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Urban growth and the impact on the agricultural sector in the community of Nextipac, municipality of Zapopan, Jalisco

El crecimiento urbano y la afectación al sector agropecuario de la Comunidad de Nextipac, Municipio de Zapopan, Jalisco

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Abstract

The Nextipac ejido, located in the municipality of Zapopan, Jalisco, has been a supplier of agricultural food, mainly corn. However, the urban growth of Guadalajara is beginning to affect the agricultural production systems of the ejido and employment in the primary sector, changing the activities to other non-agricultural activities such as land use changes, housing, recreation and industrial activities, reducing employment in the sector.

Changes in land use, employment, agricultural resources, growth of urban areas

Resumen

El ejido de Nextipac, ubicado en el Municipio de Zapopan Jal., ha sido un proveedor de alimentos agropecuarios, principalmente maíz. En este ejido han cambiado las actividades de desarrollo para el mejor aprovechamiento de los recursos naturales con los que cuenta, además por la cercanía a la zona Metropolitana de Guadalajara, sin embargo, el crecimiento urbano de Guadalajara, empieza afectar los sistemas de producción agropecuarios del ejido, el empleo en el sector primario cambiando las actividades por otras no agropecuarias como el cambio del uso del suelo, la vivienda, esparcimiento y de tipo industrial disminuyendo el empleo en el sector.

Cambios en el uso del suelo, empleo, recursos agropecuarios, crecimiento de zonas urbanas

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Introduction

Figure 1

The ejido of Nextipac has agricultural resources and in some cases has been optimized for various types of exploitation of its resources, as is the case of certain livestock species, including pigs, sheep and sheep. However, approximately 10 years ago, changes in land use began, reducing the area dedicated to agricultural activities due to a lack of supervision in companies that were established in different areas such as sports schools, compost production and other types of companies that have not established market marketing strategies for different products as mentioned in case studies on marketing, where marketing strategies and a company philosophy are developed for the success of the company. Lambín (1995), its proximity to the Guadalajara metropolitan area and its infrastructure. A semi-structured survey was conducted to identify the potential of the farmland and livestock activity; changes in land use were identified as well as the application of technologies in the production systems. The ejidatarios described the main causes of land sales for other uses, such as the development of an industrial park, housing, and warehouses, which led to a decrease in the value of their agricultural lands, especially those that have communication routes close to highways and/or avenues with high vehicular flow. The objective of this study is to analyze the ejido's production systems and changes in land use.

Founding and ejido data

Ejido de Nextipac was founded in 1927, with a total of 153 ejidatarios. In 1994 the federal government established the program "Certification of Ejido Rights and Titling of Urban Land "Procede", this gives the Ejidal Assembly the power to delimit and decide the fate of the lands that were endowed" (Rivera 2011).

On October 7, 2001, technical work was carried out in the ejido with the following structure:

- 1,046 has of parceled area.
- 720 hectares of common area.
- 80 hectares of human settlement.
- 64 hectares of infrastructure.
- 2 hectares of rivers and streams.
- 72 has as essential areas.

Figure 2 Water Resources of Ejido Nextipac

A total of 1,984 hectares were legally measured and certified. The ejido was left with a total of 500 legally measured and certified parcels. Hernández (2021).

Today, several ejidatarios rent their land at a cost of $10,000/ha. for corn planting.

It is worth mentioning that some of the community's producers have agricultural machinery that is rented to the ejido's own producers to carry out everything from land preparation to some of the crop's cultural work, for those who do not have machinery.

In order to better describe the community Nextipac shows some characteristics of the population, such as the average population is between 15 and 64 years old and it is worth mentioning that most of the ejidatarios surveyed belong to the elderly, there are about 994 houses, its infrastructure has drainage and services such as water, electricity and telephone lines, INEGI (2020), and based on field observations and surveys of agricultural activity and the distribution of land in the community through the children of how agricultural activity has been developing, given the pressure and population growth of the metropolitan area of Guadalajara. The most relevant points were observed:

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- Of the total 1,984 hectares, producers report that 25% are for corn production, but there are other agricultural activities such as greenhouses, extensive and intensive livestock and backyard livestock on subdivided land, since the ejido has the authority to grant land for these activities, mainly sheep, goats and cattle, without having a specific number of these farms.

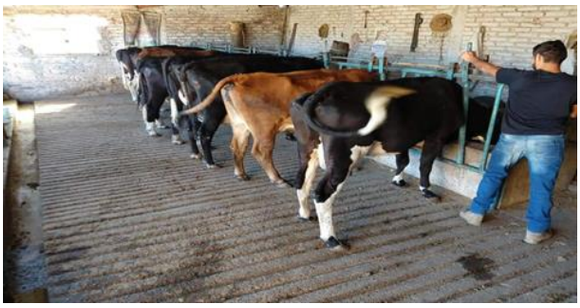

Figure 3 Dairy cattle farm, Ejido de Nextipac

- Construction of an industrial park and housing was observed.

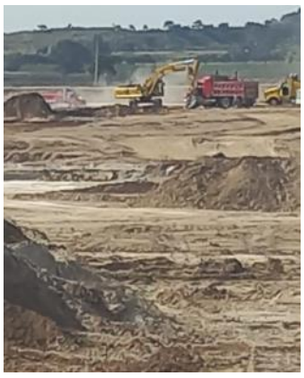

Figure 4

- Rental land for sports areas and compost, as well as rental land for corn planting.

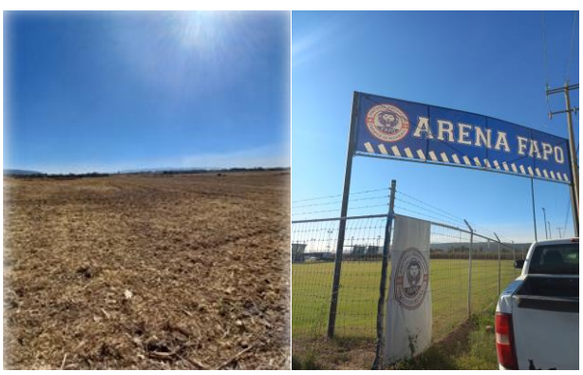

Figure 5

Given its topographic conditions and some resources such as trees and water, a recreational area was created that charges a recovery fee for the maintenance and preservation of its natural resources.

The ejido also has an established Bayer company that provides jobs for people from the community. This plant produces up to 620,000 bags of corn seed per year that are supplied to the accident and northern regions of Mexico, in addition to being exported to Central America and the Andean region. Bayer México (2021).

Figure 6

Survey results

The area planted by the 21 producers surveyed stated that the planting area ranged from 200 mt2 to 30 hectares. The responses were very irregular in terms of surface area, and during field observation, several producers reported a subdivision of the ejidatarios' agricultural plots, assuming that the area had already been distributed among the children of the producers' ejidatarios based on the certification of ejido rights and "Procede" Urban Land Titling; this gives the Ejidal Assembly the power to delimit and decide the destination of the lands that were endowed to them. The main agricultural and livestock activities are agriculture and cattle raising, with an average corn yield of 10 tons/ha; corn and stubble are used for milk production, fattening, and small backyard farms. There was little industrial activity by ejidatarios in the community. The average age of those surveyed was 45 years old. The primary income of the ejidatarios comes from agricultural and livestock production, although it is worth mentioning that other income is obtained from the support of family members who work in the urban zone. The average income from farming is three times the minimum wage. Ninety-eight percent of the land is rainfed. Respondents were asked if they received any type of support for agricultural activities, where 80% said no and 20% said yes, mainly in kind.

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Another question asked to the respondents was if they would be willing to sell their land and 95% said No because it is their patrimony as well as their source of employment.

Methodology

For this research, a sample was determined where data collection was carried out in three parts: first, a meeting was convened to conduct an exploratory survey, Ulloa (2009); There, the problem statement was defined, the objective of the research was explained, allowing a first approach with the producers, 9 surveys were obtained, later visits with producers individually allowed to obtain 12 remaining surveys for a total of 21 surveys, which were all taken into account due to the heterogeneity of the responses of the products and children of producers, also a field observation tour was conducted, the formula, knowing the number of producers that exist (153 ejidatarios), is as follows: the number of producers that exist (153 ejidatarios). The formula, knowing the number of producers (153 ejidatarios), is as follows:

$$N = \frac{Z^2\ P\ q\ N}{(E^2)(N) + Z^2\ p\ q} \quad (1)$$

Where:

Z = Value of tables 90%

P = Positive probability

q = Negative probability

N = Total data

E = Error

n = Total sample

$$N = \frac{(1-645)^2\ (.60)\ (.40)\ (153)}{(.15)^2(153) + (1.645)^2\ (60)\ (40)}$$

$$N = \frac{99.36}{7.53}$$

$$N = 13.21$$

Total, samples obtained 21

The projects and programs of the Government of Zapopan for the agricultural sector (2021), which are implemented by the federal and state governments with the region's producers:

Rural Infrastructure	Support for rural productivity
Objective: Rehabilitation of harvesting roads, fords, catchment pans and ditching.	Objective: Subsidy in economic support, to acquire inputs and activities that contribute to the economy of families in the rural sector, to mitigate production costs and thus ensure increased profits to producers who meet the guidelines according to current operating rules.

Table 1

Livestock Testing TB y BR	Physical incentive
Objective: Control and eradicate Tuberculosis and Brucellosis in cattle, goats and sheep in the municipality, through continuous testing in conjunction with COETB.	Objective: To incentivize agricultural producers, to motivate and encourage them to continue productivity in the primary sector. to encourage them to continue productivity in the primary sector.
Backyard Garden	**Piscuculture**
Objective: Integrated backyard management to take advantage of the space to grow vegetables as a source of vitamins and minerals, and raise poultry for meat and egg production as a source of protein, both for self-consumption and to market the surplus.	Objective: Support producers in this industry to obtain the supply of fish at a lower cost.

Table 2

Urban Gardens	Forestry
Objective: To train in the urban garden trade, those who do not have any pension or other economic benefit, which will serve as subsistence, occupational therapy and reintegrate into productive life, focused on all people with disabilities, over 65 years of age, women heads of household and those interested in Zapopan and those interested in Zapopan.	Objective: Management for soil and water conservation programs (environmental services) before CONAFOR, manage the acquisition of trees, as well as the management and implementation of concurrent funds (CONAFOR, private initiative and Government of Zapopan).

Table 3

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Technical Advisory Services (Agriculture, Livestock and Forestry)	Virtual Window (Agrifood Credential)
Objective: Program to provide direct support and assistance to producers to improve planting and harvesting processes, as well as to combat different crop diseases.	Objective: Identify the agri-food producers of the municipality of Zapopan, and provides a credential that will help streamline and simplify the procedures to be carried out before the SEDER, as it has a storage chip that will serve for registration and recognition as a producer, avoiding the need to present their documentation with which they have their file. recognition as a producer, avoiding the need to present the documentation in your file.

Table 4

According to the projects and programs for the year 2021 for the agricultural sector, agricultural and livestock support is projected according to the plan of operations of the Municipality of Zapopan, for agricultural, livestock and forestry activities; however, there is a high level of speculation in the purchase and sale of land for housing and industrial parks, as well as the proximity to the urban area; it is possible that this support will not be provided for this current cycle.

Conclusion

There is potential for agricultural activities in the Ejido of Nextipac as long as there is the economic support and technology to generate several projects with an intensive use of the land that generates projects and jobs for the community, otherwise without the appropriate support any project would end in failure.

If a specific agricultural project is to be developed, important technological and financial advice is needed.

It is worth mentioning that population growth has generated other types of problems and demands for services and jobs.

A more orderly growth is required, a planning model that allows for a more harmonious development of what exists and what is to be done, and to regulate land use.

The ejido's General Assembly is authorized to sell land that can change land use for the benefit of the community according to its regulations.

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