Article

Perception of Public Policies and Sustainability among Agricultural Producers in the Municipality of Guasave

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Abstract: The agricultural sector of Sinaloa is one of the most representative in Mexico. Its economic and social contributions are of great magnitude, as is its scale of production and the social impacts it generates. The objective was to study the perception of maize farmers in the municipality of Guasave on agricultural public policies and their impact on sustainable results in the sector. The methodology was quantitative-descriptive and cross-sectional. A sample of 260 farmers was analysed out of a study population of 18,650, to whom a survey was applied using the Likert scale. The internal consistency of the instrument was validated using the McDonald omega test, giving a (ω) of 0.868, considered reliable. Kendall's Tau-c was used to find the relationship between the category and its respective subcategories. The results showed statistically significant correlations (Sig < 5%) that were greater than 0.7, so it was considered that the category "Public policies and sustainable development" showed a strong correlation with the subcategories "Governance and agricultural sustainability" and "Public policies in agriculture". The results indicate that there is a need for greater attention to public policies, from their design to implementation. Agricultural activity has had a negative impact on a sustainable environment due to the current production methods. It is considered that to achieve significant progress in this sector, studies are needed to help detect and correct these problems and encourage greater participation of the actors in the sector in their work through training and the dissemination of sustainable practices.

Keywords: agriculture; governance; rural development; rural policy; sustainability

1. Introduction

This study recognises that the agricultural sector is going through phenomena that require scientific work to provide solutions to the problems that afflict it—political, environmental, and economic, among others. Therefore, the main objective that guided this research was to study the perception of maize farmers in the municipality of Guasave on agricultural public policies and their impact on sustainable results in the sector. These phenomena are directly related to the productive activities of the regions and their communities.

Agricultural activity has always played a determining role, not only as one of the main economic activities that satisfies our food needs, but also as an activity with a high impact in relation to sustainable development [1,2], where the political work of rural activity determines, to a large extent, the results that this important sector generates.

This research contributes to the knowledge gaps that exist in the rural sector, which has implications for different actors in the search for solutions and to bring government and rural society closer together. The issue raised is a common phenomenon among those who design public policy and those in charge of implementing it, which, in this case, has repercussions on the sustainable management of agricultural production [3,4].

Public policies aimed at this economic part of society will always be transcendental, as will the activities that the farmer puts into practice in the production process (irrigation,

soil movements, use of chemical or organic fertilisers, adequate or inadequate management of chemical waste such as packaging, among others) that are linked to production using a sustainable approach. Population growth and changes in consumption patterns have generated a sustained growth in global food demand, thus requiring the transformation of agricultural production systems [5].

Key economic activities have played a crucial role in the economic progress and expansion of Mexico, a nation noted for its outstanding grain production and efficient production methods. Despite these achievements, some agribusiness practices have proven to be environmentally and socially inadequate [6].

Guasave, located in the northwest of Sinaloa, Mexico, is the eighth largest municipality compared to other municipalities. Its main economic activity is agriculture, which covers 70% of its territorial extension, according to the Municipal Government of Guasave in 2019. According to the Statistical and Geographic Information Centre of the State of Sinaloa, maize production in Guasave stands out as one of the main producers in the state with 19.35%, followed by Ahome with 19.03%, and Culiacan with 16.08% [7].

In contrast, sustainable progress is the result of United Nations (UN) initiatives aimed at promoting production that is more respectful of the environment and society [8]. This international organism, through the report "Our Common Future", defines sustainable development as one that seeks to address the shortcomings of both current and future generations [9].

In this context, most nations aspire to achieve appropriate levels of sustainable development, as this concept encompasses a wide range of aspects related to ecology, environmental preservation, pollution, and research as well as economic and social aspects and the health of people in human, urban and rural environments, among others [10,11].

In addition to the above, one of the central issues explored in this research focuses on public policies associated with agricultural practices. According to [12], this issue encompasses governmental actions oriented to the public interest that emerge from consensual decisions through an analysis of possibilities aimed to ensure their effectiveness.

According to the evaluation made by [13], an organism dedicated to evaluating social policies and judging public policies, in Mexico, it is crucial to carry out periodic reviews of policies that promote more sustainable agriculture and thus address the important challenges we face, as mentioned in the research of [14] in relation to eco-efficiency in agricultural sustainability.

Thus, in the present study, it is interesting to analyse public policymaking within the agricultural sector, to determine whether public agenda decisions have an impact on the production patterns that farmers have been practising, and under which environmental governance actions their performance is monitored [15].

With reference to [16], the most frequent agricultural practices in Guasave are gravity irrigation, soil movements such as tracking, cultivation and fallowing, and the use of synthetic inputs and agrochemicals. These practices have negative impacts that can lead to problems such as poor soil quality, poor water conditions, risk to groundwater, and in some cases, a decrease in production, which would indicate unsustainable agricultural patterns [17].

Ref. [18] suggests that there is government collaboration in the excessive use of pesticides in some Latin American countries. Furthermore, if the farmers are determined to use high quantities of agricultural inputs to achieve more efficient production levels and, therefore, considerable economic profitability, they will use agrochemicals, more water, and will move more land, among other practices that will result in unsustainable agricultural activity.

According to [19] numerous global areas are currently dedicated to intensive agricultural production that will face adverse challenges such as climate change, the presence of arid and infertile soils as well as environmental pollution.

In relation to sustainable public policies, the UN indicates that the intersection between public policies and environmental and ecological aspects began to influence society in

1972 [20]. The organisation also highlights that in the Latin American and Caribbean region, this impact originated because of actions aimed at improving the human environment, thus establishing the basis for governments to incorporate decisions aimed at preserving natural resources into their public agendas. This resulted in the implementation of actions and programmes that reflected public policies [20].

To place the issue in a better context, Ref. [21] affirmed that the lack of a pro-poor agricultural policy in Mexico seemed to reflect the ineffective representation of low-income producers in the process of formulating and implementing public policies and better dedication to protecting entrepreneurial interests and political parties.

Ref. [22] argued that solving problems related to this issue in the agricultural sector meant designing differentiated public policies, according to the different regions or geographical zones and their needs, which would generate better regional rural development. This is how production patterns and the set of activities that are put into practice before and during the production processes will determine, to a large extent, the types and magnitude of problems that afflict the sector [23].

For the authors of Refs. [24–26], the hand of man always intervenes in nature, which is challenging for those whose activities are related to the agricultural system and its agricultural activity, which maintains unsustainable production patterns.

The Mexican agricultural sector requires important changes that will allow for a 70% increase in production by 2050, in addition to implementing sustainable production patterns [27–29].

In relation to this, the Economic Commission for Latin America and the Caribbean (ECLAC) stated in a study on the outlook for agricultural activity in Latin America that society is becoming increasingly aware of the determining role of the environment in our surroundings [30]. This is perceived as an opportunity for agricultural activity, especially considering the historical neglect and poor design of agricultural public policies. In this sense, Refs. [31–33] argue that public policies, for the most part, have been neglected, and above all, misguided by governments.

In this way, environmental policies play a crucial role in global production systems, especially in those where society's demands are more stringent in terms of consideration for the environment. The government also acts as the entity in charge of supervising and enforcing aspects of environmental governance in various productive sectors. In this context, agri-food activities are constantly under scrutiny due to their significant economic and social importance [34–36].

Refs. [37–39] argue that governing is complicated, and that those in charge of formulating public policies and putting them into practice face a variety of problems including the need to add these issues to the government's agenda. In this regard, Ref. [5] stated that in the global context, a policy of exchange and the commercial taxation of agricultural activity has been chosen, with unfavourable repercussions for the producers and consumers, who ultimately bear the costs.

Research on agricultural policies in the European Union [40] indicates that public policies will be considered effective when financial resources from the population are used to address the problems of the population. This is identified in this region as the principle of public money for public goods, and they argue that it is achieved through efficient public management.

In this regard, Ref. [41] conducted a study in India that showed that the people's money, well-managed and directed towards the strategic sectors that mark the development of the country and its society such as the agricultural sector, generates well-being and growth for this sector, since with the necessary support, there would be adequate public policies and support programmes to achieve this. In relation to the above, Ref. [14] argued that the current results in the agricultural sector, in terms of eco-efficiency and sustainability problems, were the result of the management of policies and governance of the sector.

In Mexico, much of the environmental management of productive sectors is based on regulations and guidelines related to sustainable rural development as well as on state

agencies in charge of specific productive sectors and activities, particularly regarding rural and agricultural activity. In this context, Ref. [42] stated that the Sustainable Rural Development Law has emerged as a response to contemporary social needs; however, it points out that this law is outdated and does not meet the current social requirements.

In a study on agrarian public policies in the European Union, Ref. [40] pointed out that there will be good public policies when the people's money is invested in the people's problems, something that in this part of the world is identified as the principle of public money for public goods, which they say is achieved through efficient public management.

The same author pointed out that although the green revolution brought some benefits with it in terms of food production and sustainability, this movement did not consider environmental phenomena such as the overexploitation of nature, extensive use of agrochemicals, and the lack of agricultural technology [42].

According to the Mexican agency in charge of evaluating social policies, Ref. [43] stated that a significant number of federal programmes exist that contribute to the social and economic sectoral development of Mexico's regions.

Among the different federal agencies that directly participate, only the Ministry of Agriculture and Rural Development (SADER) is aligned with agricultural work, a situation that may denote the low results obtained in sustainable agricultural matters, although it is important to note that the other agencies such as the National Water Commission (CONAGUA), irrigation modules, and the Local Plant Health Boards of the State of Sinaloa (better known as CESAVESIN), among others, can indirectly intervene in agricultural issues.

According to Ref. [43], in 2014, in Mexico, MXN 147,666 million was invested in environmental protection; however, out of every peso, only 16 centavos were used to solve problems of this type. Moreover, it was erroneously operated through various public programmes and not directly as a public policy with a sustainable approach towards environmental care, which clearly demonstrates the errors in the design, operation, and monitoring of such important tools to satisfy the needs of the people.

The rest of the paper is organised as follows. First, the abstract, which offers a general overview of what the document deals with, then the introduction, where the topic and/or the variables analysed are contextualised, Section 2 describes the materials and methods, where the methodological resources used for the research are presented. Section 3 presents the results and discussion and summarises the findings and the scientific literature on the topic analysed. Finally, Section 4 ends with our conclusions, in which a specific report on the important aspects of the work is detailed.

2. Materials and Methods

The study was designed based on a quantitative-descriptive and cross-sectional approach using a survey with a Likert scale, a scale widely used in the social sciences [44,45], composed of 13 items, which made up the category of public policies and sustainable development and two subcategories: governance and agricultural sustainability (9 items) and public policies in agriculture (4 items) (see Table 1) as well as other research works on phenomena in the agricultural sector such as in [46–49] and as recommended by [50], taking as valid for survey and/or selection those that met the criteria of homogeneity for the unit of analysis [51].

Table 1. Items of the public policies and sustainable development category and the subcategories that made up the survey.

Num.	Items	Subcategory to Which It Belongs
1	Monitoring of agricultural activity.	1
2	Government involvement in the design of a sustainable public agricultural policy.	2
3	Collaborative work between government and farmers in designing public policy	2
4	Agricultural public policies and sustainability in recent years	2
5	Monitoring the use of agrochemicals	1
6	Government promotes the use of agrochemicals	1
7	Government bans use of environmentally harmful agrochemicals	1
8	Government promotes monocultures	1
9	Government promotes conservation agriculture	1
10	Government oversees proper use of water in agricultural irrigation	1
11	Government runs programs to promote appropriate agricultural practices	2
12	The government creates and promotes good agricultural practice manuals	1
13	Government involvement in agri-environmental issues	1
No.	Dimensions addressed	
1	Governance and agricultural sustainability	
2	Public policies in agriculture	

Source: Own elaboration.

The population under study consisted of maize producers in the municipality of Guasave, an area that stands out economically for its high levels of maize production. The age, sex, and level of education of the respondents did not play a role in their selection for the survey, while the fact that they produced maize did play a role in their agricultural activity.

It was determined that the study group would consist of 18,680 farmers in the region who were registered in the Production for Well-being Programme, a government programme to support agricultural producers [52]. The formula proposed by [53] was applied considering a 6% margin of error, a 50% probability of failure, and a 95% confidence level, resulting in a sample of 264 surveys. The selection of respondents was carried out in a non-random manner [54].

It is important to note that as a theoretical source and background, scientific works on the issues raised were considered, and where the authors used methods like those in this research [55–59].

The information obtained was processed using SPSS version 25 statistical software, which allowed it to be converted into quantitative data for subsequent analysis. Once the data were obtained, descriptive statistics was conducted, interpreted, discussed, and compared with other studies [34,60–62].

Based on the previous exposition, the following research question was formulated: What perception do producers have about the relationship between agricultural public policies, agricultural practice, and sustainability in maize production in the municipality of Guasave?

As a hypothesis to address this question, the following was proposed:

Agricultural producers conduct their agricultural activities with a lack of knowledge of sustainable agriculture and agricultural policies. Therefore, their daily practice is more traditional, and they do not relate their production to variables such as sustainability and public policies.

To evaluate the consistency of the instrument, the McDonald omega reliability index (ω) was used, since this categorically indicates the validity of the construct [63,64] where values above 0.65 are reliable. Therefore, according to the results obtained for the case in the present research, it presented a value of (ω) 0.866, so the significance was positive and is shown in Table 2.

Table 2. Scale reliability.

Scale Reliability Statistics	
Estimated	**McDonald**
Estimated point	0.866
95% Cl lower limit	0.845
95% Cl upper limit	0.892
Note: Complete pairwise cases were used from the observations.	

Source: Own elaboration with the results of the software application.

2.1. Kolmogorov–Smirnov Test

Furthermore, when analysing normality with the Kolmogorov–Smirnov test, it was found that the category and its subcategories had a *p*-value of 0, less than 0.05, suggesting that the data are not normal, so Kendall's Tau-C was used (see Table 3).

Table 3. Kolmogorov–Smirnov test.

	Kolmogorov–Smirnov	
	Statistician	**Sig.**
Public policies and sustainable development	0.248	0.000
Governance and agricultural sustainability	0.272	0.000
Public policies in agriculture	0.246	0.000

Source: Own elaboration with the results of the software application.

2.2. Correlation between Variables

When contrasting the category "Public policies and sustainable development" with the subcategories "Governance and agricultural sustainability" and "Public policies in agriculture" using Kendall's Tau-b statistical test (see Table 4), statistically significant correlations were identified, with a value of less than 0.05 between the category and its respective subcategories. These correlations were greater than 0.7, which means that "Public policies and sustainable development" showed a strong correlation with "Agricultural governance and sustainability" and "Public policies in agriculture", which is justified by the categorisation proposed by [65], which indicates that the correlation is strong for values greater than 0.6.

Table 4. Correlations between "Public policies and sustainable development" with the subcategories "Governance and agricultural sustainability" and "Public policies in agriculture".

Category	**Subcategory**	**Value Correlation**	**Level of Correlation**	**Significance Level**
Public policies and sustainable development	Agricultural governance and sustainability	0.807	Strong	0.000
	Public policies in agriculture	0.727	Strong	0.000

Source: Own elaboration.

3. Results and Discussion

The implementation of strategies and public policies that improve the farmers' production practices, profitability, and management implies creating the necessary conditions to foster productivity growth in the agri-food sector under sustainable approaches [66,67].

When examining how farmers perceived their relationship with the Mexican government regarding the formulation of rural policies, the corresponding results are presented in Figure 1, where it is possible to observe that most respondents approved of the government's actions in the design of environmental agricultural public policies (46.80%).
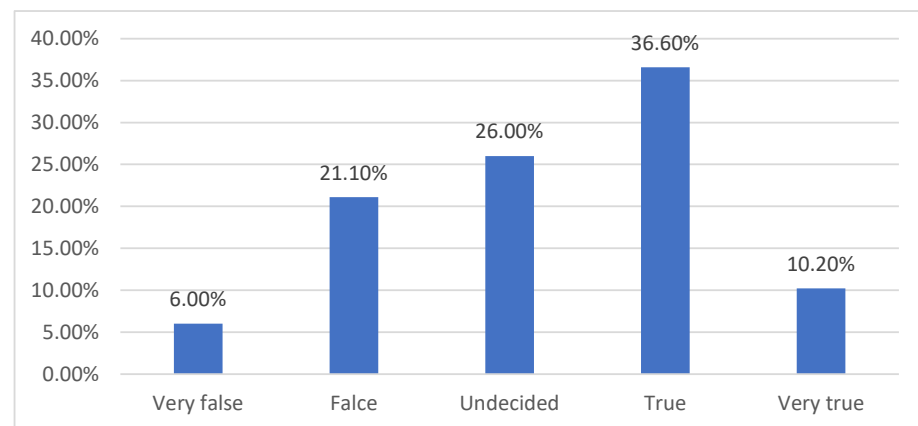
Figure 1. Government participation in the design of sustainable agricultural public policies (Source: Own elaboration).

In relation to this issue, Ref. [61] suggested that progress in rural areas of Mexico required strategies aligned with public policies to achieve social welfare. In this sense, the authors in [68] expressed that, especially in the Mexican agricultural sector, numerous innovations including those of a technological and sustainable nature were not considered internally in the formulation of policies for sustainable development.

Ref. [69] argued that the current production model and global trends did not allow governments to operate adequate rural public policies, while Ref. [22] argued that rural public policies in Mexico should be addressed in a differentiated manner according to the magnitude of the activity in the various regions of the country.

When asked about government/farmer teamwork, it was observed that 47.1% of the producers agreed on how the government collaborated with the sector to design these important tools on agricultural aspects, 25.2% stated that this was false, while 27.5% were undecided (Figure 2).
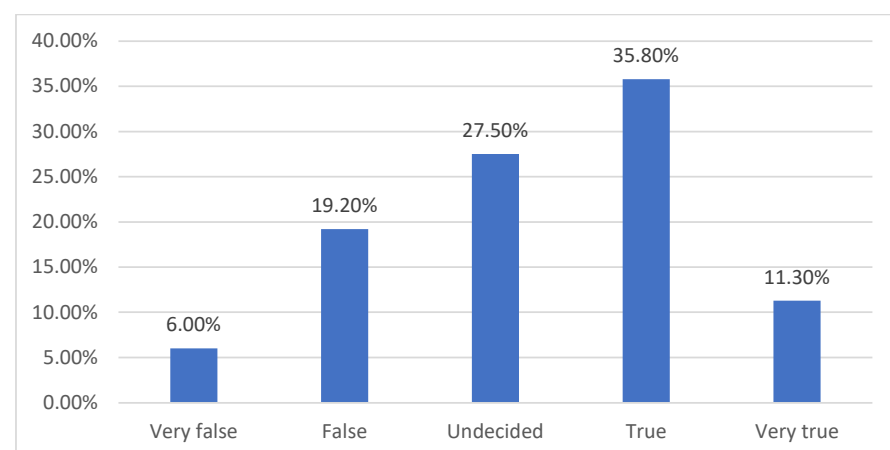

Figure 2. Collaborative government/farmer work on the design of public policies (Source: Own elaboration).

The above assertion is derived from the fact that many producers aligned the concept of public policy with economic support for the sector, especially for marketing, and that when talking about sustainability within the public agricultural sector in recent years, the majority (51.7%) considered that it was average, 33.2% considered it inappropriate, and 15.1% considered it appropriate (see Figure 3).
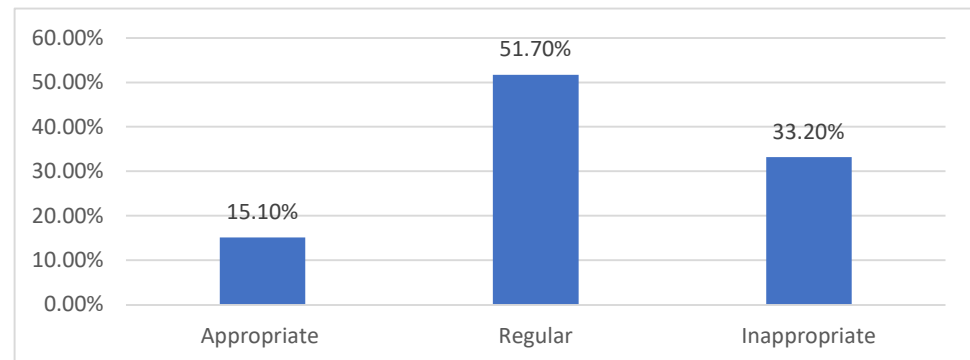

Figure 3. Public and sustainable agricultural policies in recent years (Source: Own elaboration).

According to Refs. [70,71], education plays a crucial role in the well-being of rural populations including aspects such as the promotion of sustainable agricultural production. According to Ref. [72], the report "Our Common Future" identified several objectives to be achieved in rural areas including improving environmental education. The authors of Refs. [73,74] stated in their respective studies that rural areas needed to pay attention to environmental problems and develop better green ideas as they are more vulnerable to needs such as aggregate and/or environmental education.

Regarding the conformity of federal agricultural programmes with the principles of sustainability, according to the report by [43], there is only one that conforms to agricultural guidelines, the Native Maize Preservation Programme.

In relation to environmental issues, sustainability and agricultural production models, which include monitoring the use of agrochemicals, promoting and restricting the use of agrochemicals and organic inputs, encouraging monocultures, promoting conservation agriculture, monitoring the proper use of water, supervision of programmes on agricultural practices and their manuals, among others, the participants in the survey stated that the government was aware of the use of agrochemicals in agricultural production (93%) while 4% stated that the government did not verify the application of such inputs (see Figure 4).
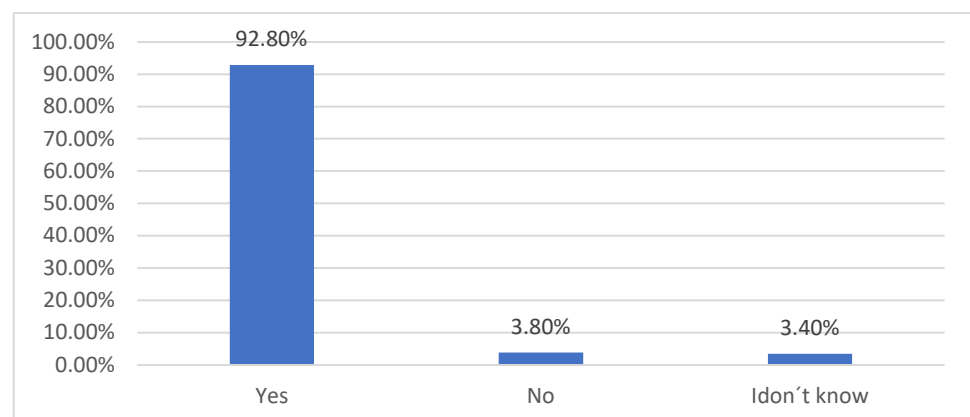

Figure 4. Supervision of the use of agrochemicals (Source: own elaboration).

According to Ref. [75], intensive production predominates in modern agriculture as well as the use of large extensions of land and the excessive use of agrochemicals, aspects

that have a negative impact on the environment. The same authors pointed out that more environmentally friendly production models are needed. One example of the current production system is, according to Ref. [76], the introduction of agriculture into previously forested areas, especially in the northwest region of Mexico, one of the most advanced regions in terms of technological production systems, where there is soil erosion.

In this regard, Ref. [77] suggests that the early and appropriate detection of agricultural phenomena (arid soils, extensive use of agrochemicals, climate change, etc.) can help to formulate sustainable policies. The authors in Ref. [78] also commented that agricultural activity requires the use of more sustainable resources.

A particularly important issue in environmental conservation and sustainable development within the rural sector is the promotion of organic inputs in agriculture. When asked whether the government promoted the use of these inputs, 59.60% of the sample considered that it did promote their application, 18.90% thought that participation in this did not exist, while 21.50% were undecided (Figure 5).
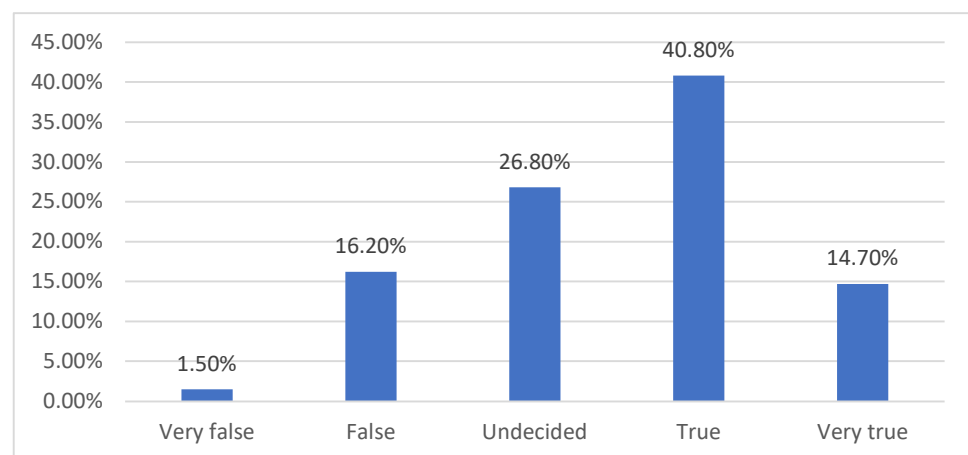

Figure 5. Use of organic inputs (Source: Own elaboration).

In this sense, it is important to mention that Sinaloa is an entity recognised nationally and internationally for its high and intensive production, where the use of chemical inputs takes precedence over the use of organic ones, a situation that does not help the environment [79–81].

Regarding the prohibition of the use of agrochemicals, a considerable number of producers expressed that the government did implement activities to prohibit the use of these types of inputs (38.50%), while 32.10% indicated that the government did not prohibit the use of these types of inputs (Figure 6). In this regard, research (e.g., [82–86]) suggests that agricultural activity in various regions of the world makes intensive use of agrochemicals that damage the environment and human health, and that public policies must be implemented to tackle the phenomenon.

In Ref. [34], changes are required with practices that are more in line with sustainability and the holistic profile of ecosystemic production as well as generating market value by integrating sustainability into the formulation and implementation of public policies.

Works such as those by [87–89] suggest that damage to the environment and ecosystems resulting from inappropriate agricultural practices is already present on a massive scale, thereby determining sustainability problems for the agricultural sector in both emerging and developed countries.

Regarding the promotion of monocultures, 27.20% of the respondents expressed that they were undecided on this statement. In Sinaloa, intensive agriculture is centred on maize production, which directly and indirectly impacts the sustainable development of the sector [16]. A total of 32.80% recognised that the government did not promote monocultures, while 40% indicated that it did (see Figure 7).
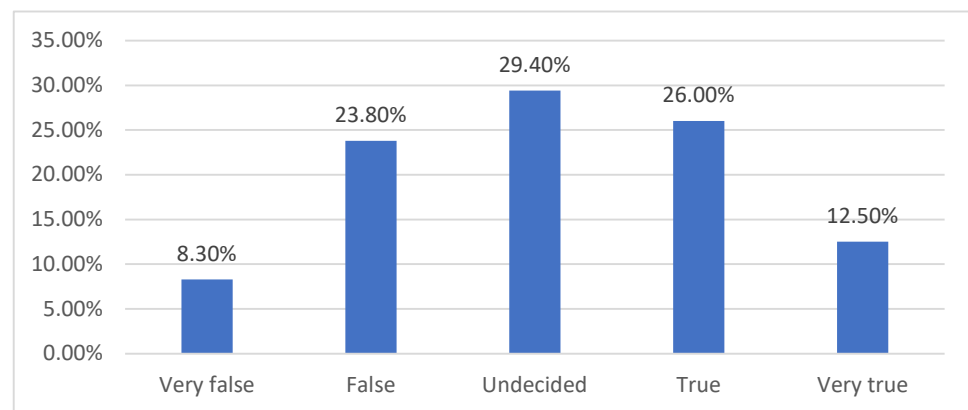
Figure 6. Banning the use of environmentally unfriendly agrochemicals (Source: Own elaboration).
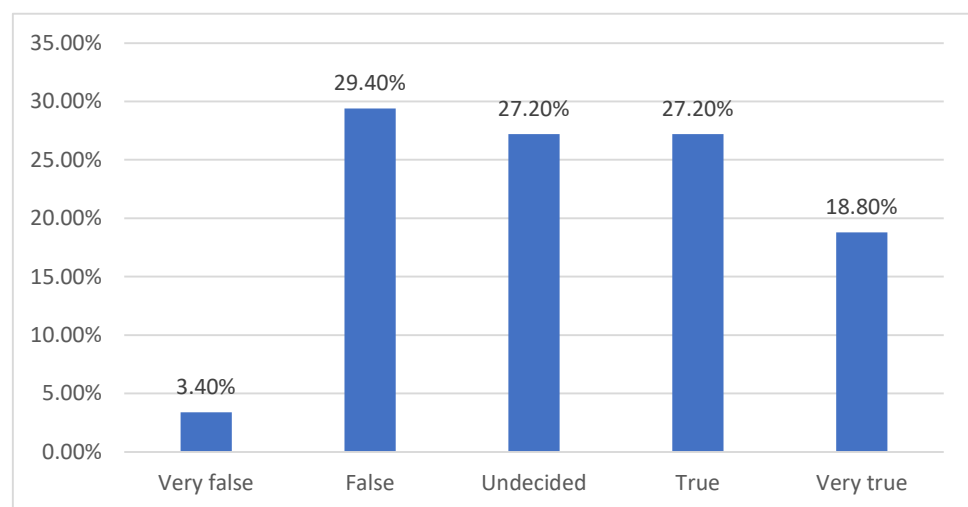

Figure 7. The government promotes monocultures (Source: own elaboration).

According to the perspective presented by [90], the excessive use of agrochemicals in agriculture in Mexico, where it is practiced intensively, as well as globally, has generated various negative effects, one of them being environmental pollution. In other words, encouraging massive monoculture production, as is the case with maize production in Mexico, has adverse consequences for the environment, especially due to the significant increase in the use of these agricultural inputs.

The dynamics of agricultural activity in Sinaloa means that the peasant population has become a pawn of the agro-industry, generating agrochemical contamination of the land and water sources or creating clandestine sites for the deposition of agrochemical containers [91].

According to Ref. [79], any change in the farmer's agricultural practice will also generate changes in the production system such as an adequate or inadequate use of water and what this entails in terms of the exploitation of natural resources such as water and soil. The current practice of mono-cropping maize in Sinaloa creates these types of problems due to the inadequate use of resources in the agricultural process.

In relation to the promotion of conservation agriculture, which, according to Refs. [92,93] implies agricultural practices that are respectful of soil, water, air, and the environment, 52.50% of the farmers highlighted that the government actively supported conservation agriculture. Some 20% stated the opposite, and 27.50% were undecided in their answers (see Figure 8).
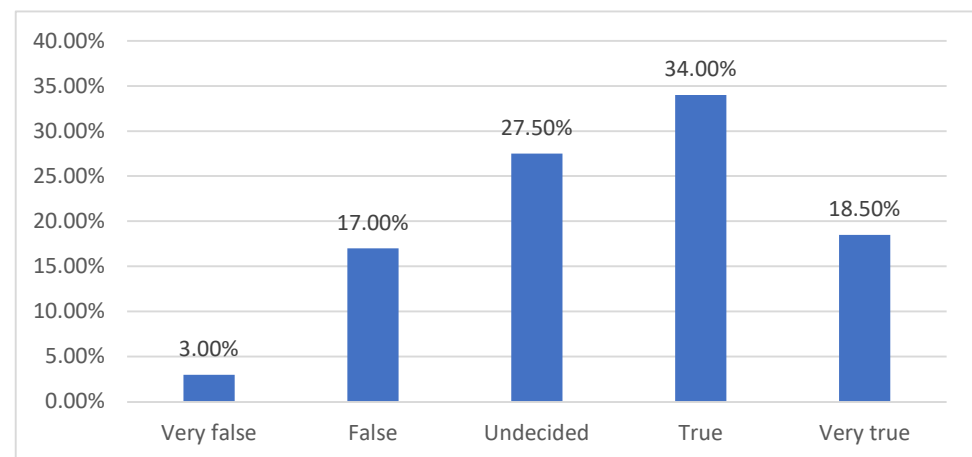
Figure 8. The government promotes conservation agriculture (Source: Own elaboration).

Regarding the supervision of the proper use of water, according to Figure 9, 60.30% of the farmers supported the statement, indicating that they considered that the government does indeed supervise the proper use of water for irrigation. On the other hand, 25.30% expressed the opposite opinion. In relation to this issue, the practice of developing mono-cultures, especially in crops such as maize, which demands a considerable amount of water, intensifies the consumption of this resource. The practical reality suggests that, despite the positive rhetoric in the policies of the entities that administer water resources, there is no adequate care on the part of producers.
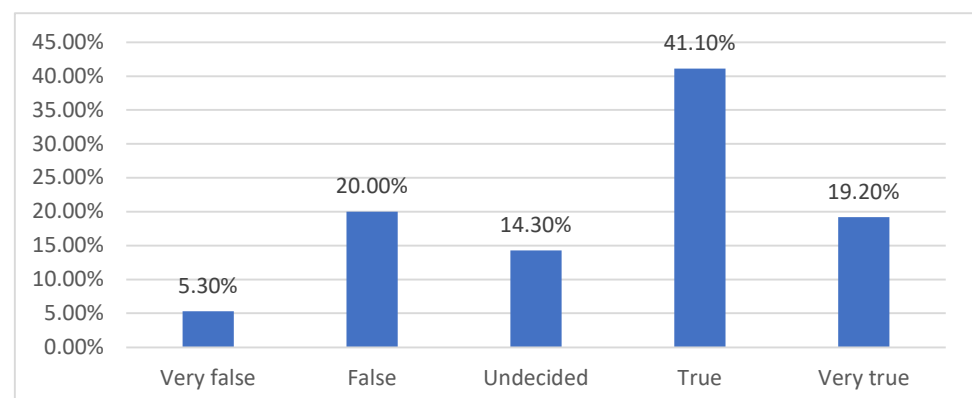

Figure 9. The government supervises water use in irrigation (Source: Own elaboration with information from the research).

When presented with the statement that the government oversees programmes that promote appropriate agricultural practices, 48.60% of the farmers said that the government did carry out this activity, while 28% said that the statement was false, and 23.40% were undecided (see Figure 10).

In relation to this issue, according to the Mexican government's perspective, sustainable agriculture is characterised by the implementation of agricultural practices that are more respectful of the environment and that promote adequate development; it has also been discussed that, in order to achieve sustainable production levels, it is imperative to adopt production models and activities that are more environmentally friendly and technologically advanced such as crop rotation, no-tillage, and soil cover, which will make it possible to achieve the goals of food sufficiency and quality [94].
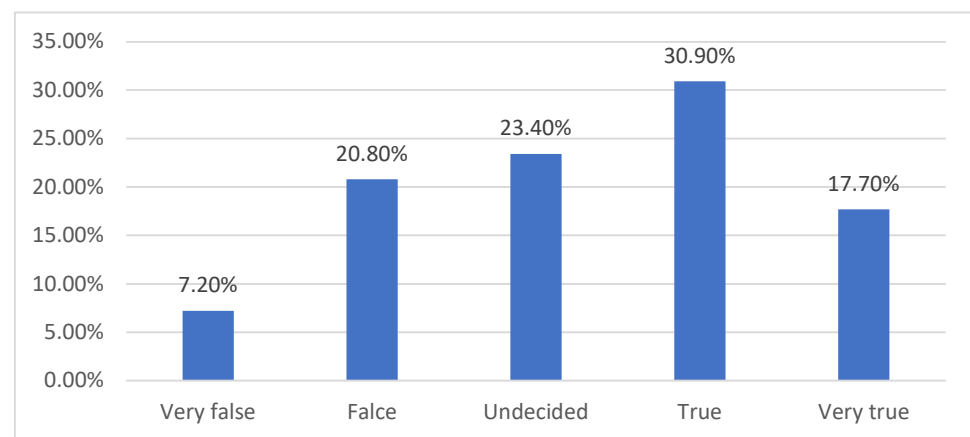
Figure 10. Programmes that promote appropriate agricultural practice are adequately managed by the government (Source: Own elaboration with information from the research).

In Ref. [95], the authors argue that in Mexico, one of the fundamental challenges lies in communicating the relevance of avoiding inappropriate agricultural practices to farmers, positioning them as crucial participants in driving significant changes in the sector. In this context, it is evident that there is some urgency in examining the current production systems and proposing new and more sustainable approaches that facilitate the balanced integration of agricultural activity, and the preservation of natural resources and rural development [96].

In relation to manuals on good agricultural practices, it is relevant to note that 44.90% indicated that the government provided these materials, 29.80% argued that this was false, that these documents did not exist or were not promoted, and 25.30% indicated that they were undecided (see Figure 11).
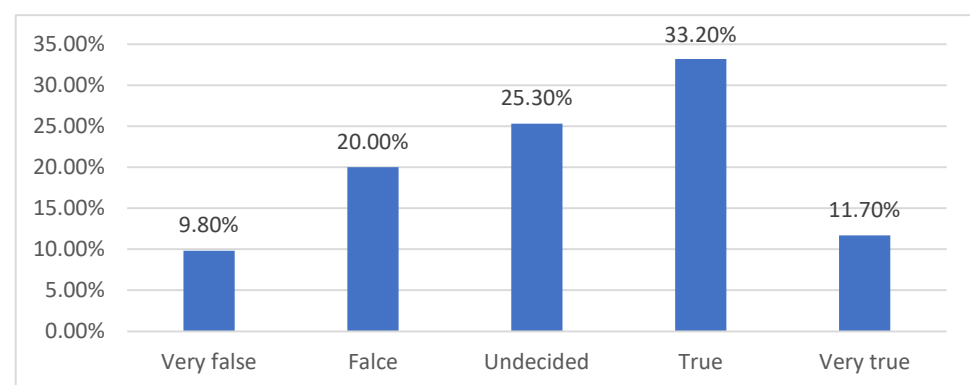

Figure 11. Creating and promoting good practice manuals in agriculture (Source: Own elaboration).

In this context, good agricultural practices are referred to as the implementation of actions and strategies aimed at achieving an environmentally responsible production process. This, in turn, will contribute to social and environmental well-being, ensuring that workers have the necessary tools to guarantee their safety in all aspects [97]. It is therefore an innovation that requires a holistic approach and widespread application to effectively contribute to the development of sustainable agriculture [98].

On the government's performance in aspects of the inspection of the diverse activities of the agricultural sector, the opinion of the producers was that the government did regulate them beforehand (26%), 30.20% answered that such surveillance was not good, while 43.8% considered such supervision to be regular (see Figure 12). This monitoring question revealed that most farmers are not happy with the government's performance in monitoring the agricultural sector and its activity (74%).
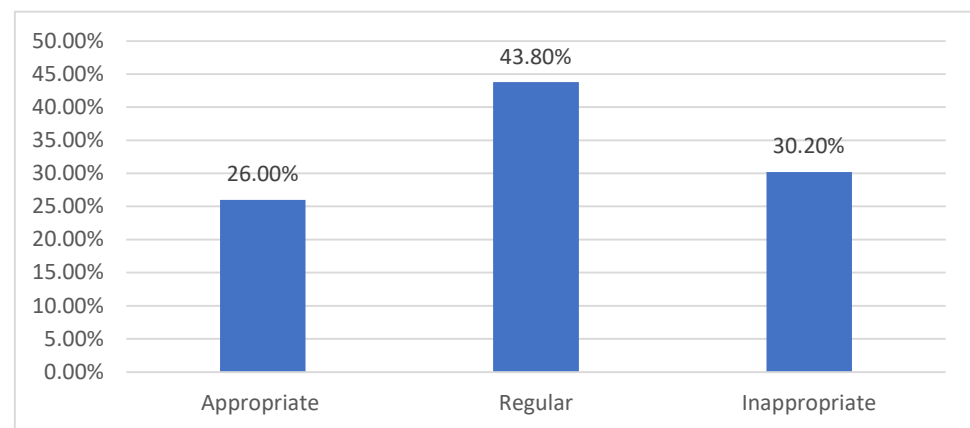
Figure 12. Monitoring of agricultural activity (Source: Own elaboration).

When farmers were asked about government involvement in environmental issues in relation to agricultural practice, most farmers considered government involvement to be fair (47.20%), while 30.60% considered government involvement to be bad, and only 21.90% considered it to be good (see Figure 13).
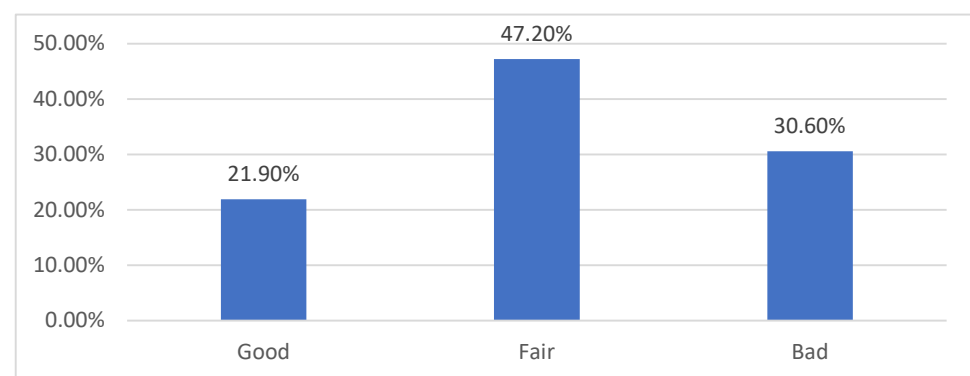

Figure 13. Government involvement in agricultural and environmental issues (Source: Own elaboration with information from the research).

4. Conclusions

Corn production in the north-central zone of the state of Sinaloa is an important economic activity as well as a determining factor in its productive patterns for the achievement of objectives aligned with sustainability. Although positive aspects were observed, highlighted by the main actor who is the farmer, there are also aspects for improvement according to the responses obtained such as the participation of the government in environmental issues in the sector as well as surveillance of the sector, where both cases do not exist. These were appropriate responses on the part of the producer.

On the other hand, the results indicate problems in the design, implementation, and monitoring of policies in the sector as well as a certain degree of a lack of knowledge about environmental issues, sustainability, ecological aspects, conservation agriculture, support programmes, regulations, and sustainable laws. This lack of knowledge makes it difficult to obtain better results in good agricultural practices, generating a significant negative impact on local production patterns, especially because they do not conform to a sustainable production model.

Under the previous context, it can be affirmed that the study and application of these important guidelines for rural agricultural activity are some of the key components whereby the municipality of Guasave, Sinaloa, Mexico, a high agricultural producer, can develop its predominant economic activity under criteria and activities more aligned to the desired sustainable development.

Based on the above, it is imperative to pay greater attention to the design, implementation, and supervision of public policies including the sustainable aspects and specific needs of the sector. There is also a need to reconsider the role of decision-makers in the formulation of programmes derived from administrative planning, thus avoiding approaching these issues solely from a desktop approach.

Finally, it is necessary to know the reality of the sector and its problems; for this, the participation of the actors must be congruent: the government with a more sustainable governance, the agricultural producers attending to changes in paradigms and productive patterns, and together with the government, are the main managers of adequate results through public policies.

References

1. Wu, A.; Elahi, E.; Cao, F.; Yusuf, M.; Abro, M.I. Sustainable Grain Production Growth of Farmland–A Role of Agricultural Socialized Services. *Heliyon* **2024**, *10*, e26755. [CrossRef]
2. Antriyandarti, E.; Suprihatin, D.N.; Pangesti, A.W.; Samputra, P.L. The Dual Role of Women in Food Security and Agriculture in Responding to Climate Change: Empirical Evidence from Rural Java. *Environ. Chall.* **2024**, *14*, 100852. [CrossRef]
3. Granco, G.; Caldas, M.; Bergtold, J.; Heier Stamm, J.L.; Mather, M.; Sanderson, M.; Daniels, M.; Sheshukov, A.; Haukos, D.; Ramsey, S. Local Environment and Individuals' Beliefs: The Dynamics Shaping Public Support for Sustainability Policy in an Agricultural Landscape. *J. Environ. Manag.* **2022**, *301*, 113776. [CrossRef]
4. Mouysset, L. Agricultural Public Policy: Green or Sustainable? *Ecol. Econ.* **2014**, *102*, 15–23. [CrossRef]
5. Bula, A. Importancia de la Agricultura en el Desarrollo Socio-Económico. 2020. Available online: https://observatorio.unr.edu.ar/wp-content/uploads/2020/08/Importancia-de-la-agricultura-en-el-desarrollo-socio-econ%C3%B3mico.pdf (accessed on 26 November 2022).
6. Soloaga, I.; Plassot, T.; Reyes, M. Caracterización de Los Espacios Rurales En México a Partir de Estadísticas Nacionales. Doc. Proy. (LC/TS.2020/130/Rev.1; LC/MEX/TS.2020/32/Rev.1). 2021, pp. 5–45. Available online: https://www.cepal.org/es/publicaciones/46350-caracterizacion-espacios-rurales-mexico-partir-estadisticas-nacionales (accessed on 26 November 2022).
7. CIEGSIN Agricultura. Indicadores Por Tema. Available online: http://www.metropol.gov.co/observatorio/Paginas/Indicadores.aspx (accessed on 26 November 2022).
8. UANL. ¿Qué Es El Desarrollo Sustentable? Available online: http://sds.uanl.mx/desarrollo_sustentable/ (accessed on 26 November 2022).
9. ONU. *Informe de La Comisión Mundial Sobre Medio Ambiente y El Desarrollo: Nuestro Futuro Común*; ONU: New York, NY, USA, 1987.
10. Chen, F.; Guo, H.; Ma, P.; Tang, Y.; Wu, F.; Zhu, M.; Zhou, W.; Gao, S.; Lin, H. Sustainable Development of World Cultural Heritage Sites in China Estimated from Optical and SAR Remotely Sensed Data. *Remote Sens. Environ.* **2023**, *298*, 113838. [CrossRef]
11. Pradhan, R.P.; Nair, M.S.; Hall, J.H.; Bennett, S.E. Planetary Health Issues in the Developing World: Dynamics between Transportation Systems, Sustainable Economic Development, and CO_2 Emissions. *J. Clean. Prod.* **2024**, *449*, 140842. [CrossRef]
12. IEXE Universidad. ¿Qué Son Las Políticas Públicas? Available online: https://www.iexe.edu.mx/politicas-publicas/que-son-las-politicas-publicas/ (accessed on 26 November 2022).
13. CONEVAL. Evaluación de La Política Social. Available online: https://www.coneval.org.mx/Evaluacion/Paginas/Evaluacion.aspx (accessed on 26 November 2022).
14. Fusco, G.; Campobasso, F.; Laureti, L.; Frittelli, M.; Valente, D.; Petrosillo, I. The Environmental Impact of Agriculture: An Instrument to Support Public Policy. *Ecol. Indic.* **2023**, *147*, 109961. [CrossRef]
15. Hincapié, S. Global Environmental Governance, Human Rights and Socio-State Capacities in Latin America. *Rev. CIDOB d'Afers Int.* **2022**, *130*, 19–45. [CrossRef]

16. Cuadras Berrelleza, A.A.; Peinado Guevara, V.M.; Peinado Guevara, H.J.; López López, J.d.J.; Barrientos, J.H. Agricultura Intensiva y Calidad de Suelos: Retos Para El Desarrollo Sustentable En Sinaloa. *Rev. Mex. Cienc. Agric.* **2021**, *12*, 1401–1414. [CrossRef]

17. Morales, M.E.; Iocoli, G.A.; Villamil, M.B.; Zabaloy, M.C. Efecto de Los Cultivos de Cobertura Invernales Sobre El Microbioma Del Suelo: Revisión Sistemática de La Literatura. *Rev. Argent. Microbiol.* **2022**, *54*, 57–70. [CrossRef]

18. Gaboardi, S.C.; Candiotto, L.Z.P.; Panis, C. Agribusiness in Brazil and Its Dependence on the Use of Pesticides. *Hyg. Environ. Health Adv.* **2023**, *8*, 100080. [CrossRef]

19. Pinedo-Taco, R.; Borjas-Ventura, R.; Alvarado-Huamán, L.; Castro-Cepero, V.; Julca-Otiniano, A.M. Sustainability of Agricultural Production Systems: A Systematic Review of the Methodologies Used for Their Evaluation. *Trop. Subtrop. Agroecosyst.* **2021**, *24*, 1–16.

20. ONU. *Gobernanza Ambiental y La Agenda 2030 Avances y Buenas Prácticas En América*; ONU: New York, NY, USA, 2018.

21. Fox, J.; Haight, L. La Política Agrícola Mexicana: Metas Múltiples e Intereses En Conflicto. In *Subsidios para la Desigualdad: Las Políticas Públicas del Maíz en México a Partir del Libre Comercio*; COMECSO: Mexico City, Mexico, 2010.

22. Pérez Soto, F.; Figueroa Hernández, E.; Godínez Montoya, L.; Escamilla García, P.E.; Tavera Cortés, M.E.; Jiménez García, M. *Políticas Públicas, Agricultura Familiar y Fortalecimiento Rural*, 1st ed.; ASMIIA: Texcoco, México, 2022; ISBN 9786079950989.

23. Mestiza-Rojas, M.; Vázquez-Toríz, R.; Rappo-Miguez, S. Gobernanza Ambiental y Capital Socialen La Agricultura En Puebla. Una Discusión de Conceptos. *Opción Rev. Cienc. Humanas Soc.* **2016**, *13*, 1211–1228.

24. Araújo, R.G.; Chavez-Santoscoy, R.A.; Parra-Saldívar, R.; Melchor-Martínez, E.M.; Iqbal, H.M.N. Agro-Food Systems and Environment: Sustaining the Unsustainable. *Curr. Opin. Environ. Sci. Health* **2023**, *31*, 100413. [CrossRef]

25. Chirwa, W.; Li, P.; Liu, Y.; Zhang, A.; Zhang, Y. Application of Fine Bubble Technology toward Sustainable Agriculture and Fisheries. *J. Clean. Prod.* **2024**, 141629, *in press*. [CrossRef]

26. Hinojosa Benavides, R.A.; Vitor Flores, R.; Gonzales López, J.C.; Quispe Rimachi, Y.; Molina Huailla, R.A.; Ricra Ñaupari, J.T.; Sánchez Montes, E.S.; Quispe de la Cruz, J. Sustentabilidad de Los Sistemas de Producción Agropecuaria. *Puriq* **2019**, *1*, 198–207. [CrossRef]

27. SAGARPA. Planeación Agrícola Nacional 2017–2030. 2017. Available online: https://www.gob.mx/agricultura/acciones-y-programas/planeacion-agricola-nacional-2017-2030-126813 (accessed on 20 October 2023).

28. Coronado, Y. Agriculture Systems Dataset in Rural Communities of Hidalgo State, Mexico. *Data Brief* **2023**, *47*, 108918. [CrossRef] [PubMed]

29. Dueñas-Moreno, J.; Vázquez-Tapia, I.; Mora, A.; Cervantes-Avilés, P.; Mahlknecht, J.; Capparelli, M.V.; Kumar, M.; Wang, C. Occurrence, Ecological and Health Risk Assessment of Phthalates in a Polluted Urban River Used for Agricultural Land Irrigation in Central Mexico. *Environ. Res.* **2024**, *240*, 117454. [CrossRef] [PubMed]

30. CEPAL; FAO; IICA. *Perspectivas de La Agricultura y Del Desarrollo Rural En Las Américas*; Instituto Interamericano de Cooperación para la Agricultura (IICA): San Isidro de Vázquez de Coronado, Costa Rica, 2021; ISBN 9789253073559.

31. Aguilar, L. *El Estudio de Las Políticas Públicas*; Miguel Angel Porrúa: Álvaro Obregón, México, 1992.

32. Lankoski, J.; Thiem, A. Linkages between Agricultural Policies, Productivity and Environmental Sustainability. *Ecol. Econ.* **2020**, *178*, 106809. [CrossRef]

33. Yang, Y.; Huang, S.; Wang, C. Public Policies in Support of Organic Agriculture in China. In *Organic Agriculture and Biodiversity in China*; Elsevier: Amsterdam, The Netherlands, 2024; pp. 65–81.

34. Ávila-Foucat, V.S. Desafíos Del Sector Primario y Políticas Públicas Sustentables. *Econ. Inf.* **2017**, *402*, 29–39. [CrossRef]

35. Alonso, R.S.; Sittón-Candanedo, I.; García, Ó.; Prieto, J.; Rodríguez-González, S. An Intelligent Edge-IoT Platform for Monitoring Livestock and Crops in a Dairy Farming Scenario. *Ad Hoc Netw.* **2020**, *98*, 102047. [CrossRef]

36. Nova, P.; Pinto, E.; Chaves, B.; Silva, M. Urban Organic Community Gardening to Promote Environmental Sustainability Practices and Increase Fruit, Vegetables and Organic Food Consumption. *Gac. Sanit.* **2020**, *34*, 4–9. [CrossRef] [PubMed]

37. de López Barron, T.J. Políticas Públicas y El Estado de Bienestar Como Divisa Del Gobierno Actual. *Derecho Opin. Ciudad.* **2021**, *10*, 27–59.

38. Yang, J.; Ma, R.; Yang, L. Spatio-Temporal Evolution and Its Policy Influencing Factors of Agricultural Land-Use Efficiency under Carbon Emission Constraint in Mainland China. *Heliyon* **2024**, *10*, e25816. [CrossRef]

39. Ngo, L.N.; Tran, T.Q. Gender Equity in Key Agricultural Policy Documents in Cambodia and Vietnam from 2001 to 2021. *Soc. Sci. Humanit. Open* **2024**, *9*, 100830. [CrossRef]

40. Kam, H.; Smith, H.; Potter, C. Public Money for Public Goods: The Role of Ideas in Driving Agriculture Policy in the EU and Post-Brexit UK. *Land Use Policy* **2023**, *129*, 106618. [CrossRef]

41. Matchaya, G.C. Public Spending on Agriculture in Southern Africa: Sectoral and Intra-Sectoral Impact and Policy Implications. *J. Policy Model.* **2020**, *42*, 1228–1247. [CrossRef]

42. Herrera Tapia, F. Enfoques y Políticas de Desarrollo Rural En México: Una Revisión de Su Construcción Institucional. *Gestión Política Pública* **2013**, *22*, 131–159.

43. CONEVAL. *Evaluación Integral de Las Políticas de Fomento y Desarrollo Del Sector Social de La Economía*; CONEVAL: Ciudad de México, Mexico, 2018.

44. Memmedova, K.; Ertuna, B. Development of a Fuzzy Likert Scales to Measure Variables in Social Sciences. *Inf. Sci.* **2024**, *654*, 119792. [CrossRef]

45. Magdolen, M.; von Behren, S.; Vallée, J.; Chlond, B.; Vortisch, P. Response Bias in Likert-Style Psychological Items—An Example from a Large-Scale Travel Survey in China. *Transp. Res. Procedia* **2024**, *76*, 349–360. [CrossRef]

46. Bacco, M.; Barsocchi, P.; Ferro, E.; Gotta, A.; Ruggeri, M. The Digitisation of Agriculture: A Survey of Research Activities on Smart Farming. *Array* **2019**, *3–4*, 100009. [CrossRef]

47. Yacoubou Djima, I.; Kilic, T. Attenuating Measurement Errors in Agricultural Productivity Analysis by Combining Objective and Self-Reported Survey Data. *J. Dev. Econ.* **2024**, *168*, 103249. [CrossRef]

48. Sha, Z.; Ren, D.; Li, C.; Wang, Z. Agricultural Subsidies on Common Prosperity: Evidence from the Chinese Social Survey. *Int. Rev. Econ. Financ.* **2024**, *91*, 1–18. [CrossRef]

49. Adzawla, W.; Setsoafia, E.D.; Setsoafia, E.D.; Amoabeng-Nimako, S.; Atakora, W.K.; Bindraban, P.D. Accuracy of Agricultural Data and Implications for Policy: Evidence from Maize Farmer Recall Surveys and Crop Cuts in the Guinea Savannah Zone of Ghana. *Agric. Syst.* **2024**, *214*, 103817. [CrossRef]

50. Arias, F. El Proyecto de Investigación. In *Introducción a La Metodología Científica*, 6th ed.; Episteme, Ed.; Universidad Internacional de La Rioja: Caracas, Venezuela, 2012; ISBN 9800785299.

51. Hernández, R.; Mendoza, C. *Metodologia de La Investigación: Las Rutas Cuantativa, Cualitativa y Mixta*; Editorial Mc Graw Hill Education: Ciudad de México, México, 2018; ISBN 978-1-4562-6096-5.

52. Gobierno de México. Producción Para El Bienestar. Available online: https://programasparaelbienestar.gob.mx/produccion-para-el-bienestar/ (accessed on 18 March 2024).

53. Torres, M.; Paz, K.; Salazar, F. Tamaño de Una Muestra Para Una Investigación de Mercado. *Bol. Electrón.* **2006**, *2*, 1–13.

54. Reus-González, N.N.; Reus-González, T.; Macías-ocampo, M.J.; Castro-López, E. Banking Cards on Students of Bachelor's Degree in Law in Personal Finance Management. *Am. J. Humanit. Soc. Sci. Res.* **2021**, *5*, 579–586.

55. Gaibor, J.; Bravo, E.; Fierro, M. Percepción de La Salud Por Parte de Los Agricultores En Zonas de Producción Agrícolas Dedicadas Al Monocultivo de Maíz Duro. Caso Cantón Ventanas, Provincia de Los Ríos-Ecuador. *Yachana* **2017**, *6*, 25–36.

56. Sánchez-Toledano, B.I.; Kallas, Z.; Gil, J.M. Importancia de Los Objetivos Sociales, Ambientales y Económicos de Los Agricultores En La Adopción de Maíz Mejorado En Chiapas, México. *Rev. De La Fac. De Cienc. Agrar.* **2017**, *49*, 269–287.

57. Hernández-Perlines, F.; Sánchez-Infantes, J.P. Análisis Del Efecto de La Responsabilidad Social Empresarial En Los Resultados Empresariales de Las Micro, Pequeñas y Medianas Empresas (MIPYMEs). *J. Glob. Compet. Governability* **2016**, *10*, 110–123. [CrossRef]

58. Pita-Moreno, Y.X.; Botia-Rodríguez, B.Y.; Fonseca-Carreño, J.A. Caracterización y Tipificación de Los Atributos Ecosistémicos de La Agricultura Familiar Campesina En La Microcuenca Del Rio Cormechoque (Boyacá). *Rev. Investig. Agrar. Ambient.* **2018**, *9*, 49–62.

59. Clavijo-Cabrera, O.; Morantes-Daza, R. Evaluación Productividad Del Ensilaje de Maíz (Zea-Mays) Para La Alimentación Bovina Empleando Agricultura de Precisión. *Nova* **2016**, *2*, 66–75.

60. Castelao Caruana, M.E. Las Políticas Públicas y Su Visión de La Economía Social y Solidaria En Argentina. *Rev. Mex. Cienc. Polit. Soc.* **2016**, *61*, 349–378. [CrossRef]

61. Gómez Oliver, L.; Tacuba Santos, A. La Política de Desarrollo Rural En México. ¿Existe Correspondencia Entre Lo Formal y Lo Real? *Econ. UNAM* **2017**, *14*, 93–117. [CrossRef]

62. González-Gaudiano, E.J.; Meira-Cartea, P.A.; Martínez-Fernández, C.N. Sustentabilidad y Universidad: Retos, Ritos y Posibles Rutas. *Rev. La Educ. Super.* **2015**, *44*, 69–93. [CrossRef]

63. Chucho-Cuvi, A.; Andrade-Bayona, C. Propiedades de Validez Del Constructo de Los Inventarios de Ansiedad y Depresión de Beck En Adolescentes Cañaris Kichwa-Hablantes Del Ecuador. *S. Am. Res. J.* **2023**, *3*, 59–65.

64. Sanchez-Escobedo, P. *Diseño y Desarrollo de Instrumentos En Línea*; Centro de Estudios, Clínica e Investigación Psicoanalítica S.C.: Merida, México, 2022; ISBN 9786079932923.

65. Rajbahadur, G.K.; Wang, S.; Oliva, G.A.; Kamei, Y.; Hassan, A.E. The Impact of Feature Importance Methods on the Interpretation of Defect Classifiers. *IEEE Trans. Softw. Eng.* **2022**, *48*, 2245–2261. [CrossRef]

66. Dumbrell, N.P.; Wheeler, S.A.; Zuo, A.; Adamson, D. Comparing Australian Public and Farmer Views on Agricultural Land Use and Management Practices for Sustainability. *Ecol. Econ.* **2024**, *219*, 108149. [CrossRef]

67. Swart, R.; Levers, C.; Davis, J.T.M.; Verburg, P.H. Meta-Analyses Reveal the Importance of Socio-Psychological Factors for Farmers' Adoption of Sustainable Agricultural Practices. *One Earth* **2023**, *6*, 1771–1783. [CrossRef]

68. Gavito, M.E.; van der Wal, H.; Aldasoro, E.M.; Ayala-Orozco, B.; Bullén, A.A.; Cach-Pérez, M.; Casas-Fernández, A.; Fuentes, A.; González-Esquivel, C.; Jaramillo-López, P.; et al. Ecología, Tecnología e Innovación Para La Sustentabilidad: Retos y Perspectivas En México. *Rev. Mex. Biodivers.* **2017**, *88*, 150–160. [CrossRef]

69. Vázquez-Trejo, I.; Ramírez-García, A.G.; Cuevas-Reyes, V.; Pérez-Villalba, E.; Cruz-Cruz, E. Desarrollo, Estado y Las Políticas Públicas Orientadas Al Medio Rural Mexicano (1934–2020). *Ra Ximhai* **2022**, *18*, 17–37. [CrossRef]

70. de Brito, A.S.L.; Junior, A.C.; Morais, M.A.; Sampaio, J.L.F.; Hernandez-Romero, O. Importancia de La Educación Del Campo y Del Saber Campesino En Fortaleza, Ceará, Brasil. *Agroproductividad* **2018**, *11*, 129–135.

71. Flores Núñez, A.; Enríquez García, F. Educación Del México Rural y El Enfoque Autogestivo. Rev. Biológico Agropecu. *Tuxpan* **2023**, *11*, 29–44. [CrossRef]

72. Cámara de Diputados; CEDRSSA. *Políticas Públicas, Su Campo Conceptual Para El Desarrollo Rural En México*; CEDRSSA: Ciudad de Mexico, Mexico, 2016.

73. Anser, M.K.; Yousaf, S.U.; Usman, B.; Azam, K.; Bandar, N.F.A.; Jambari, H.; Sriyanto, S.; Zaman, K. Beyond Climate Change: Examining the Role of Environmental Justice, Agricultural Mechanization, and Social Expenditures in Alleviating Rural Poverty. *Sustain. Futures* **2023**, *6*, 100130. [CrossRef]

74. Huang, Y.; Gan, J.; Liu, B.; Zhao, K. Environmental Policy and Green Development in Urban and Rural Construction: Beggar-Thy-Neighbor or Win-Win Situation? *J. Clean. Prod.* **2024**, *446*, 141201. [CrossRef]

75. Soares, P.; Secci Martinelli, S.; Barletto Cavalli, S.; Davó-Blanes, M.C. Propuesta Metodológica Para Explorar La Compra de Alimentos Saludables y Sostenibles En Servicios de Alimentación. *Gac. Sanit.* **2021**, *35*, 204–207. [CrossRef]

76. Ruíz Rivera, N.; Galicia Sarmiento, L. La Escala Geográfica Como Concepto Integrador En La Comprensión de Problemas Socio-Ambientales. *Investig. Geogr.* **2016**, *89*, 137. [CrossRef]

77. Bagheri, A.; Taghvaeian, S.; Delen, D. A Text Analytics Model for Agricultural Knowledge Discovery and Sustainable Food Production: A Case Study from Oklahoma Panhandle. *Decis. Anal. J.* **2023**, *9*, 100350. [CrossRef]

78. Aghaloo, K.; Sharifi, A. A GIS-Based Agroecological Model for Sustainable Agricultural Production in Arid and Semi-Arid Areas: The Case of Kerman Province, Iran. *Curr. Res. Environ. Sustain.* **2023**, *6*, 100230. [CrossRef]

79. Cruz Delgado, D.; Leos Rodríguez, J.A. The Production of Corn in Sinaloa, Mexico and Its Implications for the Environment. *Let. Verdes. Rev. Latinoam. Estud. Socioambientales* **2019**, *25*, 100–118. [CrossRef]

80. de Sinaloa, H.C. Persiste En México Uso de Plaguicidas Con Componentes Prohibidos. Available online: https://www.congresosinaloa.gob.mx/comunicados/persiste-en-mexico-uso-de-plaguicidas-con-componentes-prohibidos-martinez-valenzuela/ (accessed on 28 June 2022).

81. Moreno-Higareda, C. Uso de Agroquímicos y Riego Excesivo Han Degradado El Suelo de Sinaloa. Available online: https://dcs.uas.edu.mx/noticias/4175/uso-de-agroquimicos-y-riego-excesivo-han-degradado-el-suelo-de-sinaloa (accessed on 28 June 2022).

82. Priya, A.K.; Alagumalai, A.; Balaji, D.; Song, H. Bio-Based Agricultural Products: A Sustainable Alternative to Agrochemicals for Promoting a Circular Economy. *RSC Sustain.* **2023**, *1*, 746–762. [CrossRef]

83. Singh, J.; Singh, B. Vishavnath Design of Innovative Agrochemical Delivery System for Sustainable Agriculture and to Alleviate Environmental and Health Hazards. *Sustain. Chem. Environ.* **2023**, *4*, 100046. [CrossRef]

84. Mubeen, I.; Fawzi Bani Mfarrej, M.; Razaq, Z.; Iqbal, S.; Naqvi, S.A.H.; Hakim, F.; Mosa, W.F.A.; Moustafa, M.; Fang, Y.; Li, B. Nanopesticides in Comparison with Agrochemicals: Outlook and Future Prospects for Sustainable Agriculture. *Plant Physiol. Biochem.* **2023**, *198*, 107670. [CrossRef] [PubMed]

85. Rogers, S.; Wang, Z.J.-H.; He, J. Farmers' Practices and the Political Ecology of Agrochemicals in Rural China. *Geoforum* **2023**, *141*, 103751. [CrossRef]

86. Valbuena, D.; Cely-Santos, M.; Obregón, D. Agrochemical Pesticide Production, Trade, and Hazard: Narrowing the Information Gap in Colombia. *J. Environ. Manag.* **2021**, *286*, 112141. [CrossRef]

87. Sharma, B.; Lakra, U.; Sharma, R.; Sharma, S.R. A Comprehensive Review on Nanopesticides and Nanofertilizers—A Boon for Agriculture. In *Nano-Enabled Agrochemicals in Agriculture*; Elsevier: Amsterdam, The Netherlands, 2022; pp. 273–290.

88. Yu, L.; Liu, S.; Wang, F.; Liu, Y.; Li, M.; Wang, Q.; Dong, S.; Zhao, W.; Tran, L.-S.P.; Sun, Y.; et al. Effects of Agricultural Activities on Energy-Carbon-Water Nexus of the Qinghai-Tibet Plateau. *J. Clean. Prod.* **2022**, *331*, 129995. [CrossRef]

89. Singh, N.K.; Sanghvi, G.; Yadav, M.; Padhiyar, H.; Christian, J.; Singh, V. Fate of Pesticides in Agricultural Runoff Treatment Systems: Occurrence, Impacts and Technological Progress. *Environ. Res.* **2023**, *237*, 117100. [CrossRef]

90. Ibarra Ceceña, M.G.; López de Haro, P.A. Perception on the Use of Agrochemicals and Their Effects on the Health of the Inhabitants of Jahuara Ii, El Fuerte, Sinaloa, Mexico. *Conjeturas Sociol.* **2021**, *9*, 77–95.

91. Mancera González, O. Las Codependencias de La Agroindustria En Sinaloa, México. *Perfiles Latinoam.* **2023**, *31*, 1–28. [CrossRef]

92. Mulimbi, W.; Brye, K.R.; Nalley, L.L.; Birindwa, D.R. Conservation Agriculture Assists Smallholder Farmers and Their Agroecosystem in the Democratic Republic of the Congo. *Agric. Ecosyst. Environ.* **2023**, *355*, 108597. [CrossRef]

93. Kolapo, A.; Kolapo, A.J. Implementation of Conservation Agricultural Practices as an Effective Response to Mitigate Climate Change Impact and Boost Crop Productivity in Nigeria. *J. Agric. Food Res.* **2023**, *12*, 100557. [CrossRef]

94. Gobierno de México. El Reto: Una Agricultura Sustentable, Productiva e Inclusiva | Secretaría de Agricultura y Desarrollo Rural | Gobierno | Gob.Mx. Available online: https://www.gob.mx/agricultura/articulos/agricultura-sustentable-una-buena-practica-social (accessed on 25 May 2022).

95. Zepeda, I. Manejo Sustentable de Plagas Agricolas En Mexico. *Agric. Soc. Desarro.* **2018**, *15*, 99–108. [CrossRef]

96. Trujillo-Díaz, I.E. Biotecnología y Desarrollo Sostenible: Quimera o Realidad. In *Agricultura Sostenible como Base para los Agronegocios*; SOMAS A.C.: San Luis Potosi, México, 2017; pp. 43–48. ISBN 9788490225370.

97. Gobierno de Perú; INIA; SENASA, I. *Manual de Buenas Prácticas Agrícolas Para El Cultivo Del Cacao*; IICA: Lima, Peru, 2022; ISBN 9789292489687.

98. Díaz, A.; Gebler, L.; Maia, L.; Medina, L.; Trelles, S. *Buenas Prácticas Agrícolas Para Una Agricultura Más Resiliente*; IICA, Ed.; IICA: San José, Costa Rica, 2017; ISBN 9789292486976.