Revista Mexicana de Ciencias Agrícolas

DOI: https://doi.org/10.29312/remexca.v17i3.4330

Article

Seed regulation: challenges and perspectives of Mexican law

Jessica Ramírez-Vázquez[1,§]
Leticia Rojas-Sandoval[1]

1 Posgrado en Producción de Semillas-Colegio de Postgraduados-Campus Montecillo. Carretera México-Texcoco km 36.5, Montecillo, Texcoco, México. CP. 56264. (rojas.leticia@colpos.mx).

Autora para correspondencia: ramirez.jessica@colpos.mx.

Abstract

In Mexico, the Federal Law on Seed Production, Certification and Trade was enacted in 2007; its main objective is to regulate the production, qualification and trade of seeds, seeking to organize and improve the national agricultural sector. This paper analyzes, through a documentary review, the impact of this legislation on the protection and conservation of native seeds in Mexico. Currently, the legal framework, by pointing to a model for the production and certification of 'improved' and commercial seeds, systematically marginalizes native varieties and peasant seed systems, which are essential for agricultural resilience and long-term food security. The study concludes that, despite its objectives, the law inadvertently contributes to the loss of agrobiodiversity and genetic erosion in the country. The lack of description guides and the limited inclusion of native varieties in the National Catalog of Plant Varieties leave an invaluable genetic and cultural heritage in a situation of vulnerability.

Keywords:

legislation, native varieties, production (thesaurus), qualification.

DOI: https://doi.org/10.29312/remexca.v17i3.4330

Introduction

The concept of food security, as defined by the Food and Agriculture Organization of the United Nations (FAO) in 1996, is the physical and economic availability of sufficient food for the entire population, seeking a lifestyle that promotes health and dynamism. It is therefore understandable that biodiversity in food and agriculture plays an important role in improving global food security, nutrition and health.

Biodiversity is essential for food sustenance, which includes both ecosystems and natural processes. This natural wealth, which includes everything from pollinating insects to soil microorganisms, forms the basis of any sustainable food system. It is referred to as 'associated biodiversity', arguing that it is crucial to ensure vital functions for crop health, including pollination, pest management, soil quality, and water purification.

Without these natural services, the cost of agriculture would rise and become more dependent on artificial inputs, such as fertilizers or chemical pesticides. The ability to resist threats such as pests, diseases, and climate change ultimately depends on the genetic diversity present in crops and livestock. This variety ensures future adaptability in the face of potentially unforeseen problems and provides stable benefits globally. Protecting these genetic resources is an essential initial step in ensuring that future generations can maintain some autonomy in their sustainable food production.

At the international level, Mexico is recognized as a key region in the origin, domestication and diversity of essential crops, with corn standing out because its genetic resources have a universal value. This unique position presents the country with both a challenge and an opportunity in terms of its management.

In turn, this distinction faces a significant problem: rapid global genetic erosion. It is indicated that the loss of local corn varieties is due to multiple factors, including the introduction of improved seeds (hybrid and genetically modified) and farmers' perceptions of local seeds as inferior, low-yielding products that are not competitive. This has led many farmers to abandon native corn cultivation.

Since the 1930s, research on plants and seed breeding has expanded throughout Mexico with the aim of increasing food production for national consumption. Since then, along with recommendations from laws related to agricultural production, such as the one on seed production, certification, and trade, the use of hybrid seeds in places with access to irrigation systems has increased.

The purpose of this analysis is to evaluate how the seed categories established in this Federal Law regulate this process; this was achieved through a qualitative documentary review that analyzes the role played by this regulation (2007) in the protection of native corn.

Methodology

The study used qualitative, analytical methodology grounded in extensive documentary analysis. Within the scope of the definitions established as inclusion criteria, documents in the period 2000-2024, current regulations, and literary production on central topics (the diversity of agricultural biodiversity/native corn seeds in Mexico; models: agro-biological policy, traditional knowledge systems/legislative framework/current classification) were selected.

Critical and comparative reading was the method of information analysis. The results were grouped into thematic categories to facilitate understanding: biodiversity and native seeds, legal framework and seed classes, functions of the National Seed Inspection and Certification Service (SNICS), conservation strategies and public policies, risks or legal gaps regarding native seeds. In addition, cases were analyzed as emblems that represent the social and legal dynamics of regulations, such as the State Law for the Promotion and Defense of Corn in Tlaxcala.

DOI: https://doi.org/10.29312/remexca.v17i3.4330

Native seeds

Their importance lies in the preservation and propagation of local varieties by peasant communities, which has driven their constant evolution. This also coincides with the fact that their main attributes are heterogeneity and local adaptation, which help individuals to resist environmental changes and new pressures, such as climate change.

For its part, the SNICS defines native varieties as hundreds of plant groups or populations in Mexico that have evolved thanks to farmers or rural communities. An illustration of this is found in the different corn breeds (such as Tuxpeño, Zapalote Chico, and Chalqueño) since Mexico is the source of their cultivation and domestication. Indigenous and local communities have developed traditional knowledge systems for centuries, resulting from crop experimentation and variety selection.

It is this knowledge that has led to the domestication and diversification of many plants. However, the relationship between these communities and their environment is changing in response to recent socioeconomic, ecological and climatic changes, jeopardizing the survival of this key knowledge.

Conserving native seeds is a simple but important action; it represents a way to strengthen community resilience, secure food supplies in the future and respect the wealth of traditions passed down through generations by traditional agriculture. Traditional knowledge contributes significantly to maintaining the variety of species, using genetic resources sparingly and sharing benefits fairly.

Federal Law on Seed Production, Certification and Trade (LFPCCS)

The main legal instrument regulating the seed sector in Mexico is the Federal Law on Seed Production, Certification and Trade (LFPCCS), which was published on June 15, 2007. Its main mission is to control the production of certified seeds, seed certification, and the marketing of quality seeds throughout Mexico. This is a key regulation for the organization and structure of agricultural production in the country, as it directly influences the industrialization and commercialization of this activity.

Nonetheless, by specifying, in addition to its scope, that the law concerns ‘certified’ seed, the LFPCCS accidentally creates legal ground that is sympathetic to industrialized and compliant seed systems. By explicitly defining its scope as the regulation of ‘certified’ seeds, the LFPCCS inadvertently creates a legal framework that favors formal and industrial seed systems. This implicit preference marginalizes traditional and informal seed exchange networks, which are crucial for the maintenance and evolution of Mexico’s native varieties and agrobiodiversity.

According to Article 33 of the LFPCCS, all seeds sold or distributed in the country must have a clear label on their packaging. This label must indicate what type of seed it is (name, genus, species, denomination of the plant variety, among others). This measure to order the market is a major threat to small producers of native seeds, as anyone who tries to sell seeds outside this limit risks a penalty.

This is a big problem for communities that have always exchanged their seeds and are not really aware of the process. The problem is also more serious according to data derived from national public media, where it is reported that 70% of Mexican farmers use native seeds, whereas the remaining 30%, who are the large producers, use hybrid seeds.

Although there is no specific law for native seeds in the country, their management, conservation, and sale are impacted by regulations such as the LFPCCS. Despite this, local seed systems remain of great importance, especially when formal seed channels fail to meet demand because they are expensive or inefficient or because they do not offer the varieties adapted to particular environments that are needed.

Current legislation does not clearly distinguish between certified and native seeds. This lack of distinction can pose a real threat to traditional agricultural practices and the invaluable genetic diversity that local communities have preserved for generations. Just as there are standards for analyzing agricultural and vegetable seeds, similar regulations are needed for native seeds. This regulation is essential for the growth of a solid native seed industry.

DOI: https://doi.org/10.29312/remexca.v17i3.4330

Main functions of the National Seed Inspection and Certification Service (SNICS)

The Secretariat of Agriculture and Rural Development (SADER) is responsible for implementing the LFPCCS through the SNICS, which acts as its executing agency. This law includes all relevant actors in the sector, such as producers, marketers, breeders, plant improvers, agricultural associations, research institutions and certifying entities.

The SNICS plays several key roles in the agricultural sector. Its main responsibilities include: granting registrations to plant variety conservators; evaluating seeds and coordinating the national seed system, collaborating in the creation of technical standards; establishing programs for the analysis and conservation of seeds; issuing certificates of origin for export, in addition to annually publishing the National Catalog of Plant Varieties (CNVV) and the catalog of maintainers.

The CNVV contains a list of varieties whose characteristics comply with the guidelines established for each species in order to ensure their genetic identity and differentiation. This catalogue is established only for purposes related to the qualification of seeds and does not offer legal protection for the rights of those who develop new varieties of plants, nor does it imply that an evaluation of their productivity or their ability to adapt to specific areas has been carried out.

On the other hand, a Breeder's Title is a right granted by the State, to an individual or legal entity in recognition of having improved a plant variety that must be new, different, stable, and homogeneous.

Seed categories

In Mexico, laws define qualified seed as that which has been evaluated and approved by the Secretariat of Agriculture through the SNICS or an authorized body. These seeds are classified into four categories: basic, registered, certified and authorized. The purpose of qualifying seeds is to ensure their quality through continuous inspections from their origin to their sale, ensuring they are suitable for sowing as they comply with established quality standards. The basic, registered and certified categories go through a strict control process to ensure their purity and genetic, physical, physiological and phytosanitary quality.

Basic

It is the category with the highest degree of genetic purity and serves as the starting point of a breeding program.

Registered

It maintains a high degree of purity and comes from original, basic or registered seeds.

Certified

It ensures an appropriate market level of purity and is produced from any of the above categories. On the other hand, the authorized category refers to those seeds whose propagation process has not been fully verified or does not fully comply with quality standards; however, it can be authorized in cases of scarcity or phytosanitary problems to ensure planting. Finally, the declared category is one whose characteristics are reported directly by the producer or marketer on the label, without a formal qualification process by the SNICS or a certified body.

To produce qualified seed, it is necessary to start the process at one of the SNICS offices. Key requirements include applying for enrollment in the program and registering the variety with the CNVV. If the variety has a breeder's title, the breeder's written authorization is required; likewise, it is also required to present proof of payment of fees, a document proving the origin of the variety (qualification labels or a varietal identity card), and the identification of the applicant or their legal representative.

DOI: https://doi.org/10.29312/remexca.v17i3.4330

The declared seed category allows farmers to sell their own seeds without having to meet the strict standards of purity, uniformity, and health required in other categories. Any variety of native corn can undergo the qualification process and be included in the categories of certified seed, as long as it meets the requirements, such as registration with the CNVV. In 2024, the SNICS published the first guide for describing native corn varieties, an instrument that provides recommendations for evaluating, grouping, and organizing varieties.

Despite this progress, these efforts must be extended to the great diversity of native crops in Mexico, many of which have significant cultural, though not necessarily commercial, value. Currently, most of Mexico's native varieties have not yet been registered with the CNVV. Only two native varieties (one of corn and one of Mexican marigold) are registered, while four more varieties of Mexican marigold are in the process of being reviewed. It is relevant to note that individuals have requested all these registrations.

As a result of the lack of registration, the sale of most native seeds is limited to informal circuits or the declared seed category, meaning they do not undergo a formal qualification process. Therefore, it is essential that these efforts be expanded to other species and that stronger legislation promoting the conservation of agrobiodiversity in the country be consolidated.

Native seed conservation

Mexico is a very important country in terms of biodiversity, as it is the place of origin of many agricultural species and has a wide variety of endemic and wild plants. This genetic richness can help make agriculture more resilient to social and environmental changes. Literature parameters state that varietal diversity in the formal conservation system in Mexico is limited if data from the main international and national crop centers are considered, suggesting that the actual diversity could be underestimated.

In this context, the diversity of groups identified in recent studies underlines the need to conserve and sustainably manage these varieties. Corn not only represents an invaluable genetic resource for food security, but also a fundamental cultural pillar for specific regions, such as La Frailesca in Chiapas. This lack of information is a serious problem, as it limits the ability to design effective strategies for the conservation and sustainable use of different breeds, varieties and cultivars.

When these genetic resources are lost, food production systems become more vulnerable to agricultural threats and challenges, such as climate disturbances, harmful organisms (pests and diseases) and loss of soil quality. Likewise, sociocultural impacts have been observed, including the forgetting of cultural knowledge and the standardization of diets around the world.

Government initiatives and guidelines have been implemented in the Mexican agrifood field to study and conserve biodiversity. Nevertheless, most of the work focuses exclusively on the genetic resources of the species that are traded, leaving out others. For example, it is stated that only five species make up more than 67% of accessions nationwide, with wheat (*Triticum aestivum*, 39.1%), corn (*Zea mays*, 24.5%), beans (*Phaseolus vulgaris*, 3.3%), and chili (*Capsicum annuum*, 0.8%) being the most represented.

Various national-level studies indicate that human actions threaten genetic resources. Another problem is that insufficient knowledge is being generated about how important these species are for agriculture, and there is a lack of short- and long-term conservation strategies, both *in situ* and *ex situ*. In this context, researchers underline that knowledge of diversity and the recovery of traditional knowledge about management and use are essential requirements to promote conservation.

Community initiatives

Red en defensa del maíz (Network in Defense of Corn) in Mexico brings together communities, organizations and civil society to protect peasant, traditional and agroecological agriculture. Its focus

DOI: https://doi.org/10.29312/remexca.v17i3.4330

is to ensure the lives and autonomy of those who maintain a close relationship with native seeds and ancestral practices. Among the network's flagship initiatives are the State Law for the Promotion and Protection of Corn in Tlaxcala, participatory breeding of native seeds in Yucatan and seed fairs.

The Tlaxcala law, passed in 2011, was created to promote the conservation of native corn, explicitly recognizing indigenous cultural rights, the right to adequate food and the right to health. This law became a national benchmark and served as the basis for the creation of the Federal Law for the Promotion and Protection of Native Corn of 2020. Another participatory breeding program in Yucatan, developed by community guardians in collaboration with civil associations, emerged in response to the losses caused by natural disasters in 2002.

Its most recent projects have included the recovery and *in situ* protection of native seeds, the cooperative development of varieties that adapt to environmental conditions and the strengthening of seed reserves managed by communities. Thanks to these actions, community seed systems are now more diverse; in line with these efforts, researchers proposed, not only the exchange of native seeds, but also the creation of 'solidarity houses of native seeds' by region. These authors consider this strategy fundamental to achieving food sovereignty.

Seed fairs also function as places where farmers can quickly and effectively access the varieties they produce themselves. The purpose of these meetings is not limited to the delivery and exchange of seeds, but also actively seeks to generate spaces for dialogue to share experiences and knowledge about native seeds. In 2020, the Federal Law for the Promotion and Protection of Native Corn was published.

This law recognizes the cultural and nutritional importance of this crop, obliges the State to protect it and creates the National Corn Council (Conam) and community seed banks. However, organizations such as *red en defensa del maíz* criticize the law for not explicitly prohibiting the cultivation of genetically modified corn at the commercial, experimental or pilot levels, which leaves native corn vulnerable to potential patents and plant breeders' rights.

When seed monopolization is based on intellectual property rights and patents, it creates a legal framework that has the potential to penalize farmers who simply keep or share the seeds they have grown. The process of turning this into a commercial good is harmful on several levels: it violates the rights of peasants, jeopardizes their access to a healthy and varied diet and severely impacts the planet's agricultural biodiversity.

Discussion

The analysis of the LFPCCS reveals a fundamental paradox in the Mexican legal framework. Although it aims to manage and improve the seed sector, its focus on the certification and trade of 'improved' varieties has inadvertently contributed to the marginalization and genetic erosion of native seeds.

The problem lies in the fact that the LFPCCS, by privileging the uniformity and quality control typical of industrial production, makes native seeds invisible. These, being the result of centuries of peasant selection and local adaptation, are by nature heterogeneous and do not always meet certification requirements. The law relegates them to the category of 'declared seed', a status that restricts their commercialization and does not recognize their intrinsic value.

This legal marginalization has serious consequences:

Protection gaps: Although the law mentions the importance of conservation, it lacks effective mechanisms and institutional support for farmers *in situ* conservation practices, putting Mexico's genetic richness at risk in the face of challenges such as the climate crisis and pest pressure. This aligns with academic data that point out a gap between legal intention and institutional action, arguing that, despite legal frameworks at the national and state levels establishing strategies for the *in situ* conservation of agrobiodiversity, institutions and productive programs lack adequate operational tools to meet this goal.

DOI: https://doi.org/10.29312/remexca.v17i3.4330

Risk of biopiracy: The lack of a robust legal framework to protect traditional knowledge and native seeds creates a gap that can be exploited. The promotion of plant breeders' rights, without a mechanism that recognizes communities, could allow the registration of native varieties as their own.

Marketing restrictions: The labeling requirement of Article 33 represents an obstacle for many small producers who lack the knowledge and resources to comply with this regulation, forcing them to operate in informal circuits. Although recent advances, such as the Guide for the Description of Native Varieties of Corn and the Federal Law for the Promotion and Protection of Native Corn, are important steps, the road ahead is long. It is essential that these efforts be extended to other crops and that stronger legislation is consolidated. Although there are already varieties of Mexican marigolds registered with the CNVV, this is insufficient given the country's great crop diversity.

Comprehensive legislation would not only safeguard biodiversity heritage but also recognize the strategic value of local knowledge systems in fostering food security and agricultural resilience. This need aligns with the perspective that emphasizes that the situation requires the creation of government strategies capable of addressing the complexity of the challenge. Such strategies must consider and respect the particularities of the environment, including the environment, the local economy, social ties and the cultural characteristics of the area.

Conclusions

The Federal Law on Seed Production, Certification and Trade, despite its objectives of organizing the sector, has inadvertently contributed to the genetic homogenization and marginalization of native seeds by privileging an industrial production model that values uniformity and certification. To maintain the agricultural sector's capacity to adapt to climate change, Mexico's biodiversity is an invaluable asset.

Nonetheless, this wealth is being eroded due to a variety of factors, including human actions, insufficient implementation of conservation strategies and the loss of traditional knowledge. In this context, it is imperative that public policy recognizes the value of local knowledge systems and promotes the development of a comprehensive agrobiodiversity strategy.

Bibliografía

1 Akhalkatsi, M.; Otte, A.; Togonidze, N.; Bragvadze, T.; Asanidze, Z.; Arabuli, G.; Chikhelidze, N. and Mazanishvili, L. 2017. Agrobiodiversity and genetic erosion of crop varieties and plant resources in the Central Great Caucasus. Annals of Agrarian Science. 15(1):11-16. https://doi.org/10.1016/j.aasci.2016.12.002.

2 Barbieri, P. and Bocchi, S. 2015. Analysis of the alternative agriculture's seeds market sector: history and development. Journal of Agricultural and Environmental Ethics. 28(4):789-801. https://doi.org/10.1007/s10806-015-9557-5.

3 Bellon, M. R.; Mastretta-Yanes, A.; Ponce-Mendoza, A.; Ortiz-Santamaría, D.; Oliveros-Galindo, O.; Perales, H.; Acevedo, F. and Saruhan, J. 2018. Evolutionary and food supply implications of ongoing maize domestication by Mexican campesinos. Proceedings of the Royal Society B: Biological Sciences. 285(1885):20181049. https://doi.org/10.1098/rspb.2018.1049.

4 Benítez-Aguilar, A.; Velázquez-Cigarroa, E. y Márquez-Molina, O. 2023. Análisis de modelos de producción local para la sustentabilidad y seguridad alimentaria en el Estado de México. En: O. Castro, E. Velázquez Cigarroa, & J. Fontalvo-Buelvas Eds. Agricultura, huertos educativos y transformaciones socioecológicas: experiencias significativas en México. 45-68 pp.

5 Caballero-García, M. A.; Córdova-Téllez, L. y López-Herrera, A. de J. 2019. Validación empírica de la teoría multicéntrica del origen y diversidad del maíz en

DOI: https://doi.org/10.29312/remexca.v17i3.4330

México. Revista Fitotecnia Mexicana. 42(4):357-366. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0187-73802019000400357.

6 De Ita, A. y López-Sierra, P. 2012. Semillas: marco legislativo y programas en México. Centro de Estudios para el Cambio en el Campo Mexicano. 1-24 pp.

7 Deletre, M.; McKey, D. B. and Hodkinson, T. R. 2011. Marriage exchanges, seed exchanges, and the dynamics of manioc diversity. Proceedings of the National Academy of Sciences. 108(45):18249-18254. https://doi.org/10.1073/pnas.1106259108.

8 Escárraga-Torres, L.; Cuevas-Sánchez, J. A.; Baca, M. J.; Maldonado-Méndez. M. L. y Sibelet, N. 2023. Evaluación del estado de la agrobiodiversidad en el sistema agroalimentario de México. Tropical and Subtropical Agroecosystems. 26(63). https://doi.org/10.56369/tsaes.4618.

9 Espinosa-Calderón, A.; Turrent-Fernández, A.; Tadeo-Robledo, M.; Vicente-Tello; A., Gómez-Montiel, N.; Valdivia-Bernal, R.; Sierra-Macías, M. y Zamudio-González, B. 2014. Ley de semillas y ley federal de variedades vegetales y transgénicos de maíz en México. Revista Mexicana de Ciencias Agrícolas. 5(2):293-308. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S2007-09342014000200010.

10 FAO. 1996. Food and Agriculture Organization of the United Nations. Rome declaration on world food security and world food summit plan of action: world food summit. Food and Agriculture Organization. https://digitallibrary.un.org/record/195568.

11 FAO. 2022. Food and Agriculture Organization of the United Nations. Marco de acción en materia de biodiversidad para la alimentación y la agricultura. Comisión de Recursos Genéticos para la Alimentación y la Agricultura. https://doi.org/10.4060/cb8338es.

12 Fontalvo-Buelvas, J. C.; Cruz-Elizondo, Y. and Trujillo-Valdivieso, H. 2025. Fundamentos agroecológicos y pedagógicos para la implementación de huertos familiares y educativos. Revista Electrónica en Educación y Pedagogía. 9(16):80-103. https://doi.org/10.15658/rev.electron.educ.pedagog25.06091604.

13 García, L. V. y Felipe, G. O. 2021. Redes y estrategias para la defensa del maíz en México. Revista Mexicana de Sociología. 83(2):297-329. https://doi.org/10.22201/iis.01882503p.2021.2.59882.

14 Goettsch, B.; Urquiza-Haas, T.; Koleff, P.; Acevedo, G. F.; Aguilar, M. A.; Alavez, V.; Alejandre, I. G.; Aragón, C. F.; Azurdia, P. C.; Carr, J. A.; Castellanos, M. G.; Cerén, G.; Contreras, T. A. R.; Correa, C. M. E.; Cruz-Larios, L.; Debouck, D. G.; Delgado, S. A.; Gómez, R. E. P.; González, L. M. and Jenkins, R. K. B. 2021. Extinction risk of Mesoamerican crop wild relatives. Plants, People, Planet. 3(6):775-795. https://doi.org/10.1002/ppp3.10225.

15 Gómez-Padilla, E. J.; Llaven-Martínez, J.; Gómez-Padilla, E.; Arias, M. A. y Guevara Hernández, F. 2024. Caracterización de maíces locales de la región Frailesca de Chiapas: diversidad morfológica y productiva. Revista Chapingo Serie Ciencias Forestales y del Ambiente. 30(1):1-16. https://doi.org/10.5154/r.rchsat.2024.04.04.

16 Khoury, C. K.; Amariles, D.; Soto, J. S.; Diaz, M. V.; Sotelo, S.; Sosa, C. C.; Ramírez-Villegas, J.; Achicanoy, H. A.; Velásquez-Tibatá, J.; Guarino, L.; León, B.; Navarro-Racines, C.; Castañeda-Álvarez, N. P.; Dempewolf, H.; Wiersema, J. H. and Jarvis, A. 2019. Comprehensiveness of conservation of useful wild plants: An operational indicator for biodiversity and sustainable development targets. Ecological Indicators. 98:420-429. https://doi.org/10.1016/j.ecolind.2018.11.016.

17 LFPCCS. 2007. Ley Federal de Producción, Certificación y Comercio de Semillas. Diario Oficial de la Federación.

18 Morales-Valenzuela, G.; Hernández López, D. M. y Padilla-Vega, J. 2022. Diversidad, abundancia y usos de las verduras de las milpas en una comunidad tsotsil de Huitiupán, Chiapas. Revista Chapingo Serie Agricultura Tropical. 2(1):5-16. https://doi.org/10.5154/r.rchsagt.2021.03.01.

DOI: https://doi.org/10.29312/remexca.v17i3.4330

19 Mulvany, P. 2021. Sustaining agricultural biodiversity and heterogeneous seeds. En: A. Kassam & L. Kassam Ed. Rethinking food and agriculture. Woodhead Publishing. 285-321 pp. https://doi.org/10.1016/B978-0-12-816410-5.00014-1.

20 Oakland Institute. 2017. Down on the seed: the world bank enables corporate takeover of seeds. Oakland Institute. 1-24 p.

21 Pedrini, S. and Dixon, K. W. 2020. International principles and standards for native seeds in ecological restoration. Restoration Ecology. 28(S3):S286-S303. https://doi.org/10.1111/rec.13155.

22 Ramírez-Hernández, B. and Almaguer-Vargas, G. 2023. Aportaciones para una política pública en el cultivo de palma de aceite. Revista Chapingo Serie Agricultura Tropical. 2(2):e20220205. https://doi.org/10.5154/r.rchsagt.2022.02.05.

23 SNICS. 2016. Servicio Nacional de Inspección y Certificación de Semillas. Categorías de semillas y etiquetas de certificación. Blog del SNICS. https://www.gob.mx/snics/articulos/categorias-de-semillas-y-etiquetas-de-certificacion.

24 SNICS. 2020a. Servicio Nacional de Inspección y Certificación de Semillas. Regla para la calificación de semilla de haba (Vicia faba L.). Servicio Nacional de Inspección y Certificación de Semillas. 1-14 pp.

25 SNICS. 2020b. Servicio Nacional de Inspección y Certificación de Semillas. Requisitos para iniciar el proceso de calificación de semillas. Blog del SNICS. https://www.gob.mx/snics/articulos/requisitos-para-iniciar-el-proceso-de-calificacion-de-semillas.

26 SNICS. 2024. Servicio Nacional de Inspección y Certificación de Semillas. Guía para la descripción de variedades nativas de maíz (Zea mays L.). 1-32 pp. https://www.gob.mx/cms/uploads/attachment/file/891830/Guia-Maiz-Nativo2024-FINAL.pdf.

27 TV UNAM Global. 2023. Maíz nativo pierde terreno ante semillas híbridas [Video]. TV UNAM. https://unamglobal.unam.mx/global-tv/maiz-nativo-pierde-terreno-ante-semillas-hibridas/.

Revista Mexicana de Ciencias Agrícolas

DOI: https://doi.org/10.29312/remexca.v17i3.4330

Seed regulation: challenges and perspectives of Mexican law

Journal Information
Journal ID (publisher-id): remexca
Title: Revista mexicana de ciencias agrícolas
Abbreviated Title: Rev. Mex. Cienc. Agríc
ISSN (print): 2007-0934
Publisher: Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias

Article/Issue Information
Date received: 01 February 2026
Date accepted: 01 April 2026
Publication date: 01 May 2026
Publication date: May-Jun 2026
Volume: 17
Issue: 3
Electronic Location Identifier: e4330
DOI: 10.29312/remexca.v17i3.4330

Categories

Subject: Essay

Keywords:

Keywords:

legislation
native varieties
production (thesaurus)
qualification

Counts

Figures: 0
Tables: 0
Equations: 0
References: 27