

# Understanding the Linkages between Small-Scale Producers and Consumers through the Analysis of Short Food Supply Chains in a Local Market in Nopala de Villagrán, Hidalgo, Mexico\*

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## Abstract:

In the current paper we study producer-consumer linkages in a small rural market in Mexico. Two short food supply chains for the sale of egg were identified, which reduced producer-consumer distance and enabled the exchange of information regarding egg origin, egg production practices, and egg characteristics valued by consumers. This allowed the creation of food symbolism and increased consumers' knowledge and trust in small-scale producers and their products. It is concluded that producer-consumer linkages in short chains enable closeness, confidence, and exchange of information between them.

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**Keywords:** agro-food system, short circuits, poultry, peasants.

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## Entender los vínculos entre pequeños productores y consumidores a partir del análisis de los circuitos cortos de comercialización en un mercado local en Nopala de Villagrán, Hidalgo, México

### Resumen:

Se estudian los vínculos existentes entre productores y consumidores en un pequeño mercado rural en México, identificando circuitos cortos de comercialización de venta de huevo que reducen la distancia productor-consumidor y permiten el intercambio de información sobre el origen del huevo, las prácticas de producción de huevo y las características del huevo valoradas por consumidores. Esto favorece la creación de simbolismo alimentario y aumenta el conocimiento de los consumidores, y la confianza en los pequeños productores y sus productos. Se concluye que los vínculos productor-consumidor a través de circuitos cortos permiten la cercanía, la confianza y el intercambio de información entre ellos.

**Palabras clave:** sistema agroalimentario, cadenas cortas agroalimentarias, avicultura, campesinos.

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## Introduction

Different authors agree that the contemporary food sector is bifurcating into two main zones that respond to different forms of production: standardization in production which encourages mass food consumption patterns with industrialized global food networks on the one hand, and localized, differentiated, and non-standard food production-consumption patterns on the other (Murdoch & Miele, 1999; Kneen, 1995). Both zones have established different socio-natural relationships within the market, consumers, and nature (Murdoch & Miele, 1999).

Recently, consumers are beginning to become aware, not only of the origin of food –due to the fact that it is hard for them to have any sense at all of where the standardized food comes from, who produced it, and in which conditions (Kneen, 1995; Murdoch & Miele, 1999)– but also are becoming aware of the social, economic, and ecological impact of the industrialized global food networks (Kneen, 1995).

Thus, Kneen (1995) argues the need to change the principle of distancing, uniformity (or monoculture), and continuous flow for principles of sustainable, equitable, and locally-controlled food systems. The author argues that the conjunction of the aforementioned principles provides society with more meaningful challenges to decrease distance between consumers and their food sources, and to increase consumers' knowledge of food origin and farming practices.

Short food supply chains have been important ways for creating new linkages between agriculture and society, producers and consumers. They bring consumers closer to the origins of their food, since a key factor of this food supply chains is its capacity to regain consumer trust guaranteeing food quality and by taking advantage of and strengthening the relations of proximity (Renting, Marsden, & Banks, 2003). Short food supply chains are seen as a market space outside traditional marketing channels, that look up for the autonomy of small-scale producers

(SSPs), enabling them to actively take part in the food chain and decision making, through limited participation of the commercial middlemen and the direct sale of food to consumers (Pratt, 2007). The short distance between consumers and their food source helps to highlight and preserve agro-food products attributes, such as naturalness, authenticity, and cultural or territorial identity, attributes that can be highly valued by the consumer and may be lost in long food supply chains (Pratt, 2007). Thus, a clear information regarding origin, producers, and the type of farming practices, enable the food to be more desirable for consumption (Murdoch & Miele, 1999).

Short food supply chains also enable the continuous exchange of information that helps consumers to identify the authenticity, attributes, quality, and origin of agro food products (Pratt, 2007). They seek to redefine the producer-consumer relationship by giving clear signals regarding the origin of the food product, using labels on the packaging or personal communication strategies. These actions enable the food product to reach the consumer embedded with information (Marsden, Banks, & Bistrow, 2000).

The capacity of short food supply chains to shorten physical distances between producers and consumers (Kneafsey et al., 2013) enables a constant development of producer-consumer linkages based on proximity, interpersonal ties, transparency, and trust.

Moreover, authors like Caccia (2012) highlight that short food supply chains create opportunities for local producers by improving the possibilities for sustainable development, social equality, and quality of life in the region. This is attained through the development of local economies outside the dynamic of long food supply chains that jeopardize the autonomy of small-scale producers.

The conception of short chains shows the two key characteristics of this food supply chain: (1) the possibility of a more direct contact between producers and consumers, allowing consumers to make new value judgments about the desirability of foods, commonly defined by either the locality or even the specific farm where they are produced –which serves to draw upon an image of the farm and/or region as a source of quality (Renting et al., 2003)– and (2) the specific socioeconomic benefit that small-scale producers can obtain by means of using short food supply chains for the sale of their products.

Also, various short food supply chains typologies have been utilized to analyze their dynamics (Aubry & Kebir, 2013). Marsden et al. (2000) identify three main types: face-to-face, spatial proximity, and spatially extended. Others authors suggested typologies based on the number of intermediaries involved in the sale of the products, considering as important a minimum of intermediaries for a direct contact between the producer and the consumer (Caccia, 2012). Furthermore, Leader (2000) considers that short channels have many forms of marketing that can be done through: (1) direct sales in the small-farmer production unit, (2) pre-order or selling by mail or internet, (3) producers shop, (4) home delivery, (5) selling to local restaurants, (6) selling to businesses, (7) selling at fairs, local markets, and shows, and (8) sale combined with cultural or tourist services (i.e. agritourism).

The need to identify factors of proximity between producers and consumers and the benefits of its relationship (exchange of information and knowledge, transparency, trust, among others) are common elements in all short food supply chains typologies. This paper used the typology suggested by Marsden et al. (2000), which enables us to better understand the proximity relations involved in the local market in Mexico, particularly tianguis in Nopala. Short food supply chains are, then, understood as those marketing strategies based on the logic and strategies of sale of small-scale producers for the direct sale of fresh products with minimal or no intermediaries. These short chains enable a direct contact between the producer and the consumer, allowing for the creation of dialogues around the food product, based on food symbolism and a logic of satisfaction of shared expectations.

Different authors had studied short food supply chains from different dimensions: from their social, economic, and environmental impacts (Kneafsey et al., 2013), their contribution to urban agriculture (Aubry & Kebir, 2013), their resilience characteristics (Smith, Lawrence, MacMahon, & Muller, 2016), and the economic incentives that farmers obtain due to their participation in these alternative marketing channels (Verhaegen & Von Huylenbroeck, 2001). Holloway et al. (2007) propose the idea that particular food projects can be understood as arranged across a

series of interrelated analytical fields in ways that make their operation possible, highlighting the importance of the understanding of how producers-consumers linkages are organized. According to Holloway et al. (2007), the analytical framework must consider the following aspects: (a) site of food production, (b) food production methods, (c) supply chain, (d) arena of exchange, (e) producer-consumer interaction, (f) motivation of participation, and (g) constitution of individual and group identities.

We consider the previous ideas as an adequate framework to better understand the modes of food provisioning in small rural communities in Mexico. This, in order to fully comprehend how producers-consumers linkages are organized through the analysis of short food supply chains used by small-scale producers (SSPs) as mechanisms to sell their eggs in local markets, better known in Mexico as tianguis. In this study, tianguis is understood as a local or regional market where SSPs can meet other producers and consumers, sell goods produced locally, and buy products they do not produce in their production unit. The tianguis takes place only once a week as producers require some time to accumulate a certain quantity of products for their later sale at the tianguis (Paré, 1975). According to Paré (1975) tianguis can function as a means that joins peasant economy with capitalist economy.

This study focuses its analysis in the Nopala tianguis, which is one of the most important local rural markets of the municipality of Nopala de Villagrán, Mexico. We intend to identify the benefits of producers-consumers linkages in short food supply chains mentioned by Murdoch and Miele (1999), Renting et al. (2003), and Pratt (2007).

Therefore, the aim of this study was to identify and understand producers-consumers linkages and their benefits, through the analysis of short food supply chains. This study focuses its analysis in a case of study in the Nopala tianguis in rural Mexico, through the adaptation of a methodological framework proposed by Holloway et al. (2007).

## Methodology

The present study was developed in Nopala de Villagrán, Hidalgo, Mexico. The research was conducted between February and May of 2016, and was carried out in two phases. The first phase consisted of three exploratory visits of two communities of the municipality (La Cuchilla and Siempreviva). Through the direct observation of small-scale egg production systems (SSEPSs) and informal dialogues with the SSPs, it was possible to identify common egg-production practices in their production system and the main mechanisms used by them for the sale of eggs outside their rural communities. The second phase consisted in exploratory visits to the Nopala tianguis of the municipality.

Through direct observation and the snowball procedure, it was possible to identify SSPs that sold their egg in the tianguis, intermediaries involved in the trade of egg produced in small-scale conditions, and egg consumers.

In order to understand the short food supply chains used by the SSP for the sale of egg in the Nopala tianguis, a 10-question semi-structured questionnaire was administered to five of them.

A total of 120 different stalls in the tianguis were identified; only three of them were involved in the trade of eggs produced under small-scale conditions. In these stalls intermediaries could purchase, sell, and/or barter the eggs. A specially designed 10-question semi-structured questionnaire was administered to the three intermediaries previously identified as to understand their role in the short supply chains of eggs.

In order to understand producer-consumer linkages at the point of sale, a structured questionnaire divided in two parts (egg consumption preferences and small-scale producer-consumer linkages) was administered to 16 consumers at the Nopala tianguis, who were identified through direct observation while they were doing their shopping there.

The methodological framework proposed by Holloway et al. (2007) was adjusted to analyze the obtained data. The analytical fields included were: (1) site of food production, (2) food production methods, (3) supply chain, (4) arena of exchange, (5) producer-consumer interaction, and (6) motivation of participation.

# Results

## Site of production

The eggs were produced in small-farmer unit productions of the surrounding marginalized rural communities of the municipality of Nopala, where a small number of hens were kept in henhouses with outdoor access. The Small-Scale Egg Production System (SSEPS) was one of the many other agricultural and non-agricultural activities carried out in the production unit, and was considered by SSPs as one of the most important livestock activities in comparison to the others. The diversity of activities in the small-farmer unit productions enable that poultry production and agriculture could establish a symbiotic relationship between each other, where poultry provided manure as a fertilizer to agriculture and agriculture provided grain for family and animal diet.

## Food production methods

The SSEPS was one of the most representative livestock activities in the rural communities of the municipality of Nopala. The majority of family members participated in poultry production activities, whose upbringing fulfills mainly nutritional (family consumption) and less economic (sale) functions, for the attainment of family welfare. The poultry production practices were related with a more natural production system, involving elements such as free-range production, the use of maize and natural resources (plants, worms, grass) as a base input for poultry diet, a small number of hens (15-20) per production unit, and the application of natural methods for deworming and sickness treatment.

## Supply chain

SSPs had faced obstacles in reaching the quantity and a constant supply of food products for the local market, situation that encouraged them to develop marketing strategies adapted to their characteristics, resources (means of transportation, production quantity, time availability), and needs. In this study data showed that eggs were sold, in an individual form, inside and outside the Nopala tianguis through short food supply chains. Once the SSPs were interviewed regarding the type of short food supply chain used to sell eggs inside the tianguis, it was possible to identify two short-chains: direct sale/barter (face-to-face) or through intermediation (cases of spatial proximity). Specifically, the SSPs opted for a particular short food supply chain depending on the benefits they were trying to obtain and the one that better fit their current situation.

## (a) Direct sale

Three different forms to sell egg directly to consumers were identified: (1) consumers approached producers to buy eggs, (2) producers offered eggs to consumers while they were doing their shopping or (3) producers sold eggs to specific consumers that pre-ordered a certain number of eggs. In the case consumers decided to approach producers to buy eggs, producers were easily identified by consumers basically for the way they looked like (with a wicker hat and carrying out a wicker baskets or a bucket full of eggs).

## (b) Barter

Egg barter represented an arrangement in the immediate environment that gave egg a specific value and allowed SSPs to exchange it for other food products of the same value without the use of cash. The bartering was held in stalls that sold fruits, vegetables, or candies inside the Nopala tianguis for their later consumption at a family level or for its later barter/sale to other consumers.

Bartering was specially utilized when SSPs did not have money to buy food products, which means that having eggs allowed them to obtain complementary food products by means of exchange, especially during times of cash shortage.

## (c) Intermediation

The use or not of intermediaries for the sale of eggs depended on the time that SSPs had for such activity. Even though producers had the opportunity to sell eggs directly to consumers, the time producers spent at the Nopala tianguis was more efficiently spent by using intermediaries for egg sale.

Three types of intermediaries were identified at the Nopala tianguis and were classified according to the ways they sold eggs. Table 1 explains the three types of intermediaries identified, describing their role as an intermediary, the profits obtained, the existence of linkages with other intermediaries to distribute eggs outside the Nopala tianguis, and the characteristics of the egg required for its purchase by intermediaries. As shown in table 1, the sale of eggs through intermediaries connected the egg production to the outside demand of the municipality and only in this short food supply chain egg was sold at a higher price.

TABLE 1  
TYPES OF INTERMEDIARIES INVOLVED IN THE DISTRIBUTION OF EGG AT THE NOPALA TIANGUIS, HIDALGO, MEXICO

Type of intermediary	Role	Profit obtained	Egg characteristics	Linkages with other intermediaries
1. Barter	To barter eggs for vegetables or fruit for their later sale to another intermediary outside the <i>tianguis</i> .	20 cents/piece of egg	Size: big Eggshell: clean	Yes
2. Sale	To encourage producers to buy fruits and vegetables at his stall as a requisite to purchase their eggs for later sale in the stall.	0	Eggshell: clean	No
3. Sale and barter	To barter egg when people who did not have cash to buy fruit or vegetables. Also, eggs could be sold at the stall to obtain cash.	0	Fresh egg Eggshell: clean and with no fissures	No

Source: own work

## Arena of exchange

The Nopala tianguis was the main local market where urban and rural people from the municipality, surrounding areas, or other states of Mexico met to buy and sell goods produced locally and/or products that came from other places for their local consumption, such as (a) local products (eggs, meat, vegetables, artisanal cheeses) produced in small-farmer production units of surrounding rural communities of the municipality, (b) traditional products (typical sweets, enchiladas), and (c) non-traditional products (clothes, shoes, belts, cellphones). The Nopala tianguis was held weekly, every Monday, from 8:00 am to 5:00 pm in the municipality of Nopala de Villagrán, Hidalgo, Mexico. In this case, the Nopala tianguis was a place where SSPs sold their eggs in individual form through the use of short food supply chains. The existence of different supply chains and their specific variety, enable the identification of an egg distribution system developed by them, where it was possible to identify three elements that characterized it:

### (a) Flexibility

SSPs were able to utilize a short food supply chain according to the benefits they expected to obtain: (i.e.) reduction of the number of intermediaries, optimization of the time spent for the sale of eggs, or the exchange of food products without the use of cash.

## (b) Inclusiveness

SSPs from any community of the municipality had the opportunity to sell their eggs in the Nopala tianguis without the need to be part of a specific cooperative organization.

## (c) Outreach to various consumers

The nature of the short food supply chains used by SSPs allowed them to sell eggs to urban and rural consumers from the municipality and surrounding areas interested in the consumption of this type of food products.

## Producer-consumer interaction

Consumers purchased the eggs direct from SSPs on a face-to-face basis (directly and barter) and spatial proximity (through intermediaries) forms. However, since the Nopala tianguis was held only on Mondays, they used other ways to sell their eggs during the rest of the week. Nevertheless, no matter the mechanism used by SSP to sell their eggs, these short chains enabled them to get closer to consumers and exchange information with them. From the SSPs side, they exchanged information with consumers regarding the origin of the egg and the general characteristics of their SSEPSs.

From the consumers' side, 31.25 % of them mentioned exchanging information with the producer at the point of sale, through direct dialogues, regarding the type of feeding, housing, and management 62.5 % reported not exchanging information due to the ties of confidence previously established with SSPs as a result of visits to their production units and the rest mentioned not exchanging any information.

Data showed that consumers valued egg itself in two ways: (1) tangible attributes with particular sensory and physical qualities, on the one hand, and (2) intangible attributes, on the other, considering the significance and symbolism consumers assigned to eggs according to a particular locality of origin, and a particular form of egg production practices.

Regarding the tangible attributes, consumers mentioned that the eggs produced in small-scale conditions purchased through short food supply chains, had 11 different attributes, which made them a quality product (Table 2). On average, each consumer mentioned  $2 \pm 1.34$  attributes in a range from 1 to 6. The valued attributes were categorized into 10 different types, where the three most important corresponded to the egg yolk color (yellow) (24.24 %), flavor (18.18 %) and the thickness of the shell (12.12 %) (Table 2).

TABLE 2  
ATTRIBUTES VALUED BY CONSUMERS OF EGGS BOUGHT THROUGH SFSCs AT THE NOPALA TIANGUIS, HIDALGO, MEXICO (N=16)

Types	Attribute	Frequency	%
Flavor	Characteristic flavor	6	18.18
Smell	Characteristic smell	3	9.09
Eggshell	Color (pinkish)	3	9.09
	Thickness	4	12.12
Freshness		1	3.03
Egg yolk	Yellow egg yolk	8	24.24
Albumen	Dense albumen	1	3.03
Nutrimient content	Low content of cholesterol	1	3.03
Egg structure	Yolk and albumen clearly separate	2	6.06
Size	Big	2	6.06
Safety	Healthy	3	6.06
	<b>Total</b>	<b>61</b>	<b>100</b>

Source: own work

In this study data showed that the eggshell color did not constitute an important basis that influenced consumers' preference, since only 9.09 % of the interviewees mentioned shell color as an important attribute of the eggs. Nevertheless, although the eggshell color was not an important quality characteristic for consumers, it was a characteristic that showed the origin of the egg due to the fact that consumers recognized red-brown eggshell as corresponding to an egg produced in small-scale and local conditions. The exchange of this information between producers and consumers increased SSPs' knowledge regarding the egg characteristics valued by consumers, allowing them to select the eggs that better satisfied their demand (Table 3).

TABLE 3  
 FORMS TO SELL EGGS AND TYPE OF INFORMATION EXCHANGE BETWEEN  
 PRODUCERS AND CONSUMERS AT NOPALA DE VILLAGRÁN, HIDALGO, MEXICO

Small-scale producer	Forms to sell egg inside/outside the <i>tianguis</i>	Type of information exchanged producer-consumer	Do you select your egg for sale?
1	Inside the Nopala <i>tianguis</i> : direct sale, barter. Outside the Nopala <i>tianguis</i> : home delivery.	Poultry diet, characteristics of the henhouse, type of production system (free-range, half-range, confinement).	Yes, small size eggs are not sold and are used for family consumption.
2	Inside the Nopala <i>tianguis</i> : direct sale. Outside the Nopala <i>tianguis</i> : sale to restaurants.	Poultry diet, natural methods for disease treatment.	Yes, small size eggs and with dirty eggshell are not sold and are used for family consumption.
3	Inside the Nopala <i>tianguis</i> : direct sale (pre-order eggs, to relatives), direct sale to stalls (through an intermediary). Outside the Nopala <i>tianguis</i> : direct sale in the small-farmer production unit.	Characteristics of a quality egg and its advantages for cooking. Also, the protein and cholesterol content.	Yes.
4	Inside the Nopala <i>tianguis</i> : direct sale, barter. Outside the Nopala <i>tianguis</i> : direct sale in the small-farmer production units.	Poultry diet and the microbiological safety of the egg.	Yes, big eggs and with clean eggshells are sold.
5	Inside the Nopala <i>tianguis</i> : barter. Outside the Nopala <i>tianguis</i> : direct sales to stalls.	Egg freshness, poultry diet and characteristics of the henhouse. Sometimes, consumers are invited to visit the small-farmer production units.	Yes, she chooses the egg that fits with the specific preferences of each consumer.

Source: own work

For the case of the intangible attributes of the egg valued by consumers, 100 % of them considered that eggs produced in small-scale conditions were better than commercial ones and the reasons were described as following: no chemical content (hormones, antibiotics) (30 %), better flavor (30 %), freshness (20 %), better quality (10 %), and higher nutritional value (10 %). The intangible attributes valued by consumers had a relationship with the information regarding the characteristics of the SSEPS as a result of the dialogues established between producers and consumers. Consumers considered SSEPS a more natural system, in comparison to large-scale poultry production system, due to their production practices, that avoid or reduce the use of antibiotics, vaccines, and hormones for egg production. They also considered the fact that hens were kept in a free-range system that

enabled them to express their natural behavior, and the fact that they were fed with natural resources (grass, insects) and maize produced in small-farmer production units. These elements, from the consumers' point of view, enable them to consume eggs without considering it a risk for their health (Table 4). In this study, 93.75 % of respondents considered that the egg production practices differed from the ones in the large-scale production system in three specific aspects: handling, feeding, and preventive medicine.

TABLE 4  
ELEMENTS THAT CHARACTERIZE THE SMALL-SCALE EGG PRODUCTION SYSTEM ACCORDING  
TO CONSUMERS' PERSPECTIVE AT THE NOPALA TIANGUIS, HIDALGO, MEXICO (N=16)

Element	Frequency	%
Free-range	6	28.57
Respectful with the environment	1	4.76
No use of drugs for animal disease treatment	7	33.34
Homemade poultry diet (based on maize)	6	28.57
Do not know	1	4.76
Total	21	100

Source: own work

Data showed that 93.75 % of the consumers considered that eggs produced in small-scale conditions were a safe product to consume, even though they did not have any safety or quality certificates. This was due to the confidence that consumers had in the SSPs and their egg production practices; the rest manifested not to know.

Although consumers preferred eggs produced in small-scale conditions, 68.75 % of consumers mentioned to have purchased commercial eggs between one to six months ago, due to egg consumption in other places outside home (restaurants, family meals etc.), while the rest mentioned having consumed them more than a year ago. Data showed that the consumer, by choice, preferred the small-scale egg; however by necessity or circumstance, consumed commercial eggs.

At the time of egg purchase, consumers' criteria were ranked as following: 62.5 % considered the color as an important factor to buy an egg, only 18.75 % considered the eggshell cleanness and size, while 18.75 % only asked for a fresh egg.

Data showed that this short chain allowed the closeness between consumers and producers, and encouraged the exchange of information that allowed for the identification of consumers' needs regarding the type of egg that they consume and demand. In all cases, the egg sold to consumers was integrated with information that did not come in a label or in the package, but was given directly to the consumer by trying to solve their knowledge needs. The exchange of information allowed for a bidirectional relationship that helped to strengthen ties and trust between producer and consumer at the point of sale.

The direct contact between consumers and producers promotes a better exchange of information while it helps each party to understand their needs and attributes valued of the egg as to continue seeking the best way to meet those elements.

# Motivation for participation

From the SSPs side, the use and combination of one or more short food supply chains was influenced by the characteristics they had and the benefits they intend to obtain through the implementation of short chains. For example, if it was intended to optimize the time spent on the sale of eggs, SSPs would opt for sale of eggs through intermediaries; in case SSPs needed cash, they opted for the sale of products. Bartering was specially used when they did not have money to buy products and used eggs as a means to obtain food in exchange without the use of cash.

## Discussion

Small-scale poultry production system in different rural communities of Mexico (Centeno, López, & Juárez, 2007) is one of the most representative livestock production system in rural areas, where family members are involved in the development of this activity for the attainment of family welfare (Zaragoza et al., 2011).

The sale of poultry products originated in small-scale production systems is an alternative for SSPs to obtain extra income. Nevertheless, as authors like Jeréz et al. (2009) explain, they had faced obstacles in reaching the quantity and a constant supply of food products for the local market. In this study, data showed that SSPs used two different short food supply chains for the individual sale of their eggs inside Nopala tianguis depending of the benefits they sought to obtain.

SSPs were able to use different short food supply chains: direct sale/barter (face-to-face), or intermediation (cases of spatial proximity). As Caccia (2012) explains, clearly the mentioned alternative is not about replacing one short chain with another; the strategy consists in gradually strengthening the sectors and activities of the economy that allow for the integration of a greater contingent of SSPs who also need to develop their own social and productive participatory capabilities, taking their own initiatives as a starting point.

In the present study, the synergy or complementarity use of short food supply chains with circuits dominated by large companies and the Nopala tianguis was not found. The diversity of supply chains used by SSPs showed that they were developing marketing strategies outside long food supply system, where they could take active part of the selling decision making. This role empowered them and fostered their autonomy, enabling them to have a local and regional outreach for the distribution of eggs without representing high transact costs for SSPs or by forcing them to be part of contractual arrangements, cooperatives, or any kind of farmers' organization.

Bartering was specially used when SSPs did not have money to buy food, which means that eggs enable them to obtain complementary food, especially during times of cash shortage. As reported by Jeréz et al. (2009), the exchange of eggs for other products is very common at rural local markets.

Even though Verhaegen and Von Huylenbroeck (2001) explain that collective marketing chains saved time and money in marketing activities in comparison with individual sales, in this case the use of different short food supply chains as an individual strategy for the sale of egg enable SSPs to choose the short chain that better fits with their current situation. Also, it gives them the opportunity to distribute their egg in an inexpensive way within the local market dynamic context.

Despite the benefits found in this study from sourcing food locally, as Pearson and Henryks (2011) explain, it is not possible to suggest that this type of food sourcing offers a complete alternative to a globalized economy. Local systems are not capable of offering many products, nor are they able to provide many existing products in the volumes required by contemporary diets.

As Pratt (2007), Santini and Gómez (2013) report, the use of short food supply chains enables SSPs to create connections and associations in the production space/place through the direct sale of products, allowing them to explain to consumers the origin, characteristics, and intrinsic quality of the food products. This situation would not be possible with the use of long food supply chains (Verhaegen & Von Huylenbroeck, 2001).

Since food is constructed, biologically, psychologically, and socially by the consumer (Fischler, 1988), data showed that consumers valued the egg itself in two ways: tangibly with particular sensory and physical qualities, on the one hand, and intangibly, on the other. The intangible attributes considered the significance and symbolism that consumers assigned to the egg according to the knowledge they obtained as a result of dialogues and exchange of information with producers at the point of sale regarding the origin of the egg and egg production practices. Consumers preferred to buy eggs through the use of short food supply chains due to the interpersonal ties and trust that they have developed with SSPs and their forms of production in small-scale conditions, which are related with more natural production practices, fresh, and healthy products.

The intangible attributes valued by consumers were similar to a case of study reported in France, where consumers explained the reasons to buy local food through short food supply chains, because of its better taste, quality and freshness, flavor, cleanliness from chemicals, and its knowledge of origin (Kneafsey et al., 2013). The actual change of consumers' perception of food products has been fed by a growing distrust in the quality of food stemming from conventional agriculture (Renting et al., 2003).

The tangible attributes assessed by the consumers differed from those reported by Senbeta, Zekele and Molla (2015), who mention that the most important egg characteristics for consumers' acceptability were weight and freshness, as well as shell cleanliness and quality. Other studies reported that consumers mentioned egg freshness as well as the eggshell color as the main factors that determined consumers' acceptability (Jeréz et al., 2009; Ayim & Akonor, 2014). Contrary to this claim, in this study data showed that eggshell color did not constitute an important basis that influenced consumers' preference, since only 9.09 % of the interviewees mentioned shell color as an important attribute of the egg.

Consumers considered that egg size was not a relevant element since they explained that eggs with different sizes denote the naturalness of the egg production. These data contrast with authors like Senbeta et al. (2015), who reported that more than 95 % of consumers considered egg size as the most important factor that affected their decision making at the time of purchase, given that most of them preferred large eggs to maximize their utility.

The consumers' preferences of certain product were reflected in their food demand. In this case, data highlighted that all consumers preferred eggs produced in small-scale conditions above the commercial ones due to the intangible and tangible attributes eggs had and that they highly value. These specific niches represent real opportunities for SSPs by creating new opportunities through the appreciation of local food. An explanation proposed by Murdoch and Miele (1999) was that a clear information and knowledge regarding place, producers, and the type of farming practices, enable the food to be more desirable for consumption.

As Espeitx (1996) explains, the attributes valued by consumers were the manifestation of a social climate that does not necessarily equate to homogeneous or shared discourses among all potential consumers, but rather reflect more or less the general trends among consumers.

In this study we found that egg production practices were linked to the patterns of consumption, which were based on the symbolic nature of food production and that evoked sustainable livestock production systems. These patterns represent tangible opportunities for the sale of products generated under this production system.

Diverse food consumption patterns constitutes a range of opportunities to add value, from the consumers point of view (Brambila, 2011), through the improvement of livestock practices and production processes in small-scale production systems.

Similar to what Hinrichs (2000) explains about consumer-producer relationship in the USA, in this study was also denoted that producers-consumers linkages through short food supply chains was not formal or contractual, but rather the fruit of familiarity, habit, and sentiment, seasoned by perception of value on both sides.

Even though short chains are usually associated with a better product quality or more sustainable production and commercial practices, this relationship is not automatic, since the location of the production alone does not guarantee the attainment of quality or safety attributes, and does not assure that they are products with low environmental impact or attributes of social responsibility (Winter 2003; Aubry & Kebir 2013). Similar to what Renting et al. (2003) explain, data showed that producer-consumer linkages enable closeness that increase consumers' knowledge of the origin and characteristics of the egg that allow regaining consumer trust, guaranteeing food quality in credible ways through proximity. In this sense, even though the egg did not have any safety or quality certificates, it was considered by consumers as a safe and non-risky product due to the confidence that they had in the SSPs and their egg production practices.

## Conclusion

Data showed that small-scale egg producers of rural communities were able to develop a market space outside traditional food supply chains, through the use of short food supply chains. Small-scale producers used two different short-chains for the sale of egg in the Nopala tianguis: direct sale/barter (face-to-face) or intermediation (cases of spatial proximity). The different short food supply chains identified in this study showed that these marketing strategies were an alternative for small-scale producers that allowed them to sell their eggs in a context where they took active part in the selling decision-making. This role empowered them and fostered their autonomy, enabling them to sell their eggs in an individual form without the need of being part of a cooperative organization.

The physical approach with a more direct contact between producer and consumer through short food supply chains enabled linkages of closeness, confidence, trust, and exchange of information, which increased consumers' knowledge regarding the origin of egg and production practices, and allowed for the creation of food symbolism. This knowledge enabled consumers to value egg produced in small-scale conditions in two ways, due to their tangible attributes (particular sensory and physical qualities), and intangible attributes (natural, healthy, fresh, and safe egg).

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## Notes

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