



## Central American supermarkets' private standards of quality and safety in procurement of fresh fruits and vegetables

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### Abstract

In the context of near-absence of public food safety and quality standards, or the lack of effective implementation of them where they exist, and in order to increase product quality and consistency and differentiate their product from traditional produce retailers, leading supermarket chains in Central America are imposing private standards on their fresh produce suppliers. These are mainly for cosmetic quality, but emerging also are standards for fresh produce safety, in particular for leafy greens and some fruit. They are implementing the private standards at the same time they are cutting costs in order to compete with wetmarkets, via organizational change in the leading chains' procurement systems (shifting away from use of spot markets and traditional wholesale systems toward centralized purchases and use of implicit contracts and specialized/dedicated wholesalers). They are coupling those changes with some actions to resolve idiosyncratic factor market failures facing farmers such as through provision of technical assistance. The implementation of these private standards of produce safety are good for consumers as they are among the few food safety practices by domestic food industry actors. But the tougher standards are a challenge for producers who need to make significant investments, implying the need for investment assistance and support services by governments. The paper presents field study findings for Costa Rica, Guatemala, El Salvador, Honduras, and Nicaragua from 2002 to 2004.

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*Keywords:* Fresh produce; Supermarkets; Standards; Safety; Central America

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## Introduction

Standards for fresh fruits and vegetables (FFV) applied to producers in developing countries have recently figured prominently in the literature in two ways, both focused on trade as opposed to domestic markets. On the one hand, as FFV exports from developing countries have burgeoned over the past decade, the literature has focused on the application of safety and phytosanitary standards by developed countries to developing country exports (e.g., Unnevehr, 2000) as well as the recent rise of private FFV safety standards such as EUREPGAP applied by European supermarket chains (Codron et al., 2002). Some work has focused on company-specific standards and their effects on FFV from growers in a given country, such as UK supermarkets and Kenyan FFV exporters, in Dolan and Humphrey (2000). On the other hand, some studies have focused on how the consumer-driven demand for high quality FFV has translated into developed country supermarkets quality standards (in terms of appearance, size, shape, etc.), and thus standards for FFV from developing country producers – which in turn translated into the need for substantial chemical use by those producers to produce those quality attributes (Thrupp, 1995).

The above discussion misses a major new determinant of standards faced by developing country producers. A decade ago the FFV sector was neatly divided into the export sector and the traditional FFV sector. The latter consists of wholesale markets, mom and pop stores, and open-air markets with essentially no quality or safety standards. Today, local supermarkets have risen to equal or exceed the importance of non-traditional exports in the Central American FFV sector, but there has been no exploration in the literature of how their emergence is affecting, if at all, the quality and safety standards of the FFV sold and consumed in the region.

Local supermarkets tend to emphasize the marketing of FFV of high quality as a way of competing with traditional markets, and this quality tends to be defined mainly in terms of appearance (i.e., spotless, uniform fruits and vegetables in terms of size, shape, color, firmness, ripeness, etc.). Those quality standards, when applied locally just as Thrupp notes in the export market, create an incentive for an increase in the use of insecticides, fungicides, and other production and post-harvest technologies that can harm people.

However, local supermarket demand can also create the incentives to put in practice new technologies and investments that improve control of important health problems, such as fatal diarrhea among children in the region caused by *Escherichia coli*. It may be that the supermarket sector may well have the greatest capacity and incentive to implement safety standards – public or privately formulated – in domestic marketing of FFV.

In this paper we focus on standards the local supermarkets are imposing on suppliers in Central America, and how they are imposing standards, that is, how they organize their procurement system for FFV.

The findings are a synthesis of recent case studies from Costa Rica, Guatemala, El Salvador, Honduras, and Nicaragua. The countries are in decreasing order of household income, share of supermarkets in overall food retail, and domestic public health standards. The research is based on fieldwork by a team of researchers in November 2002–May 2003 and March and July 2004, including rapid reconnaissance surveys of supermarket chains, wholesalers, and producers. The questions focused on procurement practices and application of standards, including private enforcement of public standards, and application of private standards.

### *Diffusion of supermarkets in Central America and penetration of FFV markets*

Supermarkets have risen very fast from a negligible niche to a major force in Central American food markets in only a decade (Table 1). In 2002, supermarkets' had a 36% share in the overall food retail in the region, with a high of 50% in Costa Rica and a low of 19% in Nicaragua. There are more than 600 supermarkets today in the five countries on which we focus, up from at most a hundred or so in the early 1990s.

Even more relevant to our discussion is the fact that supermarket purchases and sales of local FFV are now approaching the importance of the non-traditional exports from the region. As shown in Table 1, FAOSTAT data for 2001 for fresh FFV exports (excluding bananas) from these five countries totals 599 million dollars<sup>1</sup> – while a rough estimate of local supermarket sales of fresh FFV is 180 million. Remove export-powerhouse Costa Rica (349 of 599) from the set and the comparison shows exports are double supermarket sales (FFV exports are \$260 million and supermarkets sales are \$116 million). The gap is closing quickly because supermarket sales are growing much faster (36% between 1997 and 2002) than exports (15% between 1997 and 2001).

Table 1 also shows that the share of supermarkets in FFV retail has lagged behind their overall penetration of food retail, but the trends are parallel. The population-weighted share of supermarkets in FFV retail is almost four times smaller than in overall food retail. This is a similar pattern, if not more acute, than what is found in South American countries, where the share of supermarkets in FFV retail is usually 2–3 times smaller than supermarkets' share in overall food retail (Reardon and Berdegué, 2002).

Why is there such a lag in supermarkets' penetration of FFV retail? Until recently and to a large extent even today, most supermarkets in Central America have basically offered similar quality FFV to that of wetmarkets, at higher prices. This is for the following reasons. (1) Until recently, supermarkets did not have procurement systems that even had the promise of cutting costs and arriving at competitive prices relative to those of the traditional, informal sector that does not pay taxes and has low overhead. Supermarket prices for FFV are still on average roughly 15%–60% above traditional retailers, according to our interviews. (2) As a result, until recently

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<sup>1</sup> Note that this figure includes intra-regional exports. A significant share of the latter go to supermarkets. Thus from the point of view of comparison of exports with supermarket sales, the export figure is over-stated.

Table 1  
Supermarkets and the Central American fresh fruit and vegetable domestic markets

Country	Number of supermarket stores <sup>a</sup>		Value of domestic food market million \$ <sup>b</sup>		Value of domestic FFV market million \$ <sup>b</sup>		Value of FFV exports <sup>c</sup> million \$		Supermarket share of food market, by value % <sup>d</sup>		Supermarket share of FFV market, by value % <sup>e</sup>		% of stores of leading supermarket chain <sup>a</sup>	GNP (billion dollars) <sup>f</sup>		Population (millions) <sup>f</sup>	
	2002	1997	2002	1997	2002	1997	2001	1997	2002	1997	2002	1997	2002	2001	2001	1997	
Costa Rica	227	217	5495	4753	559	570	339	314	50	45	18	16.5	63	15.7	3.9	3.6	
Guatemala	132	98	7300	6600	292	264	116	75	34	25	9	7	75	19	11.2	10.5	
El Salvador	130	125	5200	4576	520	458	8.3	4.6	37	34	11	10	44	13	6.4	5.9	
Honduras	37	15	2360	1912	236	191	29	44	43	25	12	7	26	5.9	6.6	5.9	
Nicaragua	43	22	720	658	72	66	10.9	10.7	19	10	5	2.6	52	1.8	5.2	4.7	
Total	568	477	21,075	18,499	1679	1549	599	518	36.3	28.1 <sup>g</sup>	10.7	8.5	58 <sup>h</sup>	55.4	33.3	30.6	

<sup>a</sup> Sources: Guatemala, Orellana (2002); Honduras, Orellana and Gomez, A. (2001); El Salvador, Heinen and Gonzalez (1999); Herrera and Iglesias (2002); Costa Rica, Heinen and Herrera (1999); Ramirez, I. (2002); Gallegos, J. 2003a; Alvarado and Charnel (2002); Nicaragua, personal interviews with leading supermarket chains in the region.

<sup>b</sup> Value of domestic food market expenditures is on average 40% of per capita income for Central America. Food expenses can go up to 60% in the poor sectors of the population (Orellana, 2002). FFV expenditures are on average 10% of the total food market based on an approximation of household surveys (Costa Rica: Instituto Nacional de Estadística y Censos 2003; Honduras: El Instituto Nacional de Estadísticas, 2003; Nicaragua: Banco Central 2003; Guatemala: Instituto Nacional de Estadística 2003; El Salvador: Dirección General de Estadísticas y Censos, 2003).

<sup>c</sup> It includes all fruits and vegetables minus bananas, beans, dried fruit, juice fruit, prepared fruit, and frozen vegetables.

<sup>d</sup> For each country (urban only), 2002 has been estimated using the value of all supermarkets' food sales over the total food market value (see sources above).

<sup>e</sup> For each country (urban only), 2002 has been estimated using the value of all supermarket's FFV sales over the total FFV market value. For example, Nicaragua supermarkets' value of FFV sales is 10% of their total sales. Dividing the estimated supermarkets' FFV sales by Nicaraguan FFV market yields the supermarket share of FFV. For 1997, the same procedure was used, taking the number of supermarkets operating in 1997.

<sup>f</sup> World Bank Development Indicators database, 1997 and 2001.

<sup>g</sup> Population-weighted average of supermarket's food and FFV share for Central America and population-weighted average of supermarkets FFV share respectively.

<sup>h</sup> Supermarket-weighted average for leading supermarket chain for Central America (Adding all leading supermarket chain stores of each country divided by total number of supermarkets in Central America).

the only clear advantage of supermarkets over traditional markets was convenience, safety and cleanliness, with a disadvantage in terms of price and no obvious product quality advantage. It is not surprising that such a strategy was useful to penetrate only the middle-high and high income strata of these countries.

### *Supermarket FFV procurement systems and standards in the study countries*

#### *Objectives and standards of supermarkets*

Most retailers and specialized wholesalers we interviewed in Central America agree on the following. (1) Throughout Central America, the concept of fruit and vegetable ‘quality’ among retailers and consumers is restricted to the cosmetic and flavor characteristics of the FFV. (2) Public health and safety standards in FFV are effectively missing in Central America, so that an incentive does not hang over the heads of the supermarkets to institute safety standards. Only in Costa Rica and Guatemala are there food safety regulations, and all agree that both are not monitored or enforced for FFV by the government. (3) Only in Costa Rica is there a more or less widespread consumer awareness of the importance of FFV safety and health, and to the environmental consequences of the production processes. (4) Most Central American consumers today readily assume that the nice-looking FFV offered by clean and tidy supermarkets are safer to eat when compared with the FFV offered in most of the dirty, messy, traditional markets.

Our interviews pointed overwhelmingly to the primary objective of supermarket chains in Central America with respect to FFV being to increase market share through increased sales, which in turn depends on widening the quality gap and narrowing the price gaps with traditional markets.

To meet that dual objective, supermarket chains in Central America have been shifting over the past few years away from the old procurement model based on sourcing FFV from the traditional wholesalers and wholesale markets, toward the use of four key pillars of a new kind of procurement system: (1) specialized procurement agents we call “specialized wholesalers” and away from traditional wholesalers; (2) centralized procurement through Distribution Centers (DCs); (3) assured and consistent supply through “preferred suppliers”; (4) high quality and increasingly safe product through private standards imposed on suppliers.

The first three pillars (organizational change in procurement) together make possible the fourth (institutional change in procurement – that is, the rise of private standards first for quality and increasingly for safety of FFV). Below, we retake each of these pillars.

First, there has been a substantial shift by supermarkets in the study countries away from reliance on traditional wholesale markets for procurement of FFV. The shift is away from traditional wholesalers toward the use of specialized wholesalers who classify product collected from suppliers, sometimes have their own production, and often have semi-contractual relations with “lead suppliers”, discussed further below. The shift occurred for two reasons: (1) The traditional wholesalers lack quality standards and, in particular, lack consistency in standards. The traditional wholesalers who used to supply most supermarkets, did serve these demanding clients with

the best FFV they could find on a given date; such “best” was too often of “below acceptable” quality, according to the procurement officers of the leading supermarket chains that we interviewed. Traditional wholesalers do not get involved in any sort of production support programs, do not usually enter into long term commercial relationships with selected producers (out-grower schemes), and in general buy and sell on a day-to-day basis (spot market). They thus generally lack the capacity to define, monitor, or enforce a quality or safety standard which goes beyond the norm for the wholesale market (e.g., no rotten FFV, basic grading of FFV according to size and appearance, weights and measures). Since the vast majority of their sales are done with clients who in turn have no particular quality demands, traditional wholesalers also lack the incentive to develop, monitor, and enforce standards from which they will gain little if any benefit (2) An objective of supermarkets’ FFV procurement officers is to not find themselves as the weak party in the negotiation process. This is more difficult to achieve with wholesalers than with individual producers, as wholesaling is usually quite concentrated per product rubric.

Second, as an alternative to traditional wholesale markets, supermarket chains in Central America are setting up their own Distribution Centers (DCs) to have centralized procurement of FFV. Of course this is implemented only when the chain has passed a certain size in terms of number of stores or throughput to justify this shift. La Fragua in Guatemala has gone from 32% centralized in 2001, to 78% in 2003, to 98% by end 2004. CSU is almost 100% centralized in Costa Rica.

The main reasons for this procurement centralization are as follows. (1) There are major cost savings from reduced coordination costs, and from spending less time ordering and tracking. (2) There are inventory management cost savings, as chains can implement best-practice logistics; centralization creates economies of scale and so justifies investments too expensive for small chains with decentralized distribution. (3) There are supervision cost savings as it is cheaper and more effective for the chain to monitor deliveries at only one point rather than per store.<sup>2</sup> (4) There are savings in transport and other transaction costs for suppliers who formerly had to make the rounds of widely dispersed stores on deliveries. Centralization also allows suppliers to adjust rapidly to the results of the quality control. (5) Centralization helps chains by upgrading their supplier base, as being able to deal in larger volumes without the bother of delivering to many stores makes it more attractive (in sales less transaction costs) for bigger suppliers to sell to the chain. (6) Centralization can bring substantial product cost savings: buying in one place in bulk can mean economies of scale and better bargaining with suppliers.

These savings can be substantial. For example, Belik (2000) cites evidence in Brazil that cost savings of 30% are gained by supermarket chains moving to centralized procurement.

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<sup>2</sup> Interviewees familiar with the traditional procurement systems of supermarkets noted that per store deliveries subjected suppliers to arbitrary and inconsistent monitoring and even the need for payments to product receivers. These hurt both the supermarket and the supplier and reduce product quality and ability to enforce standards, and raised costs.

Third, in Central America the main supermarket chains and/or their dedicated, specialized wholesalers, are switching to lists of preferred suppliers. In the relationships with these suppliers they use new commercial practices vis-à-vis suppliers that reward consistently high performance in delivery. The reasons for shifting to preferred suppliers are as follows. (1) Supermarket chains need to reduce risk of coming up short on a given item, and want to minimize the costs of putting in place a procurement system that reduces that risk. Having a list of preferred suppliers falls short of issuing formal contracts, but is not so “loose” as to merely engage in spot markets and find whatever is on offer and whoever is selling on a given day. These can in fact be considered “contracts” in the broad sense of Hueth et al. (1999) which includes informal and implicit relationships in which there is some cost (tangible or intangible) to not performing. (2) Constituting the list of preferred suppliers requires an initial act of selection, and that selection screens farmers who cannot meet supermarket requirements (cost, volume, consistency, safety, quality, ease of transaction), and thus reduces search costs. (3) The information exchange linked to a preferred supplier relationship means that the suppliers can “internalize” the requirements and so supervision costs, and the counterpart, costs of product rejection, can be minimized. (4) In what we call in the next section “active relationships” with preferred suppliers, supermarket chains can resolve problems of generalized or idiosyncratic market failure in factor markets for their suppliers. For example, they can help with credit and agronomic advice. In the sense of Eswaran and Kotwal (1985), the chain can also resolve the problem of the missing market for management services by helping the supplier establish crop calendars and undertake commercial planning, even planning for income diversification. This function is particularly important in Central America (Gallegos, 2003a).

Fourth, by the above “procurement system” or combination of the first three pillars, leading Central American supermarket chains are very recently starting to apply tougher and effectively enforced quality standards. The specifics of those standards, in the context of the specific procurement systems of the chains in Central America, are discussed below.

#### *A typology of current practices across chains in procurement system and standards*

The degree to which this overall model of centralized procurement systems is being implemented varies across the region. In this section, we examine different modalities and, for each, discuss the issue of quality and safety standards. The sequence here is from the “traditional procurement system” of Central American supermarkets (decentralized, relying on traditional wholesalers), to modern systems with an emphasis on the four pillars discussed above.

*Type 1: Total reliance on traditional wholesalers delivering to individual stores.* All the independent supermarkets and, a few relatively small chains such as Unisuper in Guatemala (12 medium-sized and 12 relatively small supermarkets) or La Colonia in Nicaragua (7 stores), continue to rely on the traditional system in which traditional wholesalers deliver FFV to each individual store. In these chains, quality standards are low (basically relying on what is available that day in the wholesale market) and their control is based on rejecting high proportions of wasted FFV after it can no

longer be sold. In this system, the client is paying more for FFV of a quality equivalent to that found in the traditional market, the only benefit being convenience, personal security, and store cleanliness.

*Type 2: Outsourced and decentralized procurement system.* This is a system utilized by small-medium chains, such as Megasuper in Costa Rica (with 15% of the supermarket-market) or PriceSmart in Costa Rica, Honduras and El Salvador (with a few stores in each country). These chains lack the critical mass in terms of FFV sales to justify a centralized operation. Instead, they rely on one or two specialized wholesalers, who in turn source mostly from the central wholesale markets and, in some products, from individual growers. For example, PriceSmart relies on Interfrutd (for one set of stores) and Fruta Internacional (for the other, similar clientele, stores) in Costa Rica. Megasuper sources exclusively from Interfrutd.

Quality standards are higher in this system than in the previous one, both because the chains are larger and, in some cases, are focused on a middle-high to high income clientele (e.g., that of PriceSmart), and because the specialized wholesalers are also stronger and fully formal firms, as compared to the traditional wholesalers that are common in Type 1 procurement systems. Yet, quality standards in this Type 2 are still strictly limited to cosmetic and flavor characteristics, as much of the supply is coming from the central markets, and it thus becomes impossible to control for variables other than those that can be appreciated rapidly by simply looking at the product.

One of the main chains in Costa Rica (Megasuper) has taken a step in the past two years toward an intermediate position between the second and third types of system, by having agreed with its specialized wholesaler (Interfrutd) to set up a “preferred suppliers” system for most of their FFV procurement. To ensure access to these suppliers, Interfrutd in a few cases has entered into strategic alliances with organizations of small and medium producers.

*Type 3: Decentralized mixed procurement system.* This type of arrangement can be found in chains which are about to make the switch to a centralized procurement system. An example is that of SuperSelectos in El Salvador (which is tied for first place with La Fragua, with about 55 supermarkets and a chain of small format stores). The chain is still largely reliant on one or two specialized wholesalers. From one wholesale company, Gladys de Alvarado, it gets 70% of its regional produce, nearly all from Guatemala; Gladys de Alvarado has, in turn, a system of preferred suppliers in Guatemala and also buys from the wholesale market and from other specialized wholesalers there. SuperSelectos gets all its international fruit, mainly from Chile and the US, from another wholesaler.

However, SuperSelectos itself has a significant complement of direct sourcing from individual growers and from preferred wholesalers/suppliers in the central wholesale markets. Relying on more than one supplier gives more leverage to the chain to demand higher quality and lower price from the main specialized wholesaler. Thus, quality standards tend to be higher than in the more standard “Type 2” system and the Type 1 system, but again limited to those characteristics that can be evaluated rapidly and simply by expert observation.



*Type 4: Centralized passive procurement system.* This arrangement allows the chain to define and enforce much stricter quality as well as begin, in a limited subset of producer–suppliers and products, to implement safety standards, including, for example, standards on pesticide residues or presence of pathogens such as *E. coli*. The best example in the region is that of La Fragua in Guatemala.

La Fragua, with its various formats (such as Supermercados Paiz and HiperPaiz), has 65% of the supermarket sector in Guatemala. La Fragua has also moved in the past five years to centralize its FFV procurement through its subsidiary “Disfruve”. In 1999, only 20% of its procurement was “centralized” (procured and then distributed to the stores through the small warehouse at Disfruve) – and by end 2004, 98% of its procurement is centralized (through its large, modern DC built in 2002).

In 1999, about 25% of its FFV came from producer–suppliers (as opposed to wholesaler–suppliers delivering from rural areas or from the wholesale market). By end 2004 more than 40% comes from producer–suppliers.

During the five years, the volume moved by Disfruve quintupled to keep pace with the rapidly growing chain. The combination of centralization and progressive shift toward use of producer–suppliers (sourcing directly) is providing Disfruve with a growing capacity to enforce more stringent quality standards at lower monitoring cost. The standard has been formalized in writing for each product, and a well-trained group of employees receives and inspects each shipment. Those with the highest rates of compliance get rewarded with orders for increased volumes of FFV during the next weeks, and the opposite happens to those suppliers who perform less well.

It is instructive, as a window into how these procurement system changes differ over product categories and why, to examine changes over (the five) FFV product categories.

La Fragua’s first category is bananas: the largest single item in any FFV section of supermarkets, here 8% of sales, which is now sourced from large producer–suppliers and will be centralized (and ripened) in the DC in September 2004.

Their second category is “large volume products”-roma (cooking) tomatoes, potatoes, bell peppers, melons, and watermelons (together 30% of their FFV). Five years ago, only 40% of this category was centralized (passed through the DC to be distributed to stores), while today that figure is 100%. This category is now sourced from a half dozen large wholesaler–intermediaries that buy from the wholesale market. Since 2000, Disfruve has been exploring sourcing directly from farmers, but is faced with several problems: (1) a given producer is not able to supply year-round (greenhouses and irrigation are expensive); (2) roma-tomato and potato growers are scattered geographically; (3) a given producer tends to be inconsistent in quality (over the season) delivered and so wholesalers need to pick over larger lots to select the quality required; (4) growers are unwilling to harvest and deliver daily; (5) growers tend to not want to join the formal economy and use (taxable) invoices.

Thus, Disfruve still relies on wholesaler–suppliers for the second category (bulk vegetables) because of the limitations of growers, and for several advantages: (1) Disfruve can patch together a year round-supply by sourcing from wholesalers in Guatemala and Honduras; (2) wholesalers perform the service of selection and grad-

ing (that Disfruve did itself in the 1990s) to get the best quality from the large volumes coming into the wholesale market; (3) wholesalers issue invoices.

Why then does Disfruve still work actively to establish direct sourcing from growers of these items? (1) They want to avoid wholesaler margins. (2) There is no traceability to growers when using wholesalers which constrains the shift over time to implementation of quality and safety standards.

Their third category is “medium-volume bulk products”: carrots, cabbage, lettuce, onions, and salad tomatoes (together 15% of FFV sales) and other main fruit (limes, oranges, papayas, and pineapples). Five years ago, 20% of this category was centralized, now 100%. In 1999, 70% of this category was sourced from the wholesale market – and today only 30% (most limes, onions, oranges, papayas) comes from the market and 70% now come from preferred-list producer–suppliers. Each product has only 1–2 suppliers (that is more attractive to suppliers). The greens and carrots require daily harvest and fast delivery and thus well organized and equipped producers.

The fourth category is “low volume greens”: celery, spinach, and herbs such as cilantro and mint. In 1999, 20% were sourced from producer–suppliers and the rest came from the wholesale market, and all non-centralized. By 2004, all but the herbs are centralized and 100% are bought directly from producer–suppliers, usually small growers near the city, performing the service and labor-intensive care required to grow and deliver these delicate items.

The fifth category is “seasonal products”: high volume products such as mangoes, and low volume fruits. In 1999, 20% of the mangoes were purchased from preferred suppliers from their own farms, and the rest from the wholesale market; 20% was centralized. By 2004, 100% come from producer–suppliers, and 100% is centralized.

Thus, La Fragua made a substantial shift from nearly total dependence on the wholesale market and “decentralized” procurement in 1999 – to substantial use of preferred producer–suppliers (a number of which are medium farmers, except for delicate greens) for what Disfruve estimates as 40% of their FFV volume – and nearly full centralization by the end of 2004. However, there is still, in this stage so soon after centralization, a holdover of use of wholesaler-suppliers. The capacities of Disfruve and producers are not yet developed to the point that they can handle both centralization, procurement of sufficient volumes year-round with consistent quality, and do it without substantial involvement of wholesalers, at least in key product categories. The main issue is that for several large rubrics, such as roma tomatoes, producers are scattered and tend to be small, and the service of bulking and selecting by wholesalers is still needed. The shift to direct sourcing through a producer–supplier system will be a function of the cost of investments by farmers (in greenhouses and irrigation) and La Fragua (in coordination) against the benefits of foregone payments to wholesalers and increased quality consistency of these bulk products.

We call this a passive procurement system because from the point of view of La Fragua, it is up to the supplier to meet its rules and to find the best way to do so. The chain simply sets out clear rules and a monitoring, enforcement and incentive system. Our interviews at La Fragua revealed that the FFV procurement office feels this system is practicable, because they are in a “buyer’s market” with a large number of

grower/packers to choose from – and many of the latter are even involved in export and so their overall operations meet at least quality standards and sometimes, if they are exporting to Europe or the US, safety standards.

Here is the point in this continuum of development of procurement organization and institutions where FFV safety standards make their first appearance. La Fragua perceived the incentive to move one step further and establish in June 2003 a formal quality and safety seal, the “Paiz Seal” (after its main chain, Paiz). This retailer FFV safety seal is conferred on producers who agree to sell the products with the seal only to La Fragua, and who pass the test of the third-party certification scheme, PIPAA.

PIPAA is a public-private entity formed jointly by the Guatemalan Ministry of Agriculture, the AGEXPRONT (a private association of exporters), and the Association of Agrochemical Firms. It was formed as a certification body to certify that producers meet export standards. In 2003, the idea emerged at PIPAA and among suppliers of the need for the application of PIPAA’s expertise acquired in the export market to local and regional market needs, in particular to the supermarket-market. PIPAA thus created for the local market a “Safety Certification Seal.”

To PIPAA’s management’s surprise, the supermarket chains did not jump to use the seal, for the following reasons. (1) PIPAA Certification is costly and not all suppliers can adopt it, which would then reduce the supply to supermarkets. In an interview with the manager of a leading supplier (La Carreta), he noted that in application of PIPAA standards his costs rose 15%, while he calculated that the process management implied by the process standards saved 5% of his costs, and thus the net increase in costs was 10% -possible for a large supplier but a real challenge up front for a small grower. This is comparable to the figures found by Ramirez and Caro (2003) in Chile for stone fruit and corn: application of good agricultural practices implied a cost increase of 17% over farm costs and 11% relative to the value of production. (2) Suppliers who qualify for the PIPAA Seal can sell products with that seal to any chain. Instead, La Fragua supermarkets instituted their own private seal, which is conferred on the producer and displayed on the product. But the Seal is specific to the retailer, who is in the position of reaping a competitive advantage. Also, the supplier cannot use the seal to sell to competitors of La Fragua, thus reducing the suppliers’ bargaining position. (3) La Fragua wants to move the above safety/quality standard/seal from voluntary to mandatory over the next several years. At present, however, it plans on continuing the “passive” system where it is the choice, responsibility – and burden – of the supplier to meet the production and post-harvest level requirements of this certification. There is no premium planned, only preference in sourcing and eventually access to sales.

Another transition point is occurring in this system: starting in mid 2003, La Fragua started (albeit with a small share of its preferred producer–suppliers) to shift toward a combination “passive/active” system by hiring an agronomist to train producers in Good Agricultural Practices toward obtaining and maintaining the certification. By March 2004, 25 medium-sized growers had obtained the certification, in particular for “high risk” products such as salad-tomatoes, bell peppers, endives, lettuce, pineapples, carrots, and strawberries.

*Type 5: Centralized proactive procurement system.* The major difference between this system and the previous one is that in this case the supermarket chain establishes a technical assistance and training program to help its suppliers in making the transition to higher quality and safety standards. The only example in the region is that of CSU supermarkets. CSU has 80% of the supermarket-sector in Costa Rica.

Since 1972 CSU has relied on a specialized, dedicated wholesaler, Hortifruti, for its FFV procurement. Hortifruti is a company in the same holding company as CSU. CSU sells nearly all its FFV under the Hortifruti label, and CSU supermarkets are the only supermarket client of Hortifruti (Gallegos, 2003a,b).

Until about eight years ago, Hortifruti relied mainly on the traditional wholesale market, buying in bulk, delivering lots to its DC, then breaking down the lots and sending small lots around to the CSU stores. As CSU grew into a chain of 97 stores in Costa Rica, the need to procure large volumes and standardize quality became crucial. Over the past 3–4 years Hortifruti moved nearly fully away from reliance on the traditional wholesale market (today it only buys 15% of its FFV from the wholesale market and only 10% from imports via a specialized fruit importer).

But Hortifruti went a step further. Under the impetus of closing the price gap with wetmarkets that was impeding their penetration of the FFV market in Costa Rica, and increasing the quality gap, Hortifruti combined the above shift with the establishment of a network of approximately 200 preferred FFV suppliers. Fifty of these are mainly fresh-processors (such as of fresh cuts) and grower/packers that aggregate product from other suppliers. The rest are individual growers or grower/packers. Each supplier must clean, crate or pack in final usable trays the product, and deliver to the Hortifruti DC. They have “de-listed” only 4% of these over the past five years, and so they rely on careful selection of growers and then the maintenance of a stable relationship that is a kind of de facto informal contract in its function.

The attraction for the growers is the promise of stable access to an attractive and growing market, at prices that are close to but usually a bit above the wholesale market, plus technical assistance, and for the small farmers, input credit. The attraction for Hortifruti is to reduce the power of wholesalers who “take their cut”, to have a group of farmers with whom they can work to increase the quality and safety of the product above that typically delivered to the domestic market, to get the volumes they need all year with consistent quality, reduce transaction costs, and to “lock in” the minority of FFV producers who can meet their volume and quality requirements. While 70% of the suppliers are small farmers, producing mainly leafy greens for which there are few economies of scale and the lots are small, 80% of the volume purchased is from medium or large grower/packers.

Hortifruti not only sends out regularly its agronomists cum field-buyers staff to the suppliers to check on crop calendars, production practices, and to resolve issues that arise, but over the past five years it has set up a Quality Assurance Unit and instituted a package of quality and safety standards that that unit is charged with monitoring. Hortifruti tests monthly samples from the lots of 20 types of products (out of a total of several hundred types of products traded by Hortifruti), tending to focus on items with a higher chance of having *E. coli* or pesticide problems, such as leafy greens and tomatoes. They have their own *E. coli* testing apparatus in house.

For pesticide testing, they must use the government lab, whose high costs are a major constraint to testing frequency and volume (the growers carry the cost of the test; at US\$200 per test, Hortifruti argues that it cannot afford to test more for it could end up creating a resistance among many growers to work with CSU). If they find violations by suppliers on either the pesticide or *E. coli* fronts, this is used to orient the technical assistance and training activities of their field staff rather than to signal de-listing of the supplier or even destruction of the lot of produce that tested above the standard. But, produce is summarily rejected if it does not meet the cosmetic quality standards, since these color, shape, and ripeness are characteristics that the consumer can readily detect. The de-listing of suppliers or destruction of produce found to be unhealthy, are practices that according to Hortifruti would be a major disturbing factor in the relationship with their preferred suppliers. In May 2003 Hortifruti conferred on a tenth of their producers, mainly medium farmers producing leafy greens, the Hortifruti Quality Seal which essentially combines the public Sello Azul (for low-pesticide use) with Codex standards for *E. coli* plus Hortifruti private quality standards.

From the above discussion of the procurement organization changes in Hortifruti, their capacity to impose standards is apparent. However, what are their incentives to do so? First, the CSU FFV merchandising policy is to create a general link in the consumers' minds between "Hortifruti" and quality and safety and freshness. Second, Alvarado et al. (2003) note, citing several recent studies, that the technical assistance and quality assurance system with preferred suppliers has resulted in a 40% cost savings for Hortifruti over the past several years, as a result mainly of a reduction in product losses and waste.

CSU is rapidly moving to implement the same type of general strategy in Nicaragua and Honduras, two countries less developed than Costa Rica. Interestingly, in both Nicaragua and Honduras, the second-place chain (both called La Colonia although unrelated firms) followed suite under the impetus of competition with the front-runners and imitating their procurement systems.

## Conclusions and implications

The above results regarding the evolution of the retail sector in Central America, organizational change in the procurement system of supermarkets, and institutional change in the procurement system of supermarkets, together present the image of an inverted-U curve with respect to product safety standards, and a rising curve with respect to quality standards.

In Central America, we see that as supermarkets rose, and quality standards rose, there was increasing pressure on the producers to use pesticides and farm intensively to meet the rising quality standards and the larger volumes from supermarkets. However, we showed that in the most advanced cases, there is a start down the slope of the inverted U curve, toward supermarket procurement systems driving reform of production systems toward safer and healthier systems. That of course coincides with large swathes of the procurement systems outside of leafy greens and berries and a

few other FFV, even among the leading chains, still focused on cosmetic quality only and not yet safety. Of course the second and third tier chains are still focused on raising cosmetic quality standards and the implications for the pressures that puts on producers to “push” the land.

Several needed actions would influence how and how fast supermarkets continue to develop quality and especially safety standards in Central America.

The first set of needed actions is on the demand side: (1) public education concerning health aspects of FFV consumption; (2) the enactment and enforcement of public health regulations and liability laws with respect to produce, to spur supermarkets on toward implementation of safety standards. Our judgement is that demand side policies are more feasible and applicable only in the countries with relatively substantial middle classes and potential for enforcement by government: in particular Costa Rica but also Guatemala and perhaps El Salvador.

The second set of needed actions is on the market side: (1) more laboratories and lower service fees to test products for pesticides and *E. coli*; these need to be cheap enough to be used for domestic markets, not just aimed at export, or domestic supplier capacity will not grow; (2) easier cross-border movement of produce; this will increase the chance for regionalization of procurement, which will further convergence of standards; (3) expansion and deepening of initiatives such as the Sello Azul and PIPAA efforts. These three are more generally applicable to all the countries.

The third set of needed actions has to do with relax constraints on the farm side—constraints that supermarket procurement officers lament and feel constrain their ability to increase quality and safety: (1) the trend in this industry globally is away from extensive testing of final product towards process standards and controls (Reardon et al., 2001); this implies a need for investments in training and infrastructure at the farms, packing sheds and distribution centers, as well as affordable private labs to audit farms; (2) all of our respondents (supermarkets and farmers alike) felt that public extension services do not fill the need for technical assistance in a way that is adequate to upgrade their production and post harvest practices to meet supermarkets’ needs; (3) small and medium farmers’ assets (such as drip irrigation, green houses, trucks, cold chambers, record keeping skills, and so on) are vastly insufficient to meet volume and consistency and year-round availability needs of supermarkets; (4) the payment period of supermarkets is relatively long; this has more to do with which supplier types are excluded, but it suggests the need for innovative financial products and services.

The above supply-side constraints in current practice lead to the substantial exclusion of under-capitalized small growers. There are ways to address this problem, and these are applicable to all countries. We observed resource-intensive donor and NGO projects that provide assistance to link farmers with exporters, agroindustries and supermarkets; these projects have a tendency to work with small commercial farmers and medium farmers for the local supermarket links and the medium and larger farmers for exports. Their methods and approach needs to be “scaled up” and adapted by the government services in order to reach the mass of producers. As much as possible there needs to be interaction between the “buyer and market focused” projects described above, and the broader supply-side and asset-transfer-focused

projects in which multilateral donors and governments are most apt to be engaged. That will be a crucial element to “scaling up” and helping the small farmers of the region seize the opportunities – and face the challenges – of the rapidly emerging supermarket-market for FFV in the region.

## Acknowledgements

We are grateful for the comments of an anonymous reviewer, Theresa Bernardo, Dave Soroko, and Loren Stoddard on earlier versions, and for funding from USAID via the USAID project Rural and Agricultural Incomes with a Sustainable Environment (RAISE) – Assistance for Trade Capacity Building in Relation to the Application of Sanitary and Phytosanitary (SPS) Measures and the USAID project Partnership for Food Industry Development – Fruits and Vegetables (PFID–F&V).

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