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RESEARCH NOTE

## Market management: the impact on the development of an ornamental plants supply chain in Curitiba, Brazil

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### Abstract

**D. Muraro, R.R.B. Negrelle, F.L. Cuquel, and A. Anacleto. 2015. Market management: the impact on the development of an ornamental plants supply chain in Curitiba, Brazil. Cien. Inv. Agr. 42(3): 453-460.** The results of a study of the impact of market management on the ornamental plants supply chain are presented, using Curitiba, which is considered the most expressive flower market in Paraná State, as a case study. The flower market in Paraná ranks fifth in Brazil in terms of the volume of commercialization and sixth in terms of per capita consumption. However, this State, which initiated floriculture activities nearly 50 years ago, does not have a prominent florist supply pole, although adequate environmental conditions for such activities exist in Paraná. Therefore, to obtain more information about and a better understanding of the determinants of this scenario, a literature review and interviews were conducted. The flower shops structure and operations (retail and wholesale), as well as the relationship among traders and other links in the supply chain, were characterized. Current floriculture sector market management practice does not meet the specific requirements to ensure either an adequate structure or the sustainability of the flower sector supply chain in Paraná State.

**Key words:** Brazil, business relationship, floriculture, production, retail and wholesale.

### Introduction

The internal Brazilian flower market generated approximately R\$ 5.2 billion in 2013, with estimated growth of 8-10% in 2014 (Cerati *et al.*, 2007; IBRAFLO, 2014). This market is considered

strategic for the country because it generates high income per hectare, enables the use of small areas, and generates a large number of jobs (Júnior and Ferraz, 2012). Current *per capita* consumption of around US\$ 12 per year shows great potential for growth compared to some developed countries in which consumption can range from US\$ 100 to US\$ 400 per year (Junqueira and Peetz, 2008; Romero and Restrepo, 2011).

Despite this potential, the development of the flower market in Brazil has been irregular, remaining concentrated in some states and underdeveloped or nonexistent in others despite potential for development in several regions (IBRAFLOR, 2014; Junqueira and Peetz, 2014).

The reasons for this irregularity are not yet fully known. The lack of accurate information about the supply chain, the need for qualifications in customer relationship management and the lack of interaction among actors in the sector have been cited as major reasons for the underdevelopment of the flower market in some Brazilian states (Cerati *et al.*, 2007; Oliveira *et al.*, 2011; IBRAFLOR, 2014).

The installation of productive systems must be based on information that will facilitate the planning and sustainability of investment (Furlanetto and Cândido, 2006; Hilsdorf *et al.*, 2009). Additionally, markets can reduce the feasibility of productive systems, especially small ones that require effective support to introduce products into the market. Therefore, market management analysis, from the point of view supply chain management, improves understandings of the operations and relationships among various actors in these supply chains (Hilsdorf *et al.*, 2009).

Solutions to these problems, such as the application of prospective techniques, have been introduced in previous studies of agribusiness management and supply chains. They contribute to effective formulation of strategies and competitive management (Furlanetto and Cândido, 2006).

In this context, the results of this study, which aimed to analyze the market management of ornamental plants, are presented using the floriculture market in Curitiba as a case study. Curitiba is the most important flower market in Paraná, ranking fifth in Brazil in terms of sales volume and sixth in terms of *per capita* consumption (IBRAFLOR, 2014). However, this State, which initiated floriculture activities nearly 50 years

ago, does not have a prominent florist supply pole, although adequate environmental conditions for such activities exist in Paraná. Therefore, to obtain more information about and gain a better understanding of the determinants of this scenario, a characterization of the flower shop structure and operations (retail and wholesale), as well as the relationships among traders and other links in the supply chain, were explored.

By identifying the similarities and differences of this supply chain compared with others in Brazil, the impacts of market segments on the developing flower supply chain were discussed.

### Material and methods

Data collection was performed as suggested by Gil (2009) through semi-structured interviews with retailers (March-July 2013) and wholesalers (June-July 2014) and supported by parallel direct observation of commercial establishments.

The identification of the population of retailers was conducted based on an initial Internet search using the keyword “flower shops” associated with Curitiba (Paraná, Brazil). Through this process, 94 establishments were identified, which were contacted by phone to obtain preliminary information about their length of time in the floriculture market and their products. From this population, establishments with a minimum of 10 years of experience in the flower market were selected to evaluate firms that had more experience and were already consolidated in the market. Additionally, retail establishments classified as “garden centers” were preferred due to their potential for major market coverage. In total, 32 establishments with such characteristics were identified, and 25 who agreed to provide information were interviewed.

The wholesaler population was identified by querying the retailers interviewed in the survey. This process identified 12 wholesale stores. Of these, seven wholesalers provided data for this research.

The characterization of these establishments operation included their application of management techniques and business controls based on computerized control of sales and stock management, market actions and store/office organization. The sources and logistics acquisition of products, the services offered by the evaluated institutions, the best-selling plants, the stock of these plants and the price variation among these companies were also evaluated.

The aim of this study was to identify the types of relationships among the different links in the supply chain, specifically between retailers and wholesalers (i.e., the existence of some form of association); among retailers, wholesalers and producers (detecting the origin of the commercialized material, supplier selection criteria and products purchases); and among retailers, wholesalers and consumers (i.e., the existence of consumers registration, consumer profile, market strategies and establishment divulgation). At all evaluated relationship levels the main difficulties faced by wholesalers and retailers were identified. Data related to ornamental plants structure, operations and trade relationships were analyzed and compared to those reported in the literature for this segment in other Brazilian cities.

## Results

### *Flower retail and wholesale operations in Curitiba*

It was evident that all wholesale companies used information and communication technology (ICT) resources only to control sales management; there were no detailed records of sales related to the types or quantities of products sold. This investment in ICT was less frequent among retail establishments (30%).

All evaluated establishments indicated that they purchase directly their products from producers,

wholesalers and/or distribution centers. Wholesalers obtain their products directly from growers and distribution centers, while retailers prefer to buy from suppliers that provide delivery services.

Wholesalers predominantly sell plants, while retailers sell plants and supplementary materials, such as pots and fertilizers. Advisory and landscape project services were offered by both trade segments, with higher rates among the wholesale establishments.

In general, the flower market assessed focused on approximately 45 preferred species. Wholesalers served broader range of buyers, including retailers and other professional services in the floriculture and landscaping industries and consumers. Retailers predominantly attended to consumers.

All evaluated retail establishments kept the most sought-after plants in stock, grouped by type, species and size. Wholesale establishments did not stock plants. However, most of these establishments maintained inventories in their retail units.

High heterogeneity was observed in prices charged by the evaluated retail establishments, including plants of similarity size and quality, as well as very different ones. This discrepancy was much smaller in the wholesale sector, varying, at most, by 40%.

Quite complex trade relationships in the assessed flowers market were observed. These not following a linear traditional market supply chain. Commercial transactions were pluridirectional in the supply system (Figure 1). In this dynamic supply chain, all actors had direct commercial contact with the consumer.



**Figure 1.** Trade relationships among flower supply chain actors in Curitiba, Paraná.

In this scenario, the superposition of roles in several commercial establishments was observed. Thus, among the evaluated wholesale establishments, 86% maintained retail units, and 71% provided development and implementation services for landscaping projects. All of these establishments supplied plants directly to landscapers and construction companies in the region, competing with their retail customers. Frequent conflicts were produced by this dynamic, especially related to final prices.

No association, cooperation or direct interaction was observed among supply chain actors aside from their commercial transactions. No strategic planning actions were observed in either sector or among the individually evaluated companies.

Exclusivity was not observed with regard to suppliers or locations of plant purchases. Loyalty of wholesalers and retailers to suppliers was primarily based on the quality, price and consistency of the products. Because there were no formal supply contracts between merchants and their suppliers, this market was fully open to new suppliers who meet these requirements. All respondents stated a preference for local producers that met these requirements, as the proximity of these providers would facilitate delivery logistics.

The suppliers were linked to three production centers that met very specific demands: São Paulo provide cut flowers, potted flowers and some small-sized species for cultivation in gardens; Santa Catarina provide shrubs for outdoor gardens and potted foliage; and Paraná provide small-sized species for cultivation in gardens, a few species of potted flowers and small shrubs for external landscaping. In São Paulo and Santa Catarina, producers were associated with commercialization cooperatives; in Paraná, there was no ornamental plant distribution center to serve the retailers and wholesalers interviewed.

Concerning the relationships between shops and their customers, it became clear that the wholesal-

ers often recorded their clients their by company names. There were no records of customers as individuals. This lack of recordkeeping was also evident among retail establishments.

Investment in marketing promotion was greatly reduced at the wholesale level but was higher at the retail level, occurring in 88% the retail enterprises. The most commonly reported strategies were announce the promotions by flyers, folders or flags in the store, which were usually posted and offered to costumers around holydays. Both wholesalers and retailers reported that store layouts and plant promotions are used to attract clients.

When asked about the main difficulties encountered in the floriculture industry, retailers noted a lack of skilled labor. Among wholesalers, the main difficulty was related to competition and disunity in the sector, to develop joint actions for increased demand. In relation to plant acquisition, retailers reported that their main difficulty was suppliers not meeting their quantity and quality specifications. Most wholesalers were satisfied with the plants supplied, with the exception of the variety of products offered.

## Discussion

The overall experience in the Brazilian floricultural industry with the establishment of production centers shows that success is always tied to positive interactions among the actors in the supply chain. In this scenario, good communication and cooperation are key elements (Pereira and Carvalho, 2008; Romero and Restrepo, 2011), as they provide information that will guide supply chain management and enable competitiveness (Vasconcelos *et al.*, 2005).

In this context, the commercial segment is in direct contact with both ends of the supply chain – the producer and the consumer. Thus, it is better positioned to generate information about demands and trends in the sector, which can guide

the supply chain. However, this is not always a reality. The performance of this role depends on proper commercial management, including information sharing concerning purchases and sales of products. Additionally, this guiding role requires a complete view of the supply chain and recognition of actors' capacities (Furlanetto and Cândido, 2006).

In the commercial segment of ornamental plants in Curitiba, the supply chain to which this segment is related did not show this type of interaction. Thus, the different actors in the supply chain were isolated. They all worked in direct sales to consumers, competing with each other and reinforcing independent, uncoordinated actions in the supply chain. Rather than specialized, well-organized and interconnected links, the floriculture supply chain was characterized by opportunism generated by broken links, as well as by duplication of effort and inefficiency.

Much of the efficiency of a supply chain is linked to the linear flow of a product, starting from the supplier of raw materials, passing through production and distribution through the wholesale trade that supplies the retail trade, which reaches the final consumer. Within this process, each actor specializes in and is limited to activities related to his sector, encouraging both quality and production efficiency (Furlanetto and Cândido, 2006; Rodrigues, 2012). This supply chain model has been shown to be effective in the development of several agribusiness sectors, including the flower sectors in other countries with well-established flower markets and in Brazilian states in which this sector is more developed (Pereira and Carvalho, 2008).

Governance of the supply chains in these locations occurs under the auspices of cooperatives and associations, mainly linked to commercialization, and also through direct coordination by major global buyers (Pereira and Carvalho, 2008; FAO, 2014). These cooperatives and associations can pass information obtained from clients to the

production sector to guide production planning according to market requirements and trends and to improve the competitiveness of the sector.

It is evident that commercial sector actors are the main players in the development of the supply chain of the floricultural industry. Adequate performance of this function by the sector is based on the recognition of their respective supply chain governance capacities (Souza and Neto, 2009).

The success of cooperatives and associations is also based on their knowledge of market demands and trends and on their interactions with other actors in the supply chain. These interactions allow for the transfer of information, as well as the planning and development of joint actions among all supply chain actors. Cooperation also facilitates the representation necessary for public agents to formulate policies that help the sector develop. In countries in which flower markets have been successfully established, such commercial actions formed the basis of their development (FAO, 2014).

Unfortunately, this dynamic was not observed in the study area. It is noteworthy that this commercial flower market segment behavior is not unique to Curitiba. Similar assessments conducted in Rio Grande do Sul (Padula *et al.*, 2003), Minas Gerais (Landgraf and Paiva, 2010), Distrito Federal (Junqueira and Peetz, 2005), Espírito Santo (Thomaz and Negrelle, 2007), and the Northeast (Oliveira *et al.*, 2011), reported the same behavior in less developed supply chains.

Thus, there is no evidence of any effort by supply chain actors to provide guidance for producers. One of the main challenges to this action was inadequate management of purchasing and sales information. Thus, businessmen worked independently, seeking to fulfill only their specific needs without strategic interactions with the other actors in the supply chain, which complicates both the planning and the long-term sustainability of their businesses (Furlanetto and Cândido, 2006).

There was also inadequate management of customer profile information and market demands, which hindered understanding of market requirements. The inconsistent use of ICT to record these data and the lack of information transfer create weaknesses in the local production sector. This weakness does not allow proper planning and hinders understanding of quality and quantity demands in the market.

The activities recorded in the studied flower market conflict with the organization, planning and development concepts for supply chains (Rodrigues, 2012) affect the sector's development. Without an understanding of the interactions among supply chain actors, making investments jointly and broadly to increase the consumption of floriculture products, which is essential for development of the sector, is difficult (Landgraf and Paiva, 2010; FAO, 2014).

All these factors show that the studied supply chain actors did not have a vision of the flower market from a supply chain perspective and were unaware of the benefits that such a vision could provide. They also lack an understanding of their respective governance capacities within the local supply chain to generate consistent information about the market, to guide other actors in accordance with market demands, to propose actions jointly to increase consumption and to lobby government institutions to formulate policies that

support the industry. Such support may include hands-on training and organization of a central distribution system, among other policies.

The ultimate goal of the supply chain is to produce goods or services that generate value for the final customer, facilitating processes, directing investments, and benefiting all actors involved. It should be noted that the study of supply chains is still new and underexplored in many developing countries, especially in agribusiness (Wei *et al.*, 2014).

Thus, the view of the sector as a supply chain must be internalized by businessmen so that they can recognize the importance of improving their business management processes.

This improvement in management should focus on gathering and sharing information about the market, forming associations, undertaking joint actions to introduce species and to make investments to increase the demand for ornamental plants and forming associations to influence public policies.

Current flower sector market management does not meet the requirements for adequate structuring or sustainability of the flower sector supply chain in Paraná. Other similar case studies indicate that this situation is widespread in other regions, resulting in underdeveloped production systems in Brazil.

### Resumen

**D. Muraro, R.R.B. Negrelle, F.L. Cuquel y A. Anacleto. 2015. Gestión del mercado: impacto en el desarrollo de la cadena de producción de plantas ornamentales en Curitiba, Brasil. Cien. Inv. Agr. 42(3): 453-460.** Esta investigación presenta un estudio de caso sobre el impacto de la gestión de la comercialización en la cadena productiva de plantas ornamentales, utilizando Curitiba como caso de estudio. La ciudad de Curitiba es considerada el mercado de floricultura más importante del Estado del Paraná. El mercado floricultor del Estado del Paraná ocupa el quinto lugar en volumen de comercialización y sexto lugar en consumo *per capita* en el ranking del Brasil. Entretanto, este Estado, que inició la actividad de floricultura hace casi 50 años, no presenta un polo productivo floricultor de importancia, a pesar de las condiciones ambientales adecuadas para dicha actividad. Por lo tanto, con el fin de tener más información para una mejor comprensión de los factores determinantes de esta situación, se ha caracterizado a través de entrevistas y revisión de la literatura la estructura y funcionamiento

de los establecimientos comerciales de floricultura (minorista y mayorista) y se caracterizó la relación entre comerciantes y los demás lazos de la cadena productiva. Los resultados muestran que la gestión de comercialización actual del sector de floricultura no cumple las especificaciones requeridas para garantizar una adecuada estructuración y sustentabilidad de la cadena productiva de floricultura en el Estado del Paraná y que este hecho se repite en varios otros estados del Brasil.

**Palabras clave:** Brasil, floricultura, minorista y mayorista, relaciones comerciales, producción.

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