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CURRENT SITUATION OF RICE CULTIVATION IN MEXICO: PROSPECTS FOR THE CHONTALPA REGION, TABASCO

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Abstract: Rice (*Oryza sativa*) is a fundamental cereal in the world's diet, providing 20% of global dietary energy. In Mexico, it has been a strategic food since 2001, being relevant for national food security. However, the country has lost its self-sufficiency since the 1980s due to trade liberalization and the elimination of government support. Currently, domestic consumption far exceeds production, and the deficit is covered by imports. This integrative review analyzes the situation of the crop in Mexico, focusing on the state of Tabasco through academic literature and agroclimatic modeling. The EcoCrop model was used, using climatic data from WorldClim and edaphic data from INEGI, to identify suitable zones in Tabasco. The results show that the state has 257.9 thousand hectares with medium to high productive potential, with the municipality of Cárdenas standing out with 69.7% of the very suitable area. It is estimated that, with average yields of 3 t ha^{-1}, Tabasco could contribute 773.7 thousand tons per year, covering 66% of imports. Historically, Tabasco promoted the crop through plans such as Chontalpa and Balancán, with strong investment in infrastructure. However, factors such as migration, lack of credit, high production costs, unfair competition from imported rice, and producer aging have caused the abandonment of the crop. Despite this, an increase in yields has been observed thanks to new varieties developed by INIFAP, reaching up to 7.8 t ha^{-1}. It is concluded that Tabasco presents favorable agroecological and social conditions to reactivate rice production, reduce external dependence and move towards food sovereignty. It is urgent to design public policies that promote investment, technological adoption and strengthening of the national rice production chain.

Keywords: Production, rice, zoning, agronomic management.

INTRODUCTION

Rice is the predominant staple food for 17 countries in Asia and the Pacific, nine countries in the Americas and eight countries in Africa. This cereal provides 20% of the world's dietary energy supply, has high nutritional value and provides calories, minerals and vitamins (Fulkagawa and Ziska, 2019); likewise, it is related to the food and nutritional security of the planet's populations and is one of the most protected products in world trade (Muthayya et al., 2014). Rice (Oryza sativa) is an important part of the diet of the Mexican population (Álvarez et al., 2016). Since 2001, in Mexico, it has been considered one of the basic and strategic foods, as established in Article 179 of the Sustainable Rural Development Law (DOF, 2001). Rice cultivation predominates in the states of Nayarit, Campeche, Michoacán, Veracruz, Colima, Jalisco, Tabasco and Morelos (SIAP, 2020). The long and thin type rice grain is the most consumed nationally (Álvarez et al., 2018), followed in preference by short and coarse grain, and coarse and long grain. Mexico was self-sufficient in rice production until the 1985/1986 cycle, with production and consumption of 498 thousand tons and 436 thousand tons, respectively. However, in the 2020/2021 cycle, a significant deficit was observed in the supply of the domestic market, with a domestic production of 201 thousand tons and a consumption of 960 thousand tons (USDA, 2022). In 2020, Mexico imported 1.1 million t of rice, from the USA, Paraguay, Uruguay, Brazil and Argentina, with 67, 11, 10, 9 and 2 %, respectively, with a value of MXN 8,852.5 million (SE, 2021). For closing 2023, it was referred a polished rice production of 138 thousand tons, 19.6% less than the previous year; imports of 986 thousand tons; exports for 11 thousand; consumption of 1 million 139 thousand and final stocks for 75 thousand tons (SE, 2023). This paper will analyze the causes that led to the loss of rice self-sufficiency in Mexico.

MATERIALS AND METHODS

LITERATURE REVIEW

This work corresponds to an integrative literature review, whose purpose is to synthesize and critically analyze the available knowledge on rice (*Oryza sativa L.*) cultivation in Mexico, with special attention to the state of Tabasco. The integrative approach allows incorporating different types of academic and technical documents (quantitative, qualitative and mixed), generating a comprehensive and updated vision (Zhang *et al.,* 2024).

Definition of the objective

The main objective was to identify the current rice production conditions in Mexico and Tabasco, the main technical and socioeconomic challenges, and the strategies or technologies proposed in the last decade.

Document search strategy

A comprehensive search for information was conducted in various scientific databases and institutional repositories (Liang *et al.,* 2020). Sources included:

Academic databases: Scopus, Web of Science, ScienceDirect, Redalyc, SciELO, Google Scholar.

National repositories: CONACYT, INIFAP, SAGARPA (now SADER), SIAP, FAO Mexico.

Theses and dissertations: UNAM, Colegio de Postgraduados (COLPOS), UJAT, among others.

The keywords used were combinations in Spanish and English, such as: "rice Mexico", "rice Tabasco production", "Oryza sativa AND Mexico", "rice cultivation climate change", "rice production AND agricultural policy".

Document Selection Criteria

Time frame: publications between 2010 and 2024. Language: Spanish or English. Geographic coverage: studies conducted in Mexico or with data specific to Tabasco.

Relevance: documents related to production, technology, agronomic management, marketing, sustainability, climate change, public policies or socioeconomic problems of rice cultivation (Li *et al.,* 2023).

Review and systematization

The documents were read in their entirety and organized in a database with the following variables: author, year, title, place of study, approach (productive, technological, environmental, socioeconomic), methodology used and main findings.

Subsequently, the information was classified thematically into the following emerging categories:

National and state production and yield (Tabasco).

Crop technologies and agronomic management.

Phytosanitary and climatic problems.

Agricultural policies and institutional support.

Socioeconomic challenges and producer perception.

Innovation, sustainability and climate change.

Analysis

A qualitative and descriptive approach was used to identify patterns, knowledge gaps and priority areas for intervention. The analysis was accompanied by tables and graphs generated in Excel to represent the temporal evolution of planted area, yield and production (Salgado *et al.,* 2025).

ECOCROP MODEL AT THE REGIONAL LEVEL IN TABASCO

It consisted of two stages, the first was a review of the background information at the regional level and the second was the application of the Ecocrop model to define areas suitable for rice cultivation in Tabasco. Data on temperature, solar radiation, humidity and precipitation variables were taken from the WorldClim (2023) database. Soil information was downloaded from INEGI (2023). The modeling was carried out in R studio with the terra, geodata and Recocrop libraries. The capacity of the area at the regional level to supply the national rice demand was determined (Jarvis, 2022; Hijmans, 2023).

CHARACTERISTICS OF THE STATE OF TABASCO

The state of Tabasco is located in the southeast of Mexico, south of the Gulf of Mexico, between the extreme latitudes 18°39’07” N to the north and 17°20’24” N to the south, and between longitudes 90°59’16” W to the east and 94°07’40” W to the west. It borders the Gulf of Mexico to the north, Campeche to the northeast, Guatemala to the east and southeast, Chiapas to the south, and Veracruz to the west (Salgado-Velázquez *et al.,* 2020). The state’s continental area covers 24,694.60 square kilometers (km2), which represents 1.3% of the national territory, placing it in 24th place among the states with the greatest extension; however, it is home to an average of 23% of the national vertebrate biodiversity and 53% of the nation’s freshwater wetlands (CONABIO, 2024).

DATABASES

The EcoCrop model is based on the FAO ecocrop database and requires mainly climatic data of minimum and maximum temperature (°C), precipitation (mm/month), wind speed (m/s) and solar radiation (W/m2) of the region. For this purpose, the WorldClim2 database was used, on a 3-minute grid (1 km spatial resolution), in the R studio GIS environment for climate data (Fick and Hijmans, 2017). The edaphic layer was downloaded from INEGI for Tabasco with a resolution of 1 km, which was integrated in the modeling. FAO threshold values for growing season, maximum and minimum temperatures, and precipitation for rice cultivation (FAO, 2023) were considered in the EcoCrop model.

CLIMATIC DATA

Gridded (2-5 m) climate data from WorldClim were downloaded, extracted into a dedicated folder and also imported into the Ecocrop module. WorldClim is a global gridded dataset with monthly climatological means of maximum, minimum and mean temperatures, and total precipitation, developed by thin--plate spline interpolation from long-term (1950-2000) weather station records (Ramirez et al., 2014). The geodata, ecocrop, terra libraries of R studio were used.

MODELING OF SUITABLE RICE AREAS

With the Recocrop function of the Ecocrop library, the raster files were loaded into the model to generate the ideal zones for rice cultivation in Tabasco. Finally, the generated map was visualized and saved as an image using the ggplot2 library. Likewise, the areas of each zone were quantified.

RESULTS AND DISCUSSION

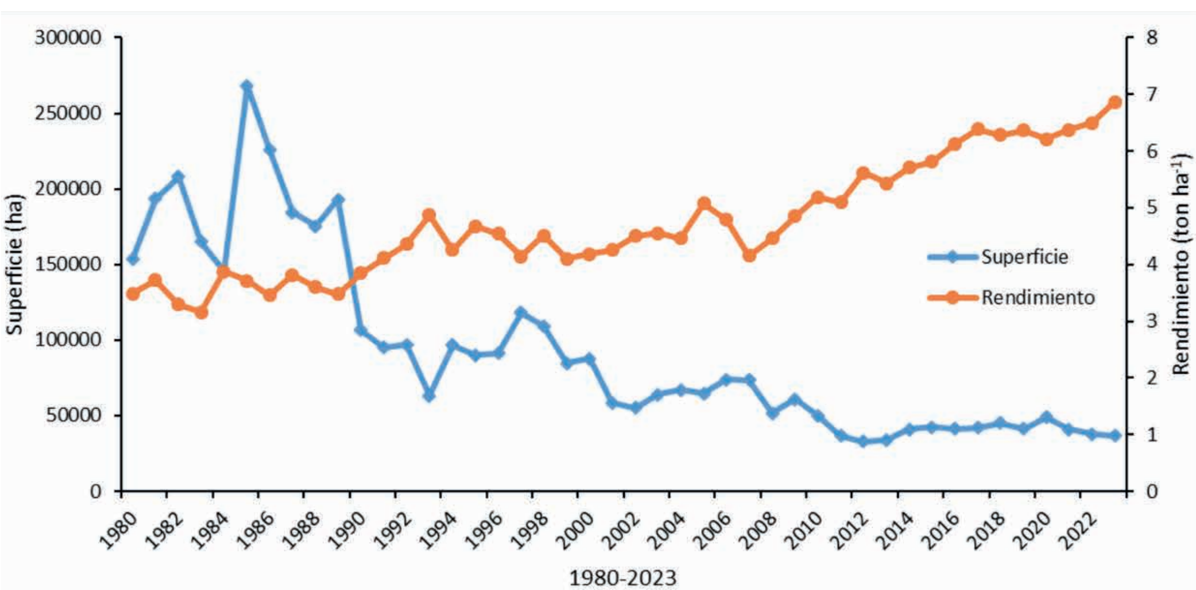
RICE PRODUCTION IN MEXICO: BACKGROUND AND CURRENT SITUATION

Rice is considered one of the most important crops in the Mexican diet, behind only corn, beans and wheat. Between 2010 and 2020, its per capita consumption in Mexico increased from 9.4 kg to 11 kg, which evidences the growing need for this grain and its importance in the population's diet (CEDRSSA, 2020). National production in 2023 was 36, 877 hectares harvested, with a production of 252, 099 tons and an average yield of 6.87 ton ha-1 (SIAP, 2023). Table 1 shows the countries with the highest yields and their harvested area in the world. Mexico is in 20th place (FAOSTAT, 2023). As can be seen in Table 1, Mexico does not appear among the main rice producing countries in the world, however, its yield of 6.6 (ton ha-1) is an important indicator given that we are approaching in yields to countries such as China with yields of 7.1 ton ha-1 (FAOSTAT, 2023). The above leads to reflect on the way rice is produced in different countries. In China, for example, rice production became a priority for the government, which concentrated its promotion activities on moving towards higher productivity, rather than cultivating over larger areas. The Chinese government's plan focused on the following activities: development of new (more productive and resistant) genetic varieties, technification of cultivation areas, expansion of irrigation infrastructure, incentives for agricultural workers, controlled supply of pesticides and fertilizers, and planned expansion of the area under cultivation. Through these activities, China reached the position of the world's leading producer in terms of area and production (Lin et al., 2022).

Country	Yield (t ha^{-1})	Surface area (ha)	Production (t)
Australia	11.1	62,549	691,444
Uruguay	9.3	147,000	1,372,700
Egypt	9.0	646,316	5,800,000
Tajikistan	8.8	12,567	110,399
Peru	8.3	414,286	3,449,365
USA	8.3	878,990	7,274,170
Turkey	7.9	120,511	950,000
Morocco	7.8	6,320	49,110
Uzbekistan	7.8	46,322	359,147
Greece	7.5	28,780	214,750
China	7.1	29,450,000	208,494,800
Japan	6.9	1,497,500	10,363,900
Korea	6.9	727,054	4,998,223
El Salvador	6.8	3,365	23,000
Brazil	6.6	1,623,420	10,776,268
Argentina	6.6	186,070	1,222,426
Mexico	6.6	37,695	246,989
Kenya	6.5	29,615	192,299
Nicaragua	6.4	79,137	504,391
Spain	6.3	56,040	350,420
Macedonia	6.1	3,114	18,981
Bulgaria	6.1	10,580	64,320
Guyana	6.0	154,200	929,600

Table 1. Main countries with the highest rice yields and area under cultivation in the world. *Own elaboration with FAO data (2023).

Until the mid-1980s, Mexico managed to maintain self-sufficiency in rice production. However, with the country's accession to the General Agreement on Tariffs and Trade (GATT) in 1986, most import permits for agricultural products were converted into tariffs. In 1989, the guarantee price for basic grains, including rice, was abolished. In 1994, the North American Free Trade Agreement (NAFTA) was implemented, eliminating tariffs on rice imports, especially from the United States. Within this framework, in the mid-1990s, both the cultivated area and rice production declined considerably (Figure 1). Domestic production dropped to 70% of domestic consumption and rice imports reached 28%. With the Trade Opening in 2000, Sinaloa rice (long and thin) lost competitiveness due to the increase in massive imports of the same type of grain, facilitated by production and sale at low prices, driven by the generous subsidies received by US producers, who can even sell at dumping prices (Hernández-Aragón and Tavitas-Fuentes, 2016).



Harvested area and average yields during the years 1980-2023 in Mexico. Own elaboration with SIAP data.

The adverse effect of the increase in rice imports is the decrease in the participation of producers in the national supply. From 2003 to 2020, the area planted with rice decreased by 23%, from 64 to 49 thousand ha. In 2020 the production volume of palay rice (paddy rice) was 295 thousand t, being the main producing states Nayarit, Campeche and Veracruz, with 88.8, 72.2 and 34.4 thousand t, which represented 30, 24 and 12 % of the national production (SIAP, 2022). Regarding the evolution of the food dependency (M/C) and food self-sufficiency (P/C) indices, in the period 1981-1985 the average food self-sufficiency index for polished rice was 92 %, while in the period 2016-2020 this was 19 %. This means that Mexico presented an average food dependency index of 81% for polished rice in the 2016-2020 period (USDA, 2022), which implied importing rice in that percentage to supply domestic demand (Figure 2). The main factors that contributed to the reduction of rice production in Mexico were 1) less state intervention, 2) the modification of Article 27 Constitutional, and 3) the signing of the North American Free Trade Agreement (NAFTA) (Pureco and Garcia, 2017). On the other hand, Steffen (2017) concluded that the elimination of rice tariffs by Mexico would have a moderate impact on the U.S. rice economy, but would severely affect the Mexican rice economy. They further noted that a devaluation in Mexico could reduce imports of polished rice from the United States by 126%, and that government programs have a strong influence on palay rice production in both the United States and Mexico.

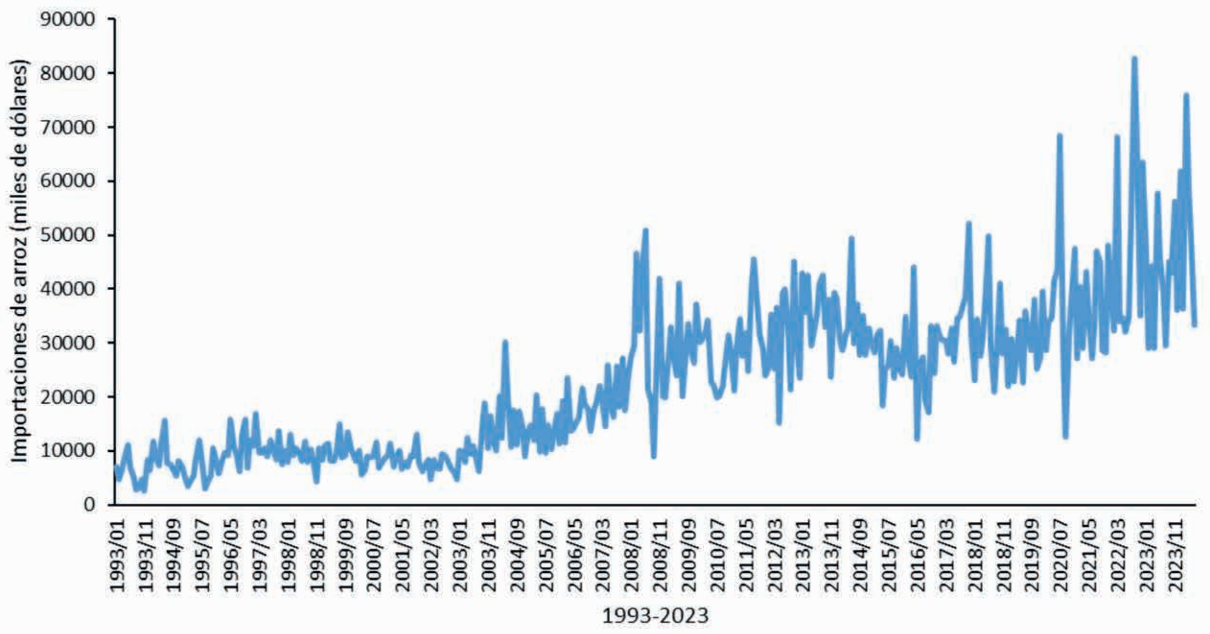


Figure 2. Rice imports in Mexico during the period 1993-2023. Own elaboration with data from INEGI.

In Mexico, most of the rice production comes from three main cultivation methods: transplanting under irrigation, common in the center and south of the country; direct planting under irrigation, which is practiced in the northern and western regions; and rainfed planting, predominant in the southeast. Rice needs to grow in flooded soils with a high level of organic matter. Because of this, the use of technology and fertilizers is essential to improve yields. It is estimated that in Mexico, 98% of the area used for rice cultivation is mechanized, 52% applies technology for phytosanitary care, and only 46% of plantings have technical assistance (Tello and Corral, 2023).

Globally, trends in the rice supply chain are changing, with small rice farmers selling their product at increasingly better prices, thanks to government schemes that help farmers (Muthayya et al., 2014). In Mexico, the government has concentrated its policy on guarantee prices (PG) for small producers (Dastagiri and Naga Sindhuja, 2021). In rice, there are two programs: 1) the Production for Wellbeing Program, whose objectives are to promote and increase the country's food self-sufficiency and 2) the PG program, aimed at small agricultural producers with the objective of increasing their income, stimulating domestic rice production, reducing imports and guaranteeing the availability of food for the basic food basket (SADER, 2020). The PG was established for palay rice destined for the national milling industry and for certified seed, in the spring-summer (PV) and autumn-winter (OI) cycles; through: a) small producer support, up to 80 t per eligible producer and up to 8 ha, and b) medium producer support, up to 300 t on more than 8 ha of land. The producer would receive full support equivalent to the difference between the PG and the reference price (AGRICULTURE, 2024).

CURRENT STATUS OF RICE IN THE STATE OF TABASCO

Commercial rice production in Tabasco began in the late 1960s and early 1970s, promoted by the federal government with the aim of transferring production from the Northwest to the Southeast of Mexico due to the abundance of water in this region. Rice cultivation gained importance in the state's agriculture thanks to state support, which sought to turn Tabasco, together with Campeche and Veracruz, into a key area for rice production and thus contribute to solving the country's food problem. However, after five decades of cultivation, the results were not as expected, due to various problems that affected production, productivity and economic profitability. Currently, with changes in the global economy and the implementation of microeconomic and agricultural policies, the State has reduced its participation in agriculture, which has generated structural disadvantages for rice cultivation in terms of quality, productivity and competitiveness. This situation has led to a decrease in the importance of the crop both nationally and regionally, which puts the country's food security and self-sufficiency at risk (Flores-Santiago, 1990). The immediate history of rice production under a mechanized system dates back to 1966-1967, when Plan Chontalpa began with the modernization of the humid tropics for the production of basic foodstuffs. At the beginning of the seventies, rice production in the state became relevant due to the policies promoted by the federal government to free the irrigation zones in the north of the country and given the creation of the Chontalpa Plan and years later the Balancan-Tenosique Plan, considered as the main poles of rice production in the state. The objective was defined as gradually transferring rice cultivation to the Southeast, where water resources abound, specializing the state in this crop and contributing to the country's food self-sufficiency. With the boom in oil activity, the countryside was abandoned, that is, the migration from the countryside to the city due to the demand for industrial work, which was reflected in a decrease in the area cultivated with rice, corn and beans, mainly. Until 1989, rice production was developed with a high degree of state participation (Flores-Santiago, 1990; Jiménez-Chong et al., 2014). In Table 2, some production indicators for rice cultivation in Tabasco during the period 1980-2023 are presented.

In Tabasco, it has been estimated a potential area of 427, 517 hectares of land suitable for growing rainfed rice, however, in the last 10 years only about 3,000 hectares have been

Year	Surface area (ha)		Production (t)	Performance (t ha^{-1})	Production value
	Seeded	Harvested			
1980	1,468	1,314	3,127	2.38	13.56
1981	4,840	3,779	6,796	1.8	52.19
1982	8,147	6,735	11,971	1.78	116.93
1983	15,479	11,942	24,933	2.09	524.34
1984	7,421	7,421	16,610	2.24	566.4
1985	21,723	13,690	25,222	1.84	1,356.94
1986	21,929	13,129	32,691	2.49	7,162.72
1987	13,677	10,703	28,590	2.67	6,804.42
1988	26,081	16,905	38,635	2.29	14,604.03
1989	15,132	10,105	21,371	2.11	9,953.03
1990	9,350	7,201	19,181	2.66	9,590.5
1991	6,852	5,850	17,768	3.04	9,859.91
1992	6,516	5,819	18,066	3.1	14,177.4
1993	1,684	1,154	1,979	1.71	1,005.5
1994	5,717	5,087	13,926	2.74	7,694.04
1995	4,225	3,497	9,018	2.58	8,756.2
1996	5,241	5,155	17,106	3.32	27,220.7
1997	9,438	9,105	26,987	2.96	40,015.66
1998	10,042	9,136	24,518	2.68	37,973.56
1999	8,034	7,177	20,663	2.88	35,208.2
2000	10,000	9,190	22,790.4	2.48	28,578.09
2001	9,446	8,592	28,768	3.35	37,495.4
2002	9,855	9,114	31,182	3.42	50313.3
2003	11,521	10,465	31,375	3	50,018.3
2004	12,469.5	9,510	26,305	2.77	47,373.82
2005	12,725.5	11,273	38,941	3.45	72,041.9
2006	14,774.5	14,329.5	49,683	3.47	91,999.11
2007	17,488	15,292	51,108.35	3.34	95,278.98
2008	8,919	8,805	21,038.4	2.39	77,172.02
2009	10,908.5	5,200.5	18,043	3.47	61,026.1
2010	5,846	3,507	9,900	2.82	3,0187
2011	4,343	3,643	8,093	2.22	25,128
2012	1,993	1,551	6,276	4.05	23,486
2013	3,551	3,110.5	11,309	3.64	44,477.25
2014	3,041	2,901	12,575.23	4.33	48,998.76
2015	3518	2,093	12,833.7	6.13	41,028.38
2016	1,636.5	1,621.5	11,548.8	7.12	38,290.77
2017	1,535	1,505	11,507.85	7.65	42,986.95
2018	1,480	1,480	9,088	6.14	35,541.28
2019	1,154	1,154	7,944.18	6.88	28,257.82
2020	1,260	930	7,421.4	7.98	35,029.01
2021	1,534	1,228	7,722.45	6.29	40,522.39
2022	647	647	3,881.64	6.0	20,383.63
2023	817	773	4,719.66	6.11	24,892.15

Table 2. Rice production in Tabasco from 1990-2023.

*Thousands of pesos. Own elaboration with data from SIAP (2023).

harvested with yields of 2 to 7 t ha-1, being the main production limitations, the irregular distribution of rainfall, late planting, the high incidence of weeds, pests and diseases, poor fertilization management and the lack of quality seed of rice varieties adapted and recommended for the entity (Jiménez-Chong et al., 2014). Some of the varieties generated by the National Institute of Forestry, Agricultural and Livestock Research (INIFAP) have been validated under rainfed conditions, such as Huimanguillo A-88, Palizada A-86, Cárdenas A-80, Campeche A-80 and CICA-8, showed yields ranging from 3.5 to 6.0 t-ha-1. When these varieties were tested under irrigation, the variety Milagro filipino depurado and LHA-A13 reached levels of 4.6 to 7.8 t-ha-1, and recently the varieties INIFLAR RT and INIFLAR R managed to produce up to 7.0 t-ha-1 (Jiménez-Chong et al., 2014; Álvarez--Hernández et al., 2022). In addition, the state of Tabasco within region 2 (Campeche and Tabasco) is highlighted as a strategic area in rice infrastructure, both for the spring-summer cycle and for the autumn- winter. Within its planning drivers, this region is located with a focus on productivity oriented to profitability, and as a specific action, it is proposed to promote dissemination and technical assistance for the adoption of certification schemes and technologies (AGRICULTURE, 2024).

CURRENT RICE SITUATION IN THE CHONTALPA REGION

During the eighties, rice production had an important growth in the state, especially due to the opening of the Balancán sheets in 1981 and the increase in the area established and harvested in the Chontalpa Plan from 1985, as a result of the policies and subsidies provided by the federal and state governments for rice production, whose goals and objectives were established in the National Development Plan of 1983-1988. During this period the federal government made substantial capital investments to support rice production, with the creation of productive infrastructure (irrigation and drainage systems, roads, warehouses, airstrips, etc.), support and financing for agricultural insurance, inputs and services, the generation of technologies with agricultural research, participation in the industrialization and commercialization of the grain (Acevedo, 1988). These supports allowed Tabasco's rice production to increase from 20% in 1970 to 50% in 1990.

The regions of Plan Chontalpa and Plan Balancán present certain particular characteristics in the environmental aspect, in the agrarian and agricultural structure, in the development of the productive infrastructure, in the political development of the producers and in the productive potential for rice.

Chontalpa Plan. It arose and developed in the 1970s as an agricultural development project for large-scale production, based on the collective exploitation of the land for the benefit of 4,634 ejidatarios with an endowment of 15 ha each, distributed among 22 ejidos. To this end, 77,000 ha of land were cleared of more than 40,000 ha of natural and cultivated vegetation, 1,200 km of drains were built, 550 km of roads were constructed, 85 gravity irrigation works were built with the capacity to irrigate 8,725 ha and 16 sprinkler irrigation works for 1,240 ha. Unfortunately, it is currently in a precarious condition and requires substantial investments of capital for its rehabilitation, especially the irrigation system, which is of vital importance for rice production.

Balancán Plan. Since the opening of rice cultivation in 1981, 16,487 ha have been cleared, 93 km of drainage network have been built, 24 crossroads structure works, 115 km of roads connecting the communities and production areas, four irrigation works with a capacity of 30 ha and nine warehouses with a capacity of 1,00 t each.

Historically, rice cultivation has been developed mainly under rainfed conditions, which indicates that production behavior is a function of the distribution of rainfall in the required amounts from emergence to grain formation. An analysis of production indicated that the average yield ranged from 1 to 2 t ha-1 in the region. According to Gómez (2014), in a study on the competitiveness of rice producers in the Chontalpa region, reported that the main causes that caused the abandonment of rice cultivation were: low yields, lack of agricultural credit, lack of subsidies from the government and high production costs, which forces them to opt for activities such as livestock and sugarcane planting. They also reported that the average age of the rice producer was 56 years old and that during 2009 the government withdrew all types of support for rice cultivation in Tabasco. More recently, Jiménez-Chong *et al.* (2016), emphasized that the low prices of rice grain are due to the unfair competition faced by domestic production, since imported rice is of poor quality, highly subsidized and remains in storage for long periods. As a result of the low profitability of rice cultivation, the area planted has been drastically reduced, which has led to a deficit in the supply of domestic grain, the closure of mills, job losses, increased emigration from the countryside and the need to import grain to meet domestic demand. All this has led to the disarticulation of the production chain, food dependence and even foreign currency flight (Hernández-Aragón and Tavitas-Fuentes, 2016; Tello and Corral, 2023).

ECOCROP MODEL FOR TABASCO

Figure 3 shows the regionalization of suitable areas for rice cultivation according to the results of the Ecocrop model (FAO, 2023). Four classes are highlighted: not suitable, moderately suitable, suitable and very suitable.

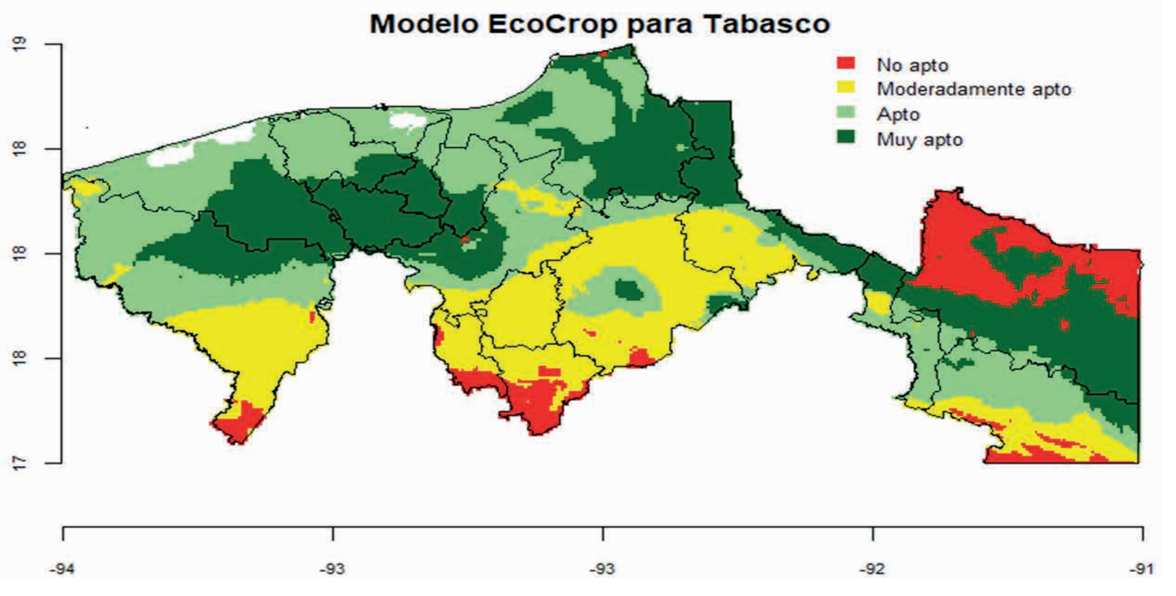


Figure 3. Suitable areas for rice cultivation in Tabasco using the Ecocrop model.

With INEGI (2024) data for total population and FIRA (2024) data for per capita consumption, the total national rice requirement would be:

Cnal = Pobtot x cpc

Where: Cnal = national consumption; P = total population and cpc = per capita consumption.

(130,232,645 x 9.0) = 1,172.1 thousand tons.

The above leads us to the fact that, when determining the national rice consumption in the year 2024 at 1,134.1 thousand tons, in the state of Tabasco, 257.9 thousand hectares susceptible to be planted were identified with medium and high productive potential. The main municipality with high productive potential was Cárdenas with 69.7% of the area, representing 74.5 thousand hectares. Under this scenario, 773.7 thousand tons of rice could be contributed (with an average yield of 3 t ha^{-1}), which would have represented 66% in the reduction of rice imports and would benefit the trade balance of this grain (López *et al.,* 2021).

CONCLUSION

The abandonment of rice cultivation is due to economic factors, especially market factors due to price competitiveness. Despite the decrease in cultivated area, yields have doubled, mainly due to the generation of varieties with better genetic potential. Currently, Mexico is not self-sufficient in this basic cereal, which is important for Mexican consumption.

Tabasco has the potential to produce rice crops and considerably reduce imports to achieve food sovereignty at the national level.

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