: ^a The number of supermarket stores was estimated from 4 sources: First, from author's interviews; Second, from the Paraguayan Chamber of Supermarkets (CAPASU, 2001); Third, from geographic information offices of Asunción; Fourth from private companies distribution reports; ^b National Bureau of Statistics, Surveys and Census (DGEEC, 2002).

Table 5 : FFV Price Incentives by Marketing Channel (by retailer)

FFV Price formation	Supermarket Chain Specialized Wholesaler	Small Stores Traditional Wholesale Markets
Consumer Price of FFV ^a	100	118
Retailer's share of Price	- 35% ^b	- 18% ^c
Wholesale's share	- 20% ^b	- 20% ^d
Grower/Shipper's share	45	80

Notes: ^a Paraguayan Central Bank (See table 3); ^b From author's interviews; ^c From Aguilera, 2001; ^d From Vasconsellos, 2001.

Figure 1: Paraguayan Fresh Fruit and Vegetable Channels (2001)



APPENDIX B: Survey Instrument

Instrument Survey - Research Paper on Paraguayan Supermarkets

Title: "SUPERMARKET GROWTH AND ITS EFFECTS ON THE PARAGUAYAN AGRIFOOD SYSTEM"

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Name of the Company: _____ **Date:** _____
_____ **Interview#** _____
Name of the Interviewee: _____ **Position:** _____
Address: _____
Phone #: _____ **Email:** _____

Purpose of the Study: "Supermarket's Growth and its effects on the Paraguayan Agro-food System".

In light of the importance of the growth of supermarkets in Latin American countries and their effects on the agro-food system the research goals are mainly described by:

- 1) Identify the key trends in supermarkets growth in Paraguay.
- 2) Understand the relation or negotiation process between supermarkets and suppliers.
- 3) Write conclusions about changes in the agrifood system to contribute to agricultural assistance programs.

This information will be the basis for the completion of a master degree (research paper for plan B) and will also provide information for future agricultural assistance programs.

Your participation is entirely voluntary and you can refuse to answer any question at any time. There will be no penalty for withdrawing from the survey (it will take approximately 40 minutes). Additionally, if you have concerns about the way you are being treated in this survey, you can contact Dr. Ashir Kumar, Michigan State University's Chair of University Committee on Research Involving Human Subjects at 202 Olds Hall, East Lansing, MI 48824. By Phone (517) 355-2180, by fax (517) 432-4503, or by email at ucrihs@msu.edu.

If you consent to continue the survey, you must be aware that the information to be provided will be used to contrast and compare other sources of similar information to derive conclusions about the impact and effects of supermarket's growth on the agro-food system. Confidentiality will be protected to the maximum extent possible by law. "You indicate your voluntary agreement to participate by beginning this (phone) interview."

Thanks.

I would like to start with some questions related to your company characteristics.

SECCION 1: Characteristics of the company

1. Is this an independent Supermarket or is it part of a Supermarket chain, how many supermarkets does the chain has?

2. What is the legal status of your supermarket (Cooperative, Corporation, etc)?

3. What other service does the supermarket additionally offer: pharmacy, food court, etc?

4. What is the origin of the capital?

Domestic _____ %
Foreign _____ % (Country: _____)

5. What were the total sales of the supermarket in "guaranies" for the years?

1992 = _____

1995 = _____

2001 = _____

6. Could you provide the following information about each supermarket store during year 2001?

Location Of Store? (City)	Starting year?	Area? (M2)	Employees?	# of Cashiers ?	Business Segment Income? (High, Medium, Low)
1					
2					
3					
4					
5					
6					

For the year 2001:

7. What % (percentage) of your total sales was?

In cash:____% In credit:____%

8. What % (percentage) of your total sales was?

Imported products:____% Domestic products:____%

9. What % (percentage) of your total sales was?

Perishables products:____% Non-perishables products:____%

10. What is the gross margin for the following categories (%)?

Meat products:____% Dairy products:____% FFV products:____%

[FFV= Fresh Fruits and Vegetable Products]

11. What is the % of sales of _____ over total sales?

Meat products:____% Dairy products:____% FFV products:____%

12. What is the area (M2) devoted to_____? (Quantity or %)

Meat products:____ Dairy products:____ FFV products:____

13. What is the number of employees dedicated to ____? (Quantity or %)

Meat products:____ Dairy products:____ FFV products:____

14. How many suppliers do you have for ____? (Quantity)

Meat products:____ Dairy products:____ FFV products:____

15. What is the payment period for____? (Days)

Meat products:____ Dairy products:____ FFV products:____

16. What is the interval period between orders (to suppliers) for ____? (Days)

Meat products:____ Dairy products:____ FFV products:____

17. How many items do you have for ____? (Quantity)

Meat products:____ Dairy products:____ FFV products:____

18. Do you have private labels for____? (Yes o No)

Meat products:____ Dairy products:____ FFV products:____

SECCION 2: Buying organization

19. What is the average volume of sold products per week? (kg or tons)

Meat products:___Kg. Dairy products:___Kg. FFV products:___Kg.

20. How is responsible for the cost of products that had NO been sold during its valid period for____? (Supermarket =1, Supplier=2, other=3 (whom?))

Meat products:____ Dairy products:____ FFV products:____

21. Who is responsible of re-shelving at the supermarkets of____? (Supermarket =1, Supplier=2, Distribution Center =3)

Meat products:____ Dairy products:____ FFV products:____

22. Do you have a distribution center? (Yes or No)

23. Who buys or make orders from a supplier for_____?

(Supermarket =1, Supplier=2, Distribution Center =3)

Meat products:_____ Dairy products:_____ FFV products:_____

24. Who chooses the suppliers for___?

(Supermarket =1, Supplier=2, Distribution Center =3)

Meat products:_____ Dairy products:_____ FFV products:_____

25. Where are the products delivered for___?

(Supermarket =1, Supplier=2, Distribution Center =3)

Meat products:_____ Dairy products:_____ FFV products:_____

26. Who pays the suppliers for_____?

(Each Supermarket =1, Headquarters=2, Distribution Center =3)

Meat products:_____ Dairy products:_____ FFV products:_____

27. What had been the major changes in the last 5 years in the procurement of___?

Meat products?

Dairy products?

FFV products?

28. Are you thinking about changing the procurement system in the next 5 years?(explain)

Meat products?

Dairy products?

FFV products?

SECCION 3: FFV Products

Now, I would like to make some questions related to importance of FFV products

29. In what form are mainly presented the FFV products at the supermarket's display (%)?

In bulks:_____ Pre-package::_____

30. Do you sell _____ products?

(If the answer is yes: do the products have any certification?)

Organics:_____ Hydroponics:_____ Processed (mix salad):_____

31. From where do you buy the FFV products?

From Cooperatives ___%?

From Distributors ___%?

From Asuncion Traditional Wholesale Market ___%?

From other traditional wholesale markets ___%?

Imported from Brazil ___%?

Imported from Argentina___%?

Imported from other countries? ___%

Could you name your principal suppliers?

32. What are the 5 FFV products most sold in the supermarket?

33. What is the agreement with your suppliers?

Cash purchases without contract at the Asuncion Traditional Wholesale Market___%

Purchases without contracts but in a regular bases with verbal agreement___%

Registered suppliers (by the Supermarket)___%

Contracted supplier ___%

Own Production ___%

Other? ___%

34. What are the criteria for classifying the FFV products at the supermarket's shelves?

Size: YES o NO

Quality: YES o NO

Other?

35. What is the % of broken (lost) FFV products at the supermarkets? ___%

36. Where do you obtain a reference price for the negotiations with your suppliers?

Asuncion Wholesale Prices YES or NO

Competitors Prices YES or NO

Established by Contract YES or NO

Based on Production costs YES or NO

Price table from supplier YES or NO

Other?

37. If there is contract with suppliers, what does the contract establishes?

Quantity to be planted YES or NO
Time delivery YES or NO
Quality (Is there a checklist for quality parameters?) YES or NO
Other?

SECCION 4: Dairy products

Now, I would like to make some questions related to importance of dairy: de products

38. From your dairy sales, what is the participation of ____?

Milk____% Cheese____% Yogurt____% Others____%

39. From where do you buy dairy products?

Directly from an independent producer ____%
Cooperatives____%
Distributors ____%
Others ____%

40. What is the agreement with your suppliers?

Cash purchases without contract at the Asuncion Traditional Wholesale Market____%
Purchases without contracts but in a regular bases with verbal agreement____%
Registered suppliers (by the Supermarket)____%
Contracted supplier ____%
Own Production ____%
Other? ____%

Could you name your principal suppliers?

41. What is the % of lost of dairy products at the supermarkets? ____%

42. Where do you obtain a reference price for the negotiations with your suppliers?

Asuncion Wholesale Prices YES or NO
Competitors Prices YES or NO
Established by Contract YES or NO
Based on Production costs YES or NO
Price table from supplier YES or NO
Other?

43. If there is contract with suppliers, what does the contract establishes?

Quantity to be planted	YES	or	NO
Time delivery	YES	or	NO
Quality (Is there a checklist for quality parameters?)	YES	or	NO
Other?			

44. How do you rank the volume of sales of?

(Being 1 the major volume, from 1 to 6)

Trébol	_____
Lactolanda	_____
Coop	_____
Parmalat	_____
Private Label	_____
Colonias Unidas	_____
Dona Angela	_____
Others	_____

SECCION 5: Meat products

Now, I would like to make some questions related to importance of meat products

45. What participation do the following products have in your total meat sales?

(Volume: heads or Kg./ month)

Beef	____%
Chicken	____%
Pork	____%
Others	____%

46. From where do you buy your beef products?

Directly from farmers	____%
Auctions	____%
Slaughtering plants (without cold chambers)	____%
Packing plants (with cold chambers)	____%
Distributors	____%
Own Production	____%
Others	____%

Could you name your principal suppliers?

47. What is the agreement with your suppliers?

Cash purchases without contract at the auctions ___%
Purchases without contracts but in a regular bases with verbal agreement ___%
Registered suppliers (by the Supermarket) ___%
Contracted supplier ___%
Own Production ___%
Other? ___%

48. What is the % of lost of beef products at the supermarkets? ___%

49. Where do you obtain a reference price for the negotiations with your suppliers?

Auction markets	YES	or	NO
Competitors Prices	YES	or	NO
Established by Contract	YES	or	NO
Based on Production costs	YES	or	NO
Price table from supplier	YES	or	NO
Other?			

50. If there is contract with suppliers, what does the contract establishes?

Quantity to be planted	YES	or	NO
Time delivery	YES	or	NO
Quality (Is there a checklist for quality parameters?)	YES	or	NO
Other?			

Thank you very much.

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