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**THE VEGETABLE SUPPLY CHAIN TO THE TEST OF PUBLIC POLICIES.
THE CASE OF MAR DEL PLATA, ARGENTINA**



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I. A POST-DOCTORAL RESEARCH ON URBAN FOOD SYSTEMS

1. Sustainable urban food, a rising concern

Feeding the cities is taking ever more importance in the political agenda (Krausz et al, 2013; Morgan 2015). A growing number of research focuses on the construction of sustainable urban food systems (Morgan and Sonnino 2010 ; Viljoen and Wiskerke 2012 ; Mansfield and Mendes 2013) and the scale of the city appears relevant to build a food governance oriented toward sustainable food systems (Sonnino 2009; Perrin and Soulard 2014). The ways to study food systems are many. Researchers from Urban Food Planning study the relationships between production, distribution, food consumption and public policy at the scale of cities and regions (Morgan and Sonnino 2010; Brand and Bonnefoy 2011; Morgan 2015). The links between production and consumption are mainly addressed through short commercial circuits (Lamine et al 2008; Chiffolleau 2009; Simonin and Pringent-Hérault-Fournier 2012), including the analysis of farmers' markets (Holloway and Kneafsey 2000), the role of local and organic food in the construction of food ethics (Little et al 2010; Morgan 2010) and the potential role of catering in the development of new sustainable food strategies combining local supply and food quality (Friedmann, 2007; Morgan and Sonnino *ibid.*; Sonnino 2013). In this scientific landscape, a broad research panel focuses on agriculture *sensus largo* in urban food systems. Due to its geographical proximity to the city, urban and periurban agriculture (UPA) is directly involved in the supply of urban centers (Le Gall 2011; Moustier and Danso 2006; Robineau et al 2014) and is at the chore of the construction of a food governance linking city and agriculture. UPA has been at the heart of researches highlighting its social, economic and food role (Paddeu 2012 ; Scheromm and Robineau 2015). Researches have mapped the origin of food consumed in the city (Edwards y Mercer 2010) and, more generally, the role of agriculture in the foodscape has been analyzed through mapping initiatives linking city and agriculture within an urban area (Perrin and Soulard *ibid.*). All these studies show through the idea of a local food governance that responds to current food issues: health crises, crises in prices since 2007 and increased distance between producers and consumers (Bricas 2013 et al.).

In Argentina, the urban food issue has settled into the political agenda in a context of economic crises that have weakened the access to food to the most fragile part of the population. From the 1990s-2000s, various national programs have aimed the development of agriculture for self-consumption in urban and rural vulnerable households (ProHuerta is the most famous example), or have aimed to develop producers' markets to control food prices by encouraging producer-consumer relationship. The case of Rosario is also well known for its municipal program "Urban Agriculture" which has significantly promoted the development of urban agriculture and of its commercialization. Recently, links between city and agriculture have been put on the forefront of the political and media scene through rising health concerns. Indeed, in Argentina as in many Latin American countries, the dominant agricultural industrial model - based on the intensive use of chemical inputs - and the agricultural model oriented towards agroecology coexist and confront (Altieri y Toledo 2011 ; Cittadini 2012). In recent years, the industrial agricultural model was strongly challenged by a growing number of environmental associations¹: the use of pesticides and their health effects are the main cause of conflicts that arose between producers and their neighbors in suburban areas (Pérez et al. 2013). In many urbanized regions of Argentina, the lobbying of these associations has resulted in the adoption of municipal laws prohibiting the use of pesticides in a defined perimeter around urban centers (Conti et al. 2013). The vegetable production – which is characteristic from the periurban areas - is one of the productions targeted by these laws. Although the food issue is not explicitly mentioned

¹ In 2015, the famous Round'up® has been declared as carcinogenic by the World Health Organization

in these municipal laws, they could represent a turning point in the reflections on the city agriculture-food links, associating citizens' movement and political intervention.

2. Understanding the construction of the local food governance in Mar del Plata, Argentina

Mar del Plata is the capital of the district (*partido*) General Pueyrredón, located at 400 km South of Buenos Aires. It is the main seaside resort of Argentina, with a population rising from 700,000 to about 2 to 3 million during summer time. The city has been built to look toward the ocean and the infrastructure is largely developed to welcome tourists during the summer season and to host a large fishing harbor. It is the first Argentinean touristic city and in 2013, the port of Mar del Plata concentrated almost 55% of the volume of fish caught throughout the country (Navarro et al. 2014). This city is also surrounded by the second horticultural belt of the country². However in this city looking toward the ocean, the vegetable production has not been a priority issue for public policies until it was put at the chore of the debate in 2008, when a municipal order prohibiting the use of agrochemical in a radius of 1,000 meters around urban settlements was voted. The suddenness of the adoption of the order, the conflicts between farmers, the municipality and environmental associations that emerged, and the extent of the area of production concerned (about 600 farmers³) question the new relationships that could develop between this city and its horticultural belt.

In different cities of Argentina where such municipal orders have been adopted, consultation processes have resulted in the definition of programs to support the agroecological transition of urban fringes (Caudron, 2012; Pérez et al 2013.). In Mar del Plata, the productive and health dimensions of the law are accompanied by the *Programa Desarrollo Rural Sustentable*, driven by the municipality in collaboration with research centers, technical services and groups of producers. It leans on other existing programs supported by INTA, the Ministry of Agriculture and the University of Mar del Plata (Autoproducción de Alimentos-PAA, ProHuerta, Cambio Rural), to support the agroecological transition of producers while offering alternative marketing channels (direct sales, farmers markets). However, beyond this institutional support for agroecological transition, the new challenges posed by this order question 1) the transformations in conventional production and marketing channels, which concerns the vast majority of producers and of volumes marketed, and 2) the coexistence of different models of production and of commercialization in this new context.

The context appears as an opportunity to question the food relationships between the city of Mar del Plata and its agricultural belt, and more especially the construction of a local food governance oriented towards a more sustainable food system. I define the **food governance** as all the coordination, cooperation and interdependences between actors of a territory that have for common area the food issue. And I understand **sustainability** not through objective criteria but through the actors' perspective; that is to say, what is the sustainability in the logic of local actors (Mathieu 2006). Indeed,

² In terms of area and volume of production, after the one of Buenos Aires-La Plata.

³ The major part of the vegetable production in the region is informal (informal renting/sharecropping/employment contracts, incomplete declarations of the areas cultivated etc.), and very little specific data exist on the horticultural belt. Thus it is difficult to know the exact number of producers and the area affected by the municipal law. A voluntary registration of producers was set up by various organizations and aims to create a shared database: RENAF (family farming registry of the Ministry of Agriculture), RENSPA (sanitary national register of producers of the SENASA), REPUPA (municipal register of small productive units of food). But for now, these inscriptions are still largely incomplete.

it is supposed that the « sustainability » of a food system is not based on objectives criteria measured separately but on a set of initiatives that tend to lower the socio-economic, health, spatial, political and environmental problem that can harm food access (Soulard and Valette 2010).

This postdoctoral research aims to contributing to understand : **how is being built such local food governance in Mar del Plata in a context of rising concern for health and environmental issues?** During the time of this postdoctoral research (1 year), I tried to understand the relationships between the local stakeholders of the vegetable food chain, the changes that occurred in food distribution patterns, and how coexist so-called “conventional” and “alternative” supply chains.

Many authors have emphasized the central role of urban authorities - in addition to national policies - in the development of food strategies at the city scale (Pothukuchi and Kaufman 1999 ; Mansfield and Mendes, 2013; Morgan, 2013). But beyond the necessary willingness of political actors to construct urban food strategies, initiatives driven by local actors play a central role in the long term construction and consolidation of these strategies (Morgan 2013). Analyzing the relationships between actors can thus provide interesting inputs to understand the construction of a local food governance combining public policy and actors’ practices. In Argentina, Viteri (2010; 2011) has analyzed the relationship between actors in the structuring of marketing networks in the wholesale markets in Buenos Aires and Mar del Plata. She notably highlighted how these relationships generate initiatives that strengthen the social sustainability in food trades through the development of solidarity networks. In this postdoctoral research, I will identify situations of interactions between actors of the food system that can illustrate ongoing processes embedded in the construction of a local food governance and that stimulate thoughts on the construction of sustainable food systems. More specifically, in a local context where agroecological production and shorts circuits are often seen as necessary conditions to the development of sustainable food systems (Villagra 2008; Mestres 2015), this is to question the place of other hybrid forms in the construction of such systems.

3. Methodological approach

I decided to study vegetable supply chains in Mar del Plata in order to bring a geographical approach to the relationship between the actors involved directly or indirectly in the different supply chains. To analyze these relationships, I opted for the reconstruction of the different circuits of vegetable production and distribution in the territory – what I called the “local foodscape”. Local food governance and local foodscape and complementary concepts: the description of the local foodscape brings us to the comprehension of how the actors and elements of this foodscape are interconnected, how they are locally anchored, and what systems of governance are at stake. I made the hypothesis that different food systems coexist in the local foodscape, are based on different systems of governance that bear differently the local food issue.

Colonna et al. (2011) proposed the following variables to differentiate the types of food systems:

- The first group of variables deals with the structuring of the vegetable food chain (short or long circuits, geographical proximity between producers and consumers, types of produces etc.)
- The second group rather deals with institutional approaches (work organization at different stages, role of public action, circulation of information etc.)
- The third group is more related to cognitive aspects (product quality, relation to the local territory, consideration of people, social inclusion etc.)

Although I did not describe entirely the different food systems for vegetable produces in the local foodscape of Mar del Plata, this framework used to build a typology of food systems represents a good approach to describe the different circuits of vegetable production and distribution in the territory.

Wiskerke (2009) proposed a framework of what could be a local food governance promoting the sustainability food systems. I mobilized that approach to analyze the local food governance in Mar del Plata, highlight the different governance systems that coexist.



Figure 1 Framework of analysis of the local food governance

In order to understand the governance systems of the different vegetable supply chains I looked at the forms of governance through the interrelations of three angles proposed by Wiskerke (2009) (Figure 1):

- The market angle, which implies to analyze the governance both in the organization of the production and in the organization of the commercialization
- The government angle, which is about the role played by public actors in the local urban foodscape
- The civil society angle, which is about the role played by citizens, as neighbors and food consumers.

4. Research activities

The different parts of the study are based on the analysis of :

- The construction of the vegetable food chain over time : development of the city and of its horticultural belt, and development of different circuits of commercialization
- Public policies linked to agricultural and food issues
- The governance systems in the different types of vegetables supply chains.

The collection of data was based on field visits, open and semi-structured interviews with local actors, the study of projects/policy documents, and the review of existing literature. The existence of a set of research works on horticultural production and on marketing channels in Mar del Plata ensured the

feasibility of this research. I could mobilize both the results of these works and the field knowledge of local researchers and technicians working on the vegetable sector. Indeed, horticultural belts of Argentinean cities, notably that of Mar del Plata, have been the subject of numerous works on the part of researchers and technicians from the National University of Mar del Plata, the Balcarce Integrated Unit (INTA / Facultad de Ciencias Agrarias), the University of La Plata and the CONICET. These researches cover a wide range of questions including the technical aspects of production (Adlercreutz 1999), the socio-technical changes engendered by the agrochemical issue in urban fringe (Molpeceres et al. 2015) and the socio-economic characteristics and territorial vegetable production (Bocero 2002; Bocero and Prado 2008; Diez and Cittadini 2010; Bocero and Di Bona 2012), including the role played by Bolivians in the development of the horticultural sector (Le Gall 2011; Benencia and Quaranta 2013). Many studies conducted in the frame of PAA and ProHuerta programs have analyzed projects supporting urban agriculture (Hamdan et al. 2004; Cittadini and Borrás 2005 ; Hamdan and Verón 2007; Mediavilla et al. 2009). Finally, a whole section of researches developed by sociologists and economists focuses on the marketing aspects and networks of actors: they notably emphasize on the social structure of wholesale markets (Ghezan et al 1999; Viteri 2010; Viteri 2011; Garcia and Viteri 2013), and to a lesser extent on street markets (Villagra 2009). Finally, some studies mention the eating habits of urban households in Mar del Plata for the consumption of fruit and vegetables (Borrás et al. 2013).

Field observations as well as 41 interviews have been conducted:

- 11 interviews with market gardeners of different profiles
- 11 interviews with institutional actors (elected representatives of the municipal council and directors/agents municipal technical services)
- 8 interviews with actors of the commercialization (responsible of wholesale markets, stallholders, small retailers and street markets participants)
- interviews and field visits with 8 different technical agents
- 3 interviews with neighbor's associations

In the following document, all actors' statements that are mentioned are taken from interviews realized during this field research (when it is not the case, the source is mentioned).

II. BACK TO HISTORY OF CITY-AGRICULTURE-FOOD INTERACTIONS IN MAR DEL PLATA

Coming back to the history of Mar del Plata helps to understand how city-agriculture-food interactions have evolved and shaped the current urban foodscape, and how different vegetable supply chains have been structured over time.

1. The early development of the vegetable production in Mar del Plata: oriented to local supply

a) The early development of Mar del Plata

Originally a native territory of Indians, the city of Mar del Plata has gradually developed since the installation of the Spanish settlers who created a salting establishment in the 19th century (Lucero, not dated). This first activity led to the development of a port, a mill, a manufacture of oils from animal origin, and stimulated the development of the regional agriculture that aimed to feed the small urban

center and to export to other areas. The salted meat of the cattle raised in large *estancias*⁴ was exported to Brazil and Cuba to feed the slaves. Live animals, leather and other animal products (oils, horns) were commercialized locally or in Buenos Aires.

b) Supplying the emerging seaside resort: the development of horticulture

The arrival of the railway in 1886 was decisive in the transformation of Mar del Plata into a small urban center, which began to attract tourists from upper classes of Buenos Aires. Luxury hotels and second homes of European type were built by wealthy families who used to spend their summer holidays in this new seaside resort. Mar de Plata progressively became Buenos Aires's seaside resort, and also Argentina's (Bouvet et al. 2003).

The early development of Mar del Plata has attracted European migrants fleeing crisis in their countries and has stimulated the development of local farming activities to supply food to the growing population. The salting establishment of Mar del Plata attracted the first Italian migrants of the area. When it closed toward the end of the 19th century, the European immigrants were working in fishing and construction sectors - due to the increased demand drove by the development of tourism – and also in agriculture, in small farms nearby the growing urban center.

European migrations

Toward the end of the 19th century to the 1950s, Argentina has been one of the main destinations for European emigrants for different reasons. There was a need for workforce in extensive agricultural and livestock production, and Argentina had a policy oriented toward the welcoming of immigrants willing to participate to the country's industrial and agricultural development⁵. Indeed, in 1860 was established the first regular sea connection between Argentina and Europe, which led to an important increase in export of raw materials (sheep wool was the main source of income from exports). The external demand for those products being increasing, the government decided to occupy the entire fertile territory of Argentina to develop agriculture: Argentina was passing to the agroexport step (Ferrer 1965). The land was mainly Mapuche's and between 1879 and 1881 the General Roca led the controversial "Conquest of the Desert"⁶ to eradicate the native Indians and to develop extensive agriculture and livestock production for exports. The amplification of the agricultural frontier led to a real policy of population in order to populate the rural areas. This context attracted many Italians and Spanish. A first wave of European migration was before 1914. Many Italians came to Argentina toward the end of the 19th century when Italia was having great socio-economic and political problems in the period of creation of the Italian kingdom and crisis in the agricultural sector due to the new context of Industrial Revolution and competition with productions of other countries (Khatchikian et Murray 1996). Toward the 1930s, the Spanish immigration increased due to the Civil War in Spain at this period (although the number of Spanish migrants has been much lower than the Italian one). In these contexts of crises, emigration was seen by impoverished families as a possibility to seek improved living conditions elsewhere.

The workers sometimes settled in the outskirts of the urban center, had small-scale agricultural activities and participated to diversify the landscape of local Pampean agriculture. As underlined by

⁴ The owners of these estancias were Spanish or Portuguese, notably in the area Laguna de los Padres.

⁵ The article 25 of the Constitution of 1853 says: "El gobierno federal fomentará la inmigración europea; y no podrá restringir, limitar ni gravar con impuesto alguno la entrada en el territorio argentino de los extranjeros que traigan por objeto mejorar las industrias y enseñar las ciencias y los artes".

⁶ Many authors agree to consider the « Conquest of the Desert » as genocide.

H.J Frontini (interviewed in Verona 1997), “*the old quintero⁷ of Mar del Plata was a migrant who learned his job in Europe, arrived in Argentina with his tools and started to develop horticulture for home consumption. After came the season demand, linked with tourism*”⁸. The closing of the salting establishment, linked with the end of slavery in Brazil, made the estancias of the region to change their production toward better quality livestock and cereals whereas the Italian community was developing horticulture. The first channels of commercialization were door to door to houses, hotels and through some fixed or mobile *verdulerias*.

"The delivery is a lifetime habit here. My dad and my grandfather already did. But it was not called "delivery" it was called "reparto". People came, ordered. My grandfather prepared. Before Mar del Plata was for people with money: rich families came with 40-50 people at home and called my grandfather to order. My grandfather delivered them, and they paid in March before leaving. They all did that. My grandfather knew that at 6 in the morning there were already 20 home-employees in the business waiting for vegetables. They had about 60 families of the oligarchy that ordered them vegetables. Also at that moment there was more contact between producers and consumers”⁹ (Verdulero from the city center).

The importance of Italian migrants in the origins of Mar de Plata would deeply mark to foodscape of the city. Looking at the restaurants and the food shops, the influence of Italians is clear. Pizzas, gnocchis, fresh pastas, and ravioli can be found anywhere and are typical feature of the food of Mar del Plata.

2. Touristic boom and consolidation of the local vegetable supply chain

a) Mar del Plata turns toward the sea: the rush for construction

The port of Mar del Plata was inaugurated in 1922, which gave a greater importance to the small urban center. With the development of fishing activities and coastal tourism, Mar del Plata was definitely turning toward the ocean. Agricultural activities from the hinterland were progressively having minor importance in the development of the city.

Toward the 1940s, Mar del Plata grew from an elite resort to a mass tourism resort. Its faced fundamentally changes between the 1940s and 1970s with the boom of building. From 1940, new labor rights allowed workers to take holidays and Mar del Plata became the place elected by these new vacationers. Trade unions bought hotels to enable their employees to come for holidays. The following decades, middle class families rushed to Mar del Plata to have their own apartment or house in the "*ciudad feliz*". With the arrival of this mass tourism, upper class families forsook Mar del Plata to turn to seaside tourism in Uruguay. The construction boom and the promulgation of the Law on 13512 of horizontal property in 1948 (which allows multiple owners within the same building) led to the construction of very tall buildings, such as the characteristic 125m-high "Havanna". The old European

⁷ The farms where vegetables are grown are called “*quintas*”.

⁸ Translated from Spanish: “*El viejo quintero de Mar del Plata era un inmigrante que aprendió su oficio en Europa, llegó al país con sus herramientas y empezó a “hacer la quinta” para su propio consumo. Después apareció una demanda de estación ligada al turismo*”

⁹ Translated from Spanish: “*La delivery es una costumbre de toda la vida aca, mi papa y mi abuelo ya lo hacían. Pero no se llamaba “delivery”, se llamaba “reparto”. La gente venía, pedía. Mi abuelo lo hacía. Antes Mar del Plata era para gente de dinero: familias muy ricas llevaban 40-50 personas a las casas y llamaban a mi abuelo para hacer pedidos. Mi abuelo les entregaba, y pagaban en marzo antes de irse. Y eso lo hacían todos. Mi abuelo contaba que a las 6 de la mañana tenía ya 20 empleados de casa en el negocio esperando los pedidos. Tenían como 60 familias, de la oligarquía, que les pedían verdura. Hasta allí se daba un contacto directo entre el productor y el consumidor*”

type houses - called the "red roofs" -, were gradually destroyed to make way for tall buildings on the seafront. Today, this seafront line of tall buildings is a characteristic feature of Mar del Plata. One can hardly find vestiges from the small urban center that once was Mar del Plata.

b) Until 1960s: an horticultural production driven by the urban development of Mar del Plata

The boom of Mar del Plata attracted many families from other regions of Argentina, mainly north-east and pampean, in the 1940s-1950s. The economic recession resulting from the crisis of 1930 deeply affected agricultural and livestock production of many rural families. In the 1950s, when Mar del Plata was booming, many came to the "*ciudad feliz*" to find a job in the construction sector: the ones working as bricklayers mainly settled in the urban center and the ones working as stonecutters in quarries settled in the area of Batán, near the quarries. Later, when the quarry activity went down, many of them found jobs in the port (as in industries of fish flour) or in potato and vegetable production. Also, a second wave of European migration occurred after the Second World War, when families fleeing postwar judgment elected Argentina due to President Perón's welcoming policies. Most of Spanish and Italian migrants settled in urban areas to be close from the port and the touristic center. But some families, mainly Italians, settled as farmers in the urban fringe in an area called *El Pino* (west of the urban centers, where were already living Italian families – see Figure 2), and developed horticulture (Favero 2005)¹⁰. Moreover, owners of the large *estancia* in Laguna de los Padres were expropriated in 1946. A sector of the *laguna* became an area of public interest. The 2,000 ha of the other sector were divided into 156 units of about 10 ha each; each parcel was planned to foment vegetable production (installation of irrigation systems notably) in order to provide fresh vegetables for the growing city. What would be later the large horticultural belt of Mar del Plata was taking form. In 1962, the area of vegetable production reached 1,200 ha. "*The take-off of the regional horticulture coincides with the take-off of Mar del Plata, towards 1947/48. In this, the Italians actively participated.*"¹¹ (interview of Ing. Lopez Camelo in Verona 1997).

The crisis, the boom of the tourism sector and the immigration due to the Second World War (mainly Italians) made that the urban population of Mar del Plata rose from 10,000 in 1900 to 124,000 in 1945.

The booming of the city went along with the creation of many *verdulerias* in the city center to sell vegetable to the ever growing urban population. Vegetable producers brought their produces with carters to the city and went through different stops to sell vegetables before going back to the *quintas*. They stopped in Plaza Rocha, then in Juan José Paso, but the most famous stop was in Avenida Jara, which was called *La Parada* ("the Stop"). "*Allí [en la "Parada"] los quinteros hacían trueque de sus mercaderías y los verduleros se proveían al mejor precio posible*" (interview of H.J. Frontini in Verona 1997). Although producers kept on selling part of their production directly to consumers, the increasing number of *verdulerias* marked the end of the direct sale. These stops permitted to the *quinteros* to sell quickly higher quantity of vegetables compared to door-to-door selling. The "Stop" was the early form of what would later be the first wholesale market.

¹⁰ Toward 1962, El Pino was still the main area of vegetable production supplying Mar del Plata, followed by the area Laguna de los Padres (Bocero, 2002).

¹¹ Translated from Spanish: "*El despegue de la horticultura regional coincide con el despegue de Mar del Plata, hacia 1947/48. En eso tuvieron una participación activa los italianos*".

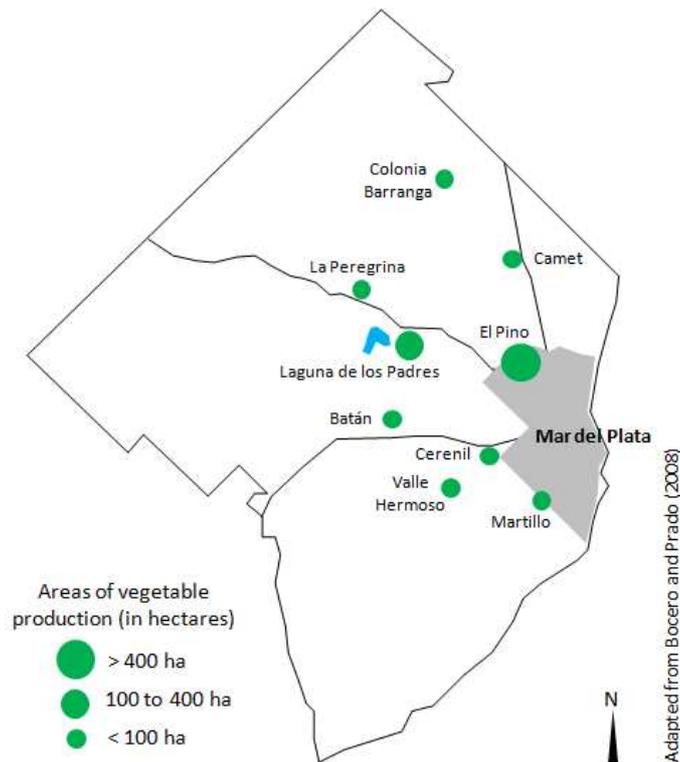


Figure 2 Areas of vegetable production in the 1960s in the Partido General Pueyrredon

3. Intensification of horticulture : from door-to-door to export to national markets

a) *New technologies and new workforce: the boom of horticulture*

In the 60s-70s, great transformations occurred in horticulture. The tractor was introduced in the 1960s. Then the incorporation of new technologies like irrigation by aspersion and chemical inputs during the Green Revolution increased the size of the area cultivated. Many farms of Laguna de Los Padres increased their size by buying land to neighboring farms¹². The area of vegetable production increased along the different roads (see Figure 3 on page 15). By the end of 1970s, the area of Laguna de los Padres Along road 226 overcame El Pino (by the time 400 ha) in terms of number of farmers and area cultivated. Along the road 88, the production areas of Batán and Valle Hermoso developed at the same period, so as the one of San Francisco (along the road that links road 88 to road 226). Not many areas of horticulture developed apart from these three axes, except a small area along road 2 (Trinidad and Colonia Barranga) (Encuesta Hortícola del Partido de General Pueyrredon, 1978).

Since mid-20th century, Mar del Plata had continued to expand and to attract people from Argentina and neighboring countries. Although there are always been migrations from neighboring countries, in the 1960-1970s there was a notable increase in the immigration from other Latin American countries (especially Bolivia and Chile), as well as from the north-east region of Argentina. In the first part for the century, migrants had come mainly to work in construction, mines and fishing activities; from the 1960s, the agricultural sector started to attract many families. Indeed, the technological transformations required increased labor force. Bolivian migrants either came directly to the Buenos Aires Province or after a period of work in plantations in the north-east of Argentina. They first arrived as agricultural workers (*peón*) in horticultural production and replaced local workers looking

¹² The dictatorship (1976 -1983) led to the stop of support from the state to the area of vegetable production of Laguna de los Padres. Some producers left the production and sold their farms.

for other jobs in the city. Then the system of *mediería* (share-cropping – see frame below) became a common modality of work and participated to the important development of horticultural production at that period. The “Bolivian scale” (*escalera boliviana*) has been described by Benencia (1997) to explain how Bolivians entered the productive horticultural landscape of Argentina and went from *peones* (workers), to *medieros*, *arrendatarios* (land renters) and then *propietarios* (land owners) (see following frame).

*"You are not born sharecropper, you become it. It is first as an apprentice or a worker. It is usually a boy who comes from Bolivia to work for a sharecropper, also Bolivian. He comes to work very hard and not always in the good conditions. So the worker learns while working, and after a year he becomes "tantero". As "tantero" he knows he will be paid for what he does [...]. After two to three years the tanteros become sharecroppers. The step consist in "ask for a parcel". This is equivalent to taking over the production of a parcel belonging to a quintero, where the sharecropper who works keeps 30% of the sales. Since on the way from apprentice to sharecropper the man was saving some pesos, there are cases of sharecroppers who share some costs with the owner of the farm, thus becoming associate. When the story has a happy end, the sharecropper earn enough to buy its land and become an independent quintero"*¹³ (interview of H.J Frontini in Verona 1997).

Migrants mainly settled away from the urban center, in areas close from agricultural production areas, creating new *parajes* (small settlements) as Santa Paula, Coyunco, Gloria de la Peregrina, Sierra and Laguna de Los Padres. The population of Batán increased dramatically due to its location near quarries and near the main area of vegetable production. In 1978, the *quinteros* (farm workers) represented 35,5% of Batán population¹⁴.

The Bolivian scale (Benencia 1997)

The changes in the production size and technology in Argentinean horticultural belts led to a change in work relationships. The *mediería* (share-cropping) became preferred to the employment of laborers in order to minimize and share the risks of production. The owners take in charge the technical and management aspects whereas productive aspects are delegated to the *mediero*. The land owner is in charge of the commercialization. This modality of work is still largely used in the different horticultural belts of the country; most of the share-croppers are Bolivians and descendents from Bolivians. The modality of the *mediería* varies from one farm to another, but in average 30% of the income from produces sales goes to the *mediero* and 70% to the land owner. Most of the time the land owner buys the inputs and the *mediero* provides the workforce.

Both successive European and South-American migrations and technological improvements have dramatically changed the horticultural landscape of Mar del Plata. Whereas Italians and Portuguese were pioneers of horticultural production in the area of Mar del Plata, Bolivians started to get each

¹³ Translated from Spanish: “*Un mediero no nace, se hace. Se hace primero como aprendiz o peón. Suele ser un muchacho que viene de Bolivia para trabajar para un mediero, también boliviano. Viene para trabajar muy duro y no siempre en las mejores condiciones. Así el peón va aprendiendo el oficio, para luego de un año o algo mas convertirse en "tantero". Como "tantero" sabe que va a ganar por lo que haga [...]. Después de otros dos o tres años como tantero algunos se transforman en "medieros". El paso consiste en "pedir un lote". Esto equivale a hacerse cargo de la producción de un lote que pertenece a un quintero, en el que el mediero que lo que trabaje se quedara con el 30% de las ventas. Como en el camino de aprendiz a mediero el hombre fue juntando unos pesos, se dan casos de medieros que comparten algunos costos con el propietario de la quinta, transformándose de esta manera en socios. Cuando la historia tiene final feliz, el mediero gana lo suficiente como para comprar su tierra y hacerse quintero independiente”*

¹⁴ Anuario estadístico 1974/1980. Municipalidad del Ptdo. de Gral. Pueyrredón.

time a greater importance in the productive landscape (Ringuelet et al. 1992). Nowadays the Bolivian community is well present in the horticulture sector and has contributed to the development of horticultural around Mar del Plata as well as many other horticultural belts of the country¹⁵.

The introduction of hybrids in the 1980s and of greenhouses in the 1990s continued to change the productive landscape of the horticultural belt (Bocero and Prado 2008). This went along with the development of many supermarkets in the country and the increasing standardization of vegetable quality (Selis 2000). The advantages of greenhouses were many: de-seasonality of production, less risk in the face of climatic hazards, a more regular offer and better-looking produces. Production in greenhouses did not replace open-field cultivation but complemented it and participated to a great increase in vegetable production around Mar del Plata. A nucleus of producers adopted that technology in early 1990s and were soon followed by many. Today, nearly all producers have a least one greenhouse, whatever the size. About 7% of the area of vegetable production in the *Partido Puyerrdon* is of greenhouse (Adlercreutz 2015).

These dramatic changes in horticultural production went along the concentration of the productive land: in order to increase their production surface, many producers bought land to family leaving agriculture mainly around Laguna de Los Padres. Today, the majority of vegetable farms are from 1 to 15 ha (about 80%), but some have more than 50 ha (7%)¹⁶ (Fernandez Lozano 2012). Also, a specialization was observed in vegetable production to 3 to 7 produces linked to the progressive concentration of vegetable marketing and to the adoption of greenhouse technology (Carrozzi and Viteri 2002): the production with major added-value, such as tomato and lettuce, are grown in greenhouse. Finally, in order to get better prices, producers started to invest more in the presentation of the produces by improving the packaging.

Adopting the greenhouse technology

Before the adoption in horticulture, the greenhouse technology was already used by flower producers. Until the 1980s, in the Province of Buenos Aires, vegetable producers did not need to use the greenhouse technology because early and late production was provided by other regions of the country (notably Salta, Mendoza, Corrientes and Formosa).

But between mid-1970s and 1990s, the continuous increase of vegetable production throughout the country led progressively to a saturation of the markets, making it difficult for local producers to get good prices (Benencia 2002). Hence, in order to foment the profitability of their *quintas*, the vegetable producers started to increase their cultivated area to take advantage of the economy of scale, and then, the ones with better investment capacities started to use greenhouses. The idea was to have the highest diversity and volume of production possible in order to enter each day to the wholesale markets and to be able to get the best prices possible (Benencia 1992).

The adoption of the greenhouse technology and the intensification of farming practices went along the greater importance that took agronomists in the productive landscape. Producers who have the mean to pay for technical advises from an agronomist rely on this service and the agronomist is in charge to ensure and to maximize the production.

¹⁵ <http://www.conexionbrando.com/1669745>

¹⁶ I exclude here the farms producing “heavy” produces like potato and carrots which are classified as extensive vegetable productions (Fernandez Lozano 2012).

The city is today surrounded by the second largest vegetable belt of the country (Figure 3), after the one of La Plata. The area of vegetable production of Mar del Plata increased from 1.060 ha in the 1960s (Consejo Federal de Inversiones, 1964), to about 4.200 ha in 1985, and about 9.000 ha¹⁷ in 2010 (Atucha et al. 2011). The maritime climate, characterized by fresh summers and mild winters, represents an advantage to grow vegetables, especially leafy ones (Verona 1997). The horticultural belt of Mar del Plata is thus famous for its production of leafy vegetables.

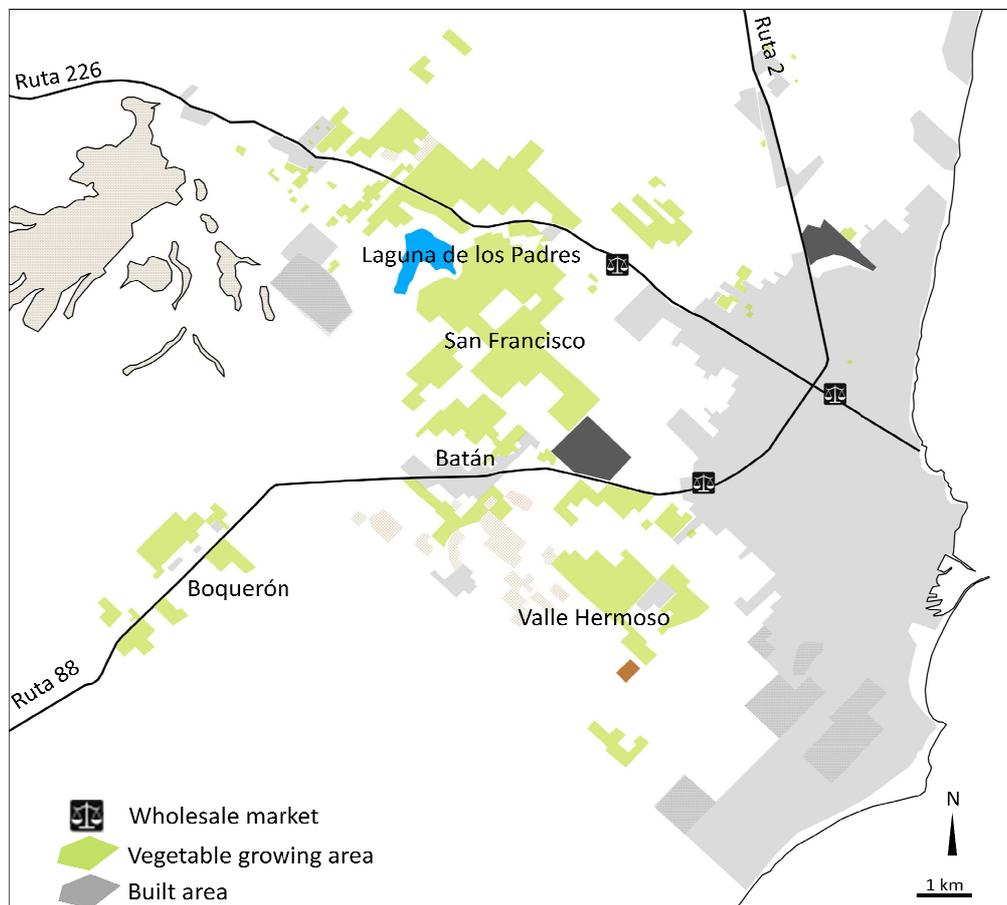


Figure 3 Current area of vegetable production around Mar del Plata (O. Robineau 2016)

b) The structuring of the vegetable supply chain: concentration and regionalization of markets

The increase in vegetable production from 1960s led to new needs for selling horticultural produces. Indeed, with the high increase in vegetable production and the workforce it needed, taking a lot of time to sell produces in the “Parada” or door-to-door was getting harder. The cooperative of horticultural producers¹⁸, formed in 1953, created in 1954 the first wholesale market of the city in the “Parada” and aimed to concentrate vegetable marketing. The cooperative wholesale market was the alternative to the street markets (interview of Ing. Szczensy in Verona 1997). Then, in 1963, a single owner created a wholesale market in Champagnat and Alberti, just 1.500 meters away, that was dedicated first to sell produces imported from Buenos Aires before later commercializing as well produces from the horticultural belt of Mar del Plata. The Cooperative then moved to Chile street (nearby the current Terminal of buses of Mar del Plata), thus being called “Chile’s market”. Producers and consignatories

¹⁷ This surface does not include potato production, which covers alones about 4.500 ha.

¹⁸ Cooperativa de Horticultores de Mar del Plata

rented a place in the market or in the nearby streets to sell the produces, creating a hotspot of vegetable selling within the city and making this area very busy. However, whereas these two new wholesale markets dramatically changed the commercialization chains, door-to-door selling remained important in the city since market gardeners were still geographically quite close from urban dwellers. It was also common for urban dwellers to buy on-farm, and mobile *verdulerias* still went throughout peripheral neighborhoods to sell the produces.

Toward the end of the 1970s, the commercialization of vegetable and fruits of the south west of the province of Buenos Aires was made through these two wholesale markets. But the continuous increase of the city size and the engorgement of the areas around wholesales markets led the city to act from the 1980s for the delocalization of these markets away from the urban space. The orders 1.749 and 11.892 that prohibit the habilitation of new stalls in wholesale markets were voted to push the delocalization. The initial wish was to have a single wholesale market but the lack of agreement among consignatories and the national law on market deregulation (Law of State Reform 2.284/91) prevented it (Viteri and Ghezan 2011). The new regulations were perceived as threats to already established commercial networks of wholesalers. Hence, once the wholesale market of Champagnat and Alberti was closed, two new wholesale markets opened in the heart of the horticultural belt in 1997: 1) the Abasto Central along the road 88, built by the ex-owner of the wholesale market of Champagnat and Alberti, and 2) PRO.CO.SUD along the road 226, built by a group of operators that were once in the Chile's market (Cooperative's market). The Chile's market did not close and until today remains in the same place¹⁹, thus being the only wholesale market within the city. Today the *Partido* hosts three wholesale markets of fruits and vegetables (Figure 4).

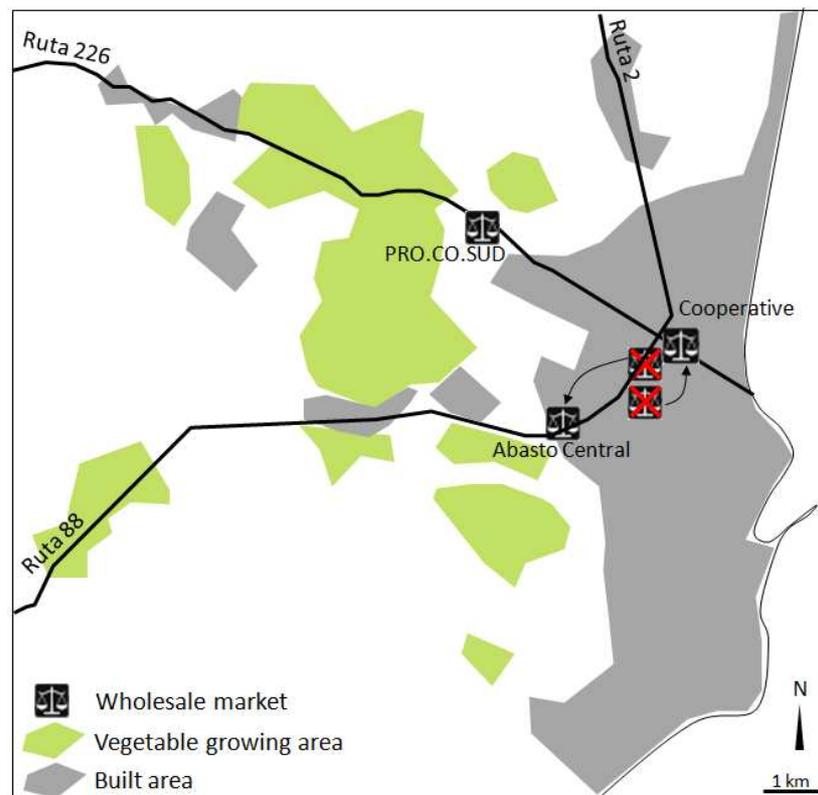


Figure 4 Changes in the localization of the three wholesale markets in Mar del Plata (O.Robineau 2016)

¹⁹ Representatives of PRO.CO.SUD complained to the city council that the location of the cooperative is an unfair concurrence (Banca Abierta del Honorable Consejo Deliberante – 14/03/02)

The law on market deregulation, along with the ever expanding urbanization had a great impact on the local foodscape. First, the creation of new wholesale markets led to a normalization of the commercialization through wholesalers. *Verdulerias* were already existing but their number exploded at this period, thus becoming a typical feature of the fruit and vegetable commercialization. Door-to-door selling went down as the geographical distance between producers and consumers increased and as urban dwellers found *verdulerias* closer and closer from their home. Second, until the 1980s the marketing of vegetable was mainly made through the channel wholesale markets-small retailers; in the 1980s supermarkets started to play a major role in food selling in Argentinean cities when large firms like Carrefour or Jumbo entered the country (Gutman 1997, 2000). The concentration of food marketing has been similar to what occurred at the same period in different countries of Latin America (Cicoletta 1999). However, despite the implantation of many supermarkets in Mar del Plata, it did not have many consequences on urban dwellers habits on vegetable purchase, who still prefer to buy vegetables in *verdulerias* (Borrás et al. 2013). The participation of vegetable selling to overall supermarket benefits has been weak (about 4% between 2004 and 2009 according to INDEC 2009). The arrival of supermarkets had more impact for producers who had new marketing channels through direct contracts with supermarkets (Viteri and Ghezan 2000).



Figure 5 Main horticultural belts in Argentina

To sum up, whereas until the 1970s the horticultural belt only provided a local supply of vegetable, technology, labor and market transformations made it overcome the local food supply to reach national markets²⁰. The new localization of wholesale markets outside the city made that production and commercialization were then out of the urban area, the Cooperative wholesale market being the exception to the rule. The intensification of the vegetable production at the local and national level led to a regionalization of wholesale markets and to a progressive disconnection between the productive belt and the city. Vegetable producers from the horticultural belt now were clearly involved in two different commercialization circuits: a local one, historical, and a national one oriented toward exportation to other Argentinean regions. Moreover, the regionalization of vegetable markets has led to complementarities between vegetable growing areas according to the season of production. The vegetable supply of Mar del Plata henceforth combines different area of supply (Figure 5).

4. The deep economic crisis of 2001: the emergence of an alternative vegetable supply chain through institutional programs

The neoliberal politics and the “sojización” of the Pampa in the 1990s, followed by the deep economic crisis of 2001, engendered important migrations of rural families to big urban centers such as Mar del Plata. In the absence of politics for social housing, many families built their house themselves in the peripheral areas (in poorer areas the rate of auto-construction is of about 75%) (Bouvet et al. 2003), forming the landscape of the *villas miserias* where are recorded high rates of population below the poverty line. The crisis of 2001 has been particularly strong in Mar del Plata due to its socio-economic profile. The rate of unemployment rose from 6 % in 1991 to nearly 23 % in 2001 (INDEC) - one of the most important of Argentina - and more than half of the population found itself below the poverty line.

²⁰ Encuesta Hortícola del Partido de General Pueyrredon, 1978

With the crisis, the food issue became an urban issue and was at the core of many initiatives developed to foment social inclusion, alleviate urban poverty and secure food access in urban areas.

a) Promoting self-production and agroecology to fight poverty and foment social inclusion

Many poor urban families started to develop economic activities and urban agriculture to satisfy their basic needs. The ProHuerta program, dedicated to promote the development of home gardens for autoconsumption, was existing since 1990 but took a greater importance during the crisis. It is also in this context that arose in 2001 the *Programa de Autoproducción de Alimentos* (Food Autoproduction Program-PAA). Initiated by a group of students from the Facultad de Ciencias Agrarias of the UNMdP, in partnership with researchers and professors of the Unidad Integrada Balcarce (UIB) (FCA/UNMdP-INTA Balcarce), the program aims to support vulnerable classes of urban dwellers of Balcarce and Mar del Plata through the development of urban agriculture (gardens, poultry...) and of food transformation activities (jams...) for self-consumption as well as for income generation purposes. ProHuerta and PAA worked closely and both base their action on the concept of agroecology²¹. Gardens and food transformation activities were developed either by individuals or by groups (community gardens for example), and beneficiaries were mainly from poor peripheral neighborhoods.

The first canals of commercialization were to neighbors and to members of institutions like INTA or agents of the municipality. Agents working in ProHuerta and PAA took the responsibility to link producers to consumers in order to ensure outlets for home-made and home-grown produces.

Besides highlighting the potential of urban food production to participate in poverty alleviation, ProHuerta and PAA brought the issue of agroecological production and alternative supply chains as ways to improve the sustainability of food systems. After several years of selling produces to neighbors and institutions, these programs led the organization of three street markets, called *Feria Verde*, dedicated to the marketing of produces free from agrochemicals produced by beneficiaries of PAA and ProHuerta programs. After the progressive disappearing of street markets in mid-20th, they were the first street markets taking place again in Mar del Plata.

b) Food bank and community canteens: alternative channel for unsold vegetable from the conventional supply chain

The deep economic crisis also led NGOs and associations to create many *comedores comunitarios* (community canteens) in poorer neighborhoods in order to provide basic daily food needs to vulnerable people.

Many poor people looking for food went to wholesale markets in order to collect unsold fruits and vegetables. The demand was high and the need for organizing the collection led to the creation of the food bank “Manos Solidarios” in 2003, which was the first food bank in the country to collect fresh fruits and vegetables (Viteri 2011). The wholesale market of the Cooperative has been giving daily unsold fresh produces to the food bank since 2003 and PRO.CO.SUD joined the initiative in 2010.

²¹ According to Altieri (1987), agroecological agriculture “is defined as any approach to farming that attempts to provide sustained yields through the use of ecologically sound management technologies. Strategies rely on ecological concepts, such as recycling of nutrients and organic matter, closed energy flows, balanced pest populations and enhanced multiple use of the landscape”. Agroecology is a central concept of institutional programs but regarding the practices developed in Mar del Plata (I could not observe closed energy flows or enhanced multiple use of the landscape for example) I would rather talk about an “agriculture free of agrochemical inputs”.

Abasto Central started to give unsold fruits and vegetable since beginning of 2000s to a group of women in precarious situation who created the cooperative Mujeres de Abastos (now call P A M coop. Ltda), dedicated to cooking jams and preserves from unsold fresh produces in order to sell it and generate incomes. The process was accompanied by institutions like INTA and the university. These initiatives thus link conventional food production with food aid programs.

From 2003, the country has been recovering an economic stability but the rate of unemployment remains high in Mar del Plata. Some *comedores* have stopped their activities but the food issue remains important. Today, the food bank provides food for 22 entities (more than 3.800 beneficiaries). Whereas Argentina was called “the granary of the world” a few decades ago, food aid initiatives have multiplied in the last two decades to alleviate food problems. Many beneficiaries from the PAA left gardening and food transformation after a while for activities generating higher incomes. Whereas at its origins the PAA mainly worked with urban dwellers wishing to find complementary income generating activities, now PAA beneficiaries are rather professional small-scale producers of the periurban area.

5. Rising health and environmental concerns: coming to conflict between agricultural and urban spheres

a) Expanding city: new neighbors, new expectations toward agricultural activities in the urban fringe

Urban development of Mar del Plata has been - and remains - characterized by : 1) a vertical development of building and infrastructures in the seafront, built to attract tourists during summer season, and 2) an horizontal development linked to the increase in permanent urban population through migrations and natural increase. The urban landscape of Mar del Plata varies dramatically depending on where one is looking. The city was built on a patchwork of shopping centers, wealthy residential areas, popular neighborhoods and the port, with the orthogonal plan as a common feature of all this different areas. But the boom of building on the seafront led to a displacement of popular classes toward more peripheral neighborhoods. In Mar del Plata more than in other cities, the mass tourism has accentuated the process of urban fragmentation (Bouvet et al. 2003). The socio-spatial separation is increasingly clear between upper class neighborhoods on the seafront, more popular districts as one moves away from the center beyond the Champagnat Avenue, and a poorer periphery on the western part. The southern part of the city is characterized by a growing number of private and semi-private neighborhoods inspired the American model that have developed since the late 1990s in response to the concern of middle-class families for increased security. Often these *barrios privados* are just a few hundred meters away from the *villas miserias*. Moreover, national aid programs for housing (PRO.CRE.AR) led to the expansion of middle class neighborhoods all around the city where the land is still cheaper.

Hence, the current horizontal expansion of the city on agricultural land follows three dynamics (Figure 6). First, Mar del Plata continues to expand, in poor urban peripheries in the western part as well as in middle-class neighborhoods in the northern part along road 2. Second, periurban settlements have expanded for decades in relation to the expansion of vegetable production and the development of secondary urban centers. The inhabitants are initially mostly farm worker families, settled in Batán (7000 inhabitants), Santa Paula, Coyuco, la Peregrina and Laguna de Los Padres along the roads 88 and 226. Third, more recently, private and semi-private neighborhoods of middle and upper class families expand rapidly in the southern part of the city as well as in the area of Sierra de Los Padres, along the road 226 (approximately 15 km from the city); low and middle-class families settled in

peripheral areas thanks to housing aid programs. The area of Sierra de Los Padres has become a popular area for middle-class urban dwellers wishing to live close from the city and enjoying a quiet and attractive natural environment (Sagua and Massone 2007). Producers that are progressively surrounded by urban settlements think about selling the land because once isolated in the middle of a neighborhood it becomes difficult to keep on conducting farming activities without conflicts.

"When I got here I had neighbors, but only a few. Now it is really populated, it is a city, it's terrible. And even more people with PRO.CRE.AR. If someone proposes to buy, I sell. But it hurts. Here it's worth 2 millions. With that I buy 500 ha at 100 km from here and I rent it ... and I live quietly. It is not that I want to sell but if I am surrounded by a neighborhood I cannot continue" ²² (señor M., producer nearby Road 2, North of Mar del Plata).

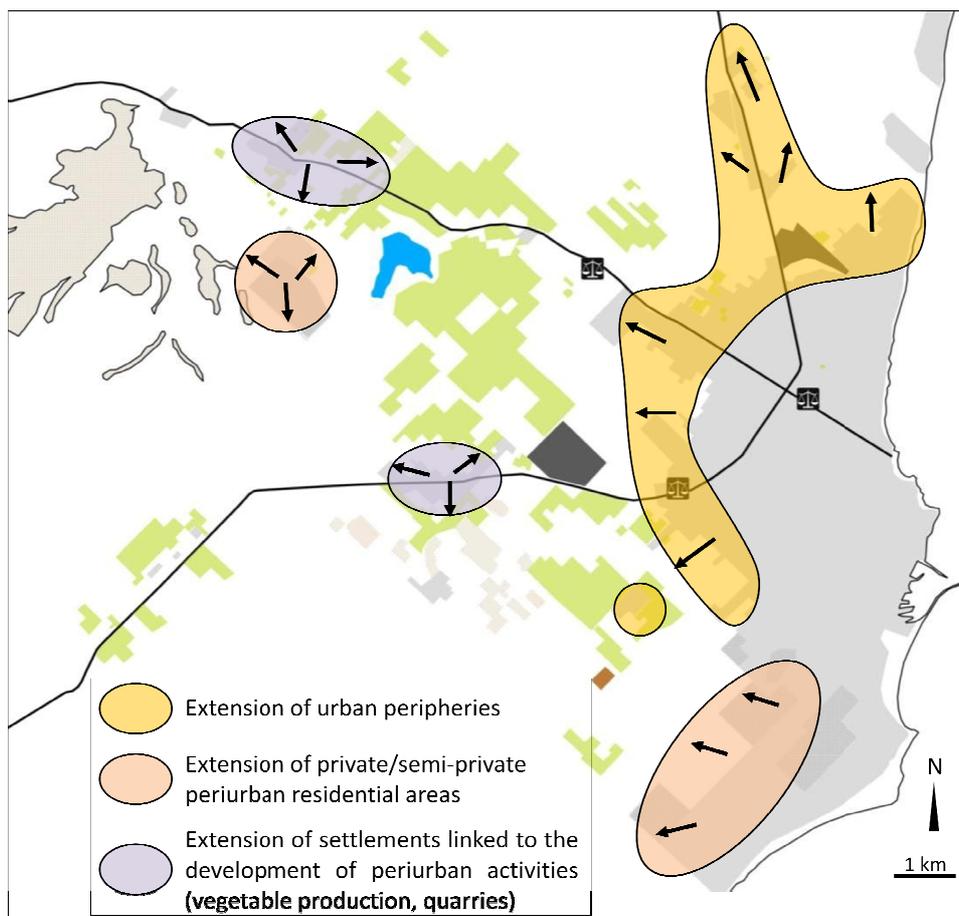


Figure 6 Different areas and different dynamics of urban expansion (O.Robineau 2016)

The three types of urban expansion have led to an encroaching of urban areas on agricultural land. While vegetable production intensified in the productive belt of Mar del Plata, its proximity with urban dwellers has been each time higher and the city has been entering the horticultural belt. Whereas until recently the inhabitants of the periurban areas were mainly workers from the primary sector, these new periurban inhabitants generate new expectations toward the rural environments.

²² Translated from Spanish: "Cuando llegué acá había vecinos pero poco. Ahora se pobló mucho, es una ciudad, es terrible. Y con el PROCREAR más gente todavía. Si alguien me propone lo vendo. Pero me duele. Acá vale 2 millones de dólares. Con eso me compro 500 ha a 100 km de acá y lo alquilo... y vivo tranquilo. No es que quiero vender pero si tengo el barrio todo alrededor no puedo seguir"

b) Adoption of a municipal law prohibiting the use of agrochemicals: a decisive break between the city and its horticultural belt?

The increase in the number of greenhouses in the periurban area led to more complaints from neighbors related to problem of water contamination, smell and increased presence of insects engendered by this kind of construction (Leiva 2009). Moreover, at the national level there has been an increase in health and environmental preoccupation. Diverse environmental associations brought these issues to the city council and had a municipal order being voted to prohibit the use of pesticides in a certain radius around urban settlements. Fruti-horticulture as well as cereal and soya production are targeted by these laws. It is what happened in Mar del Plata, after a growing preoccupation regarding the health issue (see Molpeceres et al. 2015 for the detailed explanation of the process): the environmental associations BIOS and Paren de Fumigarnos convinced the municipal council to vote an order that immediately totally prohibits the use of any agrochemical in a radius of 1,000 around human settlements in the *Partido Pueyrredon*²³. Without any consultation with actors from the agricultural sector the municipal order 18.740/2008 was voted in 2008.

*“The project of order they proposed did not consider technical issues. But they [the environmental associations] were clear that they wanted to provoke a political fact. I guess they never thought it was going to be approved like that. And they were able to bring the issue from the perspective they wanted, that is to say from the human health perspective”*²⁴ (agent from the Sub-Secretary of Family Farming)

In the first years nothing happened regarding this municipal order since there was no means to put it into practice and the rule settled by the order was technically impossible to implement.

*“Nobody wanted to be in charge of that. Because the subject raises many institutional contradictions, there was trouble even here in the agency of INTA... it is an issue that has contradictions at all levels. At first they didn't regulated the order. They stretched, they stretched ... Saying "that, nobody is going to give a dam to, is impossible to do", until it was regulated from a judicial side and the way to regulate was to give a year to pass from a product of such toxicity band to another. One year! It makes no sense”*²⁵ (agent from the Sub-Secretary of Family Farming)

In the absence of regulation, the environmental associations complained to the high court of Buenos Aires that the order was not implemented, thus forcing the municipality to implement it. The new concern about agrochemical prohibition led to an important conflict between actors of the agricultural sector, the municipality and the environmental associations. Vegetable producers and many agronomists said it could not be possible no grow vegetables without agrochemicals, and that no systematized knowledge exists on this form of agriculture.

²³ To convince the council members, the associations chose to show them rough pictures of children with body deformation. In front of this, no one could say he disagrees with the proposition of order, and it was voted with unanimity.

²⁴ Translated from Spanish: *El proyecto de ordenanza que propusieron no consideraba cuestiones técnicas. Pero ellos [las asociaciones ambientalistas] tenían en claro que querían provocar un hecho político. Yo creo que nunca pensaron que se iba a aprobar así. Y ellos lograron a instalar el tema del punto de vista que ellos querían que es desde el punto de vista de la salud de las personas.*

²⁵ Translated from Spanish: *“Nadie quería hacerse cargo de eso. Porque el tema genera muchas contradicciones institucionales, incluso hubo líos acá en la agencia del INTA... es un tema que tiene contradicciones en todos los niveles. Al principio no reglamentaron la ordenanza. Estiraron, estiraron... Diciendo “eso nadie le va a dar bola es imposible hacer”, hasta que por un lado judicial se reglamento y la forma de reglamentarla fue de poner un año para pasar de un producto de tal banda de toxicidad a otra. Un año! Es no tiene ningún sentido”.*

*"Suddenly saying to stop using agrochemicals without accompaniment, is like saying that from now on no more cars are allowed, but they don't give you the possibility to ride well a bike, without bikeways"*²⁶ (Agronomist from the Cooperative)

*"We are told not to put anything here, and we are penalized. What comes from the outside doesn't have this prohibition"*²⁷ (Señor V., vegetable producer of the horticultural belt)

*"It's crazy to ask 1000 meters. My farm is 800 meters wide. What do I do with my land? Tell me. "Leave the land" ... and the taxes? Give me a solution and there are no solutions. So I took care of myself. When the mess started I had wheat there. I did not fumigate it. I could not put herbicides, so what do I do? The fine was expensive. Eventually the wheat harvest didn't allow me to pay for the harvesting machine. The machine came harvesting but I didn't have the money to pay for it. I know the guy, he told me "pay later". But I lasted a year to pay"*²⁸ (Señor M., vegetable producer of the horticultural belt)

The conflict led to an important strike of producers, called the *tractorazo*: hundreds of producers from the horticultural belts entered the city in November 2012 with their tractors to manifest against the prohibition. It is in this context that was created the Association of Fruit and Vegetable Producers (*Asociación frutihortícola de productores y afines del Partido General Puyerrredon*). Indeed, there was a need to organize the horticultural sector to have a representative organization defending producers' interests and favoring the circulation of information among them. In this situation of conflict, the Secretary of Production of the municipality organized a public audience with all the actors concerned²⁹ in order to find a way out and to modify the municipal order. After months of negotiations, in 2013 a *Programa de Desarrollo Rural Sustentable* (PDRS) was created by the order 21.296/2013 to accompany to agroecological transition of the whole *Partido* with priority given to the periurban productive belt³⁰. This new order cancelled and modified a few articles from the previous one in order to be more realistic and more progressive. It notably reduced the radius of immediate total prohibition of agrochemicals to 100 meters around urban settlement and established a transitional fringe of 1,000 meters. It established a list of agrochemicals products according to their toxicity - green, yellow and red. On the short term, all red products are forbidden and then producers of the transitional fringe dispose of some years to go toward the use of only green produces. The reality of the implementation of the PDRS is other. The environmental associations have complained in front of the high court of Buenos Aires to denunciate that the order 21.296/2013 is unconstitutional because it goes backward on the environmental aspect compared to the order 18.740/2008³¹. Hence, the relationships between the municipality and the environmental associations are still tense as illustrates the picture on Figure 7.

²⁶ Translated from Spanish : *"Decir de parar de repente de utilizar le agroquímicos sin acompañar, es como decir que ahora no se permiten mas autos pero que no te dan la posibilidad de andar bien en bicicleta, sin ciclovías"*

²⁷ Translated from Spanish : *"Nos dicen de no echar nada acá y estamos penalizados. Lo que viene del exterior no tiene esta prohibición"*

²⁸ Translated from Spanish: *"Es una locura que pidan 1000 metros. Tengo 800 de ancho. Que hago con el campo? Decime. "Deja el campo"... y los impuesto? Dame una solución, y no hay solución. Entonces yo me cuide. Cuando empezó el quilombo yo tenía trigo ahí. No lo fumigué. No podía echar mata-yuyu y entonces qué hago? La multa era muy cara. Al final la cosecha de trigo que tuve no me alcanzo para pagar la cosechadora. La maquina vino a cosechar pero no me alcanzaba la plata para pagarla. Conozco al tipo que me dijo "paga después". Pero tarde un año a pagar"*

²⁹ Producers, agronomists, institutions, environmental associations

³⁰ The focus of the PDRS is larger than to accompany agroecological transition and includes a large set of activities linked to sustainable rural development at the territorial level.

³¹ It is established that it is not possible to go backward on laws regarding environmental issues



Figure 7 The wall of the building of the Municipal Secretary of Production tagged with “stop pillaging, prohibited to fumigate” in winter 2015.

These associations ask to go back to the first order that immediately entirely prohibits the use of pesticides in a radius of 1,000 meters around human settlements. Since the complaint, precautionary measures have been taken until the legal aspect of the order is fixed. Hence, none of the orders is applied and both farmers and institutions are not clear about which actions has to be made. Apart from this legal problem, the PDRS is lacking financial means to implement its activities. Only three agronomists are employed by the Secretary of Production to work specifically on the project, for about 600 vegetable producers.

Finally, another issue has risen around the application of agrochemicals. Producers who have the means are leaving the area to produce elsewhere. The phenomenon is not well known for the moment but both producers and agronomist know such cases. Some real estate societies take advantage of the situation to negotiate land to built private neighborhoods. They put pressure on farmers located near human settlements for them the sell their land (personal communication from an agronomist about a specific case near Laguna de los Padres); the argument is that soon they won't be able to produce anymore due to restrictions to farming practices, ongoing urban expansion and increased number of complaints from neighbors. Although this is not yet the general tendency, it highlights what could happened if no way out is found for the conflict.

6. Beyond the conflict: new preoccupations toward vegetable quality

a) Raising actors' awareness on quality

“I acknowledge the environmental associations for bringing the issue of agrochemicals to the public debate. But I don't acknowledge them for the way they do it”³² (agronomist-agricultural advisor).

Indeed, as this agronomist said, despite all the conflicts that arose around the adoption of the municipal order prohibiting the use of agrochemicals, it has been the opportunity to discuss the issue at the municipal level and to foment discussions about local food production and food quality. Before that, questioning the health and environmental aspect of agrochemical use was out of question.

³² Translated from Spanish :*“Agradezco a las asociaciones ambientalistas por poner el tema de los agroquímicos en las discusiones públicas. Pero no les agradezco por la manera de que lo hacen”*

Systematic fruits and vegetables quality controls in wholesales markets, vegetable retailers and street markets have been put in place by SENASA and the municipal Health Secretary since the first municipal order. It engendered new quality preoccupations from markets gardeners as well as from consumers. Many discussions and formations, led by SENASA, INTA, and the municipality conjointly with agronomists, are being proposed to producers to improve their farming practices. It is interesting to note that health issues raised by environmental associations concerned drift of agrochemicals and the risk for neighbors; there was then a shift of issue toward vegetable quality and the type of agrochemicals used.

Interviews with municipal agents, agricultural advisors and leaders of farmers' organizations underline similar processes regarding preoccupation toward vegetable quality:

*“Producers want to know what is happening, what they should do. This is good. All know what is happening and here the work that the Association of Fruit and Vegetable producers has been very important: they have organized discussions with producers, they did an amazing job”*³³ (Coordinator of the PDRS).

*“It is only since the first order that there are controls from the SENASA and from the Secretary of Health. Controls of this type only exist in Mar del Plata and Buenos Aires. In Rosario or Santa Fe there are not. Since the law, more producers work with agronomists to have agronomic recipe. They ask for the waiting periods for application, and they did not do that before. Even if everything went back because of the precautionary measure, there are more discussions on integrated management and on agrochemicals: for example, in 2003, when I did a talk on integrated management there was 10 persons. Today, if I do this kind of talk there are 50 persons. There is much more consciousness now. In wholesale markets producers talk a lot, the information circulates”*³⁴ (agronomist from INTA)

*“The producers were used to a system and we have changed that. And this is not going to worsen, it improved. It's not a way that one can say that, because of the precautionary measure, it went back. It keeps going on. But it does not go ahead like it would have gone ahead with something well done”*³⁵ (Association of fruit and vegetable producers of the Partido G. Puerredón).

b) Quality controls and RENSPA number: a discussed traceability

SENASA makes controls in commercialization areas as well as on farms. The number of controls made by SENASA in the area of Mar del Plata is about 2 to 3 per month, which is very few. The analyses are made in Buenos Aires and the results often take time to go back to Mar del Plata; this delay makes that often the products have already been sold to consumers when results are available. The municipal Secretary of Health makes quality controls in commercialization areas: wholesale

³³ Translated from Spanish: “Los productores quieren saber bien le que pasa, lo que tienen que hacer. Esta bueno. Todos saben lo que pasa y en este sentido el trabajo de la asociación fruti-hortícola fue muy importante: hicieron charlas con los productores y hicieron un trabajo impresionante”

³⁴ Translated from Spanish : “Es solamente desde la primer ordenanza que hay controles del SENASA y de la Secretaria de Bromatología. Los controles de este tipo solo existen en Mar del Plata y en Buenos Aires. En Rosario o en Santa Fe no hay. Desde la ordenanza más productores trabajan con ingenieros agrónomos para tener recetas agronómicas. Piden a los vendedores de las agronomías los periodos de carencia, lo que no hacían antes. Incluso si todo fue por atrás con la medida cautelar, hay mas discusiones sobre el manejo integrado y los agroquímicos : por ejemplo, en 2003, cuando hacia una charla sobre el manejo integrado había 10 personas. Hoy, si hago este tipo de charla hay 50 personas. Hay mucho más conciencia ahora. En los mercados los productores hablan mucho, la información circula”

³⁵ Translated from Spanish: “Los productores estaban acostumbrados a un sistema y hemos cambiado eso. Y eso no va a empeorar, eso mejoro. No es un camino que uno dice que por culpa de la cautelar se retrocedió. Sigo avanzando. Pero no avanza como hubiera avanzado con una cosa bien hecha”.

markets, supermarkets, *verdulerias*, and street markets. It makes about 30 controls on vegetables per month. The analyses are made in a lab located in Mar del Plata which gives results within the day. When the results underline that the product is inapt for consumption, the agents try to find which producer is concerned thanks to the RENSPA number in order to destroy the production, to have the producer pay a fine and to communicate about improved farming practices. If they cannot find the producer (notably because he does not have a RENSPA number), the fine is given to the last traceable stakeholder.

The RENSPA number is the only way to have a traceability of vegetable produces and to identify producers. However, still the majority of vegetable producers do not have RENSPA. To go along the quality improvement processes, institutions working in the agricultural sector are communicating on the need for producers to ask for a RENSPA number. In a sector characterized by informal contracts and transactions, for a long time producers have been afraid of registering. But a better dialogue between institutions and producers thanks to the Association of producers made that more and more are registering and asking for a RENSPA number. A paper indicating this number is pasted on the crates of vegetables sold by the producers. However, it often happens that this paper falls from a crate and is pasted by mistake on another one belonging to another producer. Hence, the traceability is not always reliable and intermediaries of the supply chain are not yet fully concerned about quality and traceability of vegetable produces.

It is interesting to note that when the first quality controls were put in place by the Area of Bromatology (municipal Secretary of Health), the agents were afraid that the results would be catastrophic. They underlined that they were surprised about the results. The results of the controls realized on vegetable samples between November 2013 and April 2015 show 57 products inapt for consumption on 556 controls (10%). On these 57 declared as inapt, nearly than 60% were inapt for inappropriate use; that is to say, the chemical residues detected come from authorized products that were not used on the good plant. Then, part of the vegetables declared as inapt was coming from other regions.

“In 2011 was voted an order allowing municipalities that have the ability to do quality controls. Until 2011 all we did was to control the RENSPA in verdulerias and wholesale markets. Now we have nearly 900 samples controls [fruits and vegetables]. That is to be compared with the SENASA, which has 60 samples per year across the country. Cordoba and Buenos Aires also do they own controls. When we started controls in 2013, we first had an experimental phase where we didn’t communicate the results. There were simple samples, not tripled as it is normally done. We took 100 samples. Then we started official controls. First we started with the three wholesale markets. Then we extended to supermarkets, verdulerias and street markets. We work closely with SENASA. With the first controls, the results were a surprise. With all that is said, personally I thought we were going to have a disaster! But thanks God no. Apparently noise is made so that people care more and stop using things like endosulfan”³⁶ (agent from the area of Bromatology of the Secretary of Health).

³⁶ Translated from Spanish: *En 2011 sale una ordenanza que permite a las municipalidades que tienen la capacidad de hacer control de calidad. Hasta 2011 lo único que hacíamos era controlar el RENSPA en verdulería y mercados. Ahora debemos tener casi 900 muestras [frutas y verduras]. Eso es a comparar con el SENASA que tiene 60 muestras por años en todo el país. Córdoba y Buenos Aires también hacen sus propios controles. Cuando empezamos a hacer controles en 2013, hicimos una etapa experimental, donde no comunicamos los resultados. Era muestras simples, no triplicadas como se hace normalmente. Hicimos 100 muestras. A partir de ahí empezamos en forma oficial. Primero empezamos con los tres mercados concentradores. Luego ampliamos a los supermercados, las verdulerías y las ferias. Trabajamos junto con el SENASA. Con los primeros controles, el resultado fue una sorpresa. Con todo lo que se hablaba, en lo personal*

Technical agents from the Area of Bromatology underlined that the profile of producers concerned by bad results of quality controls is diverse. Large-scale as well as small-scale producers are concerned. I feel important to mention it, since I could hear several times large-scale and technologically advanced vegetable producers telling me that “*there are producers who produce well, and other who produce badly. Small-scale Bolivian producers, for example, don’t know and don’t want to know*”³⁷.

7. From quantity to quality: consideration of agriculture and food in urban policies over the two last decades

The evolution of public policies in relation to food and agriculture in Mar del Plata can be characterized by two temporal markers – the deep economic crisis of 2001 and the adoption of the municipal order in 2008 -, and by two spatial markets -within and outside the urban space (Figure 8).

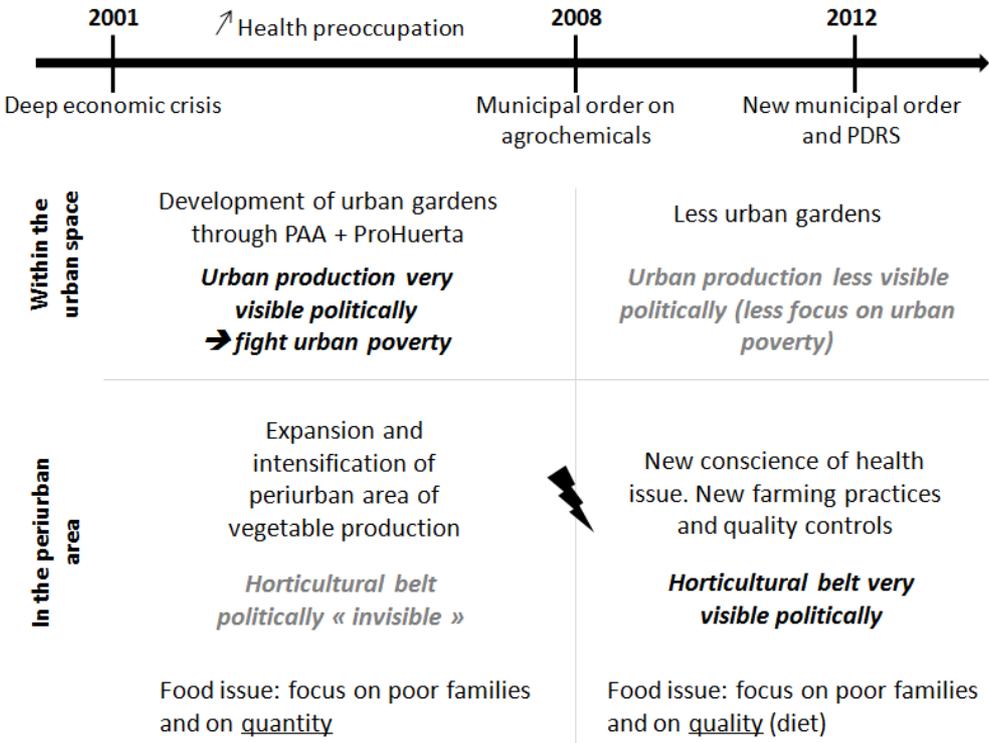


Figure 8 Evolution of the preoccupations toward agriculture and food in urban policies in the last two decades (O.Robineau 2016)

The importance of tourism and fishing sectors make that the city of Mar del Plata has always been looking towards the ocean. The horticultural belt has always been considered to be “behind” whereas the ocean is “in front”. Since the deep economic crisis, more attention was paid to urban agriculture through national and local programs as ProHuerta and PAA. These programs found a political echo in the face of the wish to reduce urban poverty. Indeed, many social movements (notably *los piqueteros*) calling for employment for all took place in Mar del Plata during the crisis. A few years after the crisis, reducing urban poverty was not anymore a priority; no that urban poverty had been eliminated, but over time the situation slightly improved and protesting social movements calmed down. The quality of diet rather than quantity became the main issue of food programs (Britos et al. 2012),

yo pensaba que íbamos a tener un desastre! Pero gracias a Dios no. Aparentemente se hace ruido para que la gente se cuidara mas y se deje de usar cosas como endosulfan
³⁷ Translated from Spanish: “*hay productores que producen bien, y otros que producen mal. Los pequeños productores Bolivianos por ejemplo no saben y no quieren entender*”.

leading to the development of different municipal and national program aiming to provide education on healthy diets. Urban gardens, developed with the support from ProHuerta, are often used as a mean to provide food education in schools and local health centers (it is the case of the Project Health Self-Production implemented in primary schools).

With the encroaching of the city on the periurban agricultural land, the lobbying of environmentalist associations, and the adoption the order in 2008, periurban horticulture became suddenly politically very visible. This order brought the horticultural belt of Mar del Plata in the heart of the debate at the municipal level and changed the attention brought by public actors to that productive space. From 2008, the periurban agriculture became a political preoccupation and was for the first time included in 2013 in the *Plan Estrategico* (Urban strategic plan 2013-2030) as *Frente Verde* (green front).

8. Today: a diversified set of initiatives linking city agriculture and food

To sum up, the continuously changing links between city, agriculture and food over time in Mar del Plata have led to the development of a set of initiatives related to different local food issues (Figure 9). The emerging preoccupation for food quality has engendered new links among actors of the urban foodscape. Although this map of initiatives does not allow speaking about a structured local food governance it suggests that the food issue is taken into account by a diversity of actors and that there is a lot to explore to see how these initiatives can be part of a process of the construction of more sustainable food systems.

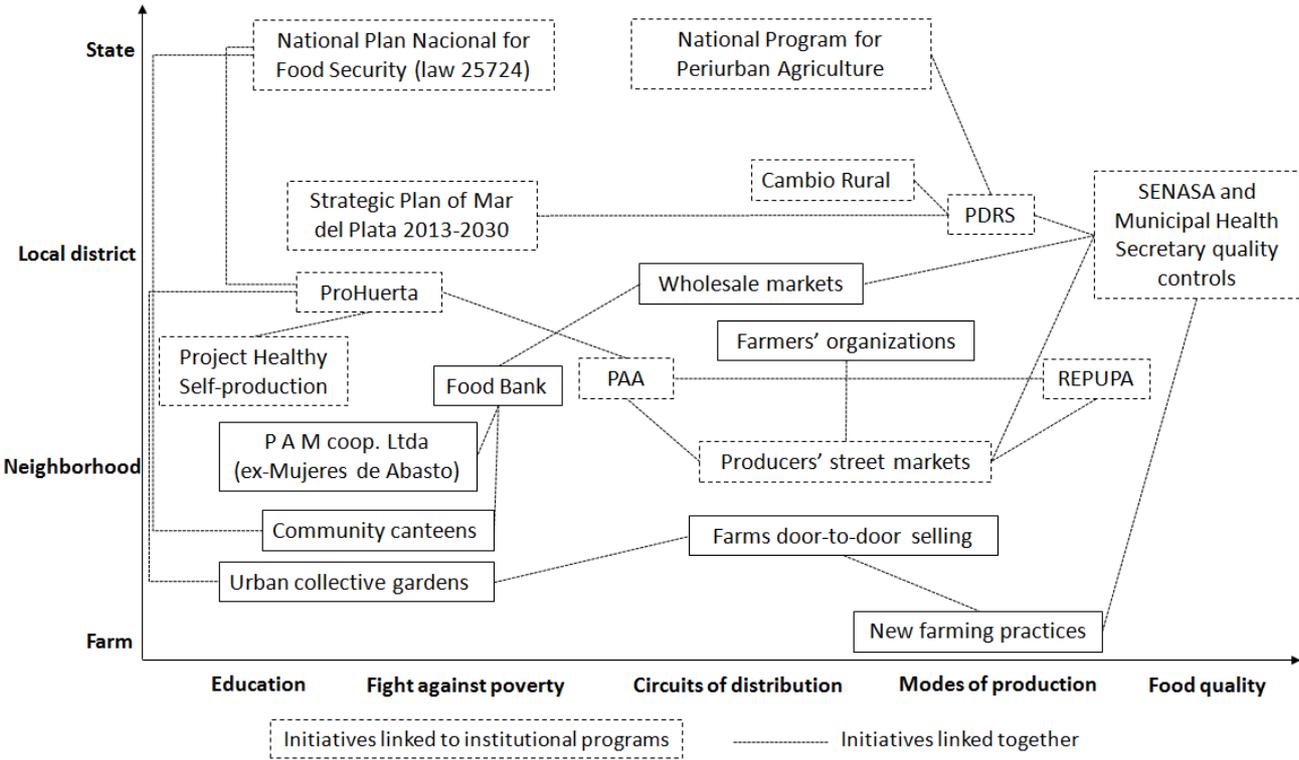


Figure 9 Initiatives linking city agriculture and food according to their scale of action and the issue addressed (O.Robineau 2016)

III. CONVENTIONAL AND ALTERNATIVE FOOD CHAINS: DIFFERENT SOCIO-SPATIAL ANCHORING IN THE LOCAL FOODSCAPE

Viteri (2013) and Viteri and Ghezán (2011) have reconstructed different circuits within the overall vegetable supply chain in the Gran Buenos Aires and made similar observations in Mar del Plata. It is known that two main vegetable supply chains coexist in the area of Mar del Plata. A so-called “conventional one”, involving different intermediaries; it is the historic one and is the most represented one in the current local foodscape (full lines on Figure 10). And a so-called “alternative one”, characterized by short-circuits; it has been existing for a long time but was boosted by programs fighting against poverty of which purpose was to ally food production with environmental preoccupation (thatched lines on Figure 10).

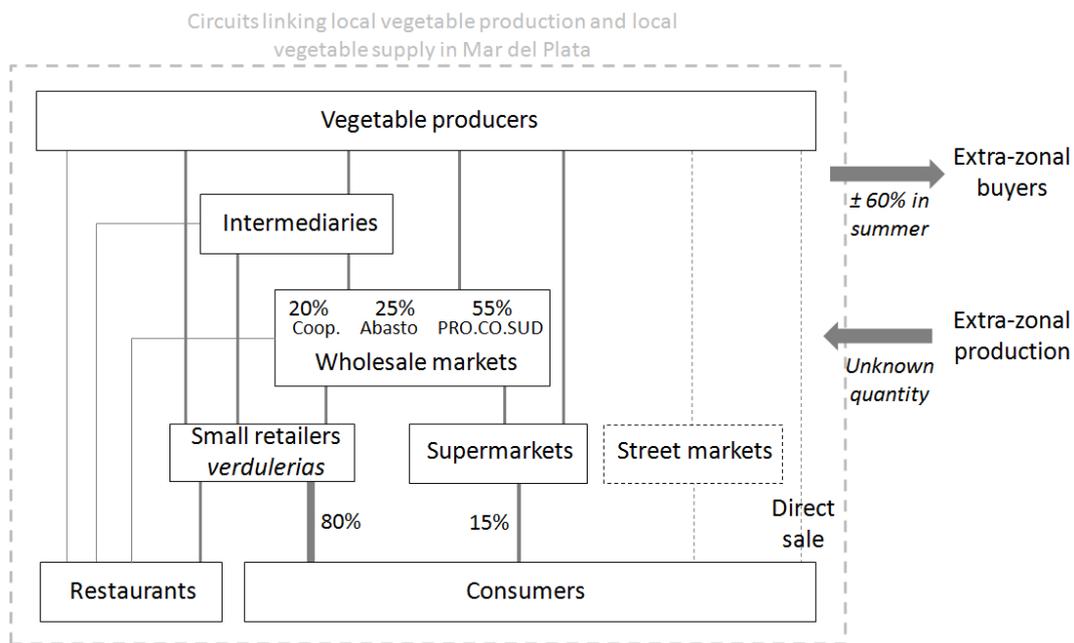


Figure 10 Vegetable supply chains in Mar del Plata: a diversity of actors (O.Robineau 2016)

The conventional and alternative food chains are apparently differentiated by the types of produces they provide : produces from conventional agriculture on the one hand (which implies the use of agrochemical inputs), and produces from an agriculture free from agrochemical inputs. This difference is visible in the socio-spatial organization of vegetable food chains and their anchoring the local food system. Whereas intermediaries like wholesales markets and *verduleros* seem to be typical features of the conventional food chains, short-circuits seem to be typical features for the commercialization of produces free from agrochemicals.

I analyzed the forms of governance for both chains from three angles: governance in the organization of the production, governance in the organization of commercialization, governance in the political sphere and governance in the civil society.

1. Governance in the conventional supply chain

The functioning of the conventional vegetable supply chain deeply marks the current local foodscape from the production to the final point of commercialization.

a) Political sphere: a strong political support

At the national level, since the liberal politics of 1990s there is a clear political support to intensive agriculture with a strong presence of agroindustries at the national level. As underlined by the producer Señor L., the Argentinean universities of agronomy do not even mention a form of agriculture free from agrochemical inputs.

"All that, the organic stuff, they do not teach it at the university. It's coming, it will come. But it is not even mentioned. When I was at the university, the model was for soybeans. Glyphosate, the best in the world, you know, the message is this one. The truth is that it is a very sensitive issue. In my career, they said that glyphosate is supposedly one of the friendliest herbicides because the molecule is inactivated when it touches the ground. That's the message they teach us in the university!"³⁸ (Señor L., vegetable producer of the horticultural belt)

Interviews with members of the municipal council, head of secretaries and informal discussions with different persons close from the political sphere could give me an overview of the place occupied by actors from the conventional supply chain in the local political sphere. Indeed, in the context of adoption of the municipal order to prohibit the pesticides, the official discourse is quite ambiguous. The little financial means given to the PDRS confirm that ambiguity. On the one hand, everybody agrees on the importance to have such a program to support a less intensive agriculture, but on the other hand the PDRS is facing difficulties to reach its objectives due to a lack of financial and human means.

The ex head of Secretary of Production underlined that *"the municipality, until 6-7 years ago, did not have a policy toward the [horticultural] sector"*. Nevertheless, the actors of the conventional supply chain have been having informal political support for a long time. Indeed, some key large-scale producers of the area (see next section when I mention "technical models") are involved in the political party that won the municipal elections in 2015 and thus made their voices heard when the first municipal order prohibiting agrochemical inputs was adopted. The same actors created the Association of Fruits and Vegetable Producers which is in notably charge of the dialogue between producers and the municipality. This association includes a large part of conventional producers of the *Partido*. Hence, actors of the conventional supply chain are well visible in the political sphere. Although the adoption of the municipal order had the official discourse underlining the importance to produce with less agrochemicals and to support small-scale producers in this transition, another discourse supporting conventional large-scale production and export is well present and weights more than the other one³⁹. The following statement of a member of the municipal council, who is also member of the same political party stated above, is clear about the model defended:

"We have here highly fertile lands. We have to liberalize [markets] to promote exports. The fruit and vegetable sector is very important and is little known by people. In addition, in a moment there was a discourse against fumigation by plane, and here there are no more. As for agrochemicals, everything is said about it. There were all these things that happened with what I call "environmental Talibans". It should be understood that the agrochemical is equivalent to pharmacology for humans. When you go to a Feria Verde and you see a really nice salad with a nice color, it has agrochemicals. Because the plant naturally it not so big, and without agrochemicals you cannot produce, because of worms, fungi

³⁸ Translated from Spanish: *"Todo eso, del orgánico, no lo enseñan en la facultad. Va a llegar, va a llegar. Pero NI se menciona. Yo cuando estaba en la facultad, el modelo era para soja. Glifosato, el mejor del mundo y, viste, el mensaje es ese. La verdad es que es un tema muy delicado. De mi formación, dicen que el glifosato es uno de los herbicidas más amigables supuestamente porque la molécula cuando toca el suelo se inactiva. Eso es el mensaje que no enseñan en la facultad!"*

³⁹ Moreover, this discourse is the one of the members of the new leading political party.

*... Agrochemicals have evolved in such a way that they are not only very accurate to cure diseases, but the bio-physiological aspect is deeply studied. For example the glyphosate, when it gets in contact with an organic material, in less than 48 hours all its effects disappear”.*⁴⁰

In this statement we can also see the depreciation of the alternative vegetable supply chain. I come back to that point later.

b) Production sphere: horticultural leaders, share-cropping and agronomists

Conventional producers represent the very large majority of the producers of the horticultural belt. They have of diversity of profiles. Although a classic work organization is the *quintas* with *medieros*, producers can either have a 5 ha farms based on family farming (often Bolivian families that could buy or rent land) or a 60 ha based on a rather entrepreneurial functioning and the *medieria* system (often descendant of European families).

Some large-scale vegetable producers have a productive notoriety in the horticultural sector due their role in the adoption of new productive technologies that are seldom directly accessible to smaller producers. For example, one of them is agronomist and owns the agronomy shop at the entrance of the wholesale market PRO.CO.SUD. He was the precursor in the adoption of the greenhouse technology in the horticultural belt of Mar del Plata, was one of the first producers to talk about “integrated management” and he recently tried the biological control. Both its strategic location at the entrance of PRO.CO.SUD and the fact that he is technologically an “advanced” producer of the horticultural belt gives him a specific position. Besides this actor, many large-scale producers are “technical models” for smaller-scale ones. Small-scale producers see them as technical references and do not change their practices unless their large-producer-neighbor changes as well. INTA’s technical agents are aware of these processes and thus, when they want a practice to evolve (for example to use less toxic agrochemicals), they first work with large producers for the practice to diffuse then to smaller producers. Moreover, larger producers have *medieros*, who are likely to continue with the farming practices they have learned once they rent a land to produce for themselves. Large producers do not give direct advises. It is more through a “copy process” that practices are transmitted. Indeed, horticultural producers often see each others as competitors on the markets and prefer to keep their new practices and techniques secret. A producer having 70 ha of horticultural production in Laguna de Los Padres said “*I don’t exchange much with other producers in the neighboring area. There is a lot of competition*”. This confirmed what the ex-president of the cooperative said in an interview in 1997 “*Since the activity is very competitive, individualism is almost a norm among vegetables producers, which explains that there are only a few joint initiatives to propose a global planning of the activity*” (Interview of H.J. Frontini in Verona 1997).

Agronomists are really important in the local productive environment. They are of two types: public ones (mainly from INTA) and private ones. Whereas the agronomist from INTA intervene on the field to improve farming practices and test new inputs/seeds/techniques without any need to earn money,

⁴⁰ Translated from Spanish: “*Tenemos acá tierras muy fértiles. Hay que destrabar para promover la exportación. El sector fruti-hortícola es muy importante y es muy poco conocido de la gente. Además a un momento se hablo en contra de la fumigación por aire, y acá no hay más. En cuanto a los agroquímicos, que se dice de todo sobre eso. Hubo todo lo que paso con los que llamo “talibanes ambientalistas”. Se debe entender que el agroquímico es el equivalente a la farmacología en el ser humano. Cuando vas a una feria verde y que vez a una planta de lechuga bien linda con muy buen color, esa tiene agroquímicos. Porque la planta naturalmente no esta tan grande, y sin agroquímicos no puedes producir, por los gusanos, los hongos... Los agroquímicos han evolucionado de manera tal, que no solamente son muy precisos para curar las enfermedades, sino que del punto biofisiológico son muy estudiados. Por ejemplo el glifosato, al contacto con un material orgánico, en menos de 48 horas desaparecen todos sus efectos”.*

the jobs of private agronomists depend on the satisfaction of the producers; hence, private agronomists are less willing to propose alternative practices than public ones, since they imply a risk regarding the success of the production.

"What happens it that agronomists make recipes to sleep peacefully and save their jobs. Because if a producer is not satisfied with the recipe and his yields lower, he will change of agronomist"⁴¹ (Agronomist from INTA).

Private agronomists either work on the field with producers or own *agronomias* (agronomy shops) and provide technical advises to producers who come to buy them agricultural inputs. Whereas large-scale producers pay the service of agronomists to advise them on the productive aspect (which implies farm visits and personal advises), small-scale producers do not have the means to pay for such services and ask for advises in agronomy shops. These shops are very visible in the urban and periurban area. There is one in each wholesale market and others are localized on nearly all main roads linking the city center to the horticultural belt as well as in secondary urban centers; their localization makes them easily accessible for producers living either in the horticultural belt or within the city. They propose mainly agrochemicals inputs. Only recently new products are being proposed under the new current of « integrated management », the producer-agronomist of PRO.CO.SUD being one of the leaders. The private sector, through the agroindustries, is very present in the conventional chain and plays an important role in the diffusion of inputs and practices (agreement with agronomists and producers to try products for example).

As I said earlier, the existence of quality controls and the new regulations on agrochemical inputs in the *Partido* led to new preoccupations of producers regarding the type of products they use. Both doses and types of products used by producers have evolved. However, is it more the fear of the control than environmental or health convictions that guides the evolution of these practices. Producers working with *medieros* are often worried that the *mediero* actually applies the right doses since, in case the control, it is the producer who will have to pay the fine.

Indeed, *medieros* are sometimes trapped in an intensive productive model. In the process of the Bolivian scale, their objective is to work as much as possible to save money and go to the next step (i.e. rent land to produce by themselves). The fear to lose part of the production makes that even with recommendations from the agronomist and from the land owner, they tend to increase the doses. Thus, when *medieros* bypasses of the recommendations, it can be a risk for the land owner if there is a quality control of the production: to avoid that, the land owner indicates lower doses to the *mediero* to be sure he eventually puts the right doses.

"To fumigate they always put a little bit more. I say 50cl and they put 60. They are afraid that it does not have effect, so they always put a little bit more. We try to say, "well, if you have to put 50, tell him to put 40!"⁴²" (Señor R. producer in the area of the Laguna de los Padres).

These discrepancies between technical advice and actual practice are not only characteristics of the *medieria* system. Still many producers keep on applying too much agrochemical inputs despite technical advises in order to secure the production. But in case of control, they might find themselves

⁴¹ Translated from Spanish: "*Le que pasa es que los ingenieros agrónomos hacen recetas para dormir tranquilo y guardar su empleo. Porque si un productor no es satisfecho de la receta y que su producción baja, va a cambiar de ingeniero*"

⁴² Translated from Spanish: "*Para fumigar siempre ponen un poco más. Les digo 50cl y le ponen 60. Tienen miedo que no haga efecto, así que siempre ponen un poquito más. Tratamos de decir " bueno, si hay que poner 50 dile que ponga 40!"*"

in a delicate situation. Indeed, if a produce is detected as bearing pesticides residues, it can have consequences on the producers' marketing possibilities. Hence, with the quality controls, there is new consciousness about the use of pesticides.

*"Time of ecological production will come, but it costs a lot of work, a lot of money. Just this year we're trying something of biocontrol, but it is difficult and moreover we come from "bad" generations! From the greenhouse to the field. And now we're on the issue that instead of producing quantity we have to produce quality. But it costs a lot of work to have people understanding that you're working well"*⁴³ (vegetable producers and stallholder).

c) Two typical feature of the commercial sphere: PRO.CO.SUD and the "verduleria"

- Part of the production not anchored in the local foodscape

A large part of the conventional vegetable production is not sold locally. In many cases, it does not even go through local wholesale markets. Many large-scale vegetable producers have developed networks at the national level and sell their production to customers who come from cities like Buenos Aires, Rosario, Bahia Blanca or Viedma with whom they can get better prices. Part of the production of small-scale producers is also sold away from the local area, often through consignatories from other regions who come to the horticultural belt to collect vegetables from farm to farm: these small-scale producers seldom know where their production is sold, whether locally or not. In these cases, both large and small-scale producers are not anchored in the local foodscape, neither on the economic nor cognitive aspect. It is estimated that 60% of the vegetable production from the horticultural belt of Mar del Plata is sold away the area during summer (Viteri and Ghezán 2011) ; no estimation exist for the winter period.

- Marketing practices oriented to large volumes and homogenized quality standards

Many producers do not want to involve in commercialization processes.

*"With my brothers we had a stall, but we left it because this job it not ours, we didn't like the commercialization aspect"*⁴⁴ (señor M., producer from the horticultural belt).

Smaller scale producers just bring their produces to the market or give it to consignatories. However, when they have the financial means and when a family member is willing to manage the commercialization aspect, producers by a stall in order to get more margin. They own a stall in at least one wholesale market of the city. They sell their own produces but also the ones of other producers, either local producers or producers from other regions to get off-season produces.

*"They have their own product and at a moment of the year they buy, sell and make a business apart"*⁴⁵ (Administrative officer of PRO.CO.SUD).

⁴³ Translated from Spanish: *"Va a llegar el momento que se va a producir ecológicamente pero cuesta mucho trabajo, mucha plata. Recién este año estamos probando algo de biocontrol pero es muy difícil y además que vinimos de generaciones "malas"! Del invernáculo al campo. Y ahora estamos en el tema que en vez de sacar cantidad hay que sacar calidad. Pero cuesta mucho trabajo hacer entender a la gente que vos estas trabajando así"*

⁴⁴ Translated from Spanish: *"Con mis hermanos tuvimos un puesto, pero lo dejamos porque no ese trabajo no es nuestro, no nos gusto el tema de la comercialización"*

⁴⁵ Translated from Spanish: *"Tienen su propio producto y en un momento del año compran, venden y hacen un negocio a parte"*.

"We have been harvesting pepper, which is over. And then this here is our chard. And then the other thing I sell is through collection, or this, people from Corrientes send it, this from the North, the cherry tomato comes from Corrientes... I work with people I know through contacts I have been creating over the years. Every year when sales start I go to Corrientes to talk with the vegetable growers. The people who send the tomato, they send me tomato and pepper. I started to work with Corrientes 4 years ago, not before. I used to sell no more than my production. But what happened? Here, these stalls are very expensive. 1,000 pesos per day. So if you have vegetables that are not worth, if you work leafy vegetable than often worth nothing, you cannot live"⁴⁶ (Señor V., producer-stallholder in PRO.CO.SUD)

More than half of the vegetables that are sold on the local market are sold through PRO.CO.SUD (Viteri and Ghezán 2011). When producers talk about "el mercado" ("the market"), they mean "PRO.CO.SUD" and are consistent in saying that this wholesale market is the largest (110 stalls), the newest, it attracts larger buyers and is organized for large volumes of production. Also, the cost of the stalls is high compared to the other markets.

"It's a nice wholesale market, very well organized, it has all the things you may have in a good market. There may not be many markets like this in the country. But it is expensive"⁴⁷ (Señor V., producer-stallholder in PRO.CO.SUD).

"This market has a significant area of influence : as far as Necochea, the Pampa, there are also buyers from Bariloche, the whole area of Mar del Plata, Miramar, Pinamar, Villa Gesell, Bahía Blanca. When the prices of the central market of Buenos Aires are not competitive, the ones that are located halfway usually come over here. What you have here is a system to charge the entrance to the market. Stallholders are the ones who pay for it. Producers come and tell to which stallholder they will sell. If they have no stallholder, producers themselves pay a fee per crate or per bag. They pay a lot, like 18 pesos per crate. This is to protect the people who pay a rent here. Because it happens that people enter and stay here to sell by themselves"⁴⁸ (Administrative officer of PRO.CO.SUD)

Although any producer can sell its production to any wholesale market, lower volumes of production and *quintas* located apart from main vegetable growing areas are disadvantaged. Indeed, small-scale producers often have small pick-up to bring part of the production to the market but in period of harvest they need to move larger volumes: they thus rely on consignatories to bring their produces to the wholesale markets, which adds an intermediary and lower their final price. Consignatories are often less interested in collecting smaller volumes; they want to fill the truck. Moreover, if producers

⁴⁶ Translated from Spanish: "Estuvimos sacando morrón, que ahora se termino. Y después esto acá es nuestra acelga. Y después lo otro que vendo es por acopio, o esto lo manda gente de Corrientes, esto del Norte, la cherry viene de Corrientes... Trabajo con gente conocida por contactos que vas armando con los años. Todos los años cuando arranca la venta voy a Corrientes hablar con los quinteros. La gente que manda ese tomate, me manda tomate y morrón. Hace 4 años que empecé a trabajar con Corrientes, antes no. Antes trabajaba nada más que lo mío. Pero que paso? Acá, estos pisos son muy caros. 1000 pesos por día. Entonces si vos tienes verdura que no vale, si trabajas verdura de hoja que no vale nada casi nunca, no podes vivir".

⁴⁷ Translated from Spanish: "Es muy lindo este mercado, es muy organizado, tiene todas las cosas que puede haber en un mercado bueno, no debe haber muchos mercados en el país como este. Pero es caro".

⁴⁸ Translated from Spanish: "Este mercado tiene una zona de influencia importante : hasta Necochea, de la Pampa, Bariloche vienen compradores también, toda la zona de Mar del Plata, Miramar, Pinamar, Villa Gesell, Bahía Blanca. Cuando los precios del mercado central de Buenos Aires no son competitivos, los que están a medio camino suelen venir por acá. Lo que hay acá es un sistema para cobrar la entrada. Los puesteros son los que cobran. Productores vienen y dicen a cual puestero van a vender. Si no tienen puestero, los productores que entran pagan por cajón, jaula o bolsa. Pagan mucho, como 18 pesos por cajón. Eso para proteger la gente que paga un alquiler. Porque pasa que la gente viene así y se quedan a vender acá".

are isolated from other producers they can be charged an additional cost by the consignatory who comes to take the production.

"Here trucks also come but you have to have a lot of diversity for them to buy your production. The issue of the purchase [of vegetables] is simpler in the area of the Laguna de Los Padres because there, there is only vegetable production. Here, if they come, I am the last one to load. It's quite difficult to sell. It's better if you take your production to the wholesale market, but I have no truck for 2 years because I had to sell it"⁴⁹ (Señor M., producer along Road 2, North of Mar del Plata).

The “quality” of a produce depends on its good looking aspect, its capacity to last several days in the fridge and its taste. In conventional circuits of commercialization, the price paid to the producer does not depend on the mode of production but on a certain standard of quality. A best price is given for larger and better-looking vegetables without any mark, which encourages producers to develop a certain type of farming practices in order to reach those standards.

- The *verduleria*: the place of consumers’ purchase

80% of the vegetables sold in the city are sold through *verdulerias* (left picture on Figure 11) and other small shops (*almacenes*). There are about 3,000 *verdulerias* in the city (not counting small food stores selling also fruits and vegetables) and the “*verduleria*” can be considered as the typical feature of the local conventional vegetable supply chain. Although the size of the *verdulerias*, the visual quality of vegetables and their presentation vary, they are the main way of buying vegetables in the city. Supermarkets also propose fruits and vegetables to have a complete food offer but the high prices they propose prevent urban dweller to choose that option. No stable street market for conventionally produced vegetable exists in the city.



Figure 11 Left: *verduleria* of the city center. Right: Little foodstore of a peripheral neighborhood

In the city center, a *verduleria* can be found every three or four *cuadras* (“block”). Their number diminishes as we go farther from the center. In some peripheral neighborhood, the vegetable offer is low. As visible on Figure 12, closer from the city center (a.), the vegetable offer is higher and there are *verdulerias*. In the peripheral neighborhood (b.), there are several small food stores (right picture on Figure 11) but the vegetable offer is poor and there are no *verdulerias*.

⁴⁹ Translated from Spanish: “*Acá también pasan los camiones pero tienes que tener mucho surtido para que te compren. El tema de las compras es más fácil en la zona de la Laguna de Los Padres porque es todo quinta. Acá si pasa, yo cargo último. Es media difícil la venta. Mejor si llevas al mercado pero yo no tengo camioneta desde hace 2 años, porque tuve que venderla*”

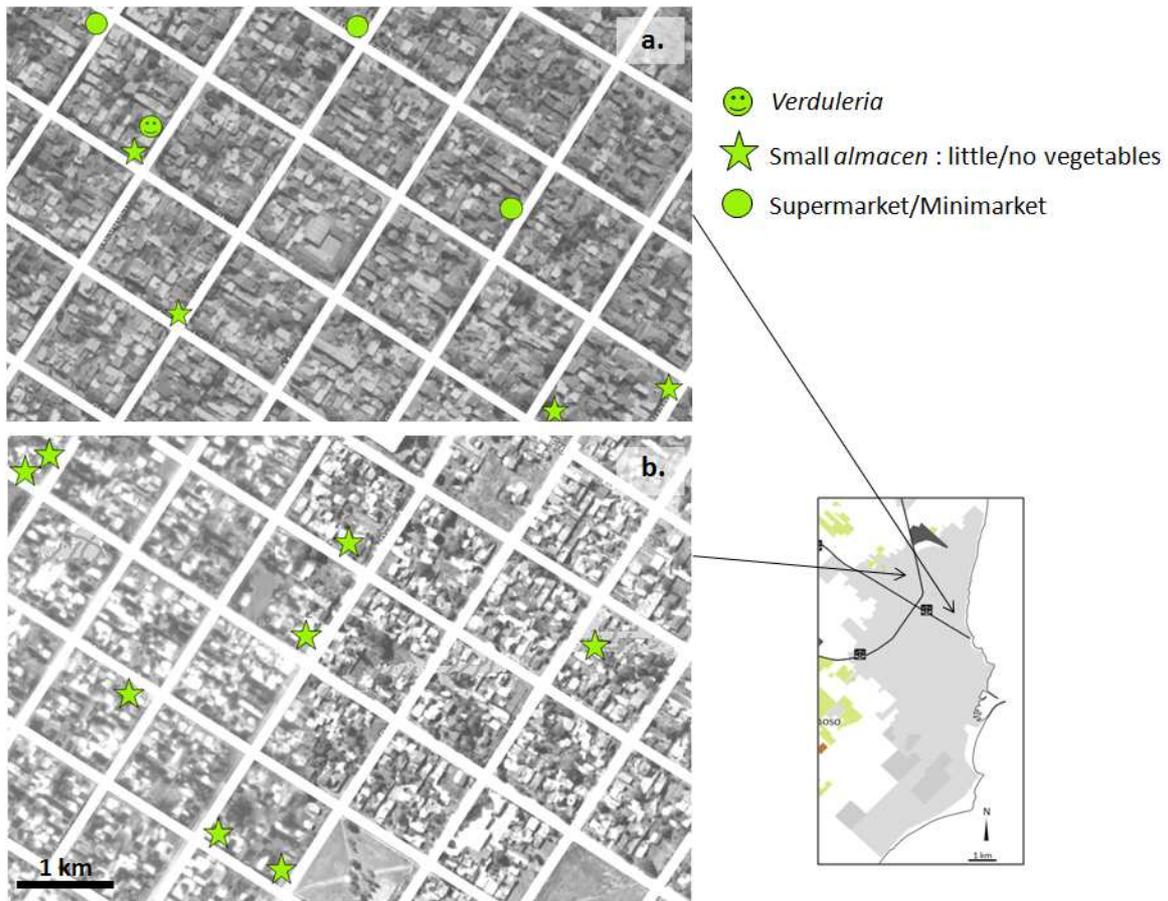


Figure 12 Distribution of food stores in two contrasted neighborhood. a. Medium class neighborhood, b. Poor peripheral neighborhood (O.Robineau 2016)

In peripheral areas, the vegetable offer is often reduced to food stores proposing a low diversity of vegetables of poor quality. Hence, some inhabitants of peripheral areas prefer to come to the city center to buy fruits and vegetables.

"I had business in a neighborhood, in 212 and Belgrano. Just at that time appeared the kiwi. And the kiwi did not reach peripheral neighborhoods because it was expensive. Verduleros of these areas considered that people wouldn't buy it. And I was buying kiwi in the wholesale market and sold it. I bought fewer quantities but people bought it. We can also sell to them products of better quality. We do not consider them well and consider them as crap. In these areas, many apples are sold with worms, peaches with fungus. When there is hail, the fruit is green, the hail leave a mark on the fruit. That cannot be sold but there yes, they sell it. And I think we should not sell it anywhere. Some carry very small potatoes in these neighborhoods. Why do we sell them this potato? What are they? Outcasts?"⁵⁰ (verdulero of the city center).

⁵⁰ Translated from Spanish: "He tenido negocio en un barrio, en 212 y Belgrano. Recién en esa época aparecía el kiwi. Y no llegaba en los barrios periféricos el kiwi, porque valía mucho. Los verduleros de esas zonas descontaban que la gente les iba a comprar. Y yo llevaba y lo vendía igual. Compraba menor cantidad pero lo llevaba. Pero se les puede vender también algo más de calidad. Les desconsideramos y les llevamos la porquería. En estos barrios se vende mucho la manzana con gusano, el durazno con hongo. Cuando hay granizo, la fruta esta verde, el granizo la lastima y le queda la marca. Eso no se puede vender pero allá si se vende. Y yo creo que no se debería vender por ningún lado. Unos llevan la papita así, chiquita al barrio. Porque le llevamos la papita así? Que son? Son parias?"

Whatever the area of the city, the *verdulerias* do not propose signs of origin nor differentiated quality. They do not underline the local provenance of vegetables and the quality is only differentiated according to the vegetables' aspect.

d) Sphere of the civil society: disconnection between consumers and producers

As in many cities of the world, consumers and producers are quite disconnected in Mar del Plata, which contrasts with the importance of *verdulerias* in the local foodscape. When looking at the food habits of the inhabitants of Mar del Plata, one can notice that there is no local specificity of food: little fish is consumed and the consumption of vegetables is low. I was also surprised to notice that many people are not aware of the presence of an important horticultural belt around the city; when asked about the main agricultural productions of the area they shall answer “cattle and potato”. In the province of Buenos Aires the Ministry of Health (MNS, 2011) estimated that in average less than one vegetable is consumed per day per person; in Mar del Plata, about 11% of the population consumes at least 5 vegetables and fruits per day. Salad and tomato are mainly consumed to accompany the traditional *asado* (grilled meat), to fill hamburgers or to accompany a dish of meat and French fries. The standardized diet of Argentineans includes mainly meat, potato and wheat. Vegetables have little space in that diet and the consciousness about food quality and healthy food is low, whatever the socio-economic profile (personal observation and personal communication with an agent of Secretary of Health). A survey conducted by Borrás and Viteri (2015) in *verdulerias* of Mar del Plata confirmed that although people often go to *verdulerias* they buy little quantities and spend little money in buying fruits and vegetables (less than 50 pesos per week). Moreover, in the conventional circuits of commercialization there is no seasonality of the vegetable offer.

Most of the time consumers prefer to buy fruits and vegetable in *verdulerias* rather than in supermarket. It is cheaper, the quality (aspect) is better and there is a global preference for proximity shops. Many consumers buy according to prices, hence many *verduleros* make many offers (*ofertas*) to attract customers.

Apart from consumption aspects, the conventional chain engenders initiatives against it, as we could see with the associations Paren de Fumigarnos and BIOS. Indeed, intensive farming practices and little dialogue between producers and neighbors led to a tense situation.

2. Governance in the alternative supply chain

The alternative supply chain is oriented toward vegetables free from agrochemicals and small-scale production.

a) Political sphere: a visibility thanks to institutional programs

With the increasing preoccupation for health issues, the development of a production free from agrochemicals is more and more in the heart of the debate. However, compared to the conventional supply chain, the alternative supply chain does not beneficiate from the same political support. Many political actors depreciate it and consider it as nearly inexistent due to the small number of producers and the small volumes of production involved. As underlined before with the citation of the member of the municipal council, some even consider that producing without agrochemical input is not possible and that farmers are cheating. In the same way, small-scale food production has also been left apart from official regulations. For example, small-scale food processing and selling was not considered until recently and there was no regulation for it. After a long process, in which large-scale food processors were arguing against, the REPUPA law was adopted. It allows small-scale food

processors to be registered and to have an official authorization to sell their products within the *Partido*.

At the municipal level, it is mainly through specific programs and personal involvement that the alternative model finds support within institutions. An ex agent from the municipal Secretary of Production had a great role in promoting the support to a small-scale agriculture free from agrochemicals and in the creation of the PDRS. She was present during all the negotiations between the municipality and the producers and was willing to find a compromise between the need for more sustainable practices and a progressive transition toward farming practices less intensive in agrochemical inputs. Some INTA agents and students from the university played also an important role in supporting this form of agriculture through ProHuerta and PAA. However, one has to note that these programs are not mainstream in the vision supported by their institutions.

b) Production sphere: isolated producers in an environment dominated by conventional agriculture

Producers of vegetables free from agrochemicals are small-scale farmers (less than 5 ha) who work themselves on the farm, with the help of family members and temporary workers⁵¹. In a context of well established dominant model of conventional production, developing a form of agriculture without agrochemicals inputs is a personal project. Moreover, the fastidious organization is required goes along with the personal involvement of the farm owner in the daily tasks.

*"As an agronomist all the part of conventional production does not convince me. I saw tons of fertilizers, tons of agrochemicals that are put. Although I'm not fanatic, and I am not one of those who are fanatics, yes I have a bit of what I call "judgment". If I eat something I try not to put a poison, I think it's basic. I try to be coherent and consistent with my ideas. It costs a lot ... not to fulfill it, because I do fulfill. It costs a lot because you go a bit against, because there are large currents that are more comfortable, they are like big highways flowing and well structured. But it's worth it"*⁵²
(Señor L., vegetable producer of the horticultural belt)

The size and the organization of the work are really different that in conventional agriculture. The main characteristic point is that share-cropping is not part of agriculture free from agrochemical inputs. Indeed, on the one hand, the farm size is not important enough to require such system, and on the other hand, according to what I explained above about the behavior of share-cropper regarding agrochemicals inputs, they would not take the risk to invest their labor force in this kind of production. Some farmers work in association with a colleague, which allows them to share the management of the farm, notably production and commercialization aspects.

Producers of the alternative vegetable supply chain are mainly of two profiles. On the one hand, a very few of them are agronomists who decided to become producers and to develop a production free from

⁵¹ It is interesting to note that when interviewing an organic farmer he mentioned to me that he cares about paying well its employees and declaring them with a contract, which is not common in horticultural production. But he told me that employees prefer to get the money directly in the hand and would prefer to leave his farm to get a job with less social advantages (neither insurance nor retirement plan) but with a bit more money in cash.

⁵² Translated from Spanish: "*Como agrónomo todo la parte de la producción convencional no me convence. Yo veía las toneladas de fertilizantes, toneladas de agroquímicos que se echan, si bien no soy un fanático y no soy de esos que son fanáticos, sí tengo un poco de lo que llamo "criterio". Si voy a comer algo trato de no echarle un veneno, me parece medio básico. Trato de ser coherente y consecuente con mis ideas. Cuesta un montón... no de cumplirlo, porque cumplirlo lo hago. Cuesta un montón porque vas un poco en contra, porque, hay corrientes grandes que son más cómodos, son grandes autopistas que fluyen y que están bien armadas. Pero vale la pena".*

agrochemical inputs. They are not organized in association and work individually. The spatial distance from one to another and the time they spend to develop their activities make that they do not take time to exchange among each other (although they know about other producers developing similar strategies). Producers of this type are willing to do tests on their farms on their own to find new treatments, try different calendars of production and different combinations of species.

“There are plenty of tools that can be used to fight insects, fungi, bacteria... For insects you can prepare a slurry of nettle. But everything in organic production is preventive. Curing is almost impossible. You can slow down but healing at 100% is very difficult. Especially diseases. Insects, the most bothering are aphids, especially in cruciferous. I buy Nemasal, and I also prepare spicy chili with garlic and white soap and the truth is that I control it. Everything you see there, there were potatoes and squash, we are now sowing vetch and oat, which is a green manure. Tare is a leguminous plant, it filters nitrogen, I incorporate it once it flowers. It gives structure and fertility to the land. I'm slow in the plant rotation, but in the farms, they plough so much that the land loses its structure, and that's not good”⁵³ (Señor L., vegetable producer of the horticultural belt)

On the other hand, the other type of producers started a production without agrochemical inputs through institutional programs, notably ProHuerta and PAA. Their participation to these programs led some of them to be part of a collective organization in charge of the *Feria Verde*. However, the existence of this organization is linked to the programs and not to producers' initiative. Producers of this type are mostly small-scale farmers with little financial means. Most of the time, if these vegetable producers are not followed by a program they do not take the risk to stop using agrochemical inputs. Developing an agriculture free from agrochemical inputs is more for economic purposes, with the objective to enter the *Feria Verde* (I come back to that point below), as explained by this producer wishing to change her farming practices.

“I am in the program [PDRS]. I never put much poison because it's expensive. I want to produce organically to have better sales. Sell in the Feria Verde”⁵⁴ (Señora C., vegetable producer from the horticultural belt).

“Here I invest, but I know after it's going to pay. I don't work in the field, my sons do it. Mine is to sell and prepare the vegetables for the Feria”⁵⁵ (Señora G., vegetable producer of the horticultural belt).

Producers of the alternative vegetable supply chain are only a few (less than 20⁵⁶). They are all located within the area of conventional production and are isolated throughout the horticultural belt. On Figure 13 we can see the location of Señor F.'s farm, surrounded by fields of conventional agriculture. He had to explain to farm workers of the neighboring fields that his production is without

⁵³ Translated from Spanish: “Hay un montón de herramientas que se pueden usar para combatir insectos o hongos, bacterias... Para insectos se puede preparar purín de ortiga. Pero todo en la producción orgánica es preventivo. Curar es casi imposible. Puedes frenar un poco pero curar 100% es muy difícil. Sobre todo las enfermedades. Los insectos, los que más te joden son los pulgones, sobre todo en crucíferas. Pero con nemasal, y preparo también ajo con chili picante y jabón blanco y la verdad es que los controlo. Todo lo que ustedes ven allá, ya había papa y zapallo, ahora lo estamos sembrado en vicia y avena, que es un abono verde. La vicia es leguminosa, filtra el nitrógeno, una vez que florece, la incorporo. Le doy estructura y fertilidad a la tierra. Porque yo voy lento en la rotación de las plantas, pero la quintas, a trabajar tanto la tierra, pierde mucha estructura, y eso no está bueno”

⁵⁴ Translated from Spanish: “Estoy en el programa [PDRS]. Nunca puse mucho veneno porque sale caro. Quiero producir en agroecología para tener mejor ventas. Vender a la feria verde”.

⁵⁵ Translated from Spanish: “Yo acá invierto, pero después sé que va a pagar. Yo no trabajo al campo, mis hijos lo hacen. Lo mío es vender y preparar la verdura para la feria”.

⁵⁶ This number does not include people producing vegetables in their backyard for self-consumption. It is only a question here of producers making a leaving from vegetable production.

agrochemical inputs and he asked them to care about how they fumigate their fields to avoid the contamination of his production by agrochemicals.



Figure 13 Señor F.'s farm in the landscape of conventional agriculture (O.Robineau 2016)

This little representativeness of alternative producers in the productive landscape goes along the little visibility of the production free from agrochemical inputs in the local foodscape. Indeed, there are only a few agronomists who provide technical advices for this form of production (the ones who do are all linked to institutional programs), there is little systematization of knowledge, there exists no specific agronomy shop for alternative inputs, and it is difficult to find appropriate inputs. Some organic inputs cannot be found in local agronomy shops and there are no organic seeds.

“I buy Nemasal in an agronomy shop, there in Juan B. Justo and Villar. Before I couldn’t find it. And then there are many products developed that it is hard to find. For example Bacillus Subtilis, a bacterium that is bactericidal and fungicidal. It exists, it is developed, but they don’t bring it because it has no market. The truth is that the seed is often cured. So if I wanted to do that with organic seeds it would be impossible. You find developed hybrids that are higher in the productive part, and you also have to lean a little on it because you are rowing against the current! What I try is to produce healthy food without going crazy. And I want to make it possible. So I start with what I can do, and obviously

*that is the only flaw in my production: the use of seeds that are cured. I am really convinced that what I offer to people is healthy and has no trace of it*⁵⁷ (Señor L., vegetable producer of the horticultural belt)

In the absence of systematized knowledge, all the knowledge about agriculture free from agrochemical inputs is under construction and is subjected to crash-tests. This prevents many producers to try it and explains why there are so few.

*"All I know about this way of producing I learned it by myself. Internet a lot. Then I undertook to work remedies, to try them: making bottles with bugs, try it, see what works or not, conditions in which to use it... because you get a lot of information. All this, organic production or self-sustaining home garden, is an attractive subject, but there is many information that is not... you know... you don't know if it works. Sometimes they present things like magic products but they don't work. Well, there you go through experiments and tries, and little by little you get to a technology that allows you to go ahead"*⁵⁸ (Señor L., vegetable producer of the horticultural belt)

c) Commercial sphere: indispensable contact with consumers

Vegetables free from agrochemicals are little visible in the local foodscape of Mar del Plata and can be bought only in very specific places. Compared to other regions with a developed horticultural production (as I could observe in Gaíman near Trelew, or in El Bolsón), on farm selling is nearly inexistent in Mar del Plata and is not part of the local culture anymore. Urban dwellers are more used to proximity shops. The labeling of organic products is expensive and unaffordable for small-scale farmers. Hence, in the absence of label or other sign of quality, the only way to differentiate vegetables free from agrochemical from other ones is to differentiate the circuit of commercialization and to base the selling on consumers' trust. It is mostly through a direct contact between producers and consumers that this trust can exist. Hence, vegetables free from agrochemicals are all sold on local markets; this production is thus well anchored in the local foodscape.

- Direct selling to differentiate vegetables' quality

One of the family members takes in charge the commercialization aspect and, except in exceptional cases, no intermediaries are involved. Three types of commercialization exist in Mar del Plata for vegetables free from agrochemicals.

The most famous one is the *Feria Verde*. It is specialized in produces free from agrochemicals (not only vegetables). There have been tries to mix conventional and alternative producers on the same

⁵⁷ Translated from Spanish: "*Compro la Nemasal en una agronomía, allí en Villar y Juan B. Justo. Antes no se encontraba. Y después hay muchos productos desarrollados que si es difícil de encontrar. Por ejemplo Bacillus Subtilis, que es una bacteria que es bactericida y también fungicida, existe, está desarrollado pero no lo traen porque no tiene mercado. La verdad es que la semilla, muchas veces viene curada. Así que si yo quería hacer eso con semilla orgánica sería imposible. Y también tienes híbridos desarrollados que son superiores en la parte productiva, y también hay que apoyarse un poco es eso, porque estas remando contra la corriente! Lo que trato es producir alimentos sanos, sin volverme loco. Y lo quiero hacer posible. Entonces arranco con lo que puedo hacer, y obviamente eso es la única mancha en mi producción: ese uso de semillas que vienen curadas. Realmente estoy convencido que lo que le ofrezco a la gente es sano y no tiene ni rastros de eso*".

⁵⁸ Translated from Spanish: "*Todo lo que sé sobre esta forma de producir es todo propio. Internet mucho. Después yo me he tomado el trabajo de los remedios, para probarlo: hacer frasquitos con bichos, probarlo, ver que funciona o no, las condiciones en que aplicar... Porque también llegas a un montón de información. Esto del orgánico o de la auto-sustentación de huerta casera, es un tema muy atractivo, pero hay muchas información que no es... viste... no sabes si funciona. A veces te presentan cosas como productos mágicos, que no funcionan. Bueno, hay que ir experimentando y probando, y a poquito llegando a una tecnología que más o menos te permite salir por adelante*".

street markets but consumers did not understand the difference of prices between the different types of vegetables. Hence, the institutions defended to the municipality the need to have a specific street market for produces free from agrochemicals.

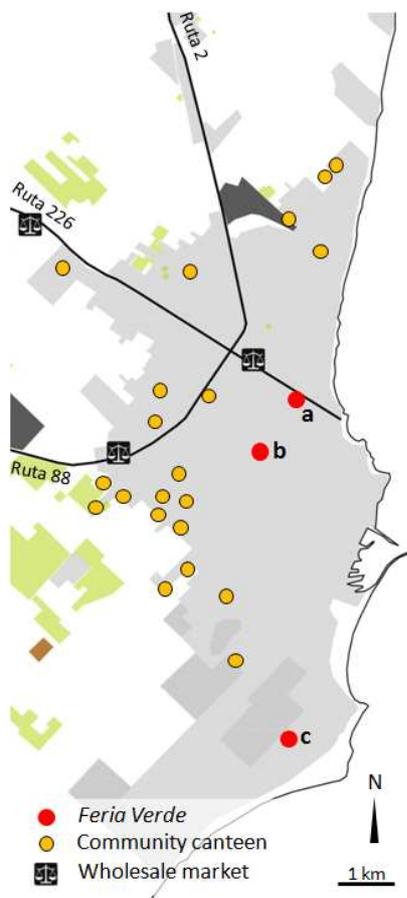


Figure 14 Location of Feria Verde and community canteens in Mar del Plata (O.Robineau 2016)

The existence and maintaining of the *Feria verde* is strongly linked to the support of INTA-Mar del Plata. Indeed, INTA agents do a close follow-up of the *Feria*, organize regular meeting of the *Feria* participants within the INTA office, and give an institutional voice when it is about negotiating with the municipality location and financing issues. Street markets are not part of the local habits of Mar del Plata and the *Feria Verde* is almost the only food street market in the city and takes place only in neighborhoods where people can afford to pay for it (on Figure 14, the distribution of *Ferias Verdes* and the one of community canteens⁵⁹ illustrates contrasts between neighborhoods). Through the support of ProHuerta and PAA, the *Feria Verde* is now famous and inhabitants of Mar del Plata use to know about it (although a minority actually buys vegetables there). There are three *Ferias Verdes*. The first one was established in Plaza Rocha in the city center (a. on Figure 14), and then two others were developed near the University (b.) and in the neighborhood Alfar (c.). Other street markets exist but they are linked to punctual events (like the negotiation of the law REPUPA for example) and seldom involve vegetable producers.

In theory, to verify that vegetable produces sold in the *Feria Verde* are free from agrochemicals, agronomists of the PAA visit regularly the farms. In the facts, the program has little means to finance such visits so the guarantee of quality relies much on trust. The establishment of a participatory guarantee system is in progress to have a more systematic control.

The second type of short circuit developed to sell vegetable free from agrochemicals is door-to-door selling. This type of commercialization is notably developed by the two vegetable producers⁶⁰ that are also agronomists. Indeed, complementary income from a family member, the possibility to have a vehicle to do door-to-door selling, and a modern vision of proximity agriculture led them to organize their commercialization through a specific channel. They rely much on internet (social networks, website), to manage the relationship with customers and to communicate on their production. This channel of commercialization works without label and the guarantee of quality is based on trust. None of the producers sell on farm because they consider it would be too much time-consuming to organize it.

"It's like a verduleria, but with home delivery! There are two ways to order, they get into the website, it's like a grocery store. You choose what you want or there is a crate that we make and is more economical. We make the crates here and the van goes out 4 times a week to do the delivery. For example squash,

⁵⁹ On the map appear the *comedores* I identified. The list is not exhaustive.

⁶⁰ To my knowledge there are two of them who developed this system as a major commercialization circuit. There might be other producers doing door-to-door selling without using internet (direct selling to neighbors for example)

*onions, potatoes, all this, we plant to store it, since during winter we have less variety and variety is central. We sell about 100 crates per week*⁶¹ (Señor L., vegetable producer of the horticultural belt)

"At first we were in a street market, but it was complicated, people were fighting and they put us for a while with conventional producers. We started to do delivery and to manage a Facebook page. People ask and we deliver 3 times a week ⁶² (Señor B., organic producer of the horticultural belt)

A third way to sell these types of vegetable is through specific *verdulerias*. This is not common but one producer sells once a week a little part of its production to a *verdulero* located in a rich neighborhood near the city center. The store owner sells also vegetables produced with conventional practices; thus he put a poster that indicates that part of the vegetables are free from agrochemicals and where these vegetables come from.

Whatever the channel of commercialization, it is the direct contact with the producer and the place of purchase (*Feria Verde*, delivery or specific *verdulerias*), that guarantee the quality of the vegetables to consumers.

- The bottleneck of commercial outlets

*"What is missing is continuity. Sometimes there is a lot of demand, sometimes not. And the demand went down over the last months"*⁶³ (Señor B., vegetable producer of the horticultural belt)

This producer doing door-to-door selling mentioned that the number of crates delivered per week lowered over the last months. To my knowledge, this coincides with the date when the other producer doing delivery started its production and door-to-door selling. This means that there is a bottleneck for the selling of vegetables free from agrochemicals, which is confirmed by the experience of the producers who sell at the *Feria Verde*. Indeed, when participating to a meeting of the participants of the *Feria Verde* I could notice that they protect their privilege to have access to that street market and that they fear competition. Indeed, only a few vegetable producers sell their produces on the *Feria Verde* (two to three in Plaza Rocha, one at the University and one in Alfar), but they know that including more vegetable producers in the *Feria* would lower their sales because the demand is not high enough. It means that today, having less than 20 producers who offer vegetables free from agrochemicals for a city of 700.000 inhabitants is the maximum.

This explains why *Feria Verde* participant are sometimes not willing to share their technical knowledge on organic agriculture with a neighbor wishing to develop this form of production to enter the *Feria Verde*. Hence, entering the collective organization of *Feria Verde* is hard both in technical terms (the production has to be free from agrochemicals and the producer has to have a follow-up by agronomists of the programs) and in social terms (acceptance from other *Feria Verde* participants).

The bottleneck for commercialization makes that part of the vegetables free from agrochemicals is sometimes sold to wholesale markets.

⁶¹ Translated from Spanish: "*Es como una verdulería orgánica, con entrega a domicilio! Hay dos formas para pedir, se meten en la página web, es como una verdulería, vos elegís lo que quieres o hay un cajón que armamos nosotros que es más económico. Armamos acá y el furgón sale 4 veces por semana y se hace el reparto. Por ejemplo zapallo, cebolla, papa, todo eso, sembramos para guardar para el invierno, ya que tenemos menos variedad y la variedad es fundamental. Vendemos 100 cajones por semana*".

⁶² Translated from Spanish: "*Al principio estábamos en una feria, pero era complicado, la gente se peleaba y a un momento nos pusieron con productores convencionales. Empezamos a hacer reparto y nos manejamos con la pagina Facebook. La gente pide y llevamos 3 veces por semana*".

⁶³ Translated from Spanish: "*Lo que falta es continuidad. A veces hay muchos pedidos, a veces no. Y bajo la demanda en los últimos meses*"

"Cucumbers, when we started to produce, we had so much that we had to bring them to the wholesale market, in front [PRO.CO.SUD]. What is left we take it to this market because it's relatively comfortable for me. So people are eating organic at home and they don't know! I had also to sell tomato there ... Chard, when it began ... the same"⁶⁴ (Señor L., vegetable producer of the horticultural belt)

d) Sphere of the civil society: a model positively perceived

Vegetables free from agrochemicals concern a specific type of consumers who are aware about this type production, who can afford it and who can have access to the produces (both economically and geographically). However, with the increasing concern regarding farming practices and food quality, actors of the civil society positively perceive the model of the alternative supply chain. Other initiatives emerging from the civil society exist and promote similar forms of production, like for example Via Organica, a students' project of urban agriculture on a little part of the old railway. The students involved in this kind of projects are often linked to actors from the university and INTA involved in ProHuerta and PAA. Hence there exists a network of actors from the civil society promoting and supporting alternative forms of food production that aim to ensure social inclusion and healthy food.

3. Conventional and alternative vegetable supply chains : both excluding models

To conclude, two contrasted vegetable supply chains have been described. Based on the variables of Colona et al. (2011), I would characterize the governance system of the conventional and alternative supply chains as following.

The conventional supply chain is characterized by:

- A dominant productive model characterized by long/medium circuits, the use of agrochemical inputs, the importance of the share-cropping system, and the key role of large-scale producers in the diffusion of practices. The supply chain is organized for large volumes, without differentiation neither of quality or origin of the production, and characterized by a powerful wholesale market and numerous *verdulerias*. The connection between producers and consumers is weak or inexistent.
- Some actors (owners of the wholesale market, large-scale producers) are well anchored in the local political sphere, which provides a powerful invisible political support to the conventional supply chain. The system of knowledge is well established (agronomists, agronomy shops, on-farm tests of inputs etc.) with both private and public support: the private sector plays an important role in the diffusion of inputs and practices. Conventional producers are organized in an association that gives them a unique voice to dialogue with the municipality.
- This supply chain has little social and cognitive anchorage in the local food system: much of the production is linked to extraterritorial systems of actors. Moreover, this model engenders strong reactions from associations of the civil society regarding health issues.

In comparison, the alternative food chain is characterized by :

- A model little visible in the local foodscape that is characterized a production free from agrochemicals inputs, small-scale family farmers, a small number of producers and small

⁶⁴ Translated from Spanish: "*Pepinos, cuando empezaron a salir teníamos tanto que teníamos que llevarlos al mercado, al frente [PRO.CO.SUD]. Lo que sobra lo mando al mercado porque me queda relativamente cómodo. Entonces la gente está comiendo orgánico en su casa y no lo sabe! Tomate también tuve que vender allí... Acelga, cuando empezó...igual*".

volumes of production, and the need to sell through short circuits to differentiate the production. The outlets for commercialization are very limited (bottleneck effect) and a strong connection between producers and consumers is necessary to enhance trust on produce quality.

- This food chain is still fragile and many producers need institutional support to keep producing and selling produces free from agrochemicals. There is no real political power of the actors of the alternative supply chain and they are perceived as non-dominant in the local foodscape. The actors are anchored in the political sphere only through institutional programs. There is little systematized knowledge and little/no adapted input available in agronomy shops. Few agronomists are involved and the knowledge is created through individuals and informal on-farm tests.
- The alternative supply chain has a high socio-economic and cognitive anchorage in the local foodscape. This model is positively perceived and supported by the civil society.

Hence, conventional and alternative vegetable supply chains are perceived as very different on technical, social, economic and political aspects. But does one of them answer to the new expectations of the society regarding food issues? The conventional model is dominant and answers needs in terms of volumes of production, but it is each time farther from the society's expectation regarding food quality (the municipal order is a manifestation of these expectations). The alternative model is closer from the new society's expectations regarding food quality but is in minority, represents small volumes and is not accessible to the large majority of consumers.

Both models and their forms of governance are excluding. The conventional model is excluding because small-scale actors have difficulties to get interesting social and economic positions in a model based on large volumes. The alternative model is excluding because only a few producers can convert to a production free from agrochemicals, find outlets, and the produces are not accessible to the majority of consumers.

Hence, one can wonder : do other models (hybrids/intermediaries?) closer from local social, environmental and economic expectations exist? Are these models interesting to think about the construction of more sustainable food systems?

IV. BEYOND CONVENTIONAL/ALTERNATIVE: HYBRID FORMS AT THE CHORE OF A NEW FOOD GOVERNANCE?

Beyond the visible supply chains and farming practices, compromises and interactions between actors highlight how a new food governance could emerge from local initiatives. Without giving an exhaustive list of initiatives, I would like to come back to three examples that illustrate how hybrid/intermediary forms answer local issues.

1. On the field: hybrid practices

Through on farm interviews I could understand that many producers develop hybrids practices, in-between conventional and alternative production. Although I did not study these practices deeply I could notice that this hybridization is of two types.

First, it can be a hybridization of practices from conventional and alternative forms of production on the same crop. For example, small-scale producers make compromises between production costs and

success of the production for economic purposes or/and personal convictions. They do not automatic spread pesticides and on some crops they do not use agrochemicals at all (no preventive techniques of agroecology – like nettle, chili or garlic mixtures - is used). As explained before, without systematized knowledge on the production free from agrochemicals inputs and considering the risk it represents, many producers prefer to find a compromise between a little use of agrochemicals and a successful production. Also, some producers adapt practices from conventional production to alternative production, like the mulching. It is the case of a producer who produces vegetables free from agrochemicals nearby strawberry producers; through exchanges of knowledge he tried mulching and underlines its success in avoiding weeds. There is an effect of proximity in the try and adoption of different farming practices: if a neighbor is successful in adopting less intensive practices, the neighbors are more willing to try it. Finally, techniques of biocontrol are also being developed but concern for the moment rather large-scale and technologically advanced vegetable producers who have mainly outlets out of the local territory. It is of interest to mention these new techniques are not developed by the same actors nor through the same mechanisms as the other examples mentioned before.

Second, the other form of hybridization is at the farm scale. I met a producer who combines alternative and conventional production on his farm but on different parcels.

“Organic production is apart from conventional production. I manage organic production with my associate. I do conventional production with my father. We produce squash, cereals... My father has always dealt with this form of production, and so do I. Then, when I was producing near the city and there was the discussion about fumigation I wanted to try organic production because I’m interested”⁶⁵ (Señor B., vegetable producer of the horticultural belt).

Hybrid farming practices offer a flexibility to producers who want to have their practices evolve toward more health and environment friendly practices without having the constraints and the risks of a production totally free from agrochemical inputs. New farming practices are spreading but farmers see the necessity to access alternative chains of commercialization to differentiate their produces. The bottleneck for outlets could be a constraint to the further development of such practices.

2. Door to door selling: going back to an anchored local food production and commercialization

I could observe that small-scale producers sell part of their production door-to-door in their neighborhood. This happens when producers take themselves in charge the selling aspect and when a family member is willing to take time to develop such type of selling. Large-scale producers do not develop that selling scheme because it does not fit their farm organization and because they are involved in other networks; and share-croppers never do that because they are not in charge of selling aspects.

The producers who develop door-to-door selling are generally located near urban settlements. Producers located far from urban settlements are less likely to develop door-to-door selling. Indeed, the spatial proximity with potential customers enhances door-to-door selling for different reasons. First, urban dwellers sometimes ask neighboring farmers to buy them directly produces, which

⁶⁵ Translated from Spanish: “*La producción orgánica es a parte de la convencional. La producción orgánica la manejo yo con mi socio. La producción convencional la hago con mi padre. Producimos zapallo, cereales... Mi padre siempre manejo este tipo de producción y yo también. Luego, cuando estuve produciendo a lado de la ciudad y había discusiones sobre las fumigaciones, quise probar la producción orgánica porque me interesa*”

encourages the development of short circuits. Second, being located near urban settlement allows them to develop this type of commercialization without wasting time in transport.

The vegetables sold through this channel of commercialization are produced with agrochemical inputs, but the direct contact with consumers goes along the awareness about health issues and lower use of agrochemical inputs. Moreover, all vegetable producers are aware of the order on agrochemical inputs and the ones located near urban settlement are even more concerned about it. Some producers make implicit trade-off with their neighbors in order to avoid conflicts.

"At the time of barter, during the crisis, I gave some [vegetables] to neighbors. What was left over I gave it to them, I had no problem [...]. Now with the city, the pressure we have is because of the fumigation issue. I did not kill anyone. When I fumigate I care, I will not throw poison to people. I fumigate when the wind is in the opposite direction, when there is no wind, or early so that people do not see me. I wake up at 4 and fumigate. I never had complaints. I take care and I do not fight with anyone. I am friendly with everyone. Of course I do it a little on purpose. I have fought a little with one because he has 40 dogs and hunts hares. Before he came with 2-3 dogs but then when he came with 40 and I said "no, what it's gonna happen if the hare comes out and goes through my spinach?" And he said "then I'm going to denounce you"... well, you always have to maintain equilibrium but it costs. And this is one example, but there are several who do that and with each one you need to talk..."⁶⁶. (Señor M., producer of the horticultural belt)

As in Señor M.s' case, this happens more for producers living on-farm and working in their farm, since they interact directly with neighbors. It seems that large scale producers who do not live on-farm and who have the farm work done by employees feel much less concerned about this.

- The case of Sandra: door-to-door selling in the northern part of Mar del Plata

The example of Sandra, 30 years old, vegetable producer in the area of Sociego along the *Ruta 2* (Figure 15) is interesting to illustrate the processes of door-to-door selling.

Sandra's family is from the Jujuy province, in northern Argentina. Sandra's parents arrived in Mar del Plata 24 years ago and followed the traditional so-called "*Bolivian scale*". Her father started to work as *peon* in a farm, and then became share-cropper. Since 2014 the family rents a land of 5 ha (of which 3 are cultivated in vegetables) in an area in rapid urbanization. Indeed, for the last years more and more urban dwellers have been constructing houses in the outskirts of the city, on parcels that were previously dedicated to small-scale agricultural production.

⁶⁶ Translated from Spanish: "*En la época del trueque, durante la crisis, di un poco a los vecinos! Lo que me sobraba les daba, no tenía problema [...]. Ahora con la ciudad la presión que tenemos es con el tema de la fumigación. Yo no maté nadie. Cuando fumigo cuido, no voy a echar veneno a la gente. Fumigo cuando hay viento contrario, cuando no hay viento, o temprano para que la gente no me vea. Me levanto a las 4 y voy a fumigar. Nunca tuve denuncias. Me cuido y no me peleo con nadie. Soy amistoso con todos. Por supuesto lo hago un poco con genia. He discutido con unos porque uno tiene 40 perros y caza el liebre. Antes venia con 2-3 perros pero después cuando vino con los 40 le dije "no, que va pasar si el liebre sale y pasa por mi espinaca?" y el me dijo "entonces yo te voy a denunciar"... bueno, así es que siempre hay que mantener un equilibrio pero cuesta. Y es uno así, pero hay varios que hacen eso y con cada uno hay que hablar...*

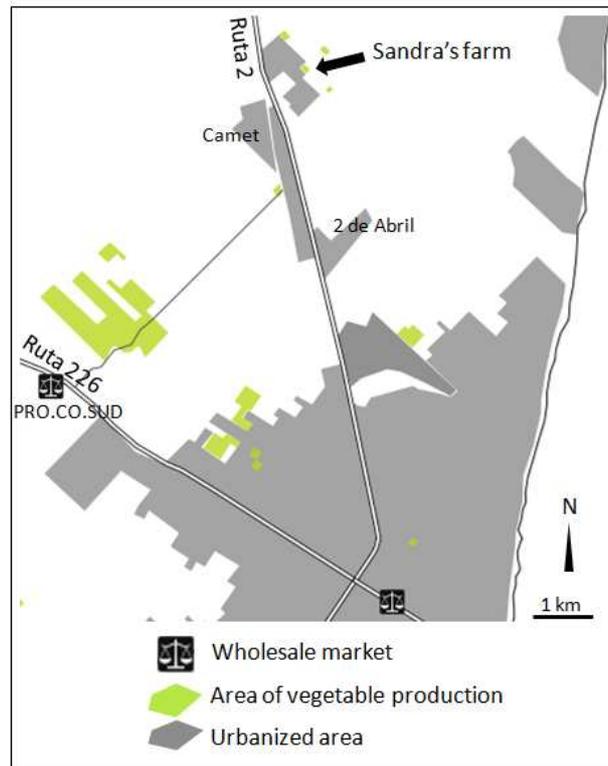


Figure 15 Location of Sarah's family's farm in the outskirts of the city (O. Robineau 2016)

As many producers, Sandra's family is concerned about low prices paid to vegetable producers by intermediaries. Producers give their production to consignatories or to stallholders, who pay them once the production has been entirely sold. It often happens that they are never paid, without any valuable reason.

*"We take to the wholesale market but in the market nothing happens to you. The last time I took broccoli, parsley and chard there. And when I went to collect the money the guy said "no, we threw everything". And the parsley I had there was beautiful. And I said "I know this was beautiful, why did you throw it?". But it's like that, he didn't pay me. That is working for nothing. Sometimes they give you, sometimes not ... that's the way it is. Sometimes we send to the market through consignatories but I usually go. A stallholder makes me an offer and I bring to him. And then you get a percentage, it depends on what it's worth. Since I have a little truck I cannot carry much. When it's about more quantity, consignatories come"*⁶⁷

Some small-scale vegetable growers develop an alternative commercial strategy that combines conventional market chain and direct sale. It is the case of Sandra's family.

"Here to produce vegetables there is of everything, we produce everything to sell. I do door-to-door selling. I cast. I sell about 20% of the production through this system of delivery. I sell crates to food stores and other shops, and to neighbors of Sociego and Camet. I sell until the neighborhood 2 de

⁶⁷ Translated from Spanish: "Llevamos al mercado pero en el mercado no te pasa nada. La última vez lleve brócoli, perejil y acelga. Y cuando fui para cobrar me dijo "no, tiramos todo". Y el paquete de perejil que tenía ahí estaba hermoso. Y le dije "sé que esto era hermoso, porque lo tiro?". Pero es así, no me pagaron. Eso es laburar de gana. A veces te dan, a veces no... es así. A veces llevamos al mercado por consignación pero normalmente voy, me hace una oferta un puestero y lo llevo. Y luego te dan un porcentaje, depende de lo que valga. Como yo tengo una camioneta chiquitita mucho no puedo cargar. Cuando se trata de mucho, vienen consignatarios".

Abril. I also went to Libertad where I have two clients [verdulerías], sometimes they come here to buy. They come to buy more quantities. The price better suits them. For example a crate of tomato is worth 100 pesos, and I sell it 70 pesos, then they come and buy 10 to 15 crates”⁶⁸

Sandra started to do direct sale by bicycle in the close neighborhood, then she got an auto and she started to sell more and farther, until the city center.

“I started door-to-door selling a day, with a bike, I started to offer “I have tomato, leek, salad” and then they called to say “bring me”. After they started to call, some asked for 3 crates of tomato, one of green onion, and this is how it was”⁶⁹

This strategy allows Sandra’s family to improve its income as well as being better anchored in the neighborhood where the family lives and produces. But neighbors also beneficiate from the direct selling because Sandra takes care of offering lower prices than do small retailers. It is thus a win-win situation that strengthens links between producers and consumers.

“People tell me they like a lot the fresh vegetables I bring to them. That’s what I see more. I grab a harvest and I go selling everything fresh. They say “no, why will I go to the foodstore where all the vegetables are 3-days old?” So everyone is expecting me and tells me “when are you coming?” And it suits me well to sell like this, and I like it. In the market a crate of broccoli is paid 25 to 30 pesos, instead I ... in each crate enter 10-15 packets, and I sell 2 packets 8-10 pesos”⁷⁰

The direct selling goes along a greater awareness of the producer toward vegetable quality (both in terms of health and aspect). Direct contact with consumers is source of pride when the feedback is positive. Talking with consumers preoccupations brings also farming practices issues regarding the use of agrochemicals: by reading local newspapers, consumers are aware of the agrochemicals issue in Mar del Plata and ask about it when they buy vegetables directly to the producer. When interviewed, Sandra indicates that her family does not use much agrochemical inputs, which is an aspect she underlines to her customers. For example, if a leafy vegetable appears with some marks, she can explain that although the visual aspect is a bit poorer, the health quality is higher.

Hence, the direct sale is also a way to differentiate the production in terms of quality : consumers know to whom they buy and trust on how it is produced.

“They always tell me that the vegetable are really nice. Others in their farm throw poison almost every day. I don’t. When the plant is little like this I throw something and then nothing. After that it grows alone. There you see weeds in the middle of the plants, other farmers don’t. At the beginning we put a

⁶⁸ Translated form Spanish: “*Acá para producir verdura hay de todo, producimos de todo para vender, hago reparto. Por allí un 20% de la producción lo vendo por reparto. Al mismo almacén vendo por cajones y a otros negocios y a vecinos del barrio Sociego y Camet. Hasta 2 de abril estoy vendiendo. Fui también hasta Libertad donde tengo 2 clientes [verdulerías], a veces vienen a buscar acá. Ellos vienen a buscar por más cantidad. El precio les conviene mejor. Ponele que un cajón de tomate vale 100 pesos y lo hago a 70 pesos, entonces vienen y compran 10-15 cajones.*”

⁶⁹ Translated form Spanish: “*Empecé a hacer reparto un día, así en bici, empecé a ofrecer “tengo tomate, puerro, lechuga...” y luego me llamaban diciendo “tráeme”. Después me empezaron a llamar, unos me encargaban 3 cajones de tomate, 1 de verdeo, y así fue”.*”

⁷⁰ Translated form Spanish: “*La gente me dice que le encanta la verdura fresquita que le llevo. Es lo que veo más. Yo agarro cosecha y me voy a vender todo fresquito. Me dicen “no, como voy a ir al almacén donde todo tiene 3 días?” Por eso todo el mundo me espera y me dice “cuando vas a venir?”. Y a mí me conviene más vender así, y me encanta. En el mercado la jaula de brócoli te la pagan 25-30 pesos, en cambio yo... en cada jaula van 10-15 paquetes y yo vendo 2 paquetes 8-10 pesos”.*”

*little bit of herbicide to avoid weeds to compete with the plants and then no. Without fumigating vegetables are much healthier. It's what people are looking for"*⁷¹

However, Sandra does not only sell produces from her family's farm. She also buys fruits and vegetables to the wholesale market to diversify her offer. Indeed, if she wants to satisfy her customers and to ensure the sales, she needs to propose a diversity of vegetables and fruits to avoid them to have to move to a store to complete their purchase. Consumers are aware of that. Since PRO.CO.SUD is closer from the farm than the two other wholesale markets, she prefers to go there. Indeed, she saves time and money by going through a gravel road linking directly Camet neighborhood to road 226.

Hence, although she is aware of vegetable quality, to ensure an income she needs to sell produces that are grown by others with farming practices that she cannot verify.

- Why do this kind of door-to-door selling work?

I assume that this alternative selling strategy works for different reasons. First, there are geographical reasons. The proximity with consumers foments the development of this kind of initiatives and the contact between consumers and producers. Second, there are economic reasons. Door-to-door selling is a win-win situation both for producers and consumers in terms of prices. Third, there are social reasons. On the one hand, producers located near urban settlements are in the front row of the increasing health preoccupations, which encourages them to develop positive interactions with their neighbors and to care about health issues. On the other hand, direct sale foment trust between producers and consumers as well as the development of local social networks linked to food issues; the producer plays a social role in the neighborhood and is better integrated at the local level. Finally these examples of door-to-door selling hybrid farming and selling practices of both conventional and alternative food chains, which makes this initiatives more flexible and more accessible (in terms of agricultural techniques and produce availability and affordability) to a variety of actors.

3. Chile's wholesale market: particular localization, particular place in the local foodscape

a) Organization of the Chile's market: favoring producers

The cooperative's wholesale market (Chile's market) works as a classic wholesale market: it rents stalls to wholesalers as well as to producers, like an estate society. But its background as cooperative makes it having a functioning more favorable to producers than the two other wholesale markets. For example, producers pay less the stalls than consignatories do, and only producers can rent stalls in the central part of the market. The stalls surrounding that central part are rented by consignatories.

*"At a moment they wanted to have only one wholesale market. But the difference is that the others don't think for producers, they think like an estate business. There is no preoccupation to bring benefits to the producer"*⁷² (President of the cooperative).

⁷¹ Translated from Spanish: *"Siempre me dicen que la verdura es re-linda. Hay otras quintas que le echan venenos casi todos los días. Yo no. Cuando la planta esta así chiquita le echo algo y nada más. Después ya viene sola como viene. Allí viste tengo yuyu en el medio de las plantas, y otros quinteros no. Al principio echamos un poco para que el yuyu no compita mucho pero después no. Al no echar remedio es la verdura es mucho más sana. Lo que más la gente busca es eso".*

⁷² Translated from Spanish: *"A un momento se quería hacer un mercado único. Pero la diferencia es que los otros no pensaban en el productor sino en un negocio inmobiliario. No la preocupación de dar un beneficio al productor".*

b) Turning the difficult access into an advantage

The localization of the Chile's market gives it a specific place within the local foodscape. Its localization within the urban center (c. on Figure 16) makes it hardly accessible for large trucks. Indeed, as we see on the scheme (a.) on Figure 16, vehicles coming from Luro Avenue need to make a loop within the neighborhood to enter the market through Mexico Street. The way out is less complicated but still demands to maneuver with little space to get to the Luro Avenue. Hence, large volumes can hardly enter/go out, and most of the producers who sell their produces through the cooperative's wholesale market are in average smaller-scale producers than the ones selling to PRO.CO.SUD or Abasto Central. However, one should keep in mind that producers selling through Chile's market might also sell through the two other ones in order to benefit from different prices according to the produce.



Figure 16 a. Complex circulation around Chile's market. b. The painted façade. c. Location of Chile's market in the heart of the city (O.Robineau 2016)

"People see that we do not have the capacity to receive large trucks loaded with local produce. There is no room. We must wait 10 a.m., when the place is less busy, to be able to get one in. And if they are two, no one else can come in. So the market of the cooperative has been reduced to the smallest merchant, the one who needs 4-5 crates. And the other possibility he has is, since we open late, he can come in the afternoon to buy a crate that arrived during the day. The other markets do not open in the

*evening. It is an advantage that we have in order to have another type of public*⁷³ (President of the cooperative)

To turn the spatial constraint to an advantage, the Chile's market has adapted its functioning according to small-scale producers' constraints; hence enforcing its wish to work with small-scale producers. Whereas the two other wholesale markets open only during the morning, the Chile's market opens also during the afternoon to allow producers occupied all day on their *quintas* to be able to bring their production even late in the night (some come at 10 p.m). It is also a comparative advantage regarding the link with the small retailers and restaurants. First, some *verduleros* prefer to come at night to buy vegetables, notably the ones who are coming from far along the coast (they come back early in the morning with fresh vegetables). Second, many small retailers and restaurant do not work with large volumes of vegetables and prefer to save transportation costs by coming to the Chile's markets: the volumes they sell do not justify to go as far as PRO.CO.SUD and they might buy during the afternoon some missing products to run their business. It is interesting to note that the other wholesale markets do not have a good opinion of the alternative functioning of Chile's market.

*"They open at the time they want! Here no, here there is ORDER. Here the schedule is from 6 am until 12, with an hour more for loading, and no one more enters to buy. This is for security. There, they don't close, there are no bars to close, there is nothing"*⁷⁴ (Administrative officer of PRO.CO.SUD).

Since the access to Chile's market is difficult for large trucks, the ones bringing fruits and vegetables from other regions seldom go to this market. Hence, the stallholders of Chile's market use to go to Abasto Central and PRO.CO.SUD to buy those produces in order to diversify their offer and to sell them in Chile's market (which can explain in part the higher prices found in this market). Hence, the three markets are connected through commercialization networks, the Chile's market being sometimes an intermediary that allows produces to be more accessible to small urban retailers within the city.

The location of Chile's market is convenient for small food retailers and restaurants. Many shop holders do not have driving license or insurance for their vehicles and go to Chile's market through secondary streets in order to avoid policy controls. Going to PRO.CO.SUD, for example, implies taking the road 226 where they are more likely to be controlled. An agent of the Subsecretary of Family Farming of the area mentioned that *"if the Chile's market didn't exist, there wouldn't be so many verdulerias in Mar del Plata. Many are small and buy little, and for them it's not convenient to go to the one of the 226"*⁷⁵. Indeed, as explained before, the vegetable offer in peripheral neighborhood is poor, and one can wonder how it would be is the small food retailers of these areas could not go easily to a wholesale market to get vegetables.

Although the three markets supply Mar del Plata in vegetables, the location of the Chile's market and its functioning make it being more anchored in the local supply of vegetables than the two other

⁷³ Translated from Spanish: *"La gente ve que nosotros no tenemos la capacidad de recibir grandes camiones cargados de productos de la zona. No hay el lugar. Debemos esperar las 10, que se desocupe un poco el lugar, para poder hacer entrar uno. Y si entran dos, no entra más nadie. Así que el mercado de la cooperativa se ha reducido a tener el comerciante más pequeño, el que necesita 4-5 bultos. Y la otra posibilidad que tiene, es que como abrimos de tarde, puede venir a comprar en la tarde un cajón que llevo durante el día. Los otros mercados no abren la tarde. Es una ventaja que tenemos, para tener otro tipo de público"*.

⁷⁴ Translated from Spanish: *"abren a la hora que quieren! Acá no, acá hay ORDEN. Acá el horario es de la 6 de la mañana hasta las 12 del día, con una hora más de carga, y no entra y sale nadie más a comprar. Eso por seguridad. Allá no se cierra, no hay rejas, no hay nada"*.

⁷⁵ Translated from Spanish : *"Si el mercado de Chile no existía, no habría tantas verdulerías. Muchas son pequeñas y compran poco. Y a estos verduleros no les conviene ir hasta el de la 226"*.

markets. The possibility to find alternative functioning and alternative accesses make that its particular spatial location has been turned into an advantage to favor smaller retailers and producers.

c) When a particular location implies different vegetable quality

The socio-spatial specificity of the Chile's market also brings us to vegetable quality aspects. According to the president of the cooperative and *verduleros*, the profile of the producers selling through this market implies a certain type of farming practices and a certain quality of produces. Both agree on the good quality of vegetables that can be found in the cooperative. Face to face transactions as well as the anchoring in local food supply are mentioned as possible explanations for such a different quality between the Chile's market and the two others.

"It is said that here leafy vegetables are of better quality. It's a criteria that people take into account. When the producer is smaller, it is more a family work, the work is done more in an artisanal way and they care more about the final product. If I order 10 crates of spinach, they prepare it well. If you order 100, the quality is lower. Also direct contact between the reseller and the producer is different. I see it: it's my produce, if I sell bad crates, one comes the next day and says "look, what was beneath the crate was disgusting"; if I'm the producer, I'm the one who did it. Consignatories and resellers don't care, it's different"⁷⁶ (President of the cooperative)

A *verdulero* - whose parents and grand-parents were vegetable growers - mentioned that producers who sell through Chile's market use less agrochemicals. Although is hard to verify that point (no technical agents could confirm that since it would imply careful follow-up of practices), this discourse underlines the good reputation the Chile's market has regarding vegetables quality.

"I buy in PROCOSUD and in Chile's cooperative. Chile has better vegetables than PROCOSUD. Because traditional producers are in Chile, or were there. My grandfather, along with two others, founded the Chile's market. The Italians were the ones who started horticulture in the city. And they transmitted to their family and to their employees good practices to harvest and to have vegetables of good quality. In fact there are almost no Italian anymore, nor their children. But there are still their employees, even people who came from Bolivia and have worked as share-croppers. Those who have worked with Italians have learned to work well vegetables. And people who learned it are in the Chile's cooperative. The profile of the other producers is the quantity and not quality. They focus on mass production, quantity, they send to Buenos Aires ... They don't care about the advices of agronomists at the moment of fumigation... well, only now they start to be more aware. But until recently you said "put 3 doses of this" and they threw it without measuring and we ate the poison. These other producers do not like working well. In the market [PRO.CO.SUD] there are many of them, 70% work badly: they are larger producers with less quality. In Chile they are smaller but more focused on quality"⁷⁷ (Verdulero in Alsina y Colon)

⁷⁶ Translated from Spanish: "Se dice que acá las hojas son de mejor calidad. Es un criterio que se toma en cuenta. Cuando el productor es más chico, trabaja más la familia, se trabaja de manera más artesanal y se preocupa más que venga bien. Si yo pide 10 jaulas de acelga, me la preparan bien. Si pido 100, la calidad es menor. También el contacto directo del productor con el vendedor es distinto. Yo lo veo: es mi producto, si vendo jaulas malas, uno viene y el otro día te dice "mira, lo que había debajo de las jaulas era un asco"; si yo soy el productor, yo soy el que lo hizo. El consignatario y comerciante no le importa, es distinto".

⁷⁷ Translated from Spanish: "Compro en PROCOSUD y en lo de la cooperativa de Chile. Chile tiene mejor verdura que PROCOSUD. Porque los tradicionales quinteros están en Chile, o estaban. Mi abuelo, junto con dos otros fundaron el mercado de Chile. Los italianos fueron los que empezaron con la horticultura en la ciudad. Y transmitieron a su familia y a los empleados las buenas prácticas para cosechar y tener verduras de buena calidad. En realidad casi no quedan italianos, ni siquiera sus hijos, pero quedan sus empleados inclusive

“We buy in Chile’s market and in the one of the 226. In the one of Chile vegetables are of better quality, the producers are the ones who sell there. In the one of the 226 you can get better prices”⁷⁸ (Verdulero in Alsina y Falucho).

The quality criteria mentioned by these actors are also related to the care producers give to provide vegetables without marks (no shocks) and to harvest them at the good date to ensure tasty vegetables.

d) A market apart from political networks

Many large producers - of which several are agricultural leaders of the new leading political party – sell through PRO.CO.SUD. As explained above, the profile of producers going to Chile’s market is comparatively of smaller-scale producers, with less/little/no political power. Different attempts to close the Chile’s market have been made by PRO.CO.SUD representatives⁷⁹, supported by elected representatives of the municipal council of the same political party as agricultural leaders. They asked the municipality to force the displacement of the Chile’s market to the outskirts of the city. The arguments presented against Chile’s market were notably its inappropriate location, which leads both to urban disagreements (noise, circulation) and unfair concurrence with other markets. The cooperative owns a land of 14 ha not far from Abasto Central, because they know one day they might have to move the market there. However, the cooperative is afraid that the municipality will not give them the habilitation for a new market (which is even more uncertain with the new mayor elected in 2015). Hence, without any insurance, they refuse to move the market.

Hence, Chile’s market lacks of local political support to ensure its future. Meanwhile, as a compensation for this, the cooperative tried to strengthen the market’s anchoring in the local neighborhood. In 2014 the cooperative asked a painter to draw a fresco on the outside wall of the market. The purpose was to make the place more pleasant for neighbors and avoid the market to be an abandoned place when it is closed (b. on Figure 16).

“The neighbors are happy, there is something different. When the market is closed it’s not abandoned, it remains nice. When the guy who painted came I told him I wanted a paint where everybody is: from the production, the commercialization, the “changa”, the history of everyone and that everybody understands”⁸⁰ (President of the cooperative)

- Why does this example work?

The case of Chile’s market is an interesting example about how the socio-spatial configuration of a wholesale market foments its anchoring in the local foodscape as well as awareness on food quality. Despite the fact that vegetables sold through the other wholesale markets are cheaper, many vegetable

gente que ha venido de Bolivia y que ha trabajado a porcentaje. Los que han trabajado con los italianos han aprendido a trabajar bien la verdura. Y la gente que ha aprendido eso está en la cooperativa de Chile. El perfil de los otros productores es la cantidad y no la calidad. Ellos se enfocan en producir masivo, cantidad, mandar a Buenos Aires... No se rigen por controles de los ingenieros, al momento de aplicar... bueno, recién ahora empiezan a tomar conciencia. Pero hasta recién decías “tira 3 partes de eso” y a ojo lo echaban y nosotros comíamos el veneno. Estos otros productores no les gusta trabajar bien. En el mercado [PRO.CO.SUD] hay mucho de esos, el 70% trabaja mal la verdura: son más grandes productores con menos calidad. En Chile son más chicos pero se enfocan más en la calidad”

⁷⁸ Translated from Spanish: “Compramos en el mercado de Chile y la 226. En lo de Chile la verdura es de mejor calidad, son productores que venden allá. En la 226 se pueden conseguir mejores precios”.

⁷⁹ Banca Abierta del Honorable Consejo Deliberante – 14/03/02

⁸⁰ Translated from Spanish: “Los vecinos están feliz, hay algo distinto. Cuando está cerrado no está abandonado, queda lindo. Cuando vino el que pinto le dije que quería que sea una pintura donde estén todos : desde la producción, la comercialización, la changa, la historia de todo y la gente entiende todo”

retailers prefer buying at the Chile's market for two reasons. First, Chile's market has a better reputation in terms of produce's quality. Second, the Chile's market is a place that offers a certain flexibility; in other words, it is a place where the arrangement is possible. That is to say, one can arrange to go during the afternoon, one can arrange to find alternative ways to get there, and one can arrange directly with the producer if there is a problem in the quality of vegetables he sold. This functioning is adapted to constraints of some of local actors and allows the conventional vegetable supply chain to answer to small-scale producers and retailers. As in the previous example, we can see again geographical, economic and social reasons for this wholesale market "out of the mainstream" to work: i) geographical reasons: location favoring small-scale producers and retailers, ii) economic reasons: price of the stalls for producers, and higher quality of certain produce (according to *verduleros*), and iii) social reason: contact between producers and small retailers, adaptability of functioning.

The governance system in which is involved the Chile's market is different that the one that characterizes the conventional vegetable supply chain, which weakens its position in the dominant foodscape. The changes in the municipal governance question the future of this market, since the new the political party elected in 2015 to lead Mar del Plata is the one involving some agricultural leaders rather linked to PRO.CO.SUD than Chile's market. However, it is interesting to note that agents from the *Programa de Desarrollo Rural Sustentable*, who promote the development of alternative forms of production and commercialization, consider Chile's market as an interesting actor to work with: this confirms the anchoring of Chile's market as a key actor of hybrid forms of governance, promoting food systems adapted to local issues.

V. DISCUSSION AND CONCLUSION

The analysis of the construction of vegetable supply chains in Mar del Plata illustrates how two different chains have emerged over time in different contexts. The conventional supply chain has a long history and was developed spontaneously by farmers. It has always played a central role in the vegetable supply: first at the local level, and then at the national level. Its history and deep political support make that now it is the dominant model, in a way that any alternative seems complicated to implement. The alternative supply chain was developed through institutional programs in a context of economic crisis to answer social and economic expectations of poor families. It answers increasing people expectations toward health and environmental issues. However this alternative chain has difficulties to expand in a local context dominated by conventional agriculture and the lack of outlets for produce free from agrochemicals.

The governance systems and the functioning of both conventional and alternative food chains are excluding: not everyone can find a place within them. Moreover, each one has difficulties to answer both society's expectations in terms of volume and quality. In parallel, hybrid initiatives have developed and bear certain flexibility in their functioning that answers producers', resellers' and consumers' expectations. These initiatives hybrid practices of the conventional and alternative food chain and are little visible in the political sphere. Public actors and public policies support strong and well identifies models - conventional and alternative - and hybrid initiatives do not find political visibility in that political landscape, and thus have little/no political support and bear more local actor's expectation than a political vision. Hybrid practices develop and maintain through local actors' initiatives, apart from institutional programs or political support, and might be more adapted to local socio-economic expectations. Hybrid farming practices, direct selling in neighborhoods and the

particular functioning of a wholesale market are example of initiatives adapted to actors with less economic means.

The example of Mar del Plata illustrates that we have to go beyond the simplification of models like “conventional-use of agrochemicals” and “alternative production-free from agrochemicals”. A differentiation better suited to the issue of sustainable food systems would be through the anchorage of supply chains in the local foodscape. The conventional supply chain has little socio-economic and cognitive anchorage in the local foodscape and much of the production is linked to extraterritorial systems of actors. On the contrary, alternative and hybrid food chains are more anchored in the local food chain and rely on this anchorage to work. Indeed, we could see that in the absence of labeling, it is only through different channels of commercialization – notable direct selling - that the quality of vegetables can be differentiated. This means that spatial proximity and social interactions are at the chore of small-scale alternative and hybrid forms of production. I assume the importance of the local anchorage of producers and actors of the commercialization to generate a greater awareness toward sustainable food systems.

Finally, the local food issue needs to be addresses in a holistic way. The urban food provisioning should be thought at the territorial level to include the complexity and diversity of actors and strategies and answer the multidimensional issues of the territory.

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