Articles

Analysis of corn crop production and marketing in the Salapi Chico precinct of the Buena Fe canton, province of Los Ríos.

Análisis de la producción y comercialización del cultivo de maíz en el Recinto Salapi Chico del cantón Buena Fe, provincia de Los Ríos

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JOURNAL OF BUSINESS and entrepreneurial studies
ISSN: 2576-0971

Journal of Business and entrepreneurial
July - September Vol. 6 - 4 - 2022
http://journalbusinesses.com/index.php/revista
e-ISSN: 2576-0971
journalbusinessentrepreneurial@gmail.com
Receipt: 15 Febrary 2022
Approval: 09 July 2022
Page 69-80

ABSTRACT

Global requirements for food products demand increasingly intelligent ways of producing them. Corn is one of the most important foods for human beings, since it can be used to make a large number of preparations, as well as to obtain numerous by-products. Corn producers in Buena Fe canton face difficulties, which in some cases do not allow them to obtain the expected yields. The reality presented by the farmers varies according to the size of the property destined to the crop, small, medium and large producers are subject to economic and production conditions limited by their conditions. In the canton there is variability in productivity, due to the fact that the area has several mechanisms to promote the crop, without having a clear vision of the best option. Most producers base their production systems on technological packages

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Journal of Business and entrepreneurial studies
ISSN: 2576-0971
http://journalbusinesses.com/index.php/revista

recommended by commercial agrochemical companies and, to a lesser extent, on experimental models derived from or recommended by official agencies that assume a certain control of production factors in certain areas.

Keywords: Corn; Agriculture; Productivity.

RESUMEN

Los requerimientos globales por productos alimenticios, demandan cada vez formas más inteligentes de producirlos. El maíz se ubica entre uno de los alimentos más importantes para el ser humano, ya que a partir de él se pueden realizar gran cantidad de preparaciones, así como también pueden obtenerse numerosos productos derivados. Los productores maiceros del cantón Buena Fe, afrontan dificultades, que en algunos casos no les permite llegar a obtener los rendimientos esperados. La realidad que presentan los agricultores varía según la dimensión de la propiedad destinada al cultivo, pequeños, medianos y grandes productores están sujetos a condiciones económicas y de producción limitada por sus condiciones. En el cantón existe variabilidad en la productividad, debido a que la zona presenta varios mecanismos de fomento del cultivo, sin tener una visión definida sobre la mejor opción. Los productores en su mayoría, basan sus sistemas de producción amparados en los paquetes tecnológicos recomendados por casas comerciales de agroquímicos y en menor proporción; por modelos experimentales derivados o recomendados por organismos oficiales que suponen cierto control de los factores de producción en determinadas zonas.

Palabras clave: Maíz; Agricultura; Productividad.

INTRODUCTION

In Ecuador, corn is one of the most important agricultural products in the national economy. It is the main raw material for the production of concentrated feed (balanced) for the animal industry, especially for commercial poultry farming, which is one of the most dynamic activities in the agricultural sector. An average of 717,940 mt of dry yellow corn and 43,284 mt of soft corn are produced annually, and its production is mainly located in the provinces of Los Ríos, Guayas and Manabí, which together account for 77.34% of the total harvested area.

Corn planting and marketing activities are limited by several factors such as (pricing, marketing systems), which prevent achieving better production levels, being one of the biggest problems faced by small and medium producers, resulting in low profitability in their production.

This research work aims to evaluate the productive and commercial dynamics built from the influence of a combination of circumstances and a multiplicity of agents, local, regional and sometimes even external, which have promoted the cultivation of this grass, and in some cases have not had very positive effects, such as the high dependence of farmers on input suppliers, credit institutions, in the context of the Salapí Chico area, Buena Fe canton, province of Los Ríos.

Corn production is an agricultural activity of great importance for the strengthening of the producers' economy, in which it is necessary to technify the process, establish an adequate cost control in production, optimizing resources and regulating the movement in the productive cycles to determine the profitability of the crop.

This study aims to establish the profitability of the corn crop under two corn marketing modalities. It is essential for producers to market their production directly in order to obtain a good price and thus achieve higher income.

Corn is an agricultural product that has great importance in the national GDP as well as having a strong social impact because in this context it is important to note that most of the total production is given by family farming units, which are of scarce resources.

The objective of this work is to evaluate the process of production and commercialization of the corn crop in the Salapí Chico area of the Buena Fe canton, Province of Los Ríos.

To this end, we will: establish the corn crop production system and the characteristics of the commercialization of baby corn (corncob) and hard corn (dry).

Origin of corn

Corn or Zea mays according to its scientific name is a gramineae plant, which means that it has a cylindrical stalk and long, thick leaves, its height ranges from one to three meters high. Corn can also be popularly known as choclo (which would be specifically the fruit of the plant) or olote depending on the region of Latin America. (Mena & Ramírez, 2014).

Characteristics of corn production in Ecuador.

Ecuador maintains a wide range of agricultural products, which serve both for domestic consumption and for the country's exportable supply; in this context, corn production in Ecuador is considered one of the most important in the agricultural sector, since in addition to being destined for consumption by the population and for export; other industries also use it for the production of animal feed, for the production of beverages and the production of biofuels. In this context, among the provinces with the highest corn production at the national level are Los Ríos, Manabí, Guayas and Loja, as stated in his study (García, 2019).

According to the information shared (Villalta, 2019) for 2019, production in Ecuador is projected to increase to 1.3 million tons of corn. In recent years, the country has been increasing its production levels of the cereal, but it is still in deficit. Between January and February of this year, 200,000 tons were imported. Corn productivity is 5.6 tons per hectare, but the intention is to increase it to 7 tons per hectare. Around 250,000 hectares of corn are planted in the country and there are 60,000 corn growers in the provinces of Manabí, Los Ríos, Guayas and Loja.

Contextualizing more specifically; in the province of Los Ríos, seven cantons, concentrate 87% of the area planted with corn,; there are about 80,914 ha of corn, with a productivity that, in terms of yields, fluctuates between 1.5 tons/ hectare at the level of small farmers; that is, making use of traditional technology and 3.7 t ha-1 at the technified level, under one of the best soil and climatic conditions of the national territory; suitable soils and a high consumer market have made this crop one of the most significant items for small producers. Direct sales to agribusinesses are not a numerically predominant practice among maize growers. The 91% of the product sold is marketed through intermediaries, 2% goes directly to industrial processors and 2% to exporters, according to the work presented in their work by (Campo, 2017).

(Lopez, 2019)in his research, states that the cultivation of corn involves a series of steps necessary to achieve its harvest. From planting and subsequent harvesting, to the sale to intermediaries or the final consumer, which requires several factors that directly affect its productivity. Soil research, plowing techniques, seed quality or the frequency of fertilizer and herbicide application, are components that determine the efficiency of the production processes of the good, therefore, not applying the aforementioned parameters, in an adequate manner, can reduce the cereal harvest among farmers. also points out that the technical support to farmers becomes vital to ensure the efficiency of the economic operation. The aim of this advice is to ensure that the production of a given good does not suffer from inconveniences that, if there were technical preparation in this respect, would not occur. In conclusion, what López explains in his study is that the experience that the professional agronomist or the state, through its public institutions, can transmit to the small or medium farmer becomes imperative in the corn activity, managing to reduce the risk of crop loss.

In order to guarantee corn production, producers rely on various suppliers, including ECUAQUIMICA and Agripac. Similarly, partnerships with suppliers of fertilizers and agrochemicals were expanded, thus contributing to a significant increase in corn production on a national scale, guaranteeing to satisfy more than 80% of the raw material for the production of balanced feed, as expressed by, (Cadena, Macías, Barrios, & ALcívar, 2017)..

One of the government's contributions to corn producers, especially small and medium-sized producers, is the high-yield seed plan, which seeks to give hard corn farmers of less than 10 hectares access to a high-yield technology package that includes, in addition

to certified seeds, compound soil fertilizers and appropriate phytosanitary products. (Alvarado, 2016)

The operational mechanism of the plan consists of covering the average price difference between a traditional technological package normally purchased by the small producer and a high-yield technological package that has a cost that fluctuates between US$ 440 to US$ 600 per hectare in the case of corn, and between US$ 440 to US$ 500 in the case of rice. (Avilés, 2015).

Among the benefits provided by this high yield seed plan, we can mention the fact of acquiring a High Yield technological package at commercial prices lower than the retail price of any commercial house, and thus the farmer benefits from a subsidy of $214 per hectare of corn with a ceiling of 10 hectares, as well as the fact of receiving free technical assistance from MAG, which will allow applying the technological package optimally, which ultimately results in achieving high corn yields that will contribute to improve the income of farmers. (Aconda, 2012)

MATERIALS AND METHODS

Descriptive research was applied when describing the population, situation or phenomenon around which the study is focused. It seeks to provide information about the what, how, when and where, related to the research problem. This type of research allowed a proper analysis of the corn population of the Salapi area, which served to determine the characteristic profile of its production and commercialization.

For the present work, applied research was used in order to make appropriate use of the information obtained in order to disseminate the results for the benefit of the corn producers in the study area.

The research work corresponds to a non-experimental design that was based on the collection of data with surveys elaborated according to the objective, which sought to know the production data, profitability of farmers in the area.

Population

In the Salapí Chico precinct of the Buena Fe canton, there are 15 corn producers between those dedicated to producing hard and soft corn, of which 9 are dedicated to growing hard corn and 6 to growing soft corn, which make up the total population to be investigated.

Observation: By means of this technique, the study phenomenon was observed directly, which allowed the collection of the necessary information for its subsequent analysis.

Survey: This technique allowed us to collect the necessary data on the object of study and thus achieve the proposed objectives. The survey was applied to 15 corn producers in the Salapí Chico precinct of the Buena Fe canton in the province of Los Ríos, between

small and medium-sized producers, of which 9 are mostly dedicated to harvesting hard corn, and 6 are more dedicated to harvesting baby corn or corn.

RESULTS

It is evident that 67% of the corn growers surveyed are small producers, that is, with areas of less than 10 hectares, and 33% of those surveyed have extensions of between 11 and 50 hectares, concerning the labor used by the corn producers surveyed, indicating that 53% use hired labor, that is, people who are dedicated to work in the field, but who do not belong to the producer's family, 33% use family labor and a last percentage of 14% use both family and hired labor, Unfortunately, in these cases the producers handle the issue of accounting records in an extremely empirical way, however, it can be positively observed that 67% are doing it, 60% of the producers expressed that if they prepare the soil prior to planting, they do it mechanically, and 40% do it in a traditional or manual way.

Of the three options presented, manual sowing is the most used, with 40% of corn growers using it, 33% use mixed sowing, i.e. a combination of manual and mechanical sowing, and 27% use a type of mechanical sowing. Weed control is carried out by 100% of the farmers surveyed. Table 6 shows that 73% of the producers surveyed use chemicals for weed control, while 20% do it manually, and a small 7% do it in a mixed way, 100% of the producers surveyed carry out pest control activities, which is logical because these represent a high risk for the production process, harvesting is carried out by 60% of the producers surveyed mechanically and 40% do it manually. Transportation becomes an essential variable in the commercialization process, since this is what allows the products to reach the potential client. In the case of the population under study, the form of transportation used by the surveyed corn growers shows that 60% use their own vehicle, while 40% rent one.

According to the analysis of the results obtained from this study, corn producers in Salapí Chico, Cantón Buena Fe, province of Los Ríos, corn production in this sector is primarily carried out by small and medium-sized producers, since 65% of those surveyed work with areas of less than 10 hectares, which establishes a relationship with what is expressed by the (MAG, 2012)This is in line with what was expressed by the Ecuadorian Institute of Agriculture, which states that the production of hard corn in Ecuador represents an important item that boosts family economies, mainly in rural areas.

In turn, we can say that corn production in Ecuador and particularly in the province of Los Ríos is carried out through a semi-technified system. This system is based on the use of certified seeds and mechanized labor, as stated in the "Guía para la producción de maizera" (Guide for the production of corn in the province of Los Ríos). (Villavicencio & Zambrano, 2014). in its "Guide for the production of Hard Yellow Corn in the Central Zone of the Ecuadorian Littoral".

Undoubtedly, there is no perfect recipe for corn production, since inputs and plant care tasks must be carried out according to the required needs, which in some cases forces producers to consume additional inputs to improve crops and yields, contrary to what is stated in the (MAG, 2013)In the case of corn, a high-yield technology package will increase the yield of corn production from an average of 3.5 metric tons per hectare to more than 6 metric tons per hectare.

The yields achieved by the corn producers of the Salapí Chico site in the Buena Fe canton are a reflection of the use of adequate management techniques, ratifying what was said by (Cedeño, 2010) who states that grain yield per unit area could be achieved with the use of hybrid seeds with high grain production capacity and the application of efficient technological management of the crop.

Of the producers surveyed, 40% do not keep production cost records, which contradicts the statement by (Govea & Urdaneta, 2011). who states that the fundamental objective of production cost planning is the prior determination of the indispensable expenses to obtain a given volume of production with the required quality.

67% of the corn producers surveyed carry out soil analysis prior to production work, which is in line with what was stated by (INFOAGRO, n.d.) The soil preparation is the step prior to planting and it is recommended to plow the land with a harrow so that the soil is loose and capable of having a certain capacity to capture water without waterlogging. The soil is intended to be spongy, especially the surface layer where planting is to take place.

Of the producers who carry out soil preparation, 60% do it mechanically and 40% do it in a traditional or manual way, concomitant with what is explained by the (Central American Agricultural Council, 2017). The soil preparation process is carried out in three ways: zero tillage or direct sowing, minimum or reduced tillage and mechanical or conventional tillage, and also with moldboard plowing with a working depth of 30 to 40 cm. During tillage operations, the soil must be free of plant remains (stubble), as indicated by (INFOAGRO, n.d.).

In the case of the surveyed producers, 40% carry out planting manually while 27% use zero-tillage technology; there are also 33% that carry out this activity in a mixed way, that is, they use both techniques. (Villalobos & Fereres, 2017). who indicates that planting can be done manually or mechanized.

The fertilization work is carried out by 100% of the surveyed producers, in terms of application it can be seen that 13% do it at the beginning of the plantation and 87% do it during the development of the plant, which is in agreement with what was stated by (INFOAGRO, s.f.) which indicates that corn needs certain quantities of mineral elements for its development. Deficiencies in the plant are manifested when some mineral nutrient is in excess or deficiency. Soil fertilization rich in P and K is recommended. It is also recommended to provide more nitrogen N, especially during the vegetative growth period.

Weed control is carried out by 100% of the producers surveyed, of which 73% use chemicals for weed control, while 20% do it manually, and a small 7% do it in a mixed way, which is congruent with what is stated when it indicates that when implementing weed control strategies it is important to consider the following aspects: particular knowledge of the weed species that interact with the crop, the timing of weed control, and the time of weed control. (Castro, Portillo, & Cruz, 2020). when indicating that when implementing weed control strategies it is important to consider the following aspects: particular knowledge of the weed species that interact with the crop, the time of greatest incidence of weeds in the crop, the losses caused by them, the type of crop in rotation and the degree of coverage by residues of the previous crop.

100% of the surveyed producers have some inconvenience during marketing, which according to them are usually due to the price they receive for the sale of corn, as well as access to transportation and the qualification of the grain, which is antipodal to what is stated in the following statement (Baca G. , 2010) who indicates that marketing is the activity that allows the producer to deliver a good or service to the consumer with the benefits of time and place, and also notes that good marketing is the one that places the product in the right place and at the right time, to give the consumer the satisfaction he expects with the purchase.

Regarding the product sales destination, in the case of the surveyed producers, 60% sell corn in the collection centers, 20% in the input houses, 13% sell to exporters and the remaining 7% to associations, which is in agreement with what is revealed by (Mankiw, 2008)This is in line with what is revealed by the company when it states that marketing is the planning and control of goods and services to promote the proper development of the product and ensure that the product requested is in the place, at the time, price and quantity required, thus guaranteeing profitable sales.

CONCLUSIONS

Sixty-seven percent of those surveyed have planting areas of less than 10 hectares, so most of them can be considered small producers. In the case of the surveyed producers, 40% carry out planting manually, while 27% use zero tillage technology; there are also 33% who carry out this activity in a mixed way, i.e., they use both techniques. Fertilization is carried out by 100% of the farmers surveyed, and 13% apply it at the beginning of planting and 87% apply it during the development of the plant. Weed control is carried out by 100% of the producers surveyed, of which 73% use chemicals for weed control, while 20% do it manually, and a small 7% do it in a mixed way.

100% of the producers surveyed had problems during marketing, which, according to them, are usually due to the price they receive for the sale of corn, as well as access to transportation and grain grading, and this occurs in the marketing of both soft and hard corn.

Dry-hard corn producers, who use an indirect marketing channel, i.e. sell to exporters, supply houses and trading houses.

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