

# **THE ENVIRONMENT-FRIENDLY SMALL FARMERS AT THE CENTRAL HIGHLANDS OF MEXICO**

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## **Abstract**

Conscious consumers demand better quality, and food locally produced with safety measures to have improved health and lower their carbon footprint. Regional ecology-friendly agriculture can fulfil such requirements. The objective of this paper is to present a case study of environment-friendly farmers in the State of Tlaxcala at the Central Highlands of Mexico, and the challenges that they have to confront. Groups of small farmers growing organic products created the Alternative Markets of Tlaxcala and Apizaco. The products sold in these markets are cultivated directly by 36 family groups, with an average of five members. They indirectly benefit another 150 people. Their plots are small, up to 5 hectares. They grow and sell temperate fruits, vegetables, cereal grains, honey and its derivate products. They also offer processed foods, handcrafts, personal hygiene products, and botanical goods. They use an alternative certification system, a participatory guarantee one. Since 2013, a plan of actions to consolidate the participative certification committee and to offer technical advice and training on organic production and food safety was conducted. The Alternative Markets have promoted the production and transformation of environment-friendly goods. They offer the option to sell products for higher prices than conventional ones. Consumers are willing to pay a

premium for food and other items free from toxic agrochemicals, bought directly from the producers. The farmers and transformers of such markets are beginning to understand the importance to grow safe food and other products, and to implement procedures to achieve this objective.

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**Keywords:** Organic agriculture, Good Agricultural Practices, Good Manufacturing Practices, Value addition

## **Introduction**

Modern agriculture involves worldwide supply chains with high mobility and high-carbon footprint. Such movements involve not only products, but also information, people, pest and diseases. Such problems have alienated many people.

Thus, conscious consumers demand better quality, food locally produced with safety measures to have improved health and lower their environmental impact.

In opposition to the conventional model of production and marketing, and international trade, there is a social growing concern of the compatibility of the productive processes with the environment, and the preservation of cultural traditions. The quality of the products it is not only judged by their appearance, but also about their nutritional value and the consequences of how it was obtained (Prieto-Díaz, 2007).

In the last decades, the valorization of the intangible attributes has been higher, based on the ethical considerations of the consumers. There is a growing trend in the demand of differentiate products with better quality. Brand's certifications and trademarks convey and guarantee such attributes as Organic or Fair Trade.

The organic sector has a very dynamic development in the world. In Mexico, it has had a very high growth rate (higher than 25% per annum since 1996). Greater return to the farmers is an important drive for this expansion. Coffee had the higher planted area (50% of the total organic in 2007-2008), followed by horticultural crops (10% of the total organic planted area; Gómez-Cruz et al., 2010).

Most of the Mexican organic production is exported (Gómez-Cruz et al., 2010). However, the domestic market has been expanding. The Mexican Network of Organic Markets was founded in 2004 to meet such demand (Nelson et al., 2010).

A growing number of consumers prefer organic products because, among other things, they are not exposed to toxic agrochemicals. Other aspects related to food safety are not always considered in environmental friendly agriculture.

Unsafe food can be found everywhere. It can contain harmful bacteria, viruses, parasites or chemical substances. They are responsible for more than 200 diseases and the death of approximately 2 million people per annum worldwide (WHO, 2015).

Food safety is a major concern to public health. Even tough, many farmers and food processors, mainly in developing countries, are not aware of the practices and processes needed to achieve it. Organic producers have to face the same difficulties. The rules to ensure the production or the transformations of safe foods do not exist, or they are lax, or not enforced. Thus, the problem of contaminated food is growing.

The objective of this paper is to present a case study of environment-friendly farmers in the State of Tlaxcala at the Central Highlands of Mexico, and the challenges they have to face.

### Materials and Methods

This research was conducted in locations of Españita, Apizaco, Santa Cruz Tlaxcala, Hueyotlipán, Tlaxco, Yauhquemecán, Chiautempan, Santa Isabel Xiloxotla municipalities at the State of Tlaxcala, in the Central Highlands of Mexico.

The State of Tlaxcala is located in the central east part of Mexico, between the latitudes 19° 05' 43" and 19° 44' 07" N, the longitudes 97° 37' 07" and 98° 42' 51" W. It has the smallest area (4,061 km<sup>2</sup>). Its average altitude is 2,230 meters above sea level. Tlaxcala, its capital and main city is 124 km away from Mexico City, about two hours and a half drive.

The farmers selected for this study, sell their products directly to the consumers in the “Alternative Markets” located in the cities of Tlaxcala and Apizaco, the main ones in the State of Tlaxcala (Fig. 1).



Figure 1. Meeting and stand at the Apizaco Alternative Market.

In order to study and to discuss directly with the environment-friendly farmers their problems and needs, 24 visits to their production and food-processing units were conducted (Fig. 2). The productive activities, the

handling of the harvests, the transformation processes, the packaging, the exhibition for sale, and the product differentiation strategies were examined.

Because of the visits and group discussions in ten meetings, food safety, good agricultural practices, good manufacturing practices, value-adding processes, and an experience's exchange were identified as top priorities (Fig. 1). Five workshops were carried out to fulfill such needs (Fig. 2).

The main objective of the training was to increase production and food safety, and to improve the quality of the products, their transformation processes, and marketing strategies in a highly competitive market.

Training materials for oral presentations, and hands-on activities for higher involvement of farmers were designed. Materials and procedures from the World Health Organization (2007, 2012) and other reputable sources were also used.



Figure 2. Workshop for members of the Alternative Markets of Tlaxcala and Apizaco, and organic plot.

## Results and Discussion

Small agricultural friendly farmers and handcrafts producers from several locations of Españita, Apizaco, Santa Cruz Tlaxcala, Hueyotlipán, Tlaxco, Yauhquemecán, Chiautempan, Santa Isabel Xiloxotla municipalities of the State of Tlaxcala at the Mexico's Central Highlands, have been organizing local actions. Those are aimed for direct production, transformation, and marketing of agricultural goods, food, and other products to improve their quality of life through "Alternative Markets" in the cities of Tlaxcala and Apizaco.

### The Alternative Markets of Tlaxcala

Groups of small farmers producing organic goods created the Alternative Markets of Tlaxcala and Apizaco. The Tlaxcala alternative market was inaugurated in 2005. The Apizaco one started activities in 2009. They belong to the Mexican Network of Organic Markets. These markets

can be conceived as production-consumption units with high environmental, social, and economic responsibility. They promote a bond between farmers and consumers.

The Tlaxcala and Apizaco Alternative Markets are the result of the demand, from consumer groups, to have healthy foods, free from toxic agrochemicals, harvested by small farmers, social and environmental responsible. The products sold in these markets are cultivated directly by 36 family groups. A family group has an average of five members. They indirectly benefit another 150 people.

Within every family group, the participants collaborate in several tasks, from production and transformation to selling in the markets. They have men and women from different ages. Their plots are small, ranging from few square meters to 5 hectares. Very few have a higher area.

They grow and sell temperate fruits, vegetables, cereal grains, honey and its derivate products. They also offer processed foods, handcrafts, personal hygiene products, and botanical goods. Each market open only one day per week.

They work based on cooperative principles, but without any formal organization. Democratic values are important too. Every participant group has rights and obligations. Their core principles are: 1) Open and voluntary membership; 2) Democratic decision taking; 3) Economic contribution; 4) Autonomy and independence; 5) Education, training, and information; 6) Cooperation; and 7) Social responsibility (Alternative Markets, 2015).

Those farmers have been working together for the last eight years. In some cases, they have achieved agreements for joint production and transformation to add value.

As a mean to have better market participation and higher profits, they have organized to offer differentiate products, and they have to learn skills to produce in an ecological way.

A barrier for a wider distribution of their goods is that they do not have a third party certification for organic production because it is a lengthy, expensive, complicated, and highly bureaucratic process. It is almost impossible to comply by a small farmer. They use an alternative certification system, a participatory guarantee one (IFOAM, 2013; Nelson et al., 2010 and 2015). Nelson et al. (2010) have described it.

Their participatory certification committee have meetings every Tuesday. It decides on the introduction of novel products or the acceptance of new farmers. Afterwards, when it is necessary, it conducts visits to production or transformation units. The committee also performs continuous evaluations of the Alternative Markets members.

They received external support to improve their technical processes and market strategies. Nevertheless, they need more training and information about their productive processes, health legislation, and marketing.

In order to strengthen its participatory guarantee system, the organic production, and food security processes, the participants of the alternative markets looked for the involvement of professors and students of Chapingo Autonomous University (CAU), the largest and oldest agricultural university in Mexico. Its main campus is located in the nearby state of Mexico. Somacidich Agroideas (SA), a consultant group of environmental friendly technologies and knowledge, is participating too.

Since 2013, a plan of actions to consolidate the participative certification committee and to offer technical advice and training on organic production and food safety was done. It was formulated jointly by farmers, by professors of CAU, and by personnel of SA. They have conducted it successfully.

As it has been stated, unsafe food is a major problem in developing countries. Mexico is not an exception. Despite the actions of the Ministry of Agriculture's National System of Health and Food Safety (SENASICA in Spanish), most farmers are not aware of the systems or regulations to ensure food safety.

Good Agricultural Practices, Good Manufacturing Practices, other processes or certifications related to food safety are only followed or obtained when other countries or institutional buyers require them.

The small farmers of the Tlaxcala and Apizaco Alternative Markets are seeking new and more profitable distribution channels. They are aware that supermarkets and other important buyers have requirements related with food safety. Thus, they requested more information and workshops related to CAU and SA personnel.

During 2014, an introductory workshop on food safety was conducted. The farmers began to realize the requirements needed to produce, transform, transport, and sell safe food. None was even close to fulfil such requirements.

A workshop on Good Agricultural Practices and another one about Good Manufacturing Practices were also given. They provided knowledge that is more specialized for farmers and food transformers. Individual visits to interested groups are helping to identify steps and strategies to improve food safety.

Farmers of the Alternative Markets of Tlaxcala and Apizaco are beginning to understand and to implement procedures to obtain safer food. The fulfilling of national or international standards on food safety is still far away. They seem to have the will to achieve this goal.

## Conclusion

The Alternative Markets of Tlaxcala and Apizaco have promoted the production and transformation of environment-friendly goods. They offer the option to sell products for higher prices than conventional ones. Conscious consumers are willing to pay a premium for food and other items free from toxic agrochemicals, bought directly from the producers.

The farmers and transformers of such markets understand the importance to produce safe food and other goods. They are beginning to implement procedures to achieve this objective.

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