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Artículos Científicos

Estrategias de competitividad y contexto actual de caficultores y comercializadores en Hidalgo

***Competitiveness strategies and current context of coffee growers and
traders in Hidalgo***

***Estratégias de competitividade e contexto atual dos cafeicultores e
comerciantes de Hidalgo***

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Resumen

Esta investigación tuvo como objetivo describir el contexto actual de los pequeños productores y comercializadores de café en el estado de Hidalgo con el fin de identificar las expectativas de crecimiento orientadas a la competitividad empresarial. Los productores de café en México, en especial en la zona sur del país viven condiciones difíciles asociadas a la siembra, la fijación de precios y la comercialización, problema que enmarca esta investigación. La metodología empleada fue cualitativa y descriptiva, para lo cual se realizó una inmersión inicial de investigación con un muestreo aleatorio simple por áreas geográficas en las zonas norte, oeste y suroeste del estado de Hidalgo. Entre los hallazgos principales se pueden mencionar el tipo de café que se cultiva, las condiciones ambientales que se requieren, el proceso de producción que se lleva a cabo y los principales problemas que enfrentan, que comparados con los antecedentes revisados antes y al inicio del estudio son latentes. Asimismo, se mencionan las estrategias posibles, que se pueden aplicar para poder incrementar la competitividad en este sector dentro de estos municipios. Cabe mencionar que este fue el primer acercamiento del estudio.

Palabras clave: caficultura, comercialización, competitividad, condiciones, estrategias.



Abstract

The objective of this research was to describe the current context of small producers and marketers of this product in the state of Hidalgo, in order to identify growth expectations aimed at business competitiveness. Coffee producers in Mexico, especially in the southern part of the country, experience difficult conditions, from planting, setting prices and marketing, which is the problem that this investigation frames. The methodology that was carried out was qualitative descriptive, for which an initial research immersion was carried out with a simple random sampling by geographical areas, in the north, west and southwest of the State of Hidalgo, since they are some of the points where coffee growing and commercialization of this product is carried out. Among the main encounters are the type of coffee that is grown, the environmental conditions that are required, the production process that is carried out, and the main problems they face, which compared to the background reviewed before and at the beginning of the study. they are latent. Likewise, possible strategies are mentioned, which can be applied in order to increase competitiveness in this sector within these municipalities. It is worth mentioning that this was the first approach of the study.

Keywords: coffee growing, commercialization, competitiveness, conditions, strategies.

Resumo

O objetivo desta pesquisa foi descrever o contexto atual dos pequenos produtores e comerciantes de café no estado de Hidalgo, a fim de identificar as expectativas de crescimento voltadas para a competitividade empresarial. Os produtores de café no México, especialmente na parte sul do país, enfrentam condições difíceis associadas ao plantio, fixação de preços e comercialização, um problema que esta investigação enquadra. A metodologia utilizada foi qualitativa e descritiva, para a qual foi realizada uma primeira imersão na pesquisa com amostragem aleatória simples por áreas geográficas nas regiões norte, oeste e sudoeste do estado de Hidalgo. Entre as principais constatações, podemos citar o tipo de café cultivado, as condições ambientais exigidas, o processo de produção realizado e os principais problemas que enfrentam, comparados aos antecedentes revisados antes e no início do estudo. . eles estão latentes. Da mesma forma, são mencionadas possíveis estratégias que podem ser aplicadas para aumentar a competitividade do setor nesses municípios. Vale ressaltar que esta foi a primeira abordagem do estudo.



Palabras-chave: cafeicultura, comercialização, competitividade, condições, estratégias.

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Introduction

The coffee plant became known for the first time in Ethiopia around the 9th century AD; However, it was only until the 15th century that the seed was planted in the south of the Arabian peninsula, when it began to be used in infusions for popular consumption. In the seventeenth century it was taken by the Dutch to Europe and the French took it upon themselves to transport it to the Antilles, from where it was finally brought to Mexico in 1790 to progressively be incorporated into hot drinks: atole and chocolate (Pérez and Rivas, 2008).

According to the Mexican Association of the Coffee Productive Chain (Amecafé), the cultivation of this product in the country began in 1795 and its harvests were used mainly to satisfy local consumption. Then coffee growing grew during the Porfiriato, worked first by large German transnational companies on specialized farms, and then from 1940 on small peasant and indigenous plots. In this way, coffee has had enormous importance from an economic, social, cultural and ecological point of view, especially for indigenous producers in conditions of poverty (Franco and González, 2014).

However, the Secretariat of Agriculture and Rural Development (SADER, 2018) and the International Coffee Organization (OIC) annually publish a list of coffee producers worldwide, where Mexico ranks eleventh (that is, the production represents 2.4% of the world total), which represents 0.66% of the national agricultural GDP and 1.34% of the production of agro-industrial goods.

Even so, Mexico is considered one of the main organic coffee producing countries in the world, as it ranks second below Peru, allocating 3.24% of the total cultivated area of this product for this variety, and exports 28,000 tons (especially to the European Union). In addition, it has a great diversity of producers from indigenous communities (SADER, 2018).

Now, in the context of markets, of the total Mexican coffee exports, 43.74% go to the United States, 9.72% to Spain, 8.12% to Belgium, 3.51% to Germany, 3.29% to Canada, 2.47% to Cuba, and 10.37% to other countries (Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food [Sagarpa], 2017). Table 1 presents a summary of Mexican exports.

Tabla 1. Exportaciones mexicanas en todas las formas del café (en miles de sacos de 60 kg)

Año	Total de exportaciones	Total de exportaciones mexicanas	Porcentaje
2000	89 562	5304	5.92 %
2001	90 859	3333	3.66 %
2002	88 847	2645	2.97 %
2003	86 372	2596	3.01 %
2004	91 097	2362	2.59 %
2005	87 562	1985	2.26 %
2006	91 760	2570	2.80 %
2007	96 302	2912	3.02 %
2008	97 599	2448	2.50 %
2009	96 242	2838	2.94 %
2010	97 046	2498	2.57 %
2011	102 185	2907	2.84 %
2012	108 444	3556	3.27 %
2013	108 567	3132	2.88 %
2014	111 548	2480	2.14 %
2015	116 396	2458	2.11 %
2016	121 334	2233	1.84 %
2017	119 519	2911	2.43 %
2018	126 598	2888	2.28 %
2019	131 694	2627	1.99 %
2020			
Total	2 063 533		

Fuente: Elaboración propia con datos de la International Coffee Organization (ICO) (2021)

Mexican coffee plantations are located in poor areas of the country. The production units are mostly small plots of up to ten hectares. In Mexico, its production employs more than 500,000 producers from 14 states and 480 municipalities. Currently, 1.4 kg per capita are consumed per year. Mexico produces coffee of excellent quality, since its type, height, climates and soils allow it to grow varieties among the best in the world. In fact, the generic variety of our country is Arabica and its production is usually carried out in tropical areas. (SADER, 2018).

Tabla 2. Porcentaje de producción de café en 14 estados de México

Estado	Porcentaje
Veracruz	24 %
Hidalgo	3.30 %
Tabasco	0.043 %
Puebla	17 %
Oaxaca	8.92 %
Nayarit	0.93 %
Colima	0.33 %
Chiapas	39.50 %
Guerrero	3.90 %
Jalisco	0.49 %
México	0.065 %
Morelos	0.0037 %
Querétaro	0.0089 %
San Luis Potosí	0.92 %

Fuente: Elaboración propia según el Servicio de Información Agroalimentaria y Pesquera (SIAP, 2021)

Most of the exports made by Inmecafé are made up of coffee captured from small and medium-sized producers, even though production was low in these properties. The process of capturing cherry and parchment coffee is sieved by multiple deviations and corruption, which causes many small producers to fall into the network of existing hoarders and intermediaries, which, at low prices, accumulate considerable quantities of the bean that they supply to the farmers. exporters (Martínez, 1989).

Tabla 3. Captación y recepción de café

CICCLO	PRODUCCIÓN NACIONAL	INMECAFE(Qq.)	I.P. (Qq.)	(Qq.)	(Qq.)
1982-1983	5 947 826	2 587 931	3 359 895	43.50 %	56.50 %
1983-1984	6 482 609	2 389 077	4 093 602	36.90 %	63.10 %
1984-1985	5 752 174	2 314 668	3 437 506	40.20 %	59.80 %
1985-1986	6 267 391	2 088 451	4 178 940	33.30 %	66.70 %
1986-1987	6 562 170	2 256 954	4 395 216	33.90 %	66.10 %
1987-1988	6 521 800	629 284	5 892 516	9.60 %	90.40 %
1988-1989	7 177 000	1 206 129	5 970 871	16.80 %	83.20 %

Fuente: Elaboración propia con base en el Instituto Mexicano del Café (citado por Martínez, 1989)

In the period of world regulation of the coffee trade, the Mexican Coffee Institute (Inmecafé) disappeared (1989), which coincides with the time of liberalization of the international market and with the creation of the Mexican Coffee Council (CMC), in charge of then of the economic policy towards the coffee sector.

The difficult conditions (from sowing, setting prices and even marketing) that coffee producers go through in Mexico - especially in the southern area where the state of Hidalgo is located - are the problem that framed this research and led to formulate the following question: what is the context of coffee producers and marketers in the state of Hidalgo and their growth expectations oriented to business competitiveness? In this sense, the research variables were competitiveness strategies and the current context of coffee producers.

Specifically, this study highlights the conditions of coffee companies of producers and marketers in the state of Hidalgo, which lack the means to promote national and regional productive development (Sagarpa, 2017). Therefore, the objective was to describe the current context of small coffee producers and marketers in the state of Hidalgo in order to identify growth expectations oriented to business competitiveness for these companies.

In Mexico there are many small producers and marketers of coffee, who live with the income obtained from said cultivation. Therefore, if the scientific and technological conditions are identified to increase innovation and competitiveness, they will be able to compete in national and international markets. In other words, it seeks to help the coffee sector that is located in one of the poorest areas of the country and highlight the opportunity for the study to promote the required social impact.

Theoretical framework

Coffee is one of the most consumed beverages in the world, and in Mexico it is a custom rooted in its culture. According to Alba, Peñaloza, Gutiérrez and Castillo (2018), an average increase was reached "in consumption in the last year (2016/2017) 2.3% and 2.1%, respectively (3.4) both in the producing countries and (Brazil, Indonesia, Mexico or Colombia) as well as those that import the grain (European Union, United States, Japan, Canada, etc.)" (p. 2).

In Mexico, two species of coffee have mainly been cultivated for commercialization: *Coffea arabica* and *Coffea canephora*, being the first of the highest quality and value in the national and international market and the one of greatest importance due to its territorial extension, since it occupies more than 97 % of the national coffee area. In this sense, it is common to identify these two varieties of coffee as Arabica type and Robusta type, respectively. Within the specialty market, three modalities are considered: fair trade coffee, shade-grown coffee and sustainable coffee. And by the type of market to which it is directed, a distinction is made between domestic and export consumption (Franco y González, 2014, p. 20).

Coffee in Mexico is one of the ten products with dominance by federal entity and surface stratum with an interest per planted surface of 0 to 5 and more than 5 hectares. For the National Agricultural Survey (2019), within the sampling unit there are 233 245 UDP (the economic unit made up of one or more lands located in the same municipality, where at least in some of them agricultural or forestry activities are carried out under the control of the same administration), production derived from 248 large producers and 232 997 small and medium producers.

Regarding tropical crops, coffee is one of the most important in Mexico, and the cultivation systems that are practiced are conventionally and organically grown (Franco and González, 2014).

However, the low yields in Mexican coffee farms are due, to a large extent, to the effects of weather conditions in some regions of the country, the inadequate management of the pruning of coffee trees in small areas, the poor organization of national producers, the scarce publicity of the production of roasted and organic coffee, as well as the properties of

the crop, the meager differentiation of the production and low technological level oriented towards organic production (Franco and González, 2014).

In addition to the above, what is stated by Pérez and Rivas (2008) is added, that is, the low prices in the market, the neglect of their plantations in pruning and the scarce control of pests, which reduces the productivity per hectare. Likewise, non-compliance with the certification conditions for specialty coffee keeps producers out of their possible participation in world markets for products that are sustainable with nature.

Before this problem, the Government of Mexico implemented public policies and programs aimed at improving the productivity, competitiveness and sustainability of the national coffee industry, especially of small producers, with the central objective of recognizing and raising the quality of the country's coffee, for this purpose. which is working on five lines of joint action: production of genetic varieties; training and technification; financing and credit schemes; access to international markets, and improvement of governance and institutions in this productive sector. In addition, it launched the Production for Well-being-Coffee program, which consists of accompanying 250,000 small and medium-sized producers, with support of five thousand pesos to improve their vegetative material and purchase of agricultural equipment or training. (SADER, 2019).

Competitiveness in coffee companies in the world

Organizations are once again using the marketing strategies of the 19th century small businessman, which means going beyond the transaction and being complicit with customers in order to establish bonds of trust, commitment and loyalty that contribute to knowing their needs (Cruz, 2018).

However, the main function of marketing in a competitive environment cannot be the promotion and commercialization of a product or service created as part of the success of the process, since it must be understood, first of all, that it is not a sale, since today clients are more demanding because the global market offers them multiple options to satisfy their needs. For this reason, companies must add value to their consumers through a solid relationship with them in order to stay in the market, which builds a personalized product or service (Cruz, 2018).

In this sense, relational marketing is a strategy to improve the performance of a coffee sales company. This is distinguished by offering a product with high quality standards, based

on the international classifications of the Specialty Coffee Association of America (SCA) to increase competitiveness in the face of businesses in the branch that could have an advantage in terms of service, despite offering a low-quality product (Cruz, 2018).

One example is the case of Starbucks, a company acquired by Howard Shultz in 1987 with 11 stores and 100 employees (Shultz, June 27, 2013). These coffee beverage stores were flooded with customers seeking product quality as well as the atmosphere of personalized service with a company-specific language (the Starbukian language), all of which describe an approach to business competitiveness.

Therefore, meeting the needs of the market generates competitiveness, which can be considered as the influence of competitors in the company in a first environment, that is, when it comes to companies that process the same raw materials (Torres, 2004). Competitiveness, then, is the ability to achieve a favorable position through superior performance than other companies (Correa, 2016).

On the other hand, systemic competitiveness is based on three pillars: 1) the development of innovation systems that accelerate the accumulation of technological capacity, 2) support for diversification and the creation of productive chains, and 3) the provision of services quality infrastructure (Suñol cited by Ibarra, González and Demuner, 2017).

Now, when it comes to organic coffee, the state of Chiapas is one of the main producers. In this sense, the Fundación Produce Chiapas AC and the ITESM (Chiapas campus), in their Strategic Program of Research Needs and Technology Transfer of the State of Chiapas of 2003, point out that alternative agriculture is one that provides a balanced environment, sustained yield and fertility, as well as natural pest control through the use of self-sustaining technologies.

Organic nest coffee is a productive system that uses various fertilization, weed and pest control technologies, without using synthetic chemical fertilizers or pesticides. From that perspective, it is not natural coffee, but rather a technological or agricultural science approach that works in harmony with the environment. Organic agriculture is determined by the following factors: sustainable production; health production; sufficient production; nice human work; reasonable income; environmental protection and animal welfare (Franco y González, 2014, p. 91).

Competitiveness, therefore, is the ability of economic agents to take advantage of favorable scenarios that arise in the world of economics on a permanent basis. In fact, it can also be said that competitiveness is the ability to overcome and get out of the pessimistic and not very encouraging scenarios that arise in the development of the economic and social activities of each of the economic agents (Ramírez, 2006). The special coffee association is also a source of competitiveness (Special Coffee Association, SCA) for both coffee growers and marketers, since it is a commercial entity built on the basis of openness, inclusion and the power of shared knowledge. Its purpose is to encourage global coffee communities to support activities to make coffee a more sustainable, equitable and prosperous activity for the entire value chain. From coffee growers to baristas to roasters, that membership spans the world and encompasses all elements of the coffee value chain. This association acts as a unifying force within the specialty coffee industry and works to improve specialty coffee by raising standards around the world through a collaborative and progressive approach. Dedicated to building a fair, sustainable and enriching industry for all, it draws on years of insight and inspiration from the specialty coffee community. It is a global non-profit platform that 1) provides world-class events, education, research and standards, 2) promotes best practices and professionalism to adapt to context, and 3) amplifies voices within the specialty coffee value chain. (Specialty Coffee Association, 2021).

The Government of Mexico (oriented towards the competitiveness of the coffee sector, in the national productive development plan in the strategy-maximize) mentions the following objectives: promote innovation and sustainable technology transfer; promote sustainable production systems with good practices that maximize product quality; national program for the combat and frontal eradication of CBB and coffee rust; intensify replanting and recrop programs in existing plots, and encourage productive reconversion into elite varieties. Likewise, in region 16 - where the state of Hidalgo is located - regional development strategies are indicated, such as implementing a technological package for organic production, promoting business development among producer groups and promoting certified nurseries for production and seedling marketing (Sagarpa, 2017).

Method

Design

The methodology was based on a descriptive qualitative approach. "Qualitative techniques approach the object of study without delimiting an express and precise framework, trying to find the meaning of social facts, their meanings and nuances for the subjects who intervene in them" (The quantitative methodology: surveys and samples, nd, p. 1).

Likewise, a literature review was carried out in books, scientific articles and websites, as well as in the National Consortium of Information Resources, Science and Technology (Conricyt) and in Scopus databases.

Likewise, an active observation was carried out, with the visit to nine of the small companies, which included from their location in the towns and communities near them to the person of the coffee growers and coffee marketers who accepted. be interviewed, as well as the facilities and furniture.

The two types of observations made it possible to identify cause and effect as the first perception in the variables dependent on the current context of coffee growers and coffee marketers, and in the independent variable competitiveness strategies.

Participants

The researcher responsible for the project (who conducted the interviews), and the coffee growers and coffee marketers (who were the object of study) participated in the study. These were interviewed in their small businesses in order to find out their current context.

For this, an initial research immersion was carried out with a simple random sampling by geographical areas, in the north, west and southwest of the state of Hidalgo. Cities and communities were visited to locate companies with addresses taken from the National Agricultural Planning site, which in most cases were only references to locate companies and coffee growers with information about people on the streets, in a two-week period during the month of February 2021.

Research instrument

Two questionnaires were designed and applied: one for coffee growers and the other for coffee marketers, with 10 semi-structured questions each..

Tabla 4. Cuestionarios

CUESTIONARIO CAFETICULTORES NOMBRE _____	CUESTIONARIO COMERCIALIZADORES NOMBRE _____
<ol style="list-style-type: none"> 1. ¿Es usted agricultor del café? 2. ¿Cuántas hectáreas tiene? 3. Si cultiva café, ¿qué procesos de siembra realiza? 4. ¿Qué tipo de café cultiva? 5. ¿Cuáles son los medios necesarios para sembrar el café? 6. ¿Quiénes fijan el precio del café? 7. ¿Cómo evalúan la calidad del café? 8. ¿Quiénes son sus clientes? 9. ¿Qué ventajas tiene como agricultor en relación con sus competidores? 10. ¿Mencione dos problemas o más por los que atraviesan los agricultores del café? 	<ol style="list-style-type: none"> 1. ¿Es usted comercializador del café? 2. ¿Cuántos trabajadores tiene su empresa? 3. Si vende café, ¿qué procesos de venta realiza? 4. ¿Qué tipo de café compra? 5. ¿Quiénes fijan el precio del café? 6. ¿Cómo evalúan la calidad del café? 7. ¿Quiénes son sus proveedores? 8. ¿Cómo selecciona a sus proveedores? 9. ¿Qué ventajas de comercialización tiene en relación con sus competidores? 10. ¿Mencione dos problemas o más por los que atraviesan los comercializadores del café?

Fuente: Elaboración propia

Two coffee marketers from Tulancingo Hidalgo were interviewed, who have small businesses dedicated to selecting the best quality coffee and selling it.

Likewise, seven commercial coffee growers who grow and sell coffee in Tenango de Doria and San Bartolo Tutotepec and the community of Mondongo were interviewed. It is worth mentioning that most of the farmers in these communities grow coffee.

Inclusion criteria: They gave representativeness to the sample, since an adequate choice of qualities associated with the main objective of a qualitative sampling was made.

- a) Interview people dedicated to the cultivation and / or sale of coffee.
- b) Owners of farmland and / or establishments for the sale of coffee.
- c) People from the cities and communities visited.

Exclusion criteria. None.

Procedure

1. The routes that would be traveled by car to the communities were located, with an average of 800 kilometers in a round trip, since the starting point was Querétaro.
2. The communities of Tulancingo de Bravo, Tenango de Doria and San Bartolo Tutotepec were visited to visit the companies and establish contact with the entrepreneurs in order to request interviews.
3. Companies with addresses taken from the National Agricultural Planning site were located, which in most cases were only references to locate companies with information on people on the streets.
4. Small businesses were visited and presentation papers were delivered to coffee growers and coffee marketers by the Faculty of Accounting and Administration of the Autonomous University of Querétaro to inform about the investigation.
5. The researcher responsible for the project identified with the study subjects.
6. Observation was carried out with active participation.
7. Semi-structured interviews were conducted in person with coffee growers and marketers.
8. The information analysis and processing was carried out.

Results

The coffee growers in these areas have between one and three hectares. Coffee is grown by families that belong to these municipalities and their communities. The type of coffee they grow is garnica, mondonovo, arabica, good quality red coffee, Costa Rica, Aztec gold coffee, geisha, Marseillaise, dry ball coffee, cherry coffee (after the process it becomes parchment), green bean coffee and toasted.

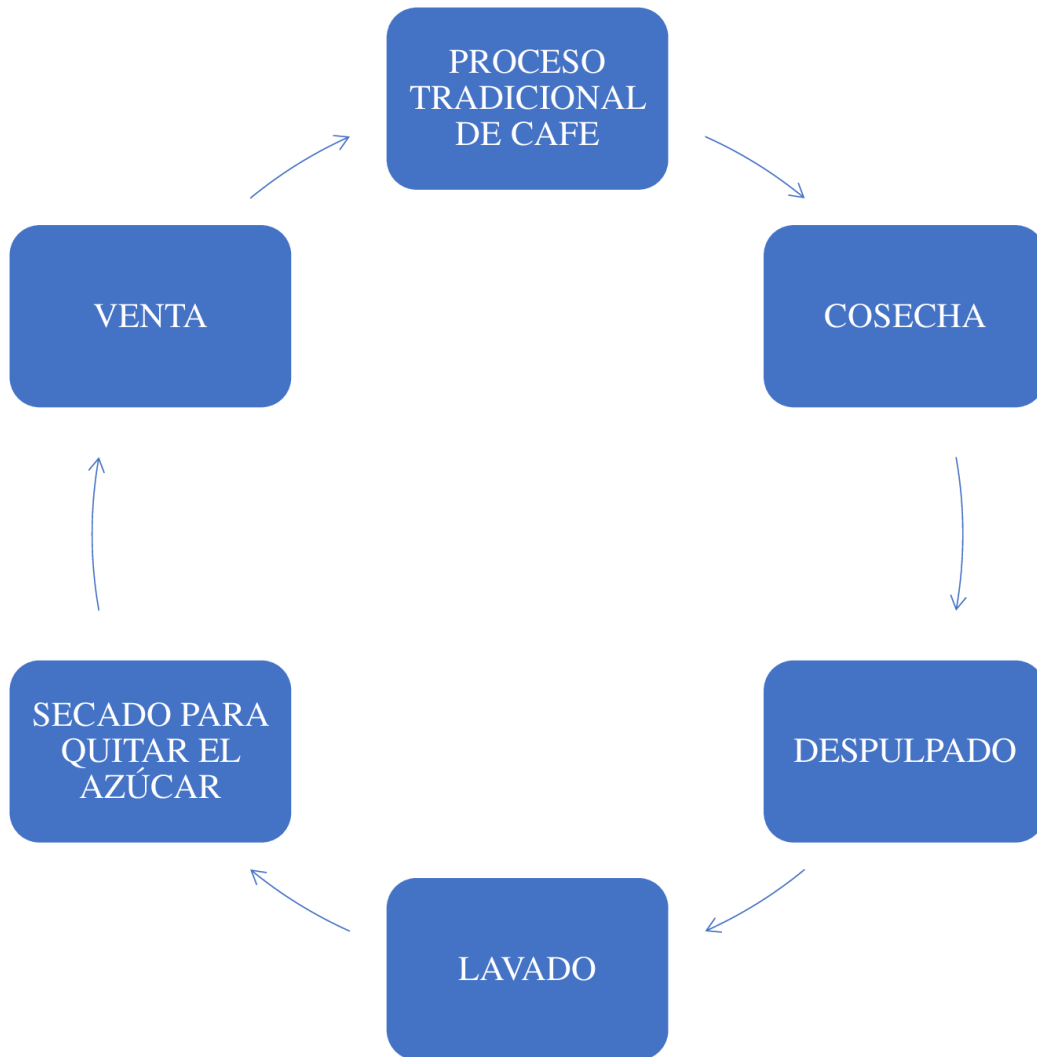
The coffee farmers' customers are people from the community and those looking to buy the best coffee to sell.

Likewise, coffee marketers seek to buy the best coffee in order to sell at the best price. They are governed by the New York Stock Exchange for Coffee and Cocoa (based on international supply and demand) and by the Specialty Coffee Association (SCA).

It is worth mentioning that these municipalities are between 300 and 2600 meters above sea level, hence the altitude and the cold are an advantage for the cultivation of coffee.

Among the main problems they face are economic conditions (eg, the salary paid to a worker to harvest coffee). The harvest of a kilo of coffee is between \$ 3 and \$ 4, so a worker who works eight hours and harvests approximately 40 kilos can earn between \$ 120 and \$ 160 in daily wages, which is very little. Therefore, they do not have the money to be able to work their crops.

Figura 1. El proceso tradicional de café en el estado de Hidalgo



Fuente: Elaboración propia

Those who set the price of coffee are the buyers, who pay very low. The economy that coffee growers face to plant are very precarious, since they must invest in fertilizers and drying processes, which is difficult because they usually do not have the right floor or space

to carry out this work. Furthermore, while it is true that there are calls for projects for financing, few of them benefit.

Discussion

As mentioned, the types of coffee that the farmers of these areas of Hidalgo grow are garnica, mondonovo, red coffee, Costa Rica, gold coffee, azteca, geisha, Marsellesa, dry ball coffee, cherry coffee after the process becomes parchment, green and roasted coffee beans and arabica, of which the latter is one of the three species that stands out the most in Mexico (Franco and González, 2014).

Regarding the problems faced by the coffee growers of Hidalgo, the economic ones stand out, hence the sowing is carried out with precariousness in those areas, since they must invest in fertilizers, drying processes and the salary (although low) of the workers.

Due to these needs, the actions of the Government of Mexico - through Sagarpa (2017) - have established the maximize strategy in the national productive development plan. The objectives are to promote innovation and sustainable technology transfer, promote sustainable production systems with good practices that maximize product quality, promote the national program to combat and eradicate CBB and coffee rust, among others.

However, the most mentioned problem was the price of coffee, since those who establish it are the buyers, who pay very low. In response to this situation, the Government of Mexico through SADER (2019) established the Production Program for Well-being, which allows to grant support to coffee growers to channel an economic support of five thousand pesos per producer. This amount is deposited directly to each one to compensate for the low prices and for them to invest it in high quality plants resistant to rust, as well as in nutrition inputs, sanitary management or agricultural equipment.

Regarding the altitude of the municipalities, they are located between 300 and 2600 meters above sea level, which constitutes an advantage for the cultivation of coffee (Sagarpa, 2017). In this sense, in the National Agricultural Planning it adds that the soil must be rich and humid to absorb water well and drain it quickly when there is excess precipitation. The coffee produced by these farmers is mostly organic. In this regard, Davis (2019) points out

that wild coffee is vital for the long-term viability of the coffee sector, although it also explains that 60% of the 124 varieties of wild coffee are in danger of extinction due to changes in land use. and deforestation, phenomena aggravated by climate change.

Conclusions

The competitiveness of these coffee growers and coffee marketers can be increased with training through government support, which may be focused on courses facilitated by entities such as the Asociación Mexicana de Cafés y Cafeterías de especialidad AC (Amecafé) (2021), or the Special Coffee Association (SCA), among others.

Future lines of research

This work can serve as a reference for future research that can focus on knowledge management and international trade of Mexican coffee. Likewise, you can work on training and certification in the cultivation and commercialization of coffee, as well as in pest control, among other topics.

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