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NATIVE SEED BANKS OF THE WIXÁRIKA PEOPLE FOR PROMOTING PEASANT FOOD SOVEREIGNTY

René Cristóbal **Crocker-Sagastume**, David Isaac **Andrade-Díaz***

Intituto Regional de Investigación en Salud Pública, Departamento de Salud Pública, Centro Universitario de Ciencias de la Salud, Universidad de Guadalajara. Sierra Mojada 950, Col Independencia, Guadalajara, Jalisco, México. 44340.
*Corresponding author: david.andrade@cucs.udg.mx

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ABSTRACT

Native seed banks have become a strategy for communities and peoples to promote food sovereignty in their territories. This has been socially constructed by farmers as a requirement, which guides the policies, programs, and intervention strategies of social organizations. This research aims to analyze the importance of the native seed banks of the Wixárika people, as a model for advancing an integral food production system that contributes to improving the food sovereignty of peasant communities in the Valles de Jalisco region, Mexico. This represents a qualitative case study that analyzes knowledge and experiences, in the implementation of native seed banks in different cultural contexts and the role that rituals play in the preservation of native germplasm. Results from this study analyze the native seed banks of the Wixárika people in the Sierra Madre Occidental, who conserve their native seeds through the Coamil Production System; likewise, members from this ethnic group collaborate in the implementation of seed banks among rural mestizo peasant populations, who take part in an educational program to determine the ethnic group's system and adapt it to their context. In conclusion, it is evident that a fundamental strategy for conserving native corn (maize) lies in the seed banks associated with and endorsed by rituals; mythically linking corn to Mother Earth.

Keywords: food, indigenous peoples, interculturality, traditional agriculture.

INTRODUCTION

In recent decades, the introduction of modified seeds, use of agrochemicals on crops and loss of native species, among other factors, have transformed agriculture, leading to the abandonment and deterioration of traditional agriculture, which prioritizes the care of natural resources and food sovereignty. As a result of problems in terms of food production and food shortages, scarcity of natural resources, as well as political, social and health problems around the world; there has been an increase in debates and procedures to ensure food security and sovereignty with greater relevance in terms of policies and programs that aim towards sufficient, viable and sustainable food production (Ávila *et al*. 2014).

Food sovereignty (FS) has been socially constructed as a common demand on the part of peasant producers from different parts of the planet. The concept of food sovereignty guides the policies, programs and intervention

strategies of social organizations. The main elements of FS that are presented include: agroecology, as a base and a bridge to achieve sovereignty; this is comprehensive and includes worldview; land ownership and territorial defense; community governance; community organization, ability to decide and resist the imposition of policies; control of the food process, involving the entire production chain, from seed to consumption, as well as defense of land rights (Lönnqvist *et al*. 2018).

In this sense, native seed banks have become a strategy for the most suppressed communities and peoples who face various adversities of nutritional, social, and ecological nature, as well as deterioration of their ecosystem; all of this caused by globalization and the intensive-industrial agriculture model (FAO *et al*., 2021; Vernooy *et al*. 2016).

Research on the conservation of native seeds is increasingly relevant, as representing a key factor for promoting food sovereignty and agricultural diversity. Their conservation and use promotes the autonomy and control of local communities over their own food and economy and contributes to the preservation of ancestral culture and knowledge (García *et al*. 2019; FAO 2014; Rivas *et al*. 2013).

In turn, the promotion of food sovereignty is important because it guarantees food security for communities, promotes environmental sustainability, strengthens local communities, endorses autonomy and preserves cultural diversity (Gordillo and Méndez, 2013; Martínez and Rosset, 2014).

These objectives are essential for guaranteeing people's quality of life and the long-term sustainability of food systems.

At the international level, there is also a move to preserve indigenous or native seeds from each region, through the use of seed banks and other agro-ecological techniques.

In India, some villages work in collaborative networks, originating in communities and local self-help groups and thus implement community seed banks, with the purpose of preserving, replicating and distributing endangered local seeds. The local varieties conserved in the research include cereals, legumes and fruits and a total of 50 tons of seeds are reported, distributed in six banks throughout the region (Sreenivasa and Sharifi, 2019).

Another project, focused on the Colombian Free Seed Network (CFSN), addresses the recovery, conservation and defense of native seeds in the region and how these procedures impact agroecological improvement, both concerning adoption of techniques by those responsible for seeds, while also adding their own knowledge, and strengthening local capacities and identities in terms of the cultural, social and territorial preservation of communities. These activities provide the conditions to improve peasant agroecology and thus contribute to seed sovereignty, an essential aspect of the struggles to

conserve and reproduce native and Creole seeds. Finally, the authors affirm that native seeds are key to maintaining the socioecological level of the territories in which agroecology is practiced, as well as being crucial for agroecological scaling (García *et al*. 2019).

This study offers innovation potential by reaffirming the importance of the cultures of indigenous peoples through the conservation of native germplasm, towards a food sovereignty project for the Mexican countryside, by means of an intercultural agroecological process.

This research intends to analyze the importance of the native seed banks of the Wixárika people, as a model for promoting an integral food production system for the peasant communities of the Valles de Jalisco region, Mexico.

THEORETICAL FRAMEWORK

Epistemologies from the South are used to interpret the results from this research, through the use of ethnographic methodology, constituting a set of epistemologies that initiate from social claims but reflect on reality, to provide a critical diagnosis of the present, whose main element and purpose is the possibility of reconstructing, formulating and legitimizing alternatives, in order to lay the foundations for a more just and free society.

In order to empirically analyze and interpret the results obtained in the present study, we applied the following theories: a) Theory of biocultural dialogue to regenerate natural life, b) Theory of communality, c) Critical interculturality and intercultural education.

The theory of Biocultural Dialogue to Regenerate Natural Life is based on a postmodern perspective, surpassing the current critical-Eurocentric models and aiming to explain and relate the biological and historical-cultural processes, developed through the exchange of people's knowledge, in order to recover the worldview of original peoples and thus regenerate natural life (Crocker, 2023).

The theory of Communality is a native theory, which principally attempts to discuss methods for knowledge construction, considered as the philosophical axis of Mixe thought and principally based on Latin American perspectives (Díaz, 2004; Nava, 2013).

Regarding the theory of Critical Interculturality and Intercultural Education, this has emerged as a construct related to people who have been subjected and oppressed by the current social model. Its purpose is social transformation, through the construction of conditions that contrast to those of the present and which are not limited to the political, social and cultural spheres; it also encompasses and ascribes a crucial role to knowledge, being and life (Viaña *et al*., 2010).

METHODOLOGY

This research is presented as a case study, with the purpose of gathering knowledge and experiences involved in the implementation of a native seed bank, within different cultural contexts, as a basis for improving peasant food sovereignty; these are presented in Table 1.

The study is based on the following premise: the implementation of native seed banks for the Wixárika people promotes food sovereignty for farmers in the Valles region of the State of Jalisco. To verify this assumption, we present the following questions, their units of analysis and observables in Table 1.

This research is being carried out in the region's Intercultural Agroecological Farms, which participate in the native seed bank model, and in communities of the Wixárika ethnic group in the Sierra Madre Occidental, in the states of Nayarit and Jalisco.

For the collection and recovery of data, nine (9) non-participant ethnographic observations were made referring to native seed banks, ten (10) semi-structured interviews were applied to key informants with knowledge and know-how of native seed banks and conservation; this involved producers, and two (2) Intercultural Dialogue workshops were conducted between the main participants in these activities, who are members of the Wixárika ethnic

Table 1. Questions, units of analysis and observable factors.

Emerging questions	Units of analysis	Observable factors
What is the worldview that upholds the symbols expressed in the seed bank related to the Wixarika ethnic group?	Worldview	Community identity
	Ritual	Rituals and symbols related to seeds
What does a seed bank consist of?	Seed bank structure. Components of the seed bank	Nature of the bank Key features of the seed bank
How can the indigenous knowledge of the Wixarika ethnic group be used to preserve seeds on an intercultural agroecological farm?	Knowledge about seed conservation	Knowledge about conservation
What is the role of the native seed bank in Intercultural Agroecological Farms?	Concept of seed bank use Intercultural agroecological farms	Importance Seed bank-farm relationship
What is the association between native seed conservation and community food sovereignty?	Seed conservation	Conservation
	Food sovereignty	Self-sufficiency and food consumption
How to implement the development of native seed banks in the current production context?	Food production Use of seed banks	Seed bank in food production Advantages of use of seed banks
What are the local and national experiences in building native seed banks for food sovereignty?	Experiences related to the use of seed banks	Opinions regarding their implementation Challenges faced when forming a seed bank

Source: self-elaborated, 2022.

group and also mestizo producers of the region. At initiation of data collection, participants were given an explanation concerning the objective of the study and they provided informed consent for its authorization.

For data analysis, the corresponding transcription of in-depth interviews was carried out, as well as capture of information obtained from ethnographic observation and the intercultural dialogue workshop, through the implementation of the Atlas.ti software in version 8.

In compliance with the principles established in international ethical guidelines for health-related research on human beings by PAHO and CIOMS, this research is considered to be of minimal risk according to guideline 4 (Pan American Health Organization [PAHO] and Council of International Organizations of Medical Sciences [CIOMS], 2016).

RESULTS

For the presentation of results obtained in the research; these were organized by unit of analysis, derived from the coding of the empirical data, related to the research questions outlined above.

Wixárika worldview

In the case of members from the Wixárika ethnic group, notably both peasants and mestizos are particularly committed to the protection and proper management of native seeds, which they share, as these relate to profound feelings of belonging and identity. In order to obtain native corn, those interested must follow the rules and guidelines imposed by the Wixárika community. It is crucial to learn and where apt perform the corn ceremonies, in order to preserve the seeds provided.

> IC 3: "If you want to learn about corn cultivation and ritual ceremonies, then you must take an interest in all this, focus only on this and bring a document to the mountains, so that as we have corn here, we can bring a document that is a kind of permit, so that from this, we can share the corn so people can have some."
>
> IC 9: "Now, with the next planting, once you find your corn, you can participate in the fate of Mother Corn, you can bring your Mother Corn. Now your responsibility is to take care of her, feed her, light candles for her and participate or be present in the ceremonies here (…) But the main obligation is to come when the Planting Ceremony is in process, so that you can bring your corn to plant."

The Wixárika native seed banks are made up of five colors of maize: blue, white, yellow, pink and multicolored. Although the five corn colors form part

of the Wixárika worldview, many families or individuals do not consider all the varieties or, if necessary, prefer to plant and consume specific varieties; however, for the key informants, having all the colors or variables of corn combines sentiments of belonging and unity around this grain. According to the Wixaritari, all varieties of corn descend from a single plant, which is why they are considered to have been a family at some point and in this sense, they should remain together.

> IC 1: "…some times when some people don't like all the colors, those who like them just sow, others sow like that… but I almost, I want all colors, even though I don't sow very much, but, even if it's just a little in order to have all the colors present, then it's there (…) imagine you have a family and you want to see all your family, your mom and your dad and your siblings, well, make believe in this way, here too and well, yes. So I also think that, well, that's how I want everything, her daughters, pretend, her daughters are colors, the mother is blue, the children are born in those colors …
> IC 2: "Those grains that I was telling you about are the food of the mother corn and they are made into powder, tortillas are made from it, some are used to make tamales for the ceremony…"
> IC 7: "This is what we are doing with the seeds; we are adoring Mother Nature…"

Ritual

The ritualization of the coamiles[1] and seeds in this intercultural project has been increasing in conjunction with the experience of agroecological production itself, considering the most characteristic aspects of the Wixárika ethnic group that include production, ritualization and worldview. One of the key informants, who served as a producer and previously, as part of the educational and facilitating team, mentions that the transfer and appropriation of ethnic knowledge to the producers involved in this model has improved over time.

> IC 10: "In 2020, we again carried out these exercises on the Dr.'s farm with the leaders of the Cocula Community, and we carried out the planting ritual as well as the entire, well, the entire experience of participating in the coamil, but this time we tried to do this in a more formal way, because the experience we had in 2019 was that we were not accompanied, it had not been very, and there were some difficulties…"
> IC 10: "In 2020, we tried to improve these aspects and we carried out the entire ritual, we brought the intercultural facilitator, and we worked all day to shell the seed and we finished planting a good part of the coamil."

The rituals for the seed banks that were unsuccessful in this project were limited to a single initiation ritual, such as the one performed with the key informant with the native seeds to begin the process of sowing coamil. Although the informant and her companion in this process actively participated in this activity and understood its purpose, they were unable to achieve the consolidation of their own bank due to loss of seeds, resulting from lack of care and ritual process (Figure 1).

> IC 8: "A ritual was performed in which, well, it had to be done. As these are native seeds; local seeds, permission had to be asked and a ritual had to be performed in order to be able to give them to me. And this was undertaken right here and I received them with my sister, so that the bank could reside here…"

Structure of seed banks

The creation of seed banks in the Agroecological Farms is based on Wixaritari knowledge and skills. Karetas are used, which are elevated structures separated from the ground, built to prevent the entry of animals, mainly rodents, that affect the quantity and quality of the seeds stored. However, the use of Karetas

Source: authors' original photograph.
Figure 1. Wixarika Ritual for the sowing of coamil.

in the farms is limited to the farm located in the Valles Region, due to particular conditions in the area (Figure 2).

The conservation of seeds, mainly corn for consumption, is stored in sacks, which prevent the plundering of animals and facilitate access to corn for food. In this case, storage capacity is very limited and does not guarantee adequate conservation of seeds.

> IC 1: "Yes, they are in sacks, I only keep them in one sack, because I have nowhere else to keep them."
> IC 2: "...up in the mountains, the corn is stored in a kareta, we call it a kareta… it is a tall house that we make with forked props and on top they make a little house, where it is kept so that the air comes in and preserves the corn well."

Wixárika knowledge for seed conservation

Principal knowledge by the ethnic group to preserve seeds, especially native corn, dates back to the ancestors of native peoples, mainly concerning techniques for the conservation of seeds and performance of the coamil; both activities closely relate to their own rituals and customs, however, much of this knowledge has been lost due to the introduction of modern techniques and intensive production and the influence of Western and capitalist ideologies. Seed preservation is extremely important for the Wixáritari people and families, not only because it constitutes the main agricultural method and

Source: authors' original photograph.
Figure 2. Seed bank of the Wixarika coamil.

production of sacred corn, but also because it forms part of their culture and rituals, as well as forming the basis of their diet.

> IC 2: "…this comes from our grandparents, from our ancestors. This is the way that they looked after it; they looked after it better than at present, because they went hunting, killed deer, bled them, and went to sacred places to bring holy water and sacred water."
> IC1: "Well, the knowledge of this seed, previously they planted several seeds, but over time this has been lost or people leave their community to go to the countryside for work, they no longer come, they no longer plant, they lose their seed, because few people remain to plant."

The knowledge used for sowing coamil, as well as concerning seed conservation, is shared and transmitted from grandparents and parents. Interest in traditions and sowing is fomented in the home, thereby promoting production activities for self-consumption and the conservation of rituals and agroecological techniques, which preserve corn diversity. These techniques are specific for the long-term conservation of native germoplasm; as described by a key informant, the addition of ashes to the seeds extends their conservation time for a long period, protecting them from the environment and possible pests.

> IC 2: "I was with my grandmother for three or four years observing what she did; I learned to sow with her, and she preserved the seed well, it lasted up to two years, she could even keep it for three years and the corn was still good like this, because, she put the ashes in a gourd or she put the seed in a gourd and covered it with ashes and she could leave it there for three years, seeds for the five colors of corn and bean."
> IC 2: …if the beans are for consumption, she would put in two, three or five leaves of epazote so that weevils wouldn't go in because of the smell… so insects don't get in and then I would take the lid off and put them in the pot."

> IC 7: "My mother never neglected her seed. She was there sowing, harvesting, taking care of them; the way it is now, is not the way she would have done it; she would remove the grain. Then she would put the grain in something like, what do you call it? What they call a gourd… or jomate, you know what they call it, in that she would put about two or three little bundles, where she would keep the seeds. But every month she would lay them out in this way, so that they would lie in the sun; all colors, that's how she took care of them (…) from then on I was able, because as I was a child,

I already knew how to take care of our Mother Corn. Because my father had already taken them and was already using them."

Seed conservation

In the agroecological farms created in the Valles region of Jalisco, different conservation methods are used, depending on the climatic and geographic conditions of each one. Conservation in the spaces of the indigenous peoples, located in the Sierra Madre Occidental, is undertaken naturally and without the addition of any other component; the seeds are left to dry and stored in a dry place, isolated from possible pests, whereas in the farm located in the ZMG, areas pertaining to mestizo farmers, the seeds are preserved with the ashes resulting from ritual bonfires, likewise, they are stored in places absent from rodents to avoid the loss of seeds. The most suitable place for this work is the construction of a house/barn, made mostly of wood and with the base a few meters from the ground, to avoid rodents and external contamination, depending on the possibilities and availability of resources (Figure 3).

IC 1: "We don't add anything to them, we just put them there… we take them and select them and then, we bring them here and we put them in there, right here and that's it, so that they don't get covered over and they air out a little bit more."

Source: authors' original photograph.
Figure 3. Seed Conservation at the Intercultural Agroecological Farm School.

IC 2: "We keep them there, we preserve them with ashes, because these are harvested earlier, because in this way, you detect plagues and things, that is why we harvest it when it is green, meaning it rots easily… but here where its cool, nothing happens to it, so we do not need to cover with ashes or anything, just have a place, a space to store the seeds, so that rats do not get in."

Concept for seed bank use

With the loss of native seeds, farmers and their families also lose part of the identity and that of ancient communities, which ensured family sustainability at that time, as recounted by the interviewees. An important part of the rescue and conservation of seeds that were no longer used and therefore lost, is the integration and cohesion of the characteristics pertaining to the area (farm), as well as the support and advice of facilitators, regarding new ecological, productive and healthy production techniques, while at the same time re-integrating forgotten cultural aspects back into the sowing procedure (Figure 4).

IC 5: "For me, it is very, very important to rescue the seed, tradition, culture…"

Source: authors' original photograph.
Figure 4. Delivery of native seeds to producers in the region.

IC 6: "We want to rescue my parent's heritage. That's the reality, and we say; we have land, we have a little bit of knowledge, so I tell you, I think we should look for someone who can advise us on how to rescue our culture…"

Peasant Food Sovereignty

Having native seeds guarantees food production and consumption by rural families, which means buying less food, which is usually expensive and difficult to obtain in the region. The seed bank also ensures the next harvest by preserving and reproducing crops. Some of the food problems experienced in indigenous communities are food shortages, and in this sense, informants mention that, on certain occasions, food supplies have to be supplemented by acquiring corn from other sources, which leads to the consumption of transgenic or modified corn by individuals. In this context, it is apparent that, whereas native corn is not available or commercial for members of the community, modified corn is easily marketed and widely consumed.

IC 1: "I scarcely buy this product. And I prefer it that way, my own corn is easier. So, if you refuse to buy that type, then they can't sell it at all, they can't sell it to you, it's not that easy for them to sell it to you."
IC 2: "so it's better to have the seed and because if one refuses to buy more corn, if you only put in fifty percent together with the other fifty percent, then you can have a lot of corn, which is guaranteed. However on the contrary, if it produces a lot, it is no longer necessary to buy. It is also good to have all the colors just in case something happens."
IC7: "Well, if it is necessary, it is necessary to consume it to feel good, if you have it just for decoration, what good is it to you, because you are not going to consume it? You will not how it feels to eat colorful tortillas, unless you consume them and preserve them, as required."

The concept of food sovereignty in the case of producers who were unsuccessful in implementing native seed banks is no different than that of producers who were successful. Those interviewed say that food sovereignty is based on knowing and deciding what food is produced and consumed, while also addressing the sustainability of the production systems themselves, along with the intension of living in harmony with nature. These ideas and knowledge are based on a desire for a change in paradigms that seek general well-being and care for the environment.

IC 8: "Food, well, it would have a big impact, right? It has a big impact because we are supporting what we have been studying; sustainable food, good living, and well, it is part of knowing what I am eating, knowing how it is being produced, and sustaining only this…"

DISCUSSION

Food sovereignty is a concept that refers to the ability of people to control and decide on their own production, distribution and consumption of food. Food sovereignty seeks to guarantee people's right to adequate and sufficient food from local food production. It also promotes local food production, employing agroecological and sustainable techniques that protect the environment and promote biodiversity, greatly reducing dependence on chemical inputs and monocultures that damage soils and deplete natural resources (Edelman, 2014; Gordillo and Méndez, 2013).

Native seeds are those that have been cultivated and selected by local communities for generations, adapting to the climatic and soil conditions of each region. These seeds constitute heritage of humanity and represent a valuable genetic resource, as they have greater resistance to diseases and pests, and can produce more nutritious crops that are resistant to climate change (La Vía Campesina, 2018).

In this sense, native seeds are a key factor for guaranteeing food sovereignty, as their conservation and use promotes agricultural diversity and protects the culture of indigenous peoples.

Native seeds are an essential element for the Wixárika indigenous communities, in terms of both food and culture. Most of their rites and traditions originate from corn, which is perceived not only as a plant, but as a God and a crucial element in the community, hence it is jealously preserved by these communities. These attributes and traditions form part of the procedures that seek to promote peasant food sovereignty, based on ancestral knowledge and agroecological practices. Organizations and research in different parts of the world carry out similar actions, with the aim of preserving their seeds through cultural rescue and the implementation of agroecological methods that favor food sovereignty in the region (Baumann *et al*., 2020; Porcuna *et al*., 2020; van Dooren, 2009).

Threats to native corn from the agri-food industry are constant. Some examples include transnational companies that produce genetically modified crops, agrochemicals, fertilizers, and groups who seek to enrich themselves through these seeds, etc. (Barrera *et al*. 2009). The fight to preserve seeds, and thereby recover the Mexican countryside, originates among the indigenous peoples themselves, who have been preserving their seeds from these threats since colonial times.

In Mexico, the situation of corn has been monitored since the 1970s, indicating that many of the varieties of this grain are in danger of extinction and require attention (Ortega *et al*. 2018). In 2020, as part of the National Development Plan 2019-2024, the Mexican government published a decree prohibiting

transgenic corn, while progressively prohibiting glyphosate by 2024, so as to gradually replace the use of glyphosate and other agrochemicals used in the Mexican countryside with sustainable and culturally appropriate alternatives that enable agricultural production to continue, in order to achieve food sovereignty and human health (López, 2017).

These struggles to preserve their seeds and traditions are shared by communities and peoples, both nationally and worldwide. A similar case is observed in the Wixaritari communities, as well as in Mayan peasant communities in central Chiapas, which preserve their seeds and agroecological production methods, incorporating ancestral knowledge, employing seed banks and ritualizing seeds (Hernández *et al*., 2020). The worldview of the Wixárrika community is based on the myth of corn itself and its relationship with nature. These cultural and spiritual meanings related to seeds, mainly corn, are shared with other Mesoamerican communities, mainly in the southern region of Mexico, for example Mayan communities (Hernández *et al*., 2020; Lönnqvist *et al*., 2018).

Notably, these communities are resisting the threats of climate change, large transnational food industries, and social and political changes. In Asia, particularly India, where as in the Wixárika communities, there is a certain threat to ancestral food systems, as well as to the territory (Duthie *et al*., 2019). These situations have led communities to innovate and thereby improve and promote their traditional food systems through strategies for food sovereignty, by conserving their seeds (seed banks and exchange) and biocultural conservation. The increase in procedures that favor native seeds (seed activism) and agroecology is a response to the processes of privatization and appropriation by large industries and to the loss of agrodiversity (Peschard and Randeria, 2020).

In recent years, the situation of agricultural regions in the country has faced similar problems. The introduction of fertilizers, pesticides and herbicides, as well as Western ideologies, have caused serious land deterioration and massive loss of biodiversity, especially of native seeds, and together with the presence of processed foods, have made nutrition more expensive for the population.

Likewise, current adversities, as well as climatic and social problems, generate a negative impact on agriculture, both intensive and traditional agriculture; in the case of communities, climate change and the environmental impact it entails, affecting this relationship and the significance attributed to seeds, which are fundamental both for feeding communities and for culture. Notably, both in the indigenous communities of the western and southern regions of the state, the process of cultivation and reproduction of ritualized native corn, forming part of ancestral customs and traditions, have made it possible for these corn varieties to resist and adapt to the variations of current climate change (Barrera *et al*., 2009; Hernández *et al*., 2020).

Currently, a large number of farmers in Mexico face dependence on modified seeds. The insertion of transgenic seeds into the Mexican countryside has deteriorated the environment, displaced native species and favored the presence of chronic diseases (Crocker *et al*., 2018).

Various authors highlight the practices, values and knowledge that these peoples have built as an integral part of their worldview, which are an expression and recognition of belonging to the collective. These meanings related to local knowledge and culture, protection of common goods and territory, form an integral part of recent conceptualization of food sovereignty (La Vía Campesina, 2018; Micarelli, 2018).

Peasant sovereignty must be strengthened through actions that involve the communities themselves, from the construction of their public policies, in matters of food and the defense of territories, adequate use of their water sources and preservation of native seeds. It also implies the active participation of local communities in the production, distribution and consumption of food. This strengthens community networks and promotes the economic and social development of rural areas (World Forum on Food Sovereignty. 2001; Mariscal *et al*., 2017).

Food sovereignty promotes the autonomy of communities in making decisions about their food production. This allows them to adapt to the climatic and soil conditions of their region, choose what food to grow and how it should be produced (Ortega *et al*., 2018).

The conservation and use of native seeds promotes cultural diversity and contributes to the identity of communities. However, for native seeds to be effective in promoting food sovereignty, it is necessary to guarantee their access and control by local communities. This implies the protection of intellectual property rights of seeds and the elimination of legal and economic barriers to their use and commercialization, through the ritual surveillance carried out by the Wixárika people in their intercultural links with mestizo peoples.

CONCLUSIONS

Our research corroborates that a fundamental factor for maintaining native corn lies in the rituals that accompany the seeds. Likewise, these ritual practices that accompany the native seed bank model, conceptualized from the Wixarika and Buen Vivir worldview, play an important role in the adoption and maintenance of this model by peasants outside the indigenous communities, who seek to improve their productive conditions, have autonomy in decision-making about their food production and for guaranteeing their right to adequate and sufficient food.

There is a tendency for mestizo peoples to abandon their native production in favor of intensive agriculture; this process of transculturation affects the

production of native seeds, causing their loss, a process that also affects the Wixárika culture itself.

The recovery of the Mexican countryside through native seeds requires a comprehensive strategy that involves promoting the conservation and use of seeds, training and technical advice, the development of marketing and distribution channels, research and innovation, and raising awareness about the importance of native seeds. All of this is aimed at preserving the country's agricultural and cultural diversity and promoting sustainable and fair agriculture for local communities.

Native seeds that are supplied to producers from outside the ethnic group must be accompanied by a ritual, which seeks to generate a sense of belonging and thus promote the conservation and preservation of the seeds. It is important that the owners of native corn learn to properly conserve the seeds, incorporating both original sowing and preservation techniques, along with new agroecological techniques.

NOTES

[1]Coamiles are a component of the traditional food production system, where corn, beans and squash are planted, using a wooden or metal hoe or point to open holes in the ground.

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