Vanilla (*Vanilla planifolia* Jacks ex. Andrews) marketing process in the Sierra Nororiental of the State of Puebla

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ABSTRACT

Objective: To analyze the marketing process of vanilla and to identify its limitations in the Sierra Nororiental of the State of Puebla, Mexico, in order to propose timely actions that will benefit regional producers who work in small plots.

Design/Methodology/Approach: A mixed method questionnaire was applied to n=68 key participants of the municipalities of Huehuetla, Caxhuacan, Ixtepec, Hueytlalpan, Olintla, Jonotla, Cuetzalan del Progreso, Tuzamapan de Galeana, and Tlatlauquitepec. All the municipalities are located in the Sierra Nororiental of the State of Puebla, Mexico.

Results: The commercialization of the product is a major problem for producers. Although they have the required experience from the sowing to the harvesting of the product, intermediaries pose an important problem. Producers are not organized and, consequently, they lack the conditions to receive specific training for each link of the chain. There are no leaders that can influence, encourage, or inspire producers to achieve common objectives. Public support should be permanent and must encompass inclusion, training, support, technological exchange, and validation of the local lore.

Study Limitations/Implications: The lack of a producer register for the vanilla production chain in the study area limited the number of participants of the survey.

Findings/Conclusions: A producer organization would rearrange the vanilla value chain, facilitate the decision-making process, and propose long-term public policies. Leaders would encourage the members of the group, organizations, families, and communities to achieve common objectives. In addition, they would identify talents for the local and short-, medium-, and long-term development.

Keywords: Process, marketing, vanilla, Sierra Nororiental.

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INTRODUCTION

In Mexico, small-scale farmers are a major agricultural subsector. The Mexican agricultural industry is a highly competitive sector. This situation contrasts with most of the small rural economic units, because the area they work in is not enough to meet the food demand (small farms) (Muñoz *et al*., 2017; Ocampo *et al*., 2006).

The marketing process is fundamental to benefit agricultural producers; however, the greatest profits in this link of the chain are usually obtained by the intermediaries. Meanwhile, producers require more support, training, and follow-up during the whole process.

A public policy aimed to benefit small-scale producers —through funding and training about each link of the chain— is required. This policy must be particularly focused on commercialization. In addition, producers should receive professional support, in order to achieve a community development that can improve their quality of life.

Commercialization is a strategic stage of the production chain, in which psychology and certain standards and strategies should be applied to promote the growth of a given company. It is made up of four elements: when (the right time to carry out a given activity); where (geographic location and amenities); whom (target niche market); and how (promotion, commercialization, and sale strategy) (Rizo *et al.*, 2017; Hernández, 2007).

According to Chayanov (1974), the production units of the different chains usually function under a rural trade system, which includes the consumption of local produce, the sale of the surplus, and the purchase of goods that the producers do not grow, but do consume. This commercial system is mainly directed to local and regional markets and, consequently, generates local and regional employment.

Many commercialization systems include small-scale producers, who usually lack sale strategies, distribution networks, and appropriate roads. These factors prevent producers from being part of a fair market.

Commercial intermediaries are a major barrier in the value chain. This situation is the consequence of the lack of organization and ties between producers in each stage of the local, regional, and domestic production. An example of this phenomenon is the scarce or non-existent integration of the processes in the value chain. This integration would add value to the products as a promotion and commercialization strategy, both in local and regional markets.

Maize (*Zea mays* L.) and bean (*Phaseolus vulgaris* L.) are usually considered a major part of food security; however, over the past 15 years, a new commercial agriculture has focused on the generation of local economies, with crops such as vanilla (*Vanilla planifolia* Jacks Ex. Andrews). The inclusion of this crop is a feasible alternative for government programs aimed at local and regional economies, specifically in the indigenous municipalities of the Totonacapan region of Puebla and Veracruz, Mexico.

Vanilla (*Vanilla planifolia* Jacks Ex. Andrews) (Orchidaceae) is a very important economic crop in the Totonacapan region. From its establishment, this orchid has a three-year production cycle. Its fruit (silique) is used to extract essences, internationally and commercially known as vanilla (Kelso-Bucio *et al.*, 2012).

From 2017 to 2021, the average world production of vanilla beans amounted to 6,961 t. The country with the highest production is Madagascar (43.9% of the total world production), followed by Indonesia (23.4%), and Mexico (7.8%) (SMATTCOM, 2023).

The Totonacapan region covers the north of the State of Puebla and the north center of the State of Veracruz. This region is considered the center of origin and the main producer of vanilla (Cervantes *et al.*, 2019).

From 2017 to 2023, about three thousand producers harvested 546 t of vanilla beans (SMATTCOM, 2023). This figure accounts for a 4.3% annual growth rate, placing Mexico as the third world producer of vanilla.

Therefore, the objective of this study was to analyze the commercialization process of vanilla in the Sierra Nororiental of the State of Puebla, Mexico, in order to identify limiting factors and to propose actions aimed to benefit producers.

MATERIALS AND METHODS

The study was carried out in the Región II Sierra Norotiental (SNOP), of the State of Puebla. The region includes the following municipalities: Huehuetla, Ixtepec, Caxhuacan, Hueytlalpan, Olintla, Jonotla, Cuetzalan del Progreso, Tuzamapan de Galeana, and Tlatlauquitepec. The climate ranges from temperate to warm and the area has many water bodies.

A non-probabilistic sampling technique, known as convenience sampling, was applied, given the lack of records or register of vanilla producers in the municipalities under study. Subsequently, small-scale producers were approached, in order to identify individuals whose profile would allow them to provide information.

The initial data was complemented with a snowball or chain-referral sampling (Mendieta, 2015). The size of the sample was n=68 vanilla producers, who are native and neighbors of the municipalities under study. Each municipality has a maximum of 20 producers.

The demographic characteristic of the producers and the current situation of the crop were determined through a structured survey consisting of qualitative and quantitative questions. The information was complemented with official documentary information from the Sistema de Gestión de Apoyos al Campo (SIGA) of the Secretary of Rural Development of the government of Puebla. The survey was conducted from May to June, 2023. The data were analyzed with SPSS Statistics version 24. The variables were related with the overall data of the producers: production volume (kg) of the green vanilla fruit per producer, the gross and net profit per producer, the final destination, quality, and origin of the product, and the public or private external actors during the last stage of the vanilla production chain (commercialization).

RESULTS AND DISCUSSION

Huehuetla recorded the highest percentage of producers (37%) among the municipalities included in the survey. Women producers account for 15% of that percentage and they are in charge of most of the activities in small-scale production units. These findings show that women are the driving force behind the family economy in this municipality (BANCO MUNDIAL, 2017). In addition, they are in charge of the commercialization of the product, particularly, green vanilla.

Forty-two percent of the interviewees did not finish elementary school. This situation puts them at disadvantage during the negotiation stage. Additionally, they face obstacles regarding new techniques for vanilla cultivation and the acquisition of other skills, particularly commercialization (Baria *et al.*, 2012). Fifty-four percent of the producers are

indigenous and they only speak their native language (Totonaco). This factor also limits the understanding of and the adaptation to the current conditions of the region.

The commercialization of their product is another limitation (Figure 1). Producers have valuable experience from the sowing to the harvest of vanilla; however, intermediaries are a major problem for its marketing process. Producers claim that production units are not organized and, consequently, they cannot request technical training from the government for each link of the vanilla production chain. The interviewees understand the production process; however, they have no management, promotion, and sale skills regarding their harvests. Rivas *et al.* (2018) have suggested that federal or state supports are not enough without training, follow-ups, and organization skills. The first link of the production chain has 68 producers. Five of these producers are also collectors, while one is also an intermediary. Commercialization and consumers are the last link of the chain.

Regarding the vanilla production volume, 40% of the producers obtained ≤ 50 kg of green vanilla per unit (< 1,000 m^2 plots) and per production cycle, under traditional agriculture systems. However, 15.4% of the producers recorded a 500 kg yield per production unit, during the 2022 agricultural cycle. Consequently, these producers work in larger plots or have adopted technified production systems.

Limitations related to lower yields are linked to the supply and demand, because producers are not able to meet the domestic and international market demand. Consequently, they are forced to comply with the conditions imposed by the intermediaries, in order to sell their products.

Regarding this situation, producers said that an organization would be fundamental to propose actions to the authorities. As mentioned by Ferrando (2015), these actions should include a permanent government support and the development of public policies that include training, support, technological exchange, and validation of the regional Totonacapan lore.

Ninety percent of the producers are aware of the production process —*i.e.*, they have identified the most important requirements that their product must comply with and the quality characteristics demanded by the vanilla market (color, size, and quantity) for a successful commercialization. These characteristics allow producers to obtain profits or, at least, a fair price for a sustainable quality.

Undoubtedly, the organization of vanilla producers in the Totonacapan region would be fundamental for local and regional growth and development. Producers are convinced that, only through an organization, they will improve their quality of life, drive the development in their communities, and guarantee their permanent inclusion.

Figure 1. Links of the vanilla value chain identified in the Totonacapan region of the State of Puebla (Figure developed by the authors, 2023).

The producers lack the motivation to establish new vanilla plantations or to accept the technification of the existing plots. Likewise, this lack of organization limits their inclusion in the decision-making process. All the producers (100%) believe that this situation definitely leaves them outside the participation and the local development.

Price and final destination of processed and non-processed vanilla

Vanilla is an annual crop whose production requires special cultural labors that producers have been carrying out for centuries. The special reproduction of vanilla makes it a highly delicate crop, because it requires manual pollination. Consequently, fecundation requires a very skillful and specialized labor force to obtain good quality fruits in the right quantity to satisfy the market demand.

According to Cofece (2016, quoted by Astudillo *et al.*, 2020), vanilla is commercialized as a fresh product —*i.e.*, most farmers sell their produce directly to the intermediary. Meanwhile, 64% of producers sell their products in local markets, while the rest use the services of five intermediaries or they process their product and sell it to the highest bidder. Other producers add value to their harvest making crafts. In this regard, producers are aware of the urgent need to organize themselves and said that they should participate in the gastronomic, make-up, and medicinal markets. Nevertheless, this objective requires training and knowledge to detect which talented individuals among their own ranks would be good managers, promoters, and negotiators. They said that, once they are organized, they should discuss the possibility of creating a research area.

In 2022, the price of fresh vanilla (vanilla green silique) fluctuated between MXN$500.00 and MXN$1,000.00. However, the final destination of this production is unknown, because the intermediaries have monopolized the main market. Producers said their harvests are collected and distributed through several channels to the pharmaceutical industry, the European gastronomic (gourmet) industry, and the domestic and international make-up industry.

More than half of the interviewees (53.8%) pointed out that the plots used to grow vanilla are small and, consequently, they obtain a small production. However, they earn an average of MXN$300.00 per kilogram of green vanilla —*i.e.*, this is a highly profitable crop (Rodríguez *et al.*, 2023).

In addition, producers mentioned the importance of vanilla in the region, the lore inherited from their ancestors, the fact that Totonacapan is its center of origin, and the optimal conditions of the region to allow a good development of the plant. These producers said that it is well worth the effort to maintain and elevate the production of this crop. Given the implication of the processes, most interviewees do not add value to vanilla. Nevertheless, they agree that they should be first organized, before they can explore new courses, workshops, and training that would help them in all the processes of the vanilla production chain.

Meanwhile, 1% of the interviewees received technical support, particularly regarding the processing of vanilla, in one or more occasions. Producers said that a permanent tie with government organisms should be generated as fast as possible, because these organisms are committed to support and train regional producers. The interviewees also mentioned that

some state government organisms support them through programs that include production modules, vanilla plants, and supplies; however, these programs should receive technical support and be subject to follow-up, evaluation, and monitoring mechanisms during the whole process.

Producers identified a series of obstacles that can be overcome through a guided organization process. Consequently, they have repeatedly demanded a higher commitment, regulation, and full responsibility from the state authorities regarding shared works. In addition, the interviewees have proposed programs based on their own needs and the different types of crops they grow. These programs should include: their lore as a development, training, and follow-up tool in the different links of the production chain, a regional vocation diagnosis, development and community growth strategies, and commercialization. The interviewees pointed out that an inter-agency representation committee is required. This committee would be the communication bridge between the three levels of the government and would watch over the appropriate application of the programs designed for the community.

Limitations

The interviewees are convinced of the benefits and advantages of the crop. However, most of the producers said they feel insecure, because their plots have suffered acts of vandalism, causing losses in their harvests and discouraging them. Producers mentioned that this situation is part of the limitations they face; this problem is particularly important for farmers whose productive units are far from their homes. Once again, they pointed out the need to organize themselves as cooperatives and to be registered before the authorities, in order to demand strategies aimed to protect their crops. The acts of vandalism have forced 80% of producers to carry out premature harvesting, which reduces the quality of vanilla, diminishing its economic value.

Intermediaries have always been a major problem for the local and regional commercialization of vanilla. Regarding this situation, 54.4% of the interviewees have confirmed the importance of creating an organization of producers to collectively design strategies. For example, they would like to participate in the decision-making process and to play a key role in the setting of the price of their produce. In addition, they mentioned that a cooperative would allow them to own the brand, production, and commercialization of vanilla. A cooperative would also benefit the members in all the links of the value chain (Jurado, 2014).

Participation of external actors

Producers pointed out their satisfaction with the participation of public, academic, and private organisms during the last five years (2018-2023). They understand their participation as a social development and source of income strategy for the families that grow vanilla, particularly in the Totonacapan region, Puebla.

During this period, the increasing government support for the recovery of the agroindustry has included technological programs, equipment, agricultural supplies, training, and exchange of experiences between producers. Most of the interviewees maintain that, in

theory, the state support programs are dazzling, because they promise additional economic support that would undoubtedly provide better life conditions for the families and improve local growth, consequently, driving local and regional development (Quevedo *et al.*, 2021). Nevertheless, most of the producers also are dissatisfied regarding other government services, such as technical support, follow-up, training, and commercialization of their harvests. Meanwhile, producers said that public and academic organisms are important; however, they are concerned about the companies and intermediaries that subjugate them and, without lifting a finger, obtain the highest profits (60%). This information matches the reports of Méndez *et al.* (2019). Finally, producers maintained that, if they were organized, they could improve and design better commercialization, add value, service management, collection, and price analysis strategies, before they offered their products to the market. The lack of such an organization reinforces the limitation implied in selling a fresh product, when producers have no other options.

CONCLUSIONS

Small-scale producers of the Región II Sierra Nororiental of the State of Puebla, have a comprehensive experience and lore about the processes involved in vanilla production. Their needs include training, follow-up, and organization. Communication is limited, because they mainly speak their native language. The creation of an organism that represents and takes care of the needs of these specific groups is fundamental. Producers require a timely follow-up, carried out by specialists that support them to understand the marketing process. In addition, they require a permanent training regarding organization, leadership, and visibility improvement. Setting up a cooperative would allow the producers to go beyond the local market and the intermediaries. The analysis of the current procurement mechanisms would allow the development of strategies to overcome the limitations, including the payment time and the communication dynamics. In addition, it would improve the active relationship between actors from the vanilla value chain.

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