

***Factores sociodemográficos asociados al desarrollo de los agros
ecosistemas cacaoteros del Consejo Popular Jamal: exploraciones
iniciales***

***Sociodemographic factors associated with the development of
cocoa agroecosystems in the Jamal Popular Council: initial
explorations***

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Resumen

El desarrollo de los agroecosistemas cacaoteros del consejo popular Jamal, perteneciente al municipio Baracoa, provincia Guantánamo, por influencia de factores sociodemográfico trae consigo inestabilidad en el cultivo. La investigación se realizó en este Consejo, el más productor de cacao del municipio. El artículo está dirigido precisamente a ofrecer algunas reflexiones como parte de las exploraciones iniciales que se realizan sobre la influencia de estos factores en el desarrollo de los agroecosistemas cacaoteros en esta zona. Se emplearon los métodos: de análisis histórico lógico, análisis y síntesis, inducción y deducción, análisis documental; observación y encuesta. Finalmente se considera que estos factores, influyen en la producción de tan importante alimento.

Palabras clave: Factores sociodemográficos; Agros ecosistemas cacaotero, Cultivo del cacao; Cacaotero.

Summary

The development of cocoa agroecosystems of the Jamal popular council, belonging to the municipality of Baracoa at Guantánamo province, brings instability in the crop, due to the influence of

socio-demographic factors. The research was carried out in this council, the largest cocoa producer in the municipality. The article is aimed precisely at offering some reflections as part of the initial explorations carried out on the influence of these factors on the development of cocoa agroecosystems in this area. The following methods were used: historical-logical analysis, analysis and synthesis, induction and deduction, documentary analysis, observation and survey. Finally, it is considered that these factors influence in the production of this important food.

Key words: Socio-demographic factors; Cocoa agro-ecosystems; Cocoa cultivation; Cocoa plantation.

Introduction

Cocoa agroecosystems are considered as the unit of study at different hierarchical levels of cocoa production systems in which human management is established for its use through adaptation, modification and interaction with natural resources for the production of food and services.

Cocoa is a vital product that sustains the economy and culture of many tropical regions around the world. In Baracoa, its importance is highlighted because of the importance it plays in the lives of many families and its contribution to the local economy. However, to understand thoroughly how this crop is maintained, it is crucial to examine the socio-demographic factors that influence cocoa agroecosystems in the region. Hence, the value of analyzing how family, migration and cultural practices impact cocoa production and sustainability in Baracoa.

In Latin American countries, studies have been conducted on cocoa production, including Villasmil (2012), related to sociodemographic factors. Ramírez et al., 2017; Montealegre and Jaimes, 2021; Pastrana and López, 2022 have also conducted studies on cocoa production. In Cuba, Gutiérrez et al., 2018 and Rodríguez, 2022, among others, stand out. As far as it has been consulted, these studies are not abundant in the Cuban case.

Sociodemographic indicators aim to describe the trend and socio-territorial gaps in household conditions in different dimensions of life that make up their well-being. This manifests a series of interrelationships between subjects that reflect behaviors related to the activity they carry out, production.

The preliminary verification carried out by the authors: through visits to different productive forms, to corroborate productive, economic and social aspects, as well as the technical-professional experience accumulated for more than 10 years with cocoa producers in the Jamal popular council, and as manager in different positions in the Management Center of the Agroforestry and Coconut Enterprise, Vol.9, No.26, octubre-diciembre, año 2024

propitiated the identification of insufficiencies in the fulfillment of the norms established for the stability in the development of cocoa cultivation and greater productivity, also manifested in the actions of growth, maintenance, recovery, remodeling and adequacy of the different areas.

There is also a deterioration of some social aspects related to the aging population, cultural level and emigration, in addition to not taking into account the environmental conditions themselves.

The current situation in the cocoa agroecosystems of the locality and, the insecurities that they present, constitute one of the main problems of the research being carried out.

Among the methods used, at the theoretical level: historical-logical, analysis and synthesis, induction and deduction and documentary analysis. From the empirical level: observation, survey.

The main purpose of this article is to offer some reflections as part of the initial explorations carried out on the influence of socio-demographic factors in the development of cocoa agroecosystems in the Jamal Popular Council, Baracoa.

It concludes recognizing that the explorations carried out constitute an important presupposition for the theoretical and practical systematization of the influence of socio-demographic factors in the development of cocoa agroecosystems in the easternmost territory of the country.

Development

The incidence of socio-demographic factors in the development of cocoa agroecosystems in Latin America and Cuba have been studied by several authors who have proposed indicators to evaluate the sustainability of these productive systems. However, as far as the social aspect is concerned, it is only perceived by the one referred to the participation of the family, in a general way, specific causes that currently affect these productions are not analyzed.

In Venezuela, Villasmil (2012) characterized the cocoa agroecosystems of the community "El Guapo" in Miranda State, analyzing socio-demographic and biodiversity aspects, although he does not fully state the necessary social elements.

In Ecuador, a study conducted by Pastrana and López (2022), with the application of the MESMIS methodology (Framework for the Evaluation of Natural Resource Management Systems Incorporating Sustainability Indicators), in seven cocoa farms: Los Guatuzos, Wildlife Refuge, San Carlos, and San Juan River. It identified representative variables of the production system in the dimensions of production, marketing and management, and constructed indicators and indexes to evaluate and monitor the system during its useful life. It should be noted that in these studies, the social dimension is little addressed, with greater emphasis on production.

Similarly to the previous studies, the social dimension is not enhanced to the level required by the new

times in terms of its contribution to the development of the localities. The need to develop specific indicators that consider the particularities of each local context to evaluate economic sustainability is insisted on.

In Cuba, in the Jamal massif, Baracoa municipality, crop diversification in a cocoa agroforestry system was studied, considering the incidence of sociodemographic factors. In this study, the social situation that affects the locality is not studied in depth, but it is focused on the productions.

It is important to note that the previous study referred to is valuable for the research being carried out; however, it highlights aspects that are of interest from a social point of view, given their current behavior and their impact on cocoa productivity. This corresponds to the Strategic Line 7: Public Services and quality of life of the population, conceived in the Municipal Development Strategy 2023-2030 in the municipality of Baracoa. It responds to one of the weaknesses known by the Dafo matrix in the strategic diagnosis carried out: negative incidence of demographic factors with emphasis on migration, birth rate and population aging of the territory.

The adequate performance of managers and technicians and the efficiency of the development activity of agricultural workers, are promoted in interdependence with multiple factors, such as the training process of the boards of directors of the productive forms, the methodological help they receive from the different management structures, the support of all the organizations of the institution, as well as the support of the families and the whole community. All these elements are part of the rural society in which managers and technicians must act with their teaching and workers with their learning.

The concept of cocoa agroecosystems in the locality is a topic that has not been studied much, so it becomes an object of interest.

Agroecosystems and other associated concepts. Cocoa agroecosystems. Theoretical conceptualization

According to Navia (2015), agroecosystems or agricultural ecosystems can be characterized from the vision of agroecology, as an ecosystem subjected by man to continuous modifications of its biotic and abiotic components for the production of food and fiber; an agroecosystem can also be defined as an ecological and socioeconomic system that encompasses domesticated plants and/or animals and the people who cultivate them, with the intention of producing food, fiber or other agricultural products.

They are human-designed systems, i.e. the components present in them are selected according to economic and social interests.

For the fulfillment of the previous purposes, it is necessary an efficient productivity with systemic character that involves the whole community, for such reason, each entity in dependence of its

characteristics and concrete conditions must undertake this process. This avoids the copying of models and ways of doing things, which often do not correspond to the needs and requirements in question.

Cocoa agroecosystems cannot be studied without establishing relationships with concepts very close to it. The study was developed through a reasoning that started from the socio-demographic situation associated with the development of cocoa agroecosystems in the Jamal Popular Council, from the socialization process and included: sex, age, school level, population exodus, among others.

Several documents and reports have stated that the future of humanity depends on halting the destruction of nature. In this sense, Rodriguez (2022) considers that the Agricultural Extension System plays a fundamental role in the development of agricultural production units in various regions of the world.

The new Agenda 2030, of a universal nature for Sustainable Development, approved at the 70th General Assembly of the United Nations (UN, 2015), promotes a renewing alliance and establishes within its actions a new global action plan for the protection of the planet. Among its innovative features, it seeks Global Sustainable Development with the integration of three dimensions of Local Development (social, economic and environmental), with a holistic vision of it.

There is no doubt that future agricultural development requires a new approach, where the interaction between man and nature is not considered as a simple economic management, but also as a process that integrates the ecological and the social, where the farmer, on the one hand, acts as a food producer and, on the other hand, as a manager of the environment in which he lives.

Farmers' experimentation is considered a topical issue, especially in countries that aim at the sustainability of agricultural production and work for food sovereignty.

In Cuba, it is important the attention devoted to mountain agriculture through the Turquino Plan and the analysis of its economic and sociological activities, implementing actions that stop the rural exodus of its population and the improvement of business results that stabilize or improve the balance between the natural space and the quality of life of its inhabitants.

Today, this effort is threatened by the ever-increasing exodus of the population. Hence, any study should focus on the analysis of economic activities and social structures, after having studied the physical-environmental environment.

In accordance with the above, the economic-productive development of the mountains is directed towards economic, ecological and social sustainability, being the productive activities of these

territories the ones that generate the income that will allow their integral financing in the Local Development, according to Decree/33/2021. Res: 29/2021.

A sample of the above mentioned idea is the information about the development of the Turquino-Manatí Plan and specifically of the Nipe-Sagua-Plan Baracoa massif. The most notable features of this mountain group point to the production of cocoa, coconut and coffee in terms of agricultural activity. There are also other lines oriented to forestry, agri-food and beekeeping.

Agricultural activities in this mountain group are mainly based on cocoa and coffee production, as well as forestry. The largest coconut and cocoa plantations in the country are located in this area, according to the Turquino Plan Balance for the year 2022.

Among the many peculiarities of the city of Baracoa, the first town founded by the Spanish conquistadors in Cuba, is that of being the emporium in the country of coconut and cocoa plantations, important exportable items for the economy of Guantánamo. Just like the coconut tree, the cultivation of cocoa beans is a livelihood and part of the culture and identity of many families in the northeasternmost region of Cuba.

From generation to generation, the care of the crops and the elaboration of the delicious chocolate are maintained. Baracoa is the producer of 85% of all the cocoa produced on the island, a responsibility that currently falls on some 1,243 peasants linked to different forms of production.

The family structure in the rural areas of Baracoa plays an essential role in the dynamics of cocoa production. Large families often divide agricultural tasks among their members, which allows for an equitable distribution of work and better time management. This traditional family organization can facilitate the transmission of ancestral knowledge about cocoa cultivation, ensuring sustainable and efficient practices.

In the Jamal Popular Council, the largest cocoa production in the municipality is concentrated; it belongs to the Baracoa municipality, Guantánamo province, with a rural population of 8736 inhabitants.

The productive infrastructure is made up of: 8 Basic Units of Cooperative Production (UBPC), 6 Agricultural Production Cooperatives (CPA), 13 Credit and Service Cooperatives (CCS), and 963 usufructuaries; a Management Center with the mission of orienting and controlling all forms of production, through the agricultural extensionists, as well as sharing its activities with them; it has the following objectives: to seek better quality of their products for commercialization through technical-economic support of production; to extend integral agricultural extensionism as an instrument to strengthen the capacity for permanent innovation of rural communities towards competitiveness and

sustainability; and that the resources allocated to producers arrive in time and form and that they are well distributed.

In this regard, local authors such as, (Rodriguez, 2013; Nuñez, 2013; Larramenti, 2013) and Hartmann, 2013), determined the different factors that limit production in the cocoa agroecosystems of the municipality, and in particular directed to edaphoclimatic and management causes, without delving deeply enough into sociodemographic causes, an element of vital importance for these times.

Regarding cocoa cultivation, Ormeño et al. (2008) stated that:

In the last 10 years cocoa production in the country has been developed under the conventional production system, reaching an average of 300 to 400 kgxha⁻¹ Year⁻¹. Average that is well below the optimal production of the crop (800-1000 kgxha⁻¹. year⁻¹), the main causes being the low production of the crop, the high costs of agrochemicals, the scarce manpower to perform cultural and maintenance work; and insufficient training of producers. (p. 3).

Based on the topographic characteristics of the study area, belonging to the Nipe-Sagua-Baracoa mountain massif, this research facilitated an approach to the man-nature relationship in mountain conditions, through the analysis by the social actors of their current situation and the possible tendencies of change towards the future.

The study was carried out on different forms of production in the area, with the characteristics that they are all related to each other, functioning as an integrated system. A case study was carried out that included the UBPC "José Maceo, UBPC Antonio Maceo and the UBPC 68th Anniversary. The SWOT matrix made it possible to determine the following:

Main Weaknesses

- Older producers: the average age of the main farm owners is between 60-90 years old, which makes it difficult to pay immediate attention to the farm.
- Technological indiscipline: although in the 1990s yields were at 1.6 tn/ha and currently we are above 4.6 tn/ha on average, there is an improvement in the crop, but it is not enough for the objectives proposed in this line, this is mainly due to the fact that the technological discipline required by the crop is not fully complied with, for one reason or another.
- Low cultural level: there are little qualified personnel in the UBPCs, both in the board of directors and in the rest of the workers; only 11 are qualified personnel for 21% of the total.
- Abandonment of the locality by young people.
- New production technologies are not assimilated by farm owners due to their advanced age.

Main Threats

- Fragility of the mountain ecosystem: due to natural phenomena such as erosion, falling trees caused by cyclones, intense droughts, etc., and by man himself: indiscriminate logging, burning, poorly oriented planting, etc.
- Fluctuation of the labor force: there is no permanence of the producers in the field, in the last years the fluctuation of the force has shot up, caused by the population exodus within the locality as for the interior and exterior of the same, more attractive work in sectors such as culture-sports and the non-state sector (MYPIME), with better salary and living conditions.
- Instability in the supply of material resources and inputs: it is necessary that all the material resources and agricultural inputs destined to attend the crops reach the producers in time and form to be able to work efficiently.
- Farmers' dissatisfaction due to non-compliance with established contracts: superior organizations make or establish contracts with farmers that in one way or another favor them, but these contracts do not materialize.

Main Strengths

- Existence of an administrative board: The top management provides them with adequate interpersonal relations, guides them appropriately and thus efficiently controls production.
- Existence of other productions: this refers to the fact that there are other crops in the UBPCs that allow them to market their production, thus amortizing the expenses incurred in the production of their main crop (cocoa); these crops include bananas, roots and tubers, fruit trees and citrus, among others.
- Experience of the producers in cocoa production: on the traditional of the production of this crop in the municipality, the farmers enjoy experience.

Main Opportunities:

- Recognition by the main actors of the Jamal Popular Council of the need for in-depth knowledge of the current behavior of the main socio-demographic factors and their relationship with cocoa production to contribute to the economic and social welfare of the community.
- The existence of agricultural extension in the area: in the management center there is an agricultural extension system that is responsible for the transfer of agricultural technologies to producers to facilitate the treatment of crops, in addition to technical advice and participate with them in all their activities.

- Cocoa commercialization due to its optimal conditions: the municipality of Baracoa, unlike other municipalities in the country in mountainous conditions, has acceptable climatic conditions for the production of this crop, i.e. its average annual temperature is 25 degrees Celsius, the average annual rainfall is 1500 mm of water, and the relative humidity is 90-95%.
- Existence of a Cocoa Research Station in the Municipality: there is a Cocoa Research Station in the Guantánamo Province and it is located in the Municipality, which gives them the possibility of being the first to put into practice the technological innovations produced in this center.

The research carried out helped the UBPCs, through a process of in situ training, to elaborate objectives based on a more integrated vision of their reality, where their scope was not only merely economic, but also to strengthen the social character, aimed at improving their material and spiritual conditions, corroborated by what was stated in the Balance of the Turquino - Sagua - Nipe - Baracoa Plan (2021), as well as in the analyses carried out by the Government of the municipality regarding the fulfillment of the development strategy outlined for the year 2023.

Conclusions

The analyses carried out make it possible to consider that the sustainability of the cocoa agroecosystems in the Jamal Popular Council of Baracoa depends on an adequate understanding and management of the socio-demographic factors. It is evident the certain deterioration of the development of the crop in recent years in the productive units evaluated. This experience highlights the value of human resources and their experience within the cocoa agroecosystem, due to their holistic, participatory approach and interaction with other social factors.

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