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Final Report

State of Farmers' Rights to Seeds in the World

A systematic review of national regulations in Kenya, Rwanda, Madagascar and Colombia

MINT317 Applied Research Project

Group 25

Arianna Devigili

Margaux Serratore

Rebecca Kübler

Academic Supervisor:

Denis Ruysschaert

Partner Institution:

SWISSAID

Simon Degelo

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Abstract

This article discusses the findings of a research project conducted in four different countries – Kenya, Rwanda, Madagascar and Colombia – and their respective national legal frameworks, in order to assess the state of farmers' rights to seeds and their level of compliance with international standards. The analysis investigates their respective legal framework considering how access to seeds and their biodiversity is valued through the Convention on Biological Diversity (CBD), and how farmers' rights are shaped under the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the United Nations Declaration on the Rights of Peasants (UNDROP). The discussion of the findings is based on three key indicators: Plant Variety Protection (PVP) (1), Seed Trade Regulation (2) and Compliance (3).

The study reveals a fragmented global landscape with regard to the recognition and protection of farmers' rights to seeds. In Kenya, although the constitution formally acknowledges the protection of farmers' seeds, strict certification laws and overlapping legal regimes that restrict traditional seed-saving practices criminalize farmers' rights to save, use, exchange and their seeds. Meanwhile, Rwanda offers limited legal space for non-commercial seed exchange while aligning fully with regional seed trade regulations. Madagascar represents a hybrid model in which outdated PVP laws coexist with intermediate seed systems, such as the Quality Declared Seed System (QDS) system, which bridge the gap between farmers' and commercial seed systems. The QDS in Madagascar enables farmers to declare the quality of their farm-saved seeds, but it lacks national legal recognition. Finally, in Colombia too, farmers' seeds are not legally recognized. However, another intermediate seed system, the Participatory Guarantee System (PGS) under "Semillas de Identidad", has enabled alternative community-based certification practices, despite not being legally recognized and official policies remaining aligned with conventional commercial seed regimes. In all cases, we find that enforcement mechanisms disproportionately target commercial actors, while the main source of seed for smallholders, farmers' seed systems, are often legally criminalized. Despite growing international commitments, such as the ITPGRFA and the UNDROP, our findings show that national implementation remains partial, contested, and often structurally misaligned with the realities of smallholder farmers.

Keywords

CBD, Colombia, ITPGRFA, Kenya, Madagascar, Nagoya Protocol, PGS, PVP, QDS, Rwanda, Seed Trade Regulation, UNDROP, UPOV

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Abbreviations and Acronyms

CBD	Convention on Biological Diversity
CGIAR	Consultative Group of International Agricultural Research
DUS	Distinctness, Uniformity, and Stability
FAO	Food and Agriculture Organization of the United Nations
GMO	Genetically Modified Organisms
IO	International Organization
IP	Intellectual Property
IPRs	Intellectual Property Rights
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
NGO	Non-Governmental Organization
PBR	Plant Breeders' Right
PGRFA	Plant Genetic Resources for Food and Agriculture
PGS	Participatory Guarantee System
PVP	Plant Variety Protection
QDS	Quality Declared Seed System
RAFI	Rural Advancement Foundation International
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UNDROP	United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas
UPOV	International Union for the Protection of New Varieties of Plants
UPOV Convention	International Convention for the Protection of New Varieties of Plants
VCU	Value for Cultivation and Use
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

1 Introduction

Imagine being a smallholder farmer, working every day to feed your family and nurture your community. Your seeds are more than just agricultural inputs; they have been carefully selected, saved and resowed through generations, adapting to your local soil and climate. Your seeds are tied to seasonal rituals, embedded in lives' rites of passage, sold at local markets and exchanged with family, friends and neighbors. One day, you hear that these very seeds are now considered illegal. A new law bans uncertified seeds, the seeds you and your community carefully saved. Now, you could be criminalized for carrying out the same activities your ancestors have been doing for generations. As this research shows, this scenario is not fictional.[1]

For more than 10,000 years, farmers have freely used, exchanged, and preserved seeds, allowing the cultivation of foods that are just as essential to food security now as they were in the past (Peschard et al., 2023). The careful selection of seeds and the exchange between farmers over generations resulted in the creation of many heterogeneous crop varieties (Halewood, 2016). This wide diversity of crop types not only resulted in invaluable biodiversity but also gave farmers a consistent source of food due to the resilience of crop varieties adapted to local environmental conditions (SWISSAID, 2019). During the 20th century, food production increased significantly because of the introduction of agro-chemistry (fertilizer, pest control) and development of homogeneous crop types often linked to advanced plant breeding techniques. This modernization and intensification of agriculture is known as the "Green Revolution", a shift that led to the depletion of lower yielding varieties, biodiversity loss and soil erosion that are vital to the livelihoods of smallholder farmers (Halewood, 2016).

According to Muthoni and Nyamongo (2008), "a seed system incorporates the different ways by which farmers can access seed, including the different actors involved in the seed chains" (as cited in Munyi & De Jonge, 2015, p. 161). Seed systems can be broadly divided into two main models (Barelli et al., 2024). On the one hand, farmers' seed systems emphasize the continuous renewal of biodiversity, advocating the legal rights of farmers to save, use, exchange, and sell seeds freely (Ibid.). On the other hand, commercial seed regimes prioritize maximizing food production and profit and rely on property rights and contract law to regulate the access to and use of seeds (Ibid.). However, farmers' seeds and commercial seeds are not two entirely separate entities, they coexist and influence one another through the peasant's resowing of seed acquired through commercial means, bringing seed from the commercial to the farmers' seed sector.[2]

[1] The information and text in this chapter is referring to the literature review submitted by the student team for this course (MINT317-Applied Research Project) on December 3, 2024.

[2] According to an expert. Interview conducted on March 18, 2025.

The farmers' seed system is the main source of seeds for smallholder farmers (Munyi & De Jonge, 2015). Yet seed laws ruling the commercial seed system often undermine farmers' ability to use, save, exchange, and sell seeds. In fact, the industrialization of agriculture through the green revolution strongly impacted seed systems, resulting in heightened corporation control over seed breeding, upheld by Global North provisions such as Intellectual Property Rights (IPRs) and Plant Variety Protection (PVP) laws (Ibid.). This shift led to smallholder farmers' dependency on corporations for seeds and loss of biodiversity (Degelo et al., 2025). In response to these tensions, international frameworks to protect farmers' rights to seeds emerged. In particular, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), adopted in 2001 and known notably with the name of the Plant Treaty, acknowledges farmers' rights to save, use, exchange and sell farm-saved seeds and planting material. In 2018, the United Nations General Assembly adopted the Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP), which also touches upon farmers' rights (UN General Assembly, 2018).

These instruments[3] aim to counterbalance IP regimes and PVP[4] by reaffirming the role of farmers in maintaining agrobiodiversity and food sovereignty.[5] In light of these tensions, a key question arises: how do national seed laws protect, or fail to protect farmers' rights recognized at an international level? This question is particularly relevant as it bridges the gap between widely debated international frameworks and their actual legal implementation at a national level. In order to address this issue, this article analyzes national seed laws and policies in four different countries – Kenya, Rwanda, Madagascar, and Colombia – to assess the extent to which they protect farmers' rights in light of the ITPGRFA and the UNDROP.[6]

The sensibility of the research topic requires a clarification of the appropriate terminology. While the terms peasants and farmers are often used interchangeably, we adopt "farmers" consistently throughout the article. Moreover, other terms such as local and indigenous seeds, while commonly used in legal and policy contexts, are contested by some farmers organizations. They argue that these terms imply that the seed's value and relevance are linked to a limited geographical and cultural setting. The term "farmers' seeds" is preferred over traditional seeds, as traditional farming practices and seed systems are dynamic and continuously evolving rather than tied to a fixed point in time. Consequently, this article uses "farmers' seeds" as a broader and inclusive term, which better reflects the dynamic nature of seed practices. Likewise, instead of adopting the dichotomy of "informal" and "formal" seed systems, this research uses "farmers' seed system" and "commercial seed system" to avoid any implication of disorder or illegitimacy of the so-called "informal seed system".

[3] See Ch. 2.2 & 2.3.

[4] See Ch. 2.1.

[5] A widely recognized definition of food sovereignty comes from La Via Campesina: "Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (La Via Campesina, 2024).

[6] See Methodology, Ch. 3.

2 International Framework

2.1 Intellectual Property and Plant Variety Protection

In the 20th century, the expansion of the breeding and biotechnology sectors in agriculture, particularly in the Global North, led to the extension of Intellectual Property Rights (IPRs) to plant varieties and plant biotechnology.[7] The core idea behind IPRs is to promote innovation by giving inventors exclusive control over their creations, provided they share information about their inventions in a way that support technological advancement, including through international trade (Tomar, 2024). This principle underpins the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), established under the World Trade Organization (WTO) in 1994. The TRIPS stands out, and remains contentious, because it brought IPRs squarely into the domain of international trade, backed by enforceable legal mechanisms (Blakeney, 2016). Unlike earlier IP agreements, TRIPS introduced a formal dispute resolution process, enabling WTO members to impose trade sanctions on non-compliant countries (Ibid.). This development transformed IP from a primarily legal and technical concern into a matter of global political economy. In doing so, TRIPS extended a set of IP standards largely crafted by industrialized nations to the global South, embedding them within the WTO's trade enforcement structure (Ibid.).

In agriculture, seeds have become a crucial vector of technological advancement, playing a fundamental role in addressing emerging challenges such as climate change and declining soil fertility. As a result, access to innovative agricultural technologies is increasingly deemed essential for farmers' adaptation and resilience. However, the application of IPRs to plant varieties has instead raised significant legal debates and political concerns, particularly regarding farmers' rights, authorial recognition, and the implications for biodiversity. Article 27.3(b) of TRIPS is particularly important in this context, as it excludes certain agrobiotechnology inventions from patentability, specifically "plants", "essentially biological processes for the production of plants", and "plant varieties", while simultaneously raising the obligation for all WTO members to protect plant varieties "either by patents or by an effective sui generis system or by any combination thereof". Plant Variety Protection (PVP), as part of IPRs, grants the breeders special rights to commercialize their newly developed plant varieties, usually by granting licenses for their exclusive rights to farmers (Barelli et al., 2024). Farmers must obtain licenses to use them, even when their intention is simply to feed communities or ensure livelihoods, and those who use registered seeds without obtaining the necessary licenses risk facing legal action from breeders for PVP infringement, potentially resulting in liability for damages (Ibid.).

[7] The information and text in Chapter 2 is referring to the literature review submitted by the student team for this course (MINT317-Applied Research Project) on December 3, 2024.

The introduction of IPRs to seeds and plant varieties was a gradual process, beginning in Europe and later becoming global (Dutfield et al., 2011). In this context, the UPOV Convention was born in Paris in 1961 as an international treaty that sets minimum standards for plant variety protection (Ibid.). Although UPOV was initially established to only serve the interests of industrialized European countries by protecting their breeding industries at home and abroad, many breeders and seed companies today view a strong plant breeder's rights and therefore support UPOV work (Munyi, 2017). Moreover, they have been instrumental in encouraging countries from other regions to join, resulting in approximately two dozen developing countries becoming members since 1995, with many more currently pursuing accessions (Ibid.).[8] In this context, UPOV also hosts the most common, but not the only "effective sui generis system for PVP" that members of the convention and countries in general can decide to adopt or reproduce in their own legislation (Dutfield et al., 2011). Neither UPOV nor the TRIPS Agreement prevents countries from adopting their own non-UPOV systems for protecting plant varieties, with some countries adopting unique systems (Ibid.). Nonetheless, the core issue is that establishing a PVP system is a complex process, particularly for countries starting from scratch, due to the resource and technique intensive requirements on expertise and infrastructures for field trials. Additionally, many developing nations opt for UPOV membership or adopt UPOV-compliant laws as part of trade or investment agreements with major partners like the United States, the European Union, Japan, or the European Free Trade Association (Ibid.). There is in fact the misleading perception that joining UPOV is necessary to meet TRIPS, subtly positioning its system's standards as the benchmark for compliance (Ibid.).

Currently, Least Developed Countries are exempted from implementing TRIPS provisions, including Article 27.3(b), until July 2034, giving them more policy space and time to develop their own systems. Despite this flexibility, donors, trade agreements and partners, or regional IP frameworks dictated by regional organization's membership sometimes still pressure them to adopt stricter IP laws earlier (Dutfield et al., 2011). The UPOV Office provides advice and support to countries interested in joining, often through WIPO's technical assistance programs. If the laws are deemed compliant and enacted (even if not yet implemented), the country can ratify the Convention and become a member, but If changes are required, these must be made before ratification. This process allows UPOV, its Office, and existing members to demand strict adherence to their standards, giving them potential influence over the legislative decisions of applicant countries (Ibid.). Instead of tailoring their recommendations to the specific contexts and needs of each country, the guidance provided tends to promote a standardized UPOV legislative model that does not recognize farmers' seed systems and has little consideration for local agricultural realities (Ibid.).

Developing countries face the challenge of establishing or aligning with an IPR system that balances trade objectives, national food security, and the interests of smallholder farmers (Munyi & De Jonge, 2015). The latter includes access to improved plant varieties, the potential to increase the diversity of seeds available on a

[8] See Figure 1.

domestic level, and the hope of attracting foreign investment in the agricultural sector (Ibid.). In many of these countries, between 80% and 95% of seeds are produced and exchanged through farmers' seed systems, with on-farm seed saving and sharing among family and neighbors being the primary means of seed access for most crops (Ibid.). Against these diverging interests, it becomes crucial to unpack how PVP regimes contribute to the exclusion of resource-poor farmers from seed systems. The following sections in the article examine the major interlinked legal and policy shifts that have compounded this exclusion: first, the growing number of countries enforcing legal restrictions on saving, exchanging, and selling uncertified or protected seeds, even for non-commercial use; and second, the implementation of strict seed certification schemes that fail to recognize farmers' and indigenous seeds as legitimate, marketable quality seeds. These barriers are compounded by the high costs of royalties and limited financial access to certified or commercial seeds, which place a heavy burden on resource-poor farming communities.

First, farmers' practices of saving, exchanging and selling seeds, which earlier versions of PVP – including UPOV – remained silent on is now questioned in many national legislations as constituting an infringement of PBRs (Blakeney, 2016). Legislation acknowledged seed saving practices and the development of new, non-essentially derived varieties from protected material for farmers and breeders, reflecting certain public policy considerations (Ibid.). A central concern was that allowing individuals to privatize food crop varieties could undermine food security, particularly by restricting access to breeding material and prohibiting farmers from saving seeds for future planting (Ibid.). From the perspective of plant breeders, however, any use of their protected varieties to develop new ones, regardless of whether the derivation was essential or non-essential, posed a challenge to their commercial interests, as farmers' seed-saving practices were seen to reduce potential sales and revenue streams (Ibid.). Consequently, breeders looked at patent law, which does not contain such automatic exemption, to prevent farmers from saving and re-using seeds that incorporate patented microbiological components (Blakeney 2016, Correa et al. 2020).

For instance, UPOV was the subject of three revisions in 1972, in 1978 and 1991, which dramatically altered the balance between PBRs and farmers' practices further (Blakeney, 2016). The 1991 Act grants breeders the right to use protected varieties to develop new ones (Ibid.)[9] However, this right is limited to cases where the new varieties are not essentially derived from the original protected varieties (Ibid.).[10] The drafters introduced this restriction to prevent second-generation breeders from making only superficial modifications to existing varieties and then claiming them as new (Ibid.). One of the most controversial elements of the 1991 Act is that it ended up classifying the save, exchange and selling practices as a farmers' privilege. It is, indeed, an optional exclusion for members to consider or not 'within reasonable limits and subject to the safeguarding of the legitimate interests of the breeders[11] if farmers are allowed "to use for propagating purposes, on their own

[9] Explanatory notes on exceptions to the breeder's right under UPOV 1991.

[10] Ibid.

[11] Article 15.2, UPOV 1991.

holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety".[12] This is contrasted with earlier version of UPOV, which permitted farmers to sell or exchange seeds with other farmers for propagating purposes (Blakeney, 2016).

Second, seed trade acts regulating the quality, certification, marketing, and distribution of seeds in the market intersect with IP law to provide PBRs only for plant varieties that meet specific criteria: distinctness, uniformity, stability, and novelty, commonly referred to as the DUS criteria.[13] Because indigenous and farmers' varieties are typically heterogeneous and genetically variable, countries that adopt or mimic UPOV risk limiting farmers' chances of receiving formal recognition for their contributions, as the system requires compliance to such strict criteria with the aim of only rewarding homogeneity, standardization and mass production (Rangnekar, 2013).

Ultimately, from 1972 to 1991, UPOV has also evolved in the coverage of varieties, scope of PBRs, length of protection, and minimum exclusive rights in propagating and harvested material, further challenging farmers' aspiration for authorial recognition (see Table 3). The problem today is that new members are required to adopt this latest version, while earlier members can still adhere to the more flexible 1978 version, creating further heterogeneity, confusion, and grey areas in the global IP regime governing seeds (Blakeney, 2016). Indeed, WTO's promotion of commercial seed systems, through the strengthening of IPRs, and the introduction of UPOV resulted in the decline of traditional farmers practices and seed systems (Peschard et al., 2023). IPR frameworks were introduced to incentivize the development of higher-yielding and innovative seed varieties to increase agricultural production, but this happened at the expense of farmers' rights to seeds (Cullet, 2003). On the contrary, PVP and patent protection can discourage innovation and reward homogeneity instead of agrobiodiversity, which is needed for the resilience of food security of farmers facing climate change (Peschard et al., 2023). Moreover, the IPRs regime resulted as a distinct characteristic of the globalization of agriculture, leading to the concentration of capital in a vertical integration of the supply chain among a small number of oligopolies, including seeding firms, agrochemical firms, trading firms, manufacturers and banking systems (Parfitt & Robinson, 2015).

2.2 The Concept of Farmers' Rights and the Plant Treaty

Because of the introduction of the aforementioned strict regulatory framework, the issue of "genetic erosion" and the privatization of genetic resources strengthening corporate control over seed markets emerged in the 1960s as a major concern in modern agricultural practices (SWISSAID, 2019). In response, programs with the aim to preserve Plant Genetic Resources for Food and Agriculture (PGRFA) were initiated alongside the modernization and intensification of agriculture, also known as the "Green Revolution" (Peres, 2016). These crop variety collection initiatives, initially funded by the Rockefeller Foundation, began to accelerate in the

[12] Ibid.

[13] See UPOV, Ch. 3.

1970's. However, during these years, 85% of all collections were stored in industrialized countries and in the gene bank of the International Agricultural Research Centres of the Consultative Group on International Agricultural Research (CGIAR), with only 15% being stored in developing countries[14] (Andersen, 2016).

Consequently, farmers' rights started being discussed at the international level. As a result, a draft of an international convention on the feasibility of establishing an international plant gene bank was successfully proposed by the Mexican delegation at the Food and Agriculture Organization (FAO) Conference in 1981 (Andersen, 2016). This led to the adoption of the International Undertaking on Plant Genetic Resources in 1983 (Ibid.). It aims to ensure the exploration, conservation, evaluation, and availability of PGRFA.[15] The International Undertaking on follows the principle that genetic resources are a "heritage of mankind", which means that everyone should have unrestricted access to them.[16]

The 1989 FAO Conference formally recognized the concept of Farmers' Rights for the first time by adopting Resolution 5/89. This resolution defined farmers' rights as "rights arising from the past, present and future contributions of farmers in conserving, improving, and making available plant genetic resources, particularly those in the International Community, […], for the purpose of ensuring full benefits to farmers, and supporting the continuation of their contributions […]" (FAO, 1989, para. 8). In 1991, a new FAO resolution specified that the principle of "mankind's heritage" was "subject to the sovereignty of states" (FAO, 1991, para 1). This marked a change from 1983, when plant genetic resources were seen as part of everyone's common heritage (Bessa & Veiga, 2020).

One year later, in 1992, the UN Conference on Environment and Development (UNCED) adopted the Convention on Biological Diversity (CBD), which entered into force in 1993. The CBD was the first international agreement to address the conservation, the sustainable use of genetic resources and fair and equitable sharing of benefits arising from their use (see objectives in Article 1 CBD; Andersen, 2023). The CBD's Article 8j is the most pertinent section that addresses farmers' rights (Andersen, 2023). Specifically, it states that the parties to the Convention shall "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities […]".[17] Furthermore, the CBD includes provisions on access and benefit-sharing, which were further clarified under the Nagoya Protocol.[18] The Nagoya Protocol on Access and Benefit-Sharing, negotiated under the Convention on Biological Diversity (CBD), was adopted in 2010 and came into force in 2014 (FOEN, 2014). It promotes the fair and equal distribution of benefits resulting from the use of genetic resources, which is the third objective of the CBD (Ibid.).

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[14] Founded 1971 by the Ford and Rockefeller Foundations.

[15] Art. 1, International Undertaking on Plant Genetic Resources.

[16] Ibid.

[17] Art. 8f, CBD.

[18] See Ch. 2.3.

In 2001, the FAO Conference adopted the International Plant Treaty (ITPGRFA) (Andersen, 2016; Andersen, 2022). The legally binding instrument of international law entered into force in 2004 and is closely interconnected with the previously mentioned CBD (Andersen, 2023). It was the first legal recognition of the role of farmers in the conservation and development of PGRFA at the international level (Golay et al., 2022). According to Article 1, the objectives of the ITPGRFA include the conservation and sustainable use of PGRFA to ensure fair and equitable sharing of the benefits arising from their use (FAO, 2009). At the heart of the Plant Treaty is a "Multilateral System of Access and Benefit-Sharing" covering 80% of the human food supply derived from plants at the time of the Treaty's adoption (64 crops and forages) (Andersen, 2022; FAO, n.d.). These crops and forages are to be managed and controlled by the signatory parties, collected in an international gene bank and made available for public use (Andersen, 2022). Furthermore, farmers' rights are primarily addressed in Article 9 of the ITPGRFA with supporting provisions in the Preamble, Article 5 and in Article 6 (Andersen, 2022). The Treaty sees the right "to save, use, exchange and sell farm-saved seed and other propagating material" [19] as a fundamental part to realize farmers' rights. 153 states[20] ratified the ITPGRFA, including Kenya, Rwanda, Madagascar and Colombia (FAO, 2025).

A critical issue is compliance: The parties to the Plant Treaty can choose the measures that are appropriate for them to realize farmers' rights.[21] This makes the legally binding Treaty in a way optional for its parties when it comes to protecting farmers' rights. Since the ITPGRFA entered into force, the Governing Body has been discussing better ways to promote compliance with its provisions on farmers' rights, ways to implement Article 9 and the related measures and how member parties can cooperate effectively in these efforts (Andersen, 2022).

2.3 The UN Declaration on the Rights of Peasants

In 2018, the UN General Assembly adopted the UNDROP (UN General Assembly, 2018). The UN Declaration was the result of two decades of mobilization by La Via Campesina and its supporters, and six years of negotiating efforts at the UN Human Rights Council (Golay, 2019; La Via Campesina, 2018). While the Plant Treaty already acknowledged the right to save, use, exchange and sell farm-saved seed as a fundamental component of the realization of farmers' rights[22], the UNDROP also recognizes these rights explicitly (Golay et al., 2022).[23] Moreover, the Declaration specifically seeks to bridge the gap between the well-established support for industrial seed systems and the lack thereof for smallholders and their livelihoods by elevating peasants' rights[24] to seed to international human rights law (Peschard et al., 2023). Furthermore, it aims to encourage

[19] Preamble, ITPGRFA.

[20] Last update as of April 1, 2025.

[21] Art. 9, ITPGRFA.

[22] Art. 9, ITPGRFA.

[23] Art. 19, UNDROP.

[24] The UNDROP uses the term "peasants" instead of "farmers".

states to “respect, protect and fulfil the rights of peasants and other people working in rural areas” by taking “legislative, administrative and other appropriate steps.[25] States are committed by the Declaration to take action to respect, protect and fulfil peasants’ rights to seeds.[26] This includes, in addition to the right to save, use, exchange and sell farm-saved seed or propagating material, the following rights: the right to protect traditional knowledge related to PGRFA, to ensure fair participation in benefit-sharing and to involve peasants and other rural workers in decision-making about the conservation and sustainable use of PGRFA.[27]

Unlike the ITPGRFA, the UNDROP is not legally binding. However, by specifically recognizing the right of peasants and other people working in rural areas “to save, use, exchange and sell their farm-saved seed or propagating material” in Article 19, the UNDROP strengthens the legal effect of Article 9 of the legally binding Plant Treaty (Golay et al., 2022). Golay et al. (2022) further claim that the UNDROP provides a comprehensive framework of action for protecting peasants’ rights to seeds, and that this must be considered when implementing Article 9 of the ITPGRFA.

1961	Adoption of the UPOV Convention
1972	First revision of the UPOV Convention
1978	Second revision of the UPOV Convention
1983	Adoption of the International Undertaking on Plant Genetic Resources: Plant genetic resources as “common heritage of mankind”
1989	First formal recognition of Farmers’ Rights (FAO Resolution 5/89)
1991	Third revision of the UPOV Convention
1992	Adoption of the CBD
1993	The CBD enters into force
1994	Adoption of the TRIPS Agreement
2001	Adoption of the ITPGRFA
2004	The ITGRFA enters into force
2010	Adoption of the Nagoya Protocol under the CBD
2014	The Nagoya Protocol enters into force
2018	Adoption of the UNDROP

Table 1: Legal chronological order of the evolution of the concept of Farmers' Rights.

[25] Art. 2(1), UNDROP.

[26] Art. 19.3, UNDROP.

[27] Art. 19.1, UNDROP.

3 Methodology

In this article, we analyze the state of farmers' rights to seeds in four countries. To this end, we have used a deconstructive methodology, in which we have disaggregated the concept of Farmers' Rights into three distinct indicators with associated specific and comparable criteria (see Table 2). They cover all aspects of the right of farmers to exchange, save and sell farm-saved seed and other propagating material, as recognized in Article 9 of the ITPGRFA and Article 19 of the UNDROP.[28] This approach will allow us to objectively assess the extent to which the national seed laws and regulations of the countries under analysis are consistent with the provisions and objectives of these two international frameworks.

Indicators	Criteria
Plant Variety Protection	1 Is traditional knowledge related to plant genetic resources legally protected? 2 Can traditional and indigenous seeds be registered under national law? 3 Are farmers legally allowed to: a. Save farm-saved seeds? b. Exchange farm-saved seeds? c. Sell farm-saved seeds?
Seed Trade Regulation	1 Is there a legal inclusion of farmers in decision-making processes related to seed trade regulations? 2 Are DUS (Distinctness, Uniformity, Stability) requirements enforced for seed variety registration? 3 Are VCU (Value for Cultivation and Use) standards required for variety commercialization?
Compliance	1 Is there a national mechanism for monitoring compliance with seed regulations? 2 Are there provisions for addressing non-compliance? 3 Is compliance enforced on the ground?

Table 2: Methodology table of indicators and their specific criteria.

Particularly, **indicator one** is chosen to investigate how PVP is established in the four countries and to specifically reveal the degree of mismatch between the expansion of commercial IP regimes into agriculture and the protection of the right to seeds under international law. It has three associated criteria: criterium (1) analyzes if traditional knowledge related to plant genetic resources is protected, criterium (2) investigates if

[28] See Ch. 2.2 & 2.3.

farmers' seeds can be registered, and, most importantly, criterium (3) assesses if farmers are legally allowed to exchange, save, and sell farm-saved seeds.

Then, **indicator two** measures how seed trade regulations under national legislations challenge farmers' authorial recognition through strict certification schemes. This indicator is particularly important in explaining how national policies increasingly aim to adapt their market to international standards by granting more power to commercial seed companies. This particularly marginalizes conventional practices and farmers' seed systems which are still dominant in the local supply and population sustenance. The indicator is break down into three criteria: (1) the legal inclusion of farmers in decision-making processes related to seed trade regulation, (2) the requirement of compliance to DUS criteria for seed variety registration, and (3) the requirement of VCU standards for variety commercialization.

Finally, **indicator three** is considered to investigate if compliance to such national schemes is enforced on the field. It has three criteria: (1) the presence of national mechanisms for monitoring compliance with seed regulations, (2) the presence of provisions addressing non-compliance, and (3) the actual enforcement of compliance on the ground.

Altogether, these indicators allowed a structured and detailed analysis of national seed legislation and helped to identify gaps, strengths and areas for improvement.

In our research we analyze three East African countries, Kenya, Rwanda and Madagascar, and one South American country, Colombia. These countries were chosen to compare a country with strict seed regulations (Kenya), a country with a very young seed regulatory framework (Rwanda), and two countries (Madagascar and Colombia) where we could see intermediate seed systems for farmers to declare the quality of their seeds, ultimately bridging the commercial and farmers' seed sector.[29]

To access the data, we primarily conducted a legal desk review, analyzing the relevant legal texts on seed regulation provided by SWISSAID or available on online databases, such as FAO-Lex, Nexus-Uni, and institutional and governmental administrative databases. We also included relevant academic and grey literature in our research. Between February and April 2025, we conducted remote and in-person semi-structured interviews. These aimed to provide a better understanding of the overall country context and to acquire data that was not accessible through the desk review. We categorized the stakeholders we interviewed as experts, NGO representatives, or government representatives. In total, we interviewed ten different individuals. In the Kenyan context, we spoke with two experts and one NGO representative. For the Rwanda case study, we interviewed one NGO representative. For the Madagascar case study, we interviewed three government representatives. For the Colombia case study, we interviewed one expert and one NGO representative. To gain a better understanding

[29] See Ch. 4.1.2.3 & 4.2.2.

of the concept of Farmers' Rights, we also conducted an interview with an expert on the topic. The information shared in the interviews is cited throughout the research, either in text or as a footnote.

We have compiled the information and data gathered in the four country reports, which are appended to this article. Chapter 4 of this article discusses the findings from these country reports. This discussion is structured around the three indicators presented previously in Table 2 – PVP, Seed Trade and Compliance. Furthermore, each country report includes a section with specific policy recommendations. We have summarized these recommendations into a set of general recommendations, which we will present in Chapter 5 of this article.

The primary limitation of our research lies in its narrow geographical focus. While this allowed for a more detailed analysis of the respective countries, it inevitably restricted the potential for broader generalizations. In addition, the case studies' strong dependence on legal documents may have limited our ability to fully capture the practical implementation of the laws and regulations in place and their impact on farmers' practices. To address this gap, we complemented our legal desk research with academic and grey literature and integrated perspectives from semi-structured interviews with relevant stakeholders to provide for a more comprehensive analysis of the issue with local insights and practical considerations. Another limitation stems from the relatively small number of interviews conducted, which, along with the political sensitivity of the topic and the diversity of stakeholder perspectives, introduces the potential for interpretation biases. However, the latter was mitigated by interviewing different stakeholders (e.g. academics, NGO and government representatives). Nonetheless, the fast-changing regulatory environment requires that the findings be regularly updated to maintain their relevance. Expanding the scope of the study to include more countries and increasing the number of interviews conducted with stakeholders in the field would mitigate the limitations of the analysis and lead to more significant and generalizable research outcomes. A further limitation of our research relates to the three indicators of our analysis. During our research, we found that PVP (indicator one) and seed trade (indicator two) are often governed by the same national seed legislation, making it difficult to draw a clear distinction between the two indicators.[30] Consequently, the different indicators must always be considered and analyzed together to prevent one-sided interpretation of the results.

[30] See Seeds and Plant Varieties Acts of Kenya (Appendix 1) and Law No. 005/2016 of Rwanda (Appendix 2).

4 Results

4.1 Eastern and Southern Africa Context

Across Eastern and Southern Africa, seed systems have undergone profound transformations shaped by shared colonial legacies, post-independence state-building, and more recent regional integration efforts (Van Dycke, 2021). Kenya, Rwanda, and Madagascar,[31] represent three countries on the African continent with differing institutional capacities and reform paths yet bound by shared structural challenges in the seed governance. In each case, colonial administrations introduced centralized seed governance frameworks oriented toward monocultures and export-oriented cash crops, which ignored indigenous seed practices and prioritized standardization and control. Following independence, these countries adopted state-led approaches to seed production and distribution often relying on national research institutes and parastatal agencies (Van Dycke, 2021). Later, liberalization reforms in the 1990s opened seed markets to private actors and international donors, catalyzing a shift toward seed certification, intellectual property protection, and commercialization (Ibid.). Yet, according to our findings, farmers' seed systems today still guarantee most of the seed supply in all three countries, and formal policies often remain out of step with the needs and realities of smallholder farmers. This common trajectory has eventually resulted in seed systems where farmer managed practices remain dominant, even when governments have increasingly invested in formal certification schemes and legal reforms aimed at commercializing and scaling up the formal sector often neglecting alternative strategies where the two systems coexist and complement each other preserving core farmers' traditions and rights.

4.1.1 Implications of Regional Harmonization

Regional harmonization efforts increasingly shape national seed policy, often with complex implications for farmers' rights. Kenya, Rwanda, and Madagascar are active members of the Common Market for Eastern and Southern Africa (COMESA) and are affected by the COMESA Seed Trade Harmonization Regulations (Van Dycke, 2021). Kenya and Rwanda have fully aligned their national laws with COMESA's regional standards, facilitating cross-border trade in certified seed. Madagascar, by contrast, has yet to harmonize its seed laws, and its seed trade remains primarily national in scope.

On the IP front, all three countries have faced or now face growing pressure to align with international standards such as UPOV 1991, especially through regional memberships to organizations like the African Regional IP Organization (ARIPO) and the Southern African Development Community (SADC) which are in the process of negotiating accession (Van Dycke, 2021).[32] For instance, modeled on the UPOV 1991 Convention, the Arusha Protocol for the Protection of New Varieties of Plants adopted by ARIP in 2015 and gradually entering

[31] See Appendices 1-3.

[32] Last update as of February 2, 2024.

into force since November 2024 through single members' ratification and national implementation, represents a key regional initiative aimed at harmonizing PVP systems across its member states (Ibid.) Of most concern is that Article 22.2 of the ARIPO PVP Protocol determines that the farmers' privilege will only extend to crops with a seed saving tradition. These crops will in any case not include fruits, ornamentals, forest trees or other vegetable plants. Not even UPOV 1991, which ARIPO endeavors to join, does circumscribe the farmers' privilege this narrowly.[33]

Importantly, under Articles III(a) and XI of the 1976 Lusaka Agreement, new ARIPO members were granted flexibility, allowing them to selectively adopt specific ARIPO protocols, rather than being bound to all instruments by default (Van Dycke, 2021). For instance, the Arusha Protocol exists alongside ARIPO's earlier Harare Protocol on Patents and Industrial Designs (1982), later supplemented by implementing regulations updated through 2013, which introduced a harmonized regional patent system without explicitly incorporating Article 27.3(b) of the TRIPS Agreement (Correa et al., 2020). Instead, Article 3.6(a) of the Harare Protocol gives ARIPO members discretion to define patentable subject matter, including whether to exclude plant-related inventions (Ibid.). In practice, many ARIPO members, including Kenya, have only partially implemented Article 27.3(b), resulting in significant variation in the treatment of plant-related patents (Van Dycke, 2021). Consequently, this overall discretionary opt-in approach has led to variable implementation across member states.

4.1.2 Securing Farmers' Rights to Seed at Country Level

4.1.2.1 Kenya

As of **indicator one**, Kenya has developed the most comprehensive and externally aligned seed policy framework among the three countries analyzed in the region. Its legal framework is robust, bolstered by a long-standing IP system shaped on the Crops Act (2013) and Seeds and Plant Varieties Act of 1972, later amended in 2012 to align with UPOV 1991, which collectively regulate seed registration, certification, and trade through PVP and certain patents. The regional ARIPO's Harare Protocol, to which Kenya is a signatory, excludes plant and animal varieties from patentability but allows for patents on microbiological and biotechnological inventions, a clause that Kenya incorporated through the Crops act further creating dualities and complexities (Correa et al., 2020). In fact, national law does not grant a meaningful farmer's privilege: under the overlapping provisions of the 2012 amendment to the Seeds and Plant Varieties Act, and the Crops act of 2013, farmers are prohibited from exchanging or selling protected varieties and the products of their harvests, even between neighbors for non-commercial purposes. In particular, the 2012 amendment to the Seeds and Plant Varieties Act also restricts the use of farm-saved seeds and related products to specific conditions. Specifically, section 20(1E) of the amendment states: "Notwithstanding the provisions of subsection (1), within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, farmers may use the product of the harvest which

[33] Explanatory notes on exceptions to the plant breeders' right under UPOV 1991.

they have obtained by planting, on their own holdings, the protected variety", meaning the saving of seeds is only allowed for crops where the seeds are the actual product that usually would be sold (e.g. Maize, Sesame, Soya, Potato but not vegetables, fruits, berries etc.). Together, these overlapping systems produce a legal grey area where farmers can still infringe patents or incur in PVP liability if their crops-related practices happen to include protected varieties or patented genetic traits or other components (Correa et al., 2020).

At the international level, Kenya has demonstrated support for farmers' seed practices and rural livelihoods by acceding to the ITPGRFA and voting in favor of the UNDROP. Domestically, the 2010 Constitution marked an important milestone by requiring the state to recognize and protect the ownership and use of indigenous seeds, plant varieties, and associated knowledge.[34] However, these protections remain largely rhetorical and not operationalized, as the dominant legal frameworks established the following years favor commercial breeders and multinational seed companies, owners of most patented components. Institutionally, the establishment of the National Plant Genetic Resources Centre (NPGRC) in 2012 was intended to fulfill the constitutional mandate to safeguard indigenous seeds. In practice, however, it has been operationalized through the National Gene Bank, which is embedded in the KARLO Act of 2013. This dual legal basis has led to ongoing debates over its institutional mandate, raising concerns about its effectiveness in upholding the constitutional vision of farmers' rights to biodiversity and traditional seed systems.

As of **indicator two**, Seed Trade Regulation, the Kenya Plant Health Inspectorate Service (KEPHIS) is the regulatory authority overseeing seed quality, plant health, and agricultural input certification. KEPHIS operates under the Seeds and Plant Varieties Act, heightening seeds quality through inspections, testing and certification protocols. Therefore, seed traders must register with KEPHIS and abide by its standards (KEPHIS, 2024).

The legal framework governing seed trade is outlined in Parts II and III of the Seeds and Plant Varieties Act and the regulations implemented in 2016.[35]. According to Article 20 of the Act[36], seed sale, including barter and exchange, requires prior registration and certification.[37] Kenya is a member of the Common Market for Eastern and Southern Africa (COMESA); therefore, it aligned its national seed regulation with the regional COMESA Seed Trade Harmonization Regulations of 2014, implemented through the COMSHIP plan (Osemo, 2018). While these regulations are binding for member States, they require national implementation on order to have a legal effect (Kuhlmann 2015), and as of December 2024 Kenya have fully harmonized its national seed laws with COMESA Regulations. The harmonization enabled seed companies to operate under COMESA regulations using the shared Seed Trade Variety Catalogue (AGRA, 2023; COMESA & ACTESA, 2014). Under COMESA regulations, for a plant variety to be listed in the Catalogue, it must undergo testing in two member

[34] Article 11(3)(b), The Constitution of Kenya.

[35] See Seeds and Plant Varieties Act (Cap. 326).

[36] Seeds and Plant Varieties Act (Cap. 326)

[37] See Art. 2, Seeds and Plant Varieties Act (Cap. 326).

states across two seasons. Testing includes DUS and VCU testing, alongside National Performance Trials (COMESA & ACTESA, 2014).[38] The registration requires, furthermore, proof of variety release in two member states (AGRA, 2023). Kenya's amended Seeds and Plant Varieties Act of enforces similar standards: a variety must be distinct, uniform, and stable[39], and demonstrate superior cultivation and use value before approval[40] (Ferris et al., 2023). Farmers' seeds are heterogeneous; therefore, they fail to meet the DUS criteria required for certification and commercialization. Additionally, high registrations fees make compliance unaffordable for smallholder farmers (Muchiri, 2014; Kloppenburg, 2024), and as Nasike (2023) argues, these regulations favor seed corporations while sidelining small farmers.

Regarding **indicator three**, compliance, the research finds that KEPHIS is responsible for monitoring compliance with seed regulations, as the regulatory body overseeing inspections, certification and quality control. Farmers who sell uncertified seeds risk fines up to KES 1,000,000 or imprisonment for up to two years (Peschard et al.,2023). As noted by Malesi (2024), criminalization effectively bans the exchange of farmer-saved seeds, hampering traditional and established cultural practices.

In response to the legal tension between the Constitutional provisions protecting of farmers' rights and the 2012 Seeds and Plant Varieties Act (Cap 326), Kenyan farmers filed a constitutional lawsuit in 2022 challenging the Seeds and Plant Varieties Act on the grounds that it contradicts the constitutional obligation to recognize and protect indigenous seed systems. The case has since gained visibility, raising awareness among farmers and drawing broader public and institutional attention to the issue of seed sovereignty (Malesi, 2024). The High Court of Kenya has announced that the date of the judgment will be 27 November 2025 (Omondi, 2025). Stakeholders anticipate that the ruling could set an important jurisprudential precedent for agricultural law and farmers' rights across the region.

4.1.2.2 Rwanda

Regarding **indicator one**, Rwanda has pursued a more moderate and gradual path to reform, with a focus on institutional strengthening and selective harmonization. Rwanda joined the African Regional Intellectual Property Organization (ARIPO) in 2011, but despite its membership, it has yet to implement national legislation to operationalize the 1982 Harare Patent Protocol (Van Dycke, 2021). Rwanda's IP system acknowledges the TRIPS flexibilities[41] by excluding plant varieties from patentability. Law No. 005/2016 governs the PVP system in the country, defining the procedures for registering new plant varieties, grant PBRs and outlines enforcement mechanisms. Through Article 41, the law includes an exemption of PBRs by clarifying that "The plant breeders' right does not apply to small holder farmer who uses a protected variety or the product of the harvest on their

[38] Art. 20.2, COMESA Seed Trade Harmonization Regulations, 2014.

[39] Art. 1(a), (b), (c), (d), Seeds and Plant Varieties Act (Cap. 326).

[40] Art. 10(2), Seeds and Plant Varieties Act (Cap. 326).

[41] Article 27.3(b), TRIPS Agreements.

own holding for non-commercial purposes".[42] Rwanda's law incorporates PVP provisions and was already aligned with many UPOV principles before it ratified the Arusha Protocol in 2019. However, while the protocol promotes efficiency in regional PVP filings, it also narrows the scope of the farmers' privilege, notably excluding crops such as fruits, ornamentals, and forest species from seed-saving exemptions.[43] Rwanda has not yet amended its national legislation to fully operationalize the Arusha Protocol, but its future implementation could introduce new constraints on farmers' seed practices and potentially override existing legal protections.[44]

According to the 2020 Rwanda's assessment on the implementation of the ITPGRFA to the FAO, the country "gives the rights to farmers to save, to use, to exchange and sell farmer-saved seeds and propagated material" (Ngaboyisonga, 2020, p.10). However, our research shows that Rwanda's seed trade regulations[45] do not recognize farmers' rights. In fact, only certified seeds can be sold. Moreover, farmers are not allowed to sell and exchange protected varieties but can only use them on their own holdings for non-commercial purposes.[46] A careful review of Law No. 005/2016 shows that it does not explicitly recognize farmer's seed systems. Consequently, it doesn't recognize farmers' rights to save, use, exchange and sell their seeds.

In terms of **indicator two**, Rwanda, as a COMESA member, has fully aligned its seed trade law with the COMESA Seed Trade Harmonization Regulations under COMSHIP. Notably through the adoption of Law No. 005/2016, which therefore governs Rwanda's seed trade regulation. Law No. 005/2016 mandates that all seeds produced or sold must be certified through laboratory testing by a recognized facility.[47] The Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA) oversees seed standards, managing inspections and granting market access for agricultural products (RICA, 2025). Therefore, anyone seeking to produce seeds for commercial sale must obtain a Seed Produces License from RICA after a site inspection to verify compliance with regulatory standards (IremboGov, 2024a). Moreover, seed retailers, importers, exporters, and distributors are required to obtain a Seed Merchant License, which too includes a field inspection (IremboGov, 2024b).

Regarding **indicator three**, Rwanda has a clear legal mechanism in place to ensure compliance with its regulations. As the country's primary seed certification authority, the RICA is responsible for ensuring compliance with seed regulations (RICA, 2025). Penalties are imposed for non-compliance with certification provisions. In Rwanda, selling uncertified or unregistered seeds is a criminal offence which can result in

[42] Art. 41, Law No. 005/2016, p. 47.

[43] Article 22.2, ARIPO Arusha Protocol on PVP.

[44] Last update as of April 2025.

[45] Based on Law No. 005/2016.

[46] Art. 41, Law No. 005/2016.

[47] Art. 15 and art. 16, Law No. 005/2016.

imprisonment for between eight days and three months, and fines ranging from 10,000 to 300,000 Rwandan francs (Ministry of Agriculture and Animal Resources Kigali, 2015).

4.1.2.3 Madagascar

In the terms of **indicator one**, Madagascar represents a distinct case. The country has not joined ARIPO, remains exempted from WTO TRIPS requirements on Plant Variety Protection (PVP) until 2034, and has no sui generis PVP system in place (Access to Seeds, 2019).[48] In 2017, as part of the Darwin Initiative project, the country adopted Biocultural Community Protocols (BCPs) as tools to support farmers' rights under the Nagoya Protocol and the ITPGRFA.[49] These protocols were unfortunately piloted only in two rural communes but serve as community-developed agreements that outline the terms under which Indigenous and Local Communities (ILCs) allow access to their traditional knowledge and genetic resources (Rakotondrabe & Girard, 2022). Developed through participatory processes, BCPs reflect customary laws and norms and play a crucial role in in situ conservation of plant genetic resources (Ibid.). They provide legal clarity for external actors requesting access, support equitable benefit-sharing, and foster long-term partnerships. However, the outdated law still fails to formally recognize them for a future scale up (Ibid.).

For **indicator two**, we found that although the country is a member of COMESA and SADC, the national framework has not been harmonized with either regional framework (AGRA, 2023). While DUS/VCU are required for variety registration, these remain largely unimplemented[50]. The country's seed system is overseen by the "Service Officiel de Contrôle des Semences" (SOC), which controls seed certification and maintains the National Catalogue (CNEV) for varieties registration (SOC, 2025). In practice, however, Madagascar's commercial seed market is underdeveloped and national in scope, largely dependent on donor-funded projects and public tenders[51]. Most seed transactions occur through farmers managed channels, which are not criminalized or marginalized as the sale and use of uncertified seeds remain socially accepted and legally unregulated[52]. In recent years, Madagascar has piloted a promising alternative certification system that bridges the commercial and farmers' systems through the Quality Declared Seed (QDS) system (Seed Systems, 2023). Piloted in the southern regions of Androy, Anosy, and Boeny and developed in collaboration with FAO, CTAS, and SOC, the QDS system enables farmers to produce and distribute local seed varieties through a simplified, decentralized certification process involving ad-hoc regional seed catalogues (Ibid.). This certification system is led by the Regional Advisory Committee for Registration made up of farmers, technicians, and seed users, who collectively decide lighter standards to apply (Ibid.). Though the system empowers farmer participation and recognizes traditional varieties to value them in the national landscape, it remains absent from national

[48] Last update as of May 12, 2025.

[49] See Ch. 2.2.

[50] Interview conducted on March 26, 2025.

[51] Ibid.

[52] Ibid.

legislation, with no formal legal basis or institutional mandate. According to local stakeholders, formal recognition of QDS is anticipated in future legal reforms, but until then, the system exists in a legal grey and is constrained in the pilot phase. Overall, the QDS model offers both promise and challenges for farmers' rights. It provides a more accessible and participatory alternative to conventional seed certification, enabling smallholders to legally produce, distribute, and sell traditional seed varieties, marking progress in legal recognition and market access. However, its effectiveness often depends on the presence of strong farmer organizations and may still involve bureaucratic or financial burdens, potentially fostering new dependencies on external actors like NGOs. Additionally, if QDS becomes the sole legal option for seed exchange, it may undermine broader farmers' rights as enshrined in UNDROP and the ITPGRFA. Therefore, its implementation must be carefully managed to avoid unintended restrictions.

As explained above, in the case of Madagascar, **indicator three** is eventually not relevant.

4.2 The Latin American Context

Across South America, seed systems have been profoundly changed by the arrival of the Spaniards in the Americas in 1492, land conflicts between the Spanish crown and native communities and agricultural modernization.[53] Colonialism and the seed exchange between Europe and South America marked a shift in the farmers' seed systems. However, it was the Green Revolution in the 1960s that profoundly influenced the evolution of the system (Carballo et al., 2017). Agricultural modernization, the introduction of high-yielding varieties, and monocultures had a negative impact on local seed diversity due to their incompatibility with local climate and soil conditions (Ibid.). This systemic shift led to a preference for seed certification and harmonization with international frameworks and free trade agreements, which triggered civil society mobilization (Ibid.).[54]

In the following chapter, we will describe the regional context, focusing on the mobilization of farmers. We then turn to the Colombian case to present the results of our research according to the three indicators defined in Chapter 3.

4.2.1 Farmers' Mobilization

In the Americas, seed activism emerged as a mobilization against Genetically Modified Organisms (GMO) (Peschard, 2021). At the transnational level, in 1993, the La Via Campesina (The Peasants' Way) movement was consolidated by an international coalition of farmers, rural women and indigenous peoples and has been a dominant actor in seed activism to date (Wittman, 2011). In the case of Colombia, it is crucial to mention the National Agrarian Strike of 2013, which developed in response to deeply rooted rural struggles and political

[53] According to an NGO representative from Colombia. Interview conducted on April 2, 2025.

[54] According to an NGO representative from Colombia. Interview conducted on April 2, 2025.

repression (Sankey, 2022).[55] However, the National Agrarian Strike was not just about seeds but also encompassed multiple pressing issues and involved many sectors of civil society, such as cotton farmers working for agribusiness, indigenous communities, and small-scale miners fighting for access to land (Wittman, 2011). South American farmers' mobilization highlights the tensions between commercial seed systems and market-driven policies versus community resilience, the protection of indigenous practices, and native and creole seeds that are critical for biodiversity and knowledge conservation (Ibid.).

A clear example of how farmers' mobilization influenced the legal landscape on seeds in Colombia is the 2012 Constitutional Court ruling C-1051 of 2012, which was significantly influenced by pressure exerted during the National Agrarian Strike (Ibid.). The ruling emerged from legal tensions following Colombia's accession to UPOV 1991 Convention through Law No. 1518, enacted as part of the US-Colombia Trade Promotion Agreement. The Constitutional Court subsequently declared the Law unenforceable, resulting in the annulment of Colombia's accession to UPOV 1991, which will be discussed in more detail in the following subchapter.

4.2.2 National Findings: Colombia

With regards to **indicator one**, Decision No. 345 of the Commission of the Andean Community in 1993 introduced PBRs for the members of the Andean Community, including Colombia (Peschard, 2021).[56] The framework grants IPRs over plant varieties, in line with UPOV 1978, which Colombia formally adopted in 1995 (Ramos et al., 2024). 17 years later, in 2012, Law No. 1518 furthermore approved Colombia'saccession to UPOV 1991. However, the same year, a decision of the Constitutional Court of Colombia declared this law unenforceable (Peschard, 2021).[57] This decision was based on the argument that Law No. 1518 violated the fundamental rights of Afro-Colombian and indigenous communities by not consulting these parties prior to its adoption (Ibid.). As a result, Colombia never became a member of UPOV 1991. However, according to an expert, Colombia's IP system still has aspects of UPOV 1991, such as longer IP protection and restrictions on the practice of re-sowing seeds without authorization from the companies.[58]

PVP in Colombia is regulated by two legal documents: Decree No. 533 of 1994 and Law No. 243 of 1995. Decree No. 533 designates the Colombian Institute of Agriculture and Livestock ("Instituto Colombiano Agropecuario", ICA) as the national managing authority for the national PVP system. It also established that cultivated varieties of general botanical species must meet four criteria in order to be eligible for protection: Novelty, Distinctness, Uniformity and Stability (DUS). If these criteria are met according to the ICA Technical

[55] Ibid.

[56] See Ch. III, Decision No. 345 of the Commission of the Andean Community Establishing Common Provisions on the Protection of the Rights of Breeders of New Plant Varieties.

[57] Ruling C-1051/12.

[58] Interview conducted on March 26, 2025.

Report, PBRs can be granted. However, these requirements do not apply to wild species that have not been planted or improved. Law No. 243 transposed the Andean Community Decision introducing PBRs into Colombian legislation and set the base of Colombia's accession to UPOV 1978 in the year 1995. It has also been complemented by subsequent resolutions, such as Resolution No. 3168 of 2015. The latter resolution makes specifications on the farmers' privilege. [59] To be precise, it allows farmers that are interested in a variety protected by breeders' rights (Decree No. 533), to reuse seeds from their own harvest of a protected variety. But there are limits: Farmers can only use their seeds on their own farms and must comply with the area and quantity limits set for each crop, namely for rice, up to five hectares or one ton of seed, for soybeans, up to 10 hectares or 800 kilograms of seed and for cotton, up to 5 hectares or 60 kilograms of seed.[60]

We note that Article 64 of the Colombian Constitution of 1991 recognizes farmers as holders of rights and subject to special constitutional protection. It explicitly states that it is the duty of the Colombian State to provide access to the marketing of agricultural products and to improve the income and quality of life of farmers.[61] According to an NGO representative[62], this constitutional provision is the most important step in the recognition of farmers' rights in Colombian national law. Moreover, in 2023, Colombia adopted a Law Nr. 2285, which formally approved the ratification of the ITPGRFA (Ramos et al., 2024). In addition, a ruling by the Constitutional Court in 2023[63], ordered the ICA to take measures to protect native and creole seeds. As a result, the ICA drafted a resolution[64] to regulate the production, use, distribution and commercialization of native seeds for planting (Ramos et al., 2024). However, it is crucial to note that this draft resolution recommends adopting the same seed certification process that is already in place, which ignores the farmers' seed sector and focuses on certified seeds, as will be explained in the next sections of the assessment of indicator two.[65]

With regard to **indicator two**, Resolution No. 3168 of 2015 regulates seed trade in Colombia and the ICA manages it. Seed quality is assessed based on genetic, physical, physiological, and health factors, which are relevant to the production and marketing of certified seeds (Aguilar Gómez et al., 2024). The ICA regulates the commercialization of two categories of seed: certified and selected. On the one hand, certified seeds must undergo field inspections because they are derived from basic or registered seed and must complete the certification process. Selected seeds, on the other hand, which are the result of genetic enhancement, are monitored at the point of sale (Ibid.). Our research has shown that Colombia's seed trade regulations do not make any exceptions for the farmers' seed sector. Consequently, farmers in Colombia are not permitted to

[59] Art. 22, Resolution No. 3168 of 2015.

[60] Ibid.

[61] Art. 64, Constitution of Colombia.

[62] Interview conducted on April 2, 2025.

[63] Ruling T-247 of 2023.

[64] "Proyecto de Resolución ICA sobre semillas nativas y criollas".

[65] According to an NGO representative. Interview conducted on April 2, 2025.

exchange or sell their own farm-saved seeds without undergoing the official certification process (Degelo & García Álvarez, 2024).

Our study examined the model of the Participatory Guaranteed System (PGS) for seeds in Colombia. Developed in 2016 by the joint initiative "Semillas de Identidad"[66] as a reaction to the non-recognition of farmers' seed system by Colombia' seed trade regulations (Degelo & García Álvarez, 2024; SWISSAID, 2020). The PGS is a community-based system that aims to provide farmers and gardeners in Colombia with a way to ensure the quality of their seeds and consequently to produce high-quality seeds (Ibid.). It further acts as an alternative to third-party certification and therefore to the strict and expensive state seed certification system governed by the ICA (Aguilar Gómez et al., 2024). The PGS guarantees that the seeds can be evaluated in community seed banks, before the farmers sell, donate or exchange them (Ibid.). As a result, seeds that have been approved by PGS are eligible to use a specific label that allows the farmers to sell their seeds without registering them to the national seed catalogue. In addition, according to Degelo and García Álvarez (2024), the PGS sends a strong political message that farmers can produce their own quality seeds and aims to increase the recognition of farmers' seed systems and the protection of their rights to seed in Colombia. Although the PGS for seed quality expanded to different regions, it has not yet been recognized by the country's institutional framework (Ibid.).

To conclude, the assessment of indicator two shows that Colombia's seed trade regulations focus only on the commercial sector and do not allow farmers to exchange and sell uncertified, farm-saved seed. However, similar to the QDS in the case of Madagascar, the PGS provides an alternative approach for farmers to ensure the quality of their seed and to bridge the gap between the commercial and farmers' seed sector.

In regards of **indicator three**, compliance, the ICA is the authority responsible for overseeing the national seed regulations in Colombia. Decree No 533 of 1994 designates the ICA as the national authority for implementing the national PVP system. Additionally, the ICA acts as the main seed certifier and regulatory body for Colombia's seed trade.[67]

As highlighted above, Resolution No. 3168 of 2015, which governs seed trade, does not recognize the right of farmers to save, use, exchange and sell their seeds. However, according to a Colombian NGO representative[68], it also does not explicitly prohibit or criminalize these practices, as the previous Resolution 970 of 2010 did. In this context, Degelo and García Álvarez (2024) note that "at the same time[,] the practice of saving, exchanging and selling farm-saved seed and propagating material remains widespread amongst farmers" (p. 4). This regulatory ambiguity has led the ICA to seek new rules to control the sowing and commercialization of native

[66] "Semillas de Identidad" is a network of seed guardians established by SWISSAID Nicaragua and Colombia with the goal of preserving and propagating farmers' seeds and agrobiodiversity (SWISSAID, 2019).

[67] Resolution No. 3168 of 2015.

[68] Interview conducted on April 2, 2025.

and creole seeds, a measure largely pressured by seed companies represented by the Colombian Association of Seed and Biotechnology (Asociación Colombiana de Semillas y Biotecnología", ACOSEMILLAS).[69]

The Colombian NGO representative[70] also highlights that the ICA has actively pressured, promoted and recommended the use of certified seeds through the media it controls, presenting them as the best option for achieving competitive and high-yield agriculture. In doing so, it disqualifies the use of native, and creole seeds and upholds the notion that these are of inferior quality. This undermines the work carried out by seed networks and the use of those seeds by the farmers.[71]

5 Conclusion and Policy Recommendations

Firstly, despite growing international recognition of the vital role of farmers and farmer-managed seed systems in biodiversity conservation, food sovereignty, and climate resilience, the legal frameworks currently protecting farmers' rights remain fragmented, discretionary, and largely non-binding. While the ITPGRFA and the UNDROP offer normative guidance, their non-binding or discretionary nature limits enforceability (Blakeney, 2016). International bodies such as the FAO and the Human Rights Council should advocate for the codification of farmers' rights in binding treaties or protocols, particularly the right to save, use, exchange, and sell farm-saved seeds. A Protocol to the ITPGRFA on Article 9 (Farmers' Rights), inspired by the Cartagena Protocol on Biosafety, could for instance formalize state obligations and harmonize implementation. Indeed, in the context of widespread pressure to accede to UPOV 1991 or adopt UPOV-compliant laws, IOs such as WIPO and WTO should be strongly recommended to develop guidance notes or minimum safeguard clauses that member states must incorporate to preserve the farmers' privilege. This should include mandatory exemptions for non-commercial use, indigenous varieties, and community seed banks, elements currently left to member discretion.

Secondly, we found that the effective protection of farmers' rights was strongly correlated with legal pluralism and grassroots participation across all four countries studied: Kenya, Rwanda, Madagascar and Colombia. International donors, UN agencies, and regional organizations should only endorse or fund their participation and seed law reforms when evidence is provided that farmers, indigenous communities, and seed savers have been substantially involved. A set of UN-endorsed participatory standards for seed governance should be developed and applied as benchmarks for policy support. As seen in the regional analysis of the Eastern and Southern Africa context,[72] free trade agreements and regional protocols, such as ARIPO's Arusha Protocol, often impose top-down PVP obligations that have the potential to marginalize the right of farmers to save, use, exchange and sell farm-saved seeds and other propagating materials. As a result, we recommend that all future

[69] Ibid.

[70] Ibid.

[71] Ibid.

[72] See Ch. 4.1.1.

trade and regional IP harmonization instruments should include Human Rights Impact Assessments (HRIAs)[73] that focus on seed sovereignty, traditional knowledge, and agrobiodiversity.[74] We further recommend that these assessments should be public, participatory and mandatory for all member countries as well as a prerequisite for ratification.

Thirdly, our study demonstrated the influence of regional bodies that aim at some sort of harmonization around seed regulation. Policymakers should develop legal frameworks that enable the recognition of intermediate seed certification systems between the farmers' and commercial seed systems, such as the PGS for seeds and the QDS system. These mechanisms allow farmers to declare the quality of their own seeds and therefore generate their own income, even in environments where farmers' seed systems are not formally recognized.[75] Our research highlights successful examples of these models in Colombia (PGS) and Madagascar (QDS). They provide a workable solution for the farmers. In doing so, they bridge the gap between the farmers' seed system and the commercial system by enhancing the quality of farmers' seeds and providing an alternative, low-cost compliance mechanism for the farmers. They also convey a political statement: Farmers can produce and assuring the quality of seeds independently, which in turn can strengthen the recognition of farmers' rights (Degelo et al., 2025). Most importantly, the legal recognition of QDS and PGS must be recognized as legitimate but complementary pathways to state seed certification, rather than as mere replacement of farmers' systems. This is essential to avoid the risk that these models become the only legal option for seed exchange, which could undermine broader farmers' rights.[76]

Fourthly, national seed laws and policies' harmonization with the farmers' rights to seeds as enshrined in the CBD[77], the ITPGRFA[78] and the UNDROP[79] has revealed to be crucial. While all four countries analyzed have ratified the Plant Treaty and voted in favor of UNDROP, implementation falls short. Implementing their provisions at the national level would assist in recognizing and strengthening farmers' seed systems, legally recognizing their value in supporting the country's food sovereignty and biodiversity.

Fifthly, our study has shown that farmers' seeds often cannot meet national certification and conformity requirements. This is because the requirements are too costly and complicated, and do not reflect the seeds' natural characteristics. Farmers should therefore be explicitly exempted from testing, certification and

[73] See also Brodeur & Vollaard, 2023.

[74] Recognized in the CBD and the ITPGRFA (Degelo et al., 2025).

[75] See Ch. 4.2.2.

[76] See Ch. 4.1.2.3.

[77] Art. 8j, CBD.

[78] Art. 9, ITPGRFA.

[79] Art. 19, UNDROP.

registration requirements. To achieve structured participation from farmers, it is crucial for governments to support farmers' organizations.

Sixthly, there is still widespread pressure to adopt and promote UPOV 1991 as the default model for PVP at a national level. The study instead recommends that governments develop their own sui generis PVP system tailored to their national agricultural circumstances, balancing the rights of plant breeders with those of farmers.

Seventh, civil society plays an important role in defending farmers' rights by representing them in court from a legal perspective and taking a more active role in raising farmers' awareness of their rights, thereby bridging the gap between agricultural practice and institutional legislation. We recommend that local and regional civil society organizations play a more active role in raising farmers' awareness of their rights. As illustrated by the case of Kenya, where farmers, supported by civil society, filed a lawsuit in 2022 challenging the amended Seeds and Plant Varieties Act of 2012.[80] Our interviews revealed that many farmers remain unaware of their rights, which underscores the urgent need for targeted awareness campaigns. Given their contextual knowledge and strong community ties, local and regional civil society organizations are ideally positioned to lead these efforts.

Eighth, our analysis showed that farmers' rights to seeds should be demonstrated as a practical solution and not just as a political and legal issue. As such, we recommend that civil society organizations be actively involved in overseeing and supporting the implementation of intermediate seed certification systems, such as the QDS and PGS, as discussed on a regional level above. In this context, the support of SWISSAID to the regional network "Semillas de Identidad" to develop the PGS for native and creole seeds in Colombia represented an inspiring example. Indeed, civil society actors can help adapt these systems to specific contexts with their knowledge of local conditions and extensive partner networks, thereby maximizing their benefits for the farmers.

[80] See Ch. 4.1.2.1.

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Table and Figure captions

Table 3: Comparison between 1978 and 1991 Acts of UPOV

Issues	UPOV 1978	UPOV 1991
Scope of coverage	Number of genera or species required for protection to be increased gradually from 5 at the time of accession to the Act to 24 eight years later	Increasing number of genera or species required to be protected, from 15 at time of accession to Act to all genera and species 10 years later (5 years for members of earlier UPOV Act).
Eligibility Requirements	Novelty, distinctness, uniformity, and stability.	Novelty, distinctness, uniformity, and stability.
Minimum exclusive rights in propagating material	Production for purposes of commercial marketing; offering for sale; marketing; repeated use for the commercial production of another variety.	Production or reproduction; conditioning for the purposes of propagation; offering for sale; selling or other marketing; exporting; importing or stocking for any of these purposes
Minimum exclusive rights in harvested material	No such obligation, except for ornamental plants used for commercial propagating purposes.	Same acts as above if harvested material obtained through unauthorized use of propagating material and if breeder had no reasonable opportunity to exercise his right in relation to the propagating material.
Prohibition on dual protection with patent	Yes, for same botanical genus or species.	No.
Breeders' exemption	Mandatory. Breeders free to use protected variety to develop a new variety.	Permissive, but breeding and exploitation of new variety "essentially derived" from earlier variety requires right holder's authorization
Farmers' privilege	Implicitly allowed under the definition of minimum exclusive rights and under exemptions to plant breeders' rights in respect of private use for non-commercial purposes.	Allowed at the option of the member country within reasonable limits and subject to safeguarding the legitimate interests of the right holder
Minimum term of protection	18 years for grapevines and trees; 15 years for all other plants	25 years for grapevines and trees; 20 years for all other plants

Table taken from Mahop, De Jonge & Munyi (n.d..), and adapted from Helfer, L.R., Intellectual Property Rights in Plant Varieties: an Overview with National Governments, FAO Legal Papers Online 31, July 2002.

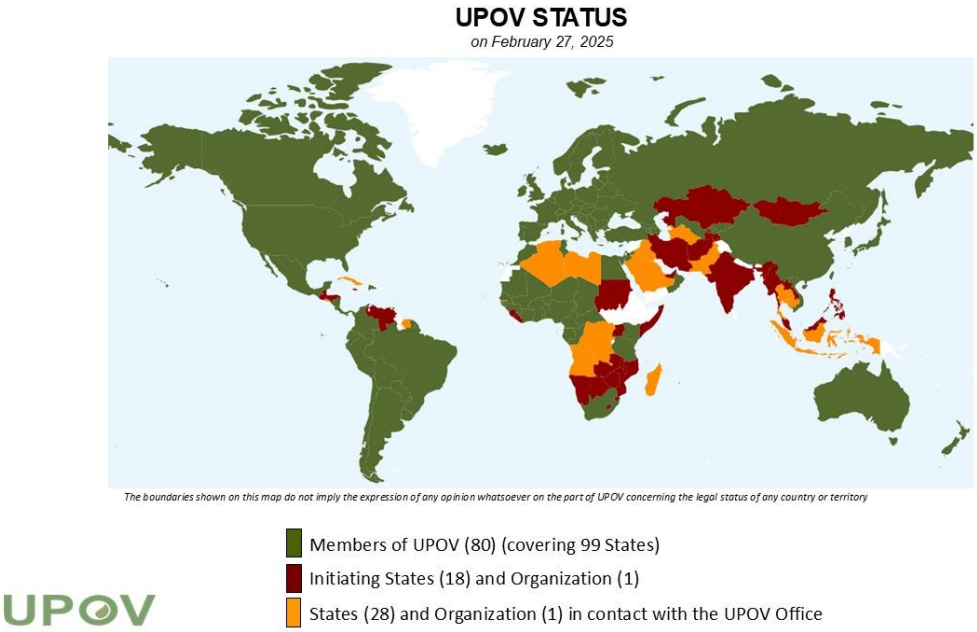

Figure 1: Figure 1: Map of the members of UPOV

Appendices

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Appendix 1: Country Profile of Kenya

Kenya: Country Profile

1 Context

Kenya's seed system consists of both a vibrant farmers' seed system and a highly structured commercial sector. The farmers' seed system sustains the majority of smallholder farmers, who save, exchange, and buy traditional seeds from local markets. Studies estimate that 80–90% of all seed transactions in the country are carried out via the farmers' seed systems and mainly benefits smallholder farmers. The performance of the commercial seed system is stronger compared with other countries in the region. However, only around 22% of all seeds used by farmers are certified and obtained through the commercial sector (Ferris et al., 2023). According to Nasike (2023), the commercial seed sector is largely driven by profit and multinational interests, resulting in oppressive seed laws favoring corporate control over indigenous seeds, further marginalizing smallholder farmers and their reliance on farmers' seed networks (Nasike, 2023).

According to a grassroot organization representative, Kenyan agricultural farming practices were historically based on traditional farming aiming primarily at fulfilling subsistence needs. However, traditional farming practices are not only about subsistence, but they also encompass cultural practices and traditions, influencing language, proverbs and festivals. The traditional crops, such as local banana varieties, lablab beans, pigeon peas, etc., are strictly intertwined with Kenyan cultural heritage, being employed not only for subsistence but pivotal local celebrations.[81]

Uninterested in local food crops, the British colonial government introduced innovations aiming at shifting the agricultural sector towards commercial export agriculture focused on cash crops, through the import of improved farming inputs such as seed, machinery and policy support (Munyi & De Jonge, 2015). Kuyek (2002) argues that European colonial powers forced local African farmers to produce cash crops aiming at benefitting home markets. Moreover, externally imposed technological innovations disrupted traditional farming practices, resulting in little efforts to reimplement traditional knowledge in post-colonial reconstruction (Kuyek, 2002). In this regard, Africa's "Green Revolution" was never successful due to the unpopularity and inappropriateness of imported technologies for the local context. Moreover, according to Kuyek (2002) colonialism hampered traditional farming practices, resulting in farmers seed losses (Ibid.). Nevertheless, the farmers' seed system remained pivotal in smallholder farming (Munyi & De Jonge, 2015).

[81] According to an NGO representative from Kenya. Interview conducted on March 12, 2025.

Kimani et al. (2010) note that Kenya's commercial seed system primarily focuses on key food crops such as maize, beans, wheat, and rice; horticultural crops like vegetables and flowers; and industrial crops including coffee, tea, sugar, and cotton, which have substantial local and export markets. The sector is regulated by the 2013 Crops Act, which covers a significant role in determining which seed of a particular crop is selected for the National Variety list and mainly represented by the Seed Trade Association of Kenya (STAK), which seeks upgraded industry activities through maintaining seed quality, authenticity, uplift policy reforms and generally enhancing trading of quality seed. The Kenya Plant Health Inspectorate Service (KEPHIS), works closely with seed producers looking for enhance seed quality control and quality assurance, investing in the commercial seed sector quality through the establishment of a digital seed management and marketing system to improve ESG quality and strengthen the supply of foundation seed (Ferris et al., 2023).

As a result, the country acknowledges the distinction between the commercial and farmers' seed systems but imposes restrictions on where specific types of seeds, particularly non-commercial varieties, can be sold (Kenya National Seed Policy, 2010).

Over the years, Kenya has adopted a robust legal and policy framework to modernize its seed sector and with the aim of strengthening the commercial seed system to provide high quality seeds. The Kenyan government has been implementing strategies to boost agricultural productivity, recognizing its crucial role in driving economic growth and enhancing the well-being of both rural and urban populations. In doing so, seeds have been identified as a cornerstone of these efforts. The initial IP system for seeds in the country was derived from the colonial legacy and was accustomed to the imperialist interests (Sikoyo et al., 2006, as cited in Gitonga & Kieyah, 2012) and was later modified by the Kenyan administration in line with the new development priorities. After reaching independence in 1964, the development strategy was first outlined in Sessional Paper No. 10, emphasizing state control over seed chains for focal food crops. The 1972 Seeds and Plant Varieties Act appointed the government to regulate seed testing, certification, and breeders' rights. However, the first breeders' rights grant was reached in 1999. External factors, such as food shortages and the World Bank's structural adjustments led to emphasis on the role of improved seed varieties and breeders' rights, strengthening the commercial seed sector (Munyi & De Jonge, 2015).

Today's government actions still reflect this trend, as outlined by the national strategic framework including the National Seed Policy (2010), the inclusion of some provisions specifically referring to seeds in the National Constitution (2010), the Seeds and Plant Varieties Act (1972) and its 2012 amendment, the Crops Act (2013), and the Agricultural Sector Transformation and Growth Strategy (2019-2029). These frameworks emphasize seed certification, plant variety protection, and market regulation to enhance quality and productivity of seeds. However, the constitutional provisions, especially article 11(3)b, established in 2010, highlight a positive shift towards farmer's cultural heritage recognition, also confirmed by Kenya's later adherence to international agreements, such as the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the vote in favor of the United Nations Declaration on the Rights of Peasants and Other people (UNDROP).

Overall, Kenya's legal framework reflects diverging but still strong commitments to aligning the country's seed system to global standards.

Instrument	Year	Overview of the instrument
Policies and Strategies		
National Seed Policy	2010	Framework to address seed sector challenges, enhance certification, and transition of farmers' seed systems to commercial ones.
Agricultural Sector Transformation and Growth Strategy	2019-2029	10-year plan to boost productivity, food security, and access to quality inputs for smallholder farmers.
Laws		
Industrial Property Act	2001/2017	Governs the protection of patents, utility models, and industrial designs in Kenya.
Seeds and Plant Varieties Act	1972/2012	Regulates seed quality and plant breeders' rights, aligned with UPOV 1991.
Crops Act	2013	Consolidates numerous crop-specific laws into a single framework to regulate production, marketing, and certification of both food and industrial crops.
Kenya Agricultural and Livestock Research Act (KARLO Act)	2013	Establishment of the National Gene Bank.
Regulation		
Seeds and Plant Varieties Regulation	2016	

2 Policy analysis

2.1 Intellectual Property System

The Government of Kenya, through its Constitution, emphasizes the importance of Intellectual Property Rights (IPRs) with article 11(2)(b) mandating the State to promote the intellectual property rights of its people, and Article 40(5) requiring the State to support, promote, and protect these rights.

In Kenya, the legal framework governing IPRs over seeds is split between two main laws: the Industrial Property Act (2001, as amended in 2017) and the Seeds and Plant Varieties Act (Cap. 326). The Industrial Property Act explicitly excludes plant varieties from patent protection, referring to the Seeds and Plant Varieties Act, which regulates breeders' rights and farmers' use of seeds. As Kenya excludes plant varieties from patentability, the country has in place one of the oldest PVP sui generis systems on the African continent, originally enacted in 1972, with implementing regulations introduced in 1994[82]. Kenya also acceded UPOV in 1999, and in 2016 incorporated UPOV 1991's provisions to its national PVP system through the amendment of the Seeds and Plant Varieties Act. Currently, Kenya's plant variety protection framework is governed by the 2012 Seeds and Plant Varieties Act, along with its implementing regulation of 2016.

However, this patentability exclusion, aligned with TRIPS flexibility, applies only to plant varieties, not to their components. Indeed, Section 26 of the Industrial Property Act states that "plant varieties as provided for in the Seeds and Plant Varieties Act" are not patentable but does not exclude parts of those varieties or products developed through biotechnological processes (e.g., transgenic seeds or patented traits). This means that individual genes, cells, traits, or other modified elements of a plant can still be patented, creating a backdoor for granting monopoly rights over plant material. In addition, Kenya is a member of ARIPO and a signatory to the Harare Protocol since 1984, which similarly excludes whole plant and animal varieties and essentially biological processes from patentability, while allowing for patents on microbiological and biotechnological inventions (Van Dycke, 2021). ARIPO further clarifies that a plant variety includes a single plant and its reproductive material, including seeds, that reproduce through photosynthesis, explicitly placing these outside the scope of patent protection but permits national interpretation clauses on components. Together, these overlapping systems produce a legal grey area where farmers can still infringe patents or incur liability if their crops happen to contain protected varieties or patented genetic traits and other modified components (Correa, 2018).

2.2 Seed trade regulation

The main seed trade regulatory authority in Kenya is KEPHIS. It is a regulatory state corporation with the specific mandate to assure the quality of agricultural inputs and produce, newly bred plant varieties and the health of plant produce in the agricultural sector to promote sustainable agriculture and economic growth in Kenya (KEPHIS, 2024). As the national regulatory agency operates under the Seeds and Plant Varieties Act, KEPHIS (2024) ensures that the country's agricultural sector adheres to established standards. KEPHIS makes sure that seeds produced or imported into Kenya fulfill certification requirements through field inspections, seed testing, labeling to maintaining genetic purity and quality. The certification process requires seed merchants to register with KEPHIS, undergo facility inspections, and comply with strict seed testing protocols (Ibid.).

[82] Kenya is one of the few countries which adopted an IP protection for plant varieties prior to the TRIPS agreement and was therefore ready to comply with TRIPS' requirements since the 2000s. There is flexibility and another deadline for LDCs WTO members to comply with TRIPS set for July 2034, but Kenya is not considered one of them.

Part II and Part III of the Seeds and Plant Varieties Act, along with the related Regulation from 2016 (see Art. 6 ff.), form the key legal framework that govern seed trade in Kenya. According to Art. 20 of the Seeds and Plant Varieties Act (2012, Cap 326), to sell seeds, which includes according to Act to "barter, exchange, and offering or exposing sale" (Art. 2), each seed merchant and seller must register and certify the seeds. As a member of the Common Market for Eastern and Southern Africa (COMESA), Kenya has aligned its national seed regulation with the regional COMESA Seed Trade Harmonization Regulations under the 2014 COMESA Seed Harmonization Implementation Plan (COMSHIP) (Osemo, 2018). These regulations are binding for COMESA members; however, they must be implemented at the national level to have legal effect on breeders and farmers (Kuhlmann 2015, 27–29). As of December, Kenya is only one of eight COMESA member states that have fully harmonized their national seed laws and regulations with the COMESA regulations (AGRA, 2023). As a result, seed companies in Kenya and the seven other listed countries can trade their seed consignments under the COMESA Seed Trade Harmonization Regulations of 2014, following the guidelines of the COMESA Seed Trade Variety Catalogue (AGRA, 2023; COMESA & ACTESA, 2014).

Under the COMESA Seed Trade Harmonization Regulations, a new plant variety can only be registered in the COMESA Variety Catalogue and Database and then released in all member states if they have been tested in two member states over two seasons. Specifically, the need to undergo Distinctness, Uniformity and Stability (DUS) testing, as well as Value for Cultivation and Use (VCU) or National Performance Tests (NPT) trials (Art. 20(2).: COMESA & ACTESA, 2014). Proof of release in at least two COMESA member states is required. Applicants must also submit the necessary registration fee as part of the process (AGRA, 2023) Kenya's 2012 Seed and Plant Varieties Act (Amendment) mandates compliance with DUS and VCU standards for seed registration (Art. 10(2)). As specified in the Act, a plant variety must be sufficiently **distinguishable** from any other variety known to exist at the moment of application (Art. 1(a)); be sufficiently **uniform** or homogenous (Art. 1(c)); be **stable** in its essential characteristics (Art. 1(d)) (Ferris et al., 2023).

The DUS, conducted over two growing seasons, assesses the morphological traits of a new variety and comparable ones to identify differences using standardized international protocols (Peschard et al., 2023). In this regard, Kenya has enhanced its collaboration in DUS testing through KEPHIS by signing agreements for the exchange of DUS reports with PVP authorities in the EU, the Netherlands, Israel, New Zealand, South Africa, Japan, Korea, and Germany, as well as by sharing DUS reports within the region (COMESA and individual countries) (KEPHIS, 2023). Similarly, the Seeds and Plant Varieties Act of 2012 also mandates compliance with VCU requirements for variety registration. According to the Act, the **value for cultivation and use** of the new variety needs to surpass that of the existing ones according to the results in official tests before they can be legally marketed and traded in Kenya.

Smallholder seeds, bred by subsistence farmers for adaptability and sustenance, are diverse and well-suited to specific environments. However, they often do not meet the DUS requirements under the Seeds and Plant Varieties Act. While this heterogeneity plays a crucial role in increasing resilience, seed regulation makes seed

homogeneity a prerequisite for commercialization and ultimately prevents farmers from selling their own, heterogenous seeds. In addition, high application fees do not align with farmers' economic realities (Muchiri, 2014) and together with burdensome and expensive administrative requirements (Kloppenburg, 2024), certification is inaccessible to smallholder farmers. As a result, farmers' seed are prevented from reaching the Kenyan market. Nasike (2023) argues that these regulations primarily benefit the commercial seed sector and multinational corporations, leaving smallholders with no tangible benefits.

3 Farmers' rights analysis

At the international level Kenya has shown inclination for support of peasantry farming, and rural livelihoods by voting in favor of UNDROP and by accessing the ITPGRFA. Most importantly, nationally, the protection of indigenous seeds and plant varieties was established by the Kenya Constitution enacted in 2010, whom article 11(3)(b) requires the Parliament to recognize and protect the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics, associated indigenous knowledge and their use by the community in Kenya. Although policies including the 2010 National Seed Policy and the 2012 (amendment) Act are required to be anchored to the Constitution, a simultaneous governmental transition period around 2011 shaped the political and legal frameworks in a way that limits farmers' rights and does not fully operationalize the new constitutional provisions.

3.1 Ambiguity in the farmers' right privilege

While Kenya's Constitution recognizes the importance of indigenous seeds and traditional practices, the legislations amended around 2011 and 2012 shape the country's legal framework in a controversial direction. For instance, the Seed and Plant Varieties Act amendment of 2012 does not adequately operationalize these constitutional provisions to include a robust farmer's privilege. The close alignment of the 2012 Seeds and Plant Variety Act (Amendment) with the 1991 UPOV Convention significantly limits the scope of the farmers' privilege. Indeed, the Act prohibits the exchanging and selling of uncertified seeds, protected varieties, and their products, even between neighbors for non-commercial purposes and restricts the reuse of farm-saved seeds to specific conditions. Specifically, Section 20(1E) of the amendment states: "Notwithstanding the provisions of subsection (1), within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, farmers may use the product of the harvest which they have obtained by planting, on their own holdings, the protected variety", meaning the saving of seeds is only allowed for crops where the seeds are the actual product that usually would be sold (e.g. Maize, Sesame, Soya, Potato but not vegetables, fruits, berries etc).

This ambiguous provision combined with the fragmented and overlapping patent system established around 2011 on which the country relies (see 2.1), leave no policy space for farmers to maintain their traditional practices without fearing legal consequences. Of most concern is that unregistered seed sellers or those selling uncertified seeds can be fined up to KES 1'000'000 or imprisoned for up to two years. Peschard et al. (2023)

claim that Kenyan law contains no clauses that would protect farmers from persecution or exempt their seed system (p. 49). As a result, farmers are prohibited from sharing and exchanging their indigenous, uncertified and unregistered seeds (Malesi, 2024). Unfortunately, this mechanism has been enforced so far, effectively criminalizing farmers in some instances. This situation was brought to public attention by a recent case brought to court by Kenyan farmers, who filed a lawsuit in 2022 to challenge the Act as unconstitutional (Omondi 2024; Malesi, 2024). Malesi (2024) notes that the case gradually gathered traction, raising farmers' awareness of their rights and drawing attention from various stakeholders, thereby increasing visibility. A decision from the Kenyan High Court is currently pending and scheduled for May 2025 (Associated Press, 2025). It has been anticipated to establish a groundbreaking agricultural jurisprudential precedent for the region (Malesi, 2024).

3.2 National Gene Bank

Article 27A of the 2012 amendment to the Seeds and Plant Variety Act established the National Plant Genetic Resources Centre (NPGRC) to respond to the constitutional mandate of recognizing and protecting the ownership of indigenous seeds and plant varieties, as required by Article 11(3)(b) of the Constitution (Munyi, 2019). Responsibility for implementing the NPGRC and defining its membership and function was delegated to the Minister for Agriculture through regulations (Ibid.). According to an NGO representative from Kenya, in practice, the NPGRC has been operationalized as the National Gene Bank.[83] However, the National Gene Bank was established under the KARLO Act of 2013 (see Research Institutes in the 2013 KARLO Act). This has led to debate over whether its mandate stems from the KARLO Act or from Article 27A of the 2012 Seeds and Plant Variety Acct (Amendment). An NGO representative from Kenya[84] argues that, based on its budgeting and institutional placement, the National Gene Bank operates as an entity under KARLO.

4 Conclusion and policy recommendations

In conclusion, Kenya's national seed system and regulatory framework constrain the functioning of the farmers' seed systems and therefore criminalizes farmers' rights. Existing seed and plant variety laws provide no support for on-farm seed production, exchange, maintenance, development, and the registration of landraces.

This analysis highlights a fundamental conflict between breeders' rights and farmers' rights. Indeed, in Kenyan law there is a need for further clarification of the farmers' privilege. Specifically, the farmers' privilege is included in the PVP law, but there are no specific rules on how farmers could preserve and multiply protected seeds. However, even with such clarification, farmers' rights to save, use, exchange and sell seeds remain restricted, as PVP law grants exclusive rights to breeders. In addition, the exclusion of private and non-commercial use, as required by UPOV 1991, is not included in Kenya's PVP law, which should be addressed.

[83] Interview conducted on March 12, 2025.

[84] Ibid.

Kenya is a member to the International Plant Treaty, which recognizes farmers' rights. The country further acknowledges the protection of indigenous seeds in its 2010 Constitution. However, the 2012 Seeds and Plant Variety Act (Cap 326) prohibits farmers from saving, using, exchanging, and selling uncertified and unregistered seeds, which is viewed in this context as a violation of farmers' rights. Given the critical role of farmers' seed systems in food security, legal barriers to farmers' seeds need to be removed.

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Appendix 2: Country Profile of Rwanda

Rwanda: Country Profile

1 Context

Agriculture is the foundation of Rwanda's economy, it employs more than 75% of the population, contributes to 41% of the country's GDP and dominates the national sector, accounting for 80% of total exports (Nkerenke, 2011). According to an NGO representative in Rwanda[85], before colonization, Rwandan farmers relied on local agricultural knowledge. This system was however disrupted by colonization, leading to a heightened focus on cash crops production. After independence, the efforts were focused on self-sufficiency and the development of research institutions aiming at improving food production. As of today, both the commercial and the farmers' seed system coexists in the country. The two systems are partners that ensure continuous production, food security and sovereignty. One cannot exist without the other and reliance on only one of them can heavily disrupt food production.[86]

While the commercial sector has received increasing policy attention, the farmers' sector remains the primary source of seeds for most Rwandan farmers and accounts for the vast majority of seed exchanges. In fact, the utilization of improved varieties is low, accounting to 7-13% in 2009. Moreover, Rwanda has been relying on seed imports (Access to Seeds Index, 2019) up until 2022, a year in which the country reached self-sufficiency in seed supply according to the Minister of Agriculture and Animal Resources (Rwanda Agriculture and Animal Resources Development Board (RAB), 2022).

Despite the prevalence of the farmers' seed system, there is a recent but growing emphasis on the commercial seed system regulated by government institutions due to increased agricultural productivity (Nkerenke, 2011). Governmental efforts on the strengthening of the commercial seed system ensures adequate production and access to quality seed, while still acknowledging the immense role of the farmer managed system, which contributes to the food system thanks to the conservation of seeds and the preservation of culture and indigenous knowledge.[87]

The most recent governmental efforts in strengthening the commercial seed system can be found in Law N°005/2016 of 05/04/2016, Governing Seeds and Plant Varieties in Rwanda and the Strategic Plan for Agriculture Transformation 2018-24. Law N°005/2016 establishes procedures for the certification and

[85] Interview conducted on April 2, 2025.

[86] Ibid.

[87] Ibid.

registration of plant varieties, with the aim of ensuring seed quality. Moreover, it protects PBRs and regulates seed trade and marketing. The Strategic Plan for Agriculture Transformation 2018-24, in turn, prioritizes innovation and improvement of technology in the agricultural sector. Regarding seeds, it stressed the continuity of compliance with the open market, while striving for self-sufficiency in seed production. Moreover, it underlines the importance of using "improved seeds" and subsidies for innovative inputs targeting farmers, striving to produce high quality seeds in the scope of the commercial seed system.[88]

Instrument	Year	Overview of the instrument
Policies and Strategies		
Strategic Plan for Agriculture Transformation 2018-24	2018	Provides a roadmap for the agricultural sector's growth in Rwanda, focusing on increasing productivity, improving seed systems, and ensuring food security through sustainable practices.
National seed policy	2007	Provides a framework for the development and regulation of the seed sector, promoting the availability and use of high-quality seeds among farmers. It supports both public and private sector involvement in seed development.
Laws		
Law No 31/2009 on the protection of intellectual property	2009	Protects plant breeders' rights and ensures that innovations in seed development are legally recognized.
Law No 005/2016 Governing Seeds and Plant Varieties in Rwanda	2016	Regulates seed certification, Plant Variety Protection, and quality control in Rwanda's seed sector. It establishes rules for seed importation, marketing, and the rights of breeders.
Regulations		

2 Policy analysis

2.1 Intellectual Property system

Rwanda has been a member of the African Regional Intellectual Property Organization (ARIPO) since 2011, and as a new ARIPO member, has been granted the flexibility to adopt ARIPO protocols on specific intellectual

[88] The Strategic Plan for Agriculture Transformation 2018-24.

property (IP) rights at its discretion, as outlined in Articles III(a) and XI of the 1976 Lusaka Agreement. Rwanda has not yet adopted a domestic patent act or implementing regulations for the 1982 Harare Patent Protocol (Van Dycke, 2021).

Rwanda's IP regime reflects the TRIPS flexibilities (Article 27.3(b)) by excluding plant varieties from patentability. While Rwanda is not a member of UPOV 1991, the country's seed laws resemble its provisions. As a result, a national regulatory framework related to UPOV and Breeders' Rights was incorporated into the country's seed regulations since 2009. In Rwanda, patent protection is thus governed by Law No. 31/2009 and operates under the Harare Protocol on Patents and Industrial Designs within ARIPO. Specifically, Section 3(10)(j)ii) of the Protocol excludes from patentability "plant or animal varieties or essentially biological processes for the production of plants or animals"; explicitly stating that this exclusion shall not apply to microbiological processes or the products thereof. Additionally, Section 7bis.3 sets out exceptions to the patentability of biotechnological inventions, stating that "a single plant and its reproductive material (such as seed, etc.) which maintains its life by synthesizing carbohydrates and protein from the inorganic substances such as water, carbon dioxide and mineral salts and so on through photosynthesis belong to the category of plant variety," thereby affirming its exclusion from patentability. Law No. 31/2009 on intellectual property was later strengthened in 2016 with the enactment of Law No. 005/2016 Governing Seeds and Plant Varieties functions as the legal foundation for regulating PVP in the country. This law already includes the core elements required for a functioning PVP system: it defines procedures for registering new plant varieties, grants Plant Breeders' Rights (PBRs) to those who develop and register eligible varieties, and outlines enforcement mechanisms, including exemptions like Article 41. According to this article, "The plant breeder's right does not apply to small holder farmer who uses a protected variety or the product of the harvest on their own holding for non-commercial purposes".[89] The legal landscape in the country is currently evolving since ARIPO has recently established the Arusha Protocol on PVP, which just entered into force last year. Rwanda was the first country that acceded and ratified this new PVP protocol now binding six members of the regional organization. As of March 31, 2025, Rwanda has not enacted new legislation nor amended existing laws to operationalize the Arusha Protocol. While Rwanda ratified the Arusha Protocol on June 7, 2019, and the Protocol entered into force on November 24, 2024, there is no available information indicating that Rwanda has updated its national laws to fully implement the Protocol's provisions yet.[90]

2.2 Seed trade regulation

Seed trade in Rwanda in primarily governed by Law No. 005/2016, which specifies that all seeds that are produced and sold must undergo quality control and be certified (Art. 15). Moreover, Art. 16 states that all seeds

[89] Art. 41, Law No. 005/2016

[90] Last update as of May 13, 2025.

for which a certificate is sought are tested by a recognized seed laboratory (Law No. 005/2016). The Rwanda Inspection, Competition and Consumer Protection Authority (RICA) ensures the quality of agricultural inputs and coordinates sanitary and phytosanitary measures in Rwanda (RICA, 2025). In the context of seed trade regulation, RICA is responsible for seed inspection and certification in order to grant market access to agricultural products. Everyone wishing to produce seeds for sale or research must obtain a Seed Producer License from RICA. To this end, RICA carries out a field visit to ensure that the location/site complies with RICA standards and regulations (IremboGov, 2024a). Additionally, business operators that are interested in selling seeds as retailers, importers, exporters and distributors must obtain an operating license (Seed Merchant License) from RICA as well. The process also includes a field visit (IremboGov, 2024b).

Rwanda as a COMESA member has fully aligned its seed law (Law No. 005/2016) with the COMESA Seed Trade Harmonization Regulations under COMSHIP (AGRA, 2023). As a result, Rwanda - alongside Kenya and six other countries- is among the few in the Eastern and Southern African region that have harmonized their national seed regulations with the regional framework (AGRA, 2023; see also Kenya Country Profile).

In Rwanda, selling uncertified or unregistered seed can result in a prison sentence of between 8 days and 3 months and a fine of between 10,000 and 300,000 RWF (Ministry of Agriculture and Animal Resources Kigali, 2015). Even farmers' seed needs to comply with the Rwandan seed trade law and can therefore only be produced or sold if they are granted a seed quality certificate granted by RICA.[91]

3 Farmers' rights analysis

According to the 2020 country assessment on the implementation of the ITPGRFA submitted to the FAO by the country's focal point, Rwanda has demonstrated a degree of compliance, particularly in recognizing and safeguarding farmers' rights. However, Rwanda's seed trade regulations (based on Law No. 005/2016), which are fully aligned with the COMESA Seed Trade Harmonization Regulations, do not recognize farmers' rights. As a result, only certified seeds can be sold. For protected varieties the sale and exchange with other farmers is also not allowed, only the use on their own holdings and for non-commercial purposes.[92] Non-commercial in the interpretation of UPOV means that the products from these seeds cannot be sold. However, Rwanda's provisions are even stricter than what UPOV mandates, as the exception only applies for crops where the seeds are the final product of the harvest.[93]

This legal safeguard, though neglecting the overlapping provisions regarding patentability, plays a crucial role in maintaining the farmers' seed system, which remains the primary source of seeds for most smallholder

[91] Art. 15, Law No. 005/2016.

[92] Art. 41, Law No. 005/2016.

[93] According to an expert. Interview conducted on May 8, 2025.

farmers in the country. The law has been operationalized through eleven ministerial orders, which outline procedures for seed certification, variety registration, and commercialization. However, implementation challenges persist, especially due to the centralized certification system under the Rwanda Agriculture and Animal Resources Development Board (RAB), which can limit accessibility for smallholder farmers (Byakweli, 2010). The country has also included the Multilateral System of Access and Benefit-Sharing (MLS) all PGRFA listed in Annex 1 to the treaty that are under the management and control of his government and in the public domain.

However, our policy analysis highlights that Rwanda could be now facing new constrains jeopardizing farmer's access to seeds. Indeed, it is not clear whether operating the new ARIPO PVP system will further compromise farmers' rights. If enacted through amending existing laws, Article 22.2 of the Arusha Protocol as written today, would in fact limit the farmers' privilege to crop with a seed-saving tradition. This provision explicitly excludes fruits, ornamentals, forest trees, and other vegetable plants from the scope of the privilege. In contrast, UPOV 1991 does not impose such a restrictive definition of the farmers' privilege, although the convention generally favors a narrow interpretation of the concept.

4 Conclusion and policy recommendations

Agriculture is the backbone of Rwanda's economy and employs most of the country's population. Although the commercial sector, and therefore commercial seed systems, are receiving increasing policy attention, farmers' seed systems remain the primary source of seed for most Rwandan farmers.

Rwanda has made significant progress in developing a legal framework for seed trade, notably through the adoption of Law No. 005/2016 and its harmonization with the regional COMESA Seed Trade Harmonization Regulations. Seed produced and sold must therefore undergo certification and testing procedures.

From an intellectual property perspective, as a country to incorporate UPOV 1991 elements into its seed regulations and as the first ARIPO member to ratify the ARIPO Plant Variety Protection Protocol, Rwanda has established a framework for Plant Breeders' Rights granting exclusive control over protected varieties, including harvested material and derived products. The enforcement of the ARIPO PVP Protocol in 2024 would eventually introduce restrictions that particularly harm the farmers' privilege to crop with a seed-saving tradition.

According to the 2020 country assessment on the implementation of the Plant Treaty (ITPGRFA), Rwanda, with Law No. 005/2016, "gives the rights to farmers to save, to use, to exchange and sell farmer-saved seeds and propagated material" (Ngaboyisonga, C. 2020, p.10). However, after reviewing carefully Law No. 005/2016, we found that it does not recognize farmers' seed systems and therefore also not the right of farmers to save, use, exchange and sell their seeds.

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Appendix 3: Country Profile of Madagascar

Madagascar: Country Profile

1 Context

Madagascar is a geographically diverse region, with a high diversity of climate, altitudes and therefore soils. Agriculture employs 70% of the population, represented mostly by smallholder farmers, which produce 95% of food and work 96% of land. Therefore, 90% of seeds derive from the farmers' seed system (Access to seeds, 2019). A Sees System Security Assessment (SSSA) was completed in 2013, prompted by the high malnutrition rate in the country, and reviewed the processes of both commercial and farmers' seed systems, evaluating the accessibility to high quality seeds that could meet the adequate quantity demand. Some of the study recommendations include decentralized variety testing network aiming at identifying adapted varieties that can meet farmers subsistence needs, decentralized seed multiplication serving farmers and not handled by the commercial sector, seed storage options to mitigate losses, diversity and nutrition fairs to optimize diversity and nutrient rich options (CRS et al., 2013).

This contemporary landscape must be understood in light of Madagascar's seed system evolution. Historically, the country relied on traditional seed exchange among farmers, which maintained local biodiversity. However, local experts explain that during the colonial period (1896–1960), French agricultural policy imposed a centralized, state-controlled seed system that prioritized commercial export cash crops such as coffee, vanilla, cloves, sugarcane, and cotton, often at the expense of local food crops.[94] Indeed, local food crops were often neglected, except for rice. Traditional seed systems were marginalized in favor of imported, controlled seeds distributed through colonial agricultural institutions.[95] Following independence in 1960, Madagascar embarked on a path of nationalizing its agricultural sector. Institutions like FOFIFA (National Center for Applied Research in Rural Development) were established to spearhead agricultural research and development, and during the socialist era, the state-maintained control over seed production within a planned economy.[96]

Although as early as 1985 the Malagasy government was committed to getting out of direct agricultural production itself, it continued to guarantee seed production through 20 seed multiplication centres or community-based seed production structures called "Centres de Multiplication Semencière" (CMS) across the country (Van Mele et al., 2011). CMS eventually played a key role in strengthening the seed system by contributing to both seed security and local capacity. Local experts explain that their work has included

[94] Interview conducted on March 26, 2025.

[95] Ibid.

[96] Ibid.

producing certified and basic seeds, regenerating local varieties, and supporting varietal trials. They've also assisted farmer groups, facilitated seed marketing, maintained emergency seed stocks, and provided training. Legal reforms in 1993 and the enactment of the seed act in 1995, mandated the state to stop subsidizing seed production and begin to privatize the CMS so that they could no longer sell seeds directly to farmers without going through private distributors, though in practice, this rule was inconsistently enforced and eventually failed since companies had only sold seed and never produced (Van Mele et al., 2011). Most other centres, along with most seed growers' associations, stopped producing seed altogether after losing access to credit, which had previously been provided by the state (Ibid.). Only the largest centres, such as Anosiboribory near Lake Alaotra, Sakay in the mid-west, Anosy in the eastern highlands, Marofarihy in the south-east, and Tsararano and Mahabo in the west — were able to continue operating thanks to donor funding (Ibid.). The latter two are managed by seed growers' associations (Ibid.). Under the Seed Act, CMS centers are also authorized to produce foundation seed. National agricultural research institutes like FOFIFA and FIFAMANOR, which collaborate with international research organizations, are officially tasked with producing only breeders and foundation seed. However, due to the sector's weak organization, they also produce commercial seed (Ibid.).

Since the mid-1990s, Madagascar has progressively built a layered legal and policy framework to govern its seed system and plant genetic resources, moving from basic regulatory provisions toward more integrated and ad-hoc instruments. This evolution began with Law No. 94-038, adopted in 1995, which laid the foundation for the country's seed regulation. The law provided a legal basis for organizing seed production, certification, and trade, and it formally established the Official Service for the Control of Seeds and Planting Material (SOC) as the principal authority responsible for enforcing seed quality standards. This initial legal framework was essential for structuring Madagascar's commercial seed sector but remained limited in scope, particularly in its treatment of traditional seed systems and farmers' rights. In 2006, the government launched its Green Revolution Plan, including measures such as off-season crops, transplanting and improved rice seeds which have reduced poverty and food insecurity prevalent in rural Madagascar (Van Mele et al., 2011). As part of the government's Green Revolution Plan, quality seed was recognized as a key driver of increased agricultural productivity. The Ministry of Agriculture made a focused effort to distribute improved seed across the island and after receiving foundation seeds from research institutions, the Ministry provided them, along with training, to members of Seed-peasant Cooperatives (Groupements de Paysans Semenciers). While the Ministry sometimes purchases their output, most of it is sold informally to neighboring farmers (Ibid.). Most farmers in fact rely on saving their own seed or exchanging with neighbors, but they may turn to the market when they secure a good price for their harvest (Ibid.). In cases where farmers are unable to reserve seed, due to poor yields, natural disasters, or crop diseases, opportunistic dealers often step in, selling cheap, low-quality seed without labels or proper packaging (Ibid.). To counter this, the Malagasy Association for Seed Promotion (AMPROSEM – Association Malagasy pour la Promotion des Semences) conducts workshops to raise awareness about quality seed and contributes to shaping seed policy as a member of the National Seed Council (CONASEM – Conseil National des Semences) (Ibid.).

Then, to respond to the need for a more strategic approach to seed system development, Madagascar adopted the National Seed Strategy in 2008. This strategy aimed to enhance seed system security by promoting the production and distribution of quality seeds, strengthening institutional coordination, and improving farmers' access to certified planting material. However, the strategy largely focused on the commercial sector and did not fully address the farmers' seed systems that supply most farmers, especially smallholders. The need to reconcile seed quality assurance with inclusiveness led to further regulatory refinement in 2010, when two significant decrees were issued. With support from the FAO, decree No. 2010-0958 established the National Catalogue of Species and Varieties (CNEV), a registration mechanism for plant varieties that included the most popular landraces, local and improved varieties (Van Mele et al., 2011). Complementing this, Decree No. 2010-1009 set out the rules for seed production, certification, control, and marketing, clarifying the procedures seed actors must follow to access commercial markets.

As global attention grew around biodiversity and equitable access to genetic resources, Madagascar introduced further legal reforms in line with international commitments. Decree No. 2017-066 addressed access and benefit-sharing (ABS) from the use of genetic resources, incorporating key principles of the Nagoya Protocol into national legislation. That same year, Arrêté No. 11.567/2017 introduced interim measures to regulate requests for access to plant genetic resources for food and agriculture listed under Annex 1 to the ITPGRFA, enabling benefit-sharing under the multilateral system. These measures signaled Madagascar's intent to embed farmer and community rights more explicitly within its regulatory framework, though challenges in implementation persisted. In 2018, Madagascar reinforced its strategic vision with the adoption of the Stratégie Nationale et Plan d'Action sur les Ressources Phytogénétiques pour l'Alimentation et l'Agriculture (SNPARPGAA). This national strategy went beyond seed system development to encompass the conservation and sustainable use of plant genetic resources, linking them directly to food security and agricultural resilience. The plan introduced a structured timeline, defined responsibilities, and outlined mechanisms for engaging communities in conservation efforts. Together, these laws and strategies illustrate Madagascar's ongoing attempt to balance modern seed system regulation with inclusive, biodiversity-sensitive practices.

Instrument	Year	Overview of the instrument
Policies and Strategies		
National Seed Strategy	2008	Enhancement of seed system security by promoting the production, certification, and distribution of quality seeds, strengthening institutional frameworks.
Strategie Nationale et Plan D'action sur les RPGAA (SNPARPGAA)	2018	Establishment of a national framework for the conservation and sustainable use of plant genetic resources, aiming to enhance food security and agricultural resilience through a detailed action plan that includes responsibilities, resources, and timelines for activities related to the management of these resources.
Laws		
Law No. 94-038	1995	Seed law regulating seed production, certification, quality control, and commercialization, including imports and exports
Regulations		
Decree No. 2006 618	2006	Decree of application for Law No. 94-038
Decree No. 2010-0958	2010	Establishment of National Catalogue of Species and Varieties (CNEV)
Decree No. 2010-1009	2010	Regulations on production, control, certification and marketing of seeds
Arrête No. 11.567/2017	2017	Interim measures to regulate request for access to PGRFA listed in Annex 1 to ITPGRFA and benefit-sharing under Multilateral System (FAO, 2017).
Decree No. 2017-066 du 31/01/2017	2017	Regulations on access and benefit sharing arising from the use of genetic resources (FAO, 2020).
Decree No. 2018-893	2018	Repeals Decree No. 2013-537 of 16 July 2013 that created ANCOS and set out its powers, competencies and remit (FAO, 2022b).

2 Policy analysis

2.1 Intellectual Property system

Madagascar was a French colony from 1897 to 1960, which led to the island developing political, economic, and cultural ties with French-speaking countries in West Africa. Following its independence from France, Madagascar, along with twelve other African states, signed the Libreville Agreement in 1962. This agreement established a unified system for industrial property protection and created the "Office Africain et Malgache de la Propriété Industrielle" (OAMPI), which was responsible for managing industrial property rights and administrative procedures across all thirteen member states.

With the termination of this agreement in 1976, OAMPI was replaced by the "Organisation Africaine de la Propriété Intellectuelle" (OAPI) in 1977, following the adoption of the Bangui Agreement. Notably, Madagascar withdrew from OAPI during this transition. Specifically, OAPI provides a uniform system for the protection of plant varieties among its member states, which Madagascar replaced with national laws dating this event. As a result, the country still relies on its Patent act of 1989 and the regulation of 1992, which, however, excludes plants and their parts from patentability (Cardoso, 2021).

2.1.1 National Plant Variety Protection system

Although Madagascar is a WTO member since November 1995, the country has not yet adopted a sui generis PVP system as it is still exempted by TRIPS obligation until 2034 (Access to Seeds, 2019).

Nevertheless, Madagascar became a member of the Southern African Development Community (SADC) in 2005, though its membership was suspended from 2009 to 2014 due to political instability following a coup and then reintegrated in 2014 after a return to constitutional governance (Van Dycke, 2021). SADC adopted the Protocol for the Protection of New Varieties of Plants (Plant Breeders' Rights) in 2017, aligning with UPOV 1991 standards (Ibid.). This Protocol requires ratification by two-thirds of SADC member states to enter into force (Ibid.). This threshold has not been met, and the Protocol has not yet entered into force.[97] Even in that case, individual SADC member states would retain the option to maintain parallel national PVP systems, as stipulated in Article 3.3 of the Protocol.[98]

2.2 Seed trade regulation

Seed trade in Madagascar is governed by Law No. 94-038 of January 1995 and following Decree No. 2010-1009 of December 2010, regulating and organizing the seed certification and commercialization. Additionally, Decree No. 2010-1009 regulates the production, control, certification and marketing of seeds, and decree 2010-0958 established the National Catalogue of Species and Varieties (SOC, 2025).

In Madagascar, the seed trade is mostly limited to local and regional markets because the country lacks an internationally accredited national laboratory needed to certify seeds for export. Without this accreditation, Madagascar cannot meet international standards for large-scale seed exports. While small exchanges do occur, mainly for research, they are not commercially significant. As a result, even certified seeds are mostly produced for domestic commercialization, and the seed sector remains focused on serving the national market. Like Kenya and Rwanda, Madagascar is a member of COMESA. However, unlike these countries, it has not fully aligned

[97] Last update as of May 12, 2025.

[98] See Article 3.3 SADC Protocol for the Protection of New Varieties of Plants (Plant Breeders' Rights).

its seed legislation with the COMESA Seed Trade Harmonization Regulations and has yet to start developing its seed legislation in line with the regional regulations (AGRA, 2023).

The primary authority for seed certification and control is the Official Service for the Control of Seeds and Planting Material (Service Officiel de Contrôle des Semences et Plants, SOC). SOC was established by Law No. 94-038 Art. 6 under the Ministry of Agriculture and takes the main function of enforcing seed certification laws. This includes processing applications, sampling and testing seed quality, and conducting varietal purity trials to ensure compliance with the established certification standards (Randrianatsimbazafy, 2014). In this context, Decree No. 2010-1009 defines certified seed as seed that has been controlled and certified by SOC (Wauters et al., 2025). Temporarily, Decree No. 2013-537 of July 2013, shifted some tasks to the National Agency for the Official Control of Seeds and Plants (l'Agence Nationale de Contrôle Officiel des Semences et Plants (ANCOS)) (Access to Seeds Index, 2019), including, inter alia, quality control and seed certification, management and implementation of the technical regulations for the registration of cultivated plant species and varieties in Madagascar's CNEV and DUS and VAT testing,[99] but was then repealed by Decree No. 2018-893 of July 2018, transferring ANCOS' civil servants, and contract staff to SOC (FAO, 2022b).

According to Art. 15 and 16 of Law No. 94-038, any natural or legal person who meets the technical requirements established by the Minister of Agriculture may obtain the professional authority permit of 3 years to become a Seed Establishment from SOC, which allows them to commercialize certified seeds in the country. Furthermore, under Art. 10 of Decree No. 2010-1009, once recognized as a Seed Establishment, an entity is officially considered also a seed producer. Each seed establishment obtains a QR code referring to a personal digital identity tracked by the SOC certification database. This status grants them the right to enter contracts with farmers for seed multiplication of the same plant species. Art. 17 of the Decree states that any farmer engaged in seed production or multiplication must use certified seed. To verify the origin of these seeds, farmers must present appropriate documentation, such as a certification label or an invoice delivery note. Additionally, before seeds can be certified, they must be listed in the CNEV, which is managed by the Ministry of Agriculture.[100] Eligible groups of species for registration are crop species of national importance, forage species, forest species, vegetable species, fruit species and ornamental species[101]. The catalogue is divided into two lists: List A, which includes varieties whose seeds can be both multiplied and sold in Madagascar and, List B, which includes varieties that may only be multiplied but not commercialized in Madagascar.[102] According to Article 5 of the Decree No. 2010-0958, new varieties must pass both the DUS and VCU test to be registered in list A, whereas those in List B must meet the DUS criteria.

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[99] Décret, No. 2013-537; FAO, 2022a

[100] See Décret No. 2010-0958

[101] Ibid., Art. 3

[102] Ibid.

Insights shared in interviews with local stakeholders, particularly representatives of the national SOC and FAO focal points, reveal that although such registration fees are formally included in national legislation the current system does not actually charge registration fees to farmers for entering varieties into official registries.[103] Instead, in most cases technical and financial partners, often development organizations or donor-funded projects, cover the actual costs associated with registration, including DUS testing and value-added tax (VAT)[104]. Farmers or applicants generally only bear minor, indirect costs, such as the labor required to maintain test plots or prepare the land, costs that are often considered part of their normal farming activities. When it comes to certification and field inspections, there are indeed fees for technical controls such as inspector travel and per diems, but these are also frequently absorbed by external projects[105]. In cases where farmers are required to pay, local flexibility plays a significant role, as inspectors sometimes accept in-kind contributions, and fees are negotiated based on trust and existing relationships in the community[106]. Even when paid in full, SOC has calculated that inspection fees typically represent less than 3% of the overall cost of seed production. Moreover, stakeholders emphasize that the benefits of certification often outweigh the costs[107]. Certified seed producers can access public markets, where prices are considerably more favorable than in local farmers' markets. The certification, in this sense, becomes a gateway to higher income opportunities, potentially justifying any upfront or process-related expenses. While this overall practice might seem positive, concerns can be raised on the increasing dependency on external donor funding,

2.2.1 Quality Declared Seed System

In southern Madagascar, an alternative hybrid system of Quality Declared Seed (QDS) certification has been tested to bridge the gap between farmers' and commercial seed systems (Seed System, 2023). Through a multi-stakeholder collaboration between the FAO, who inspired and introduced the framework in the area, the Centre Technique Agroécologique du Sud (CTAS), the SOC, and several NGOs and Farmer's organizations, this system was put in place to address food security challenges and climate variability in the region by enabling farmers to legally produce and distribute hundreds of local seed varieties, including drought-and-aridity resistant crops like pigeon peas, lima beans, and millet (Ibid.). or instance, CTAS produced 250 MT of seed annually (non-irrigated), and FAO-supported producers made 342 tons of climate-resilient seeds from 2018 to 2021 (Ibid.). This was achieved by simplifying legal and administrative procedures related to DUS requirements and making these seeds available through local shops and emergency seed distribution programs (Ibid.). The aim is also to employ farmers' traditional seeds varieties, so to save, produce, and register them at the same time. As a result, the

[103] Interview, March 26, 2025

[104] Ibid.

[105] Ibid.

[106] Ibid.

[107] Ibid.

regions where the QDS is in place have their own regional plant variety catalogue managed by the Regional Advisory Committee for Registration (Ibid.). The regional certification system developed by the QDS directly includes farmer's participation in the decision processus as the committee is made up of farmers, technicians, and seed users who decide on the standards to apply, and the process to follow for certification, which has been significantly lightened, especially for smallholders (Ibid.). With the 2006 revision of the system and the introduction of Decree No. 2010-1009, the country acknowledged QDS as an alternative approach to seed quality assurance and from the first pilot regions the system is currently expanding, now being used in the Androy, Anosy, and Boesy regions (Ibid.). However, the QDS system is not yet regulated or established by National laws. Indeed, there is no explicit mention of the adoption or formal recognition of the system in the National legal texts, but according to our interviews with local stakeholders, its formal recognition is expected in the next legal reform.

3 Farmers' rights analysis

The QDS system presents both opportunities and limitations in relation to farmers' rights. On one hand, it introduces a more accessible and participatory alternative to conventional seed certification by allowing farmers to legally produce, distribute, and even commercialize their traditional varieties, something typically prohibited under standard seed laws and IP regimes. the QDS system indeed enables farmers to legally produce and distribute their traditional varieties, making them accessible beyond informal, localized networks and represents a step forward in legal recognition and market access for smallholders, even if it's not a complete solution. On the other hand, some criticisms could be pointed out as QDSs may only be viable where strong farmer organizations exist, and it can involve fees or administrative processes that risk creating new dependencies on external actors such as NGOs. Moreover, if QDS becomes the only legal pathway for seed exchange, it could inadvertently restrict farmers' universal rights, as recognized in UNDROP and ITPGRFA, to freely save, use, exchange, and sell seeds. As such, while QDS represents a promising hybrid model, its design and implementation must be carefully monitored.

According to Art. 9 of Madagascar's Second Compliance Report on the implementation of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), submitted to the FAO on September 4, 2023, the country does not fully recognize farmer's rights to seeds. While smallholder farmers do have access to benefit-sharing mechanisms and traditional knowledge is protected and valued, there is a lack of access to political participation and decision-making on plant genetic resources issues. These limitations stem from multiple issues, such as lack of awareness and legal weaknesses. Due to a lack of funding, the concept of farmers' rights is not adequately diffused among farmers, resulting in a general lack of awareness of their own rights and therefore insufficient advocacy efforts. The lack of knowledge and adequate representation advocating for farmers interests limit their ability to influence policy. Finally, legal inadequacy fails to recognize biological protocols on agriculture.

However, efforts have been made to educate and empower farmers on their rights and benefit-sharing mechanisms as defined in Art. 9 of the ITPGRFA.[108] In community level capacity building workshops farmers proposed to use their own type of contact: Material Transfer Agreement (MTA) with community biodiversity registry and cultural bio protocols. Indeed, in 2017, as part of a project funded by the Darwin Initiative and implemented by Madagascar's Ministry of Agriculture and Bioversity International, the country adopted Biocultural Community Protocols (BCPs) as tools to support farmers' rights under the Nagoya Protocol and the ITPGRFA (Rakotondrabe & Girard, 2022). These protocols were piloted in two rural communes, Analavory and Antavolobe, and serve as community-developed agreements that outline the terms under which Indigenous and Local Communities (ILCs) allow access to their traditional knowledge and genetic resources (Ibid.). Developed through participatory, culturally grounded processes, BCPs reflect customary laws and norms and play a crucial role in in situ conservation of plant genetic resources (Ibid.). They provide legal clarity for external actors requesting access, support equitable benefit-sharing, and foster long-term partnerships. Importantly, BCPs also promote farmers' participation in national decision-making on genetic resource use and conservation, helping enforce rights recognized in the ITPGRFA, particularly the right to benefit-sharing and to participate in policy decisions (Ibid.). Madagascar now seeks to identify sustainable mechanisms to scale up these initial efforts and integrate them more broadly into national implementation strategies.

The second compliance report included further information on the difficulties in implementing the Plant Treaty. Firstly, the report highlights the ambiguity and technicality of the Plant Treaty terminology, difficult to interpret from the grassroots farmers. Moreover, the interaction and contradiction of the Plant Treaty and other international frameworks protecting IP systems still need to be clarified. Additionally, the benefit sharing mechanism provided by the international treaty is creating a very limited flow of payments due to disparities between Global North and Global South. While the Global North pressures for Intellectual Property Rights and biotechnological innovation, the Global South holds biodiversity, which is not adequately protected in the international frameworks advanced by the North.

4 Conclusion and policy recommendations

Madagascar's seed system reflects a complex and evolving interplay between traditional practices, colonial legacies, state-led interventions, and contemporary efforts to align with international norms and development goals. While the formal regulatory framework has gradually expanded to include commercial certification standards and international obligations, it continues to struggle with inclusivity, particularly in recognizing and supporting the farmers' seed systems that provide the backbone of national food security and agrobiodiversity. Hybrid mechanisms such as the Quality Declared Seed (QDS) system and Biocultural Community Protocols

[108] https://www.fao.org/fileadmin/user_upload/faoweb/plant-treaty/submissions/FRs_SWZ.pdf

(BCPs) have emerged as promising innovations, offering more accessible, locally adapted, and participatory alternatives to conventional seed governance.

However, their success hinges on careful and context-sensitive implementation. While QDS aims to create a legal space for the circulation of farmer-bred and traditional varieties, it does not seek to formalize or marginalize the broader farmers' seed systems. Yet without strategic framing, its institutionalization risks becoming the only legally recognized channel for seed exchange, thereby undermining farmers' fundamental rights to freely save, use, exchange, and sell their seeds; rights enshrined in instruments such as UNDROP and the ITPGRFA.

To build a more equitable and resilient seed system, Madagascar should formally recognize and regulate the QDS system and BCPs within a legal framework that explicitly protects farmers' seed sovereignty. This includes ensuring that QDS complements, rather than replaces or limits, farmer's seed systems by offering broader access to market and financial revenue to farmers. A national strategy should be developed to institutionalize farmers' participation in seed policy design and oversight, embed farmers' rights into law, and create safeguards that prevent the monopolization or exclusion of traditional practices.

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Appendix 4: Country Profile of Colombia

Colombia: Country Profile

1 Context

Colombia is known for its rich biodiversity and cultural heritage, the country in fact recognizes around 115 indigenous peoples. Indigenous communities, despite facing land dispossession and being strapped from their cultural identities due to colonization, have been the guardians of the country's natural heritage. Indigenous communities have, in fact, nourished agricultural traditional knowledge by engaging in resource management and conservation passed down generation by generation. Women, in their traditional role of caregivers, have had a pivotal role in the careful selection of seeds, not only for subsistence, but also for medicinal properties, rituals and tools.[109]

When Spaniards arrived in the Americas in 1492, one of the most important seed exchanges took place: Europeans got acquainted with many new crops and seeds, while introducing wheat, sugar cane, rice etc. While this exchange surely impacted the Colombian farming system, it was the Green Revolution in 1960s who heavily impacted the basis of agriculture for indigenous, Afro and peasant communities. The Green Revolution introduced high-yield crop varieties, synthetic fertilizers, pesticides, and mechanization to increase agricultural productivity. Colombia was one of the target countries for these transformations, particularly in commercial cash crops like cotton and coffee. Traditional seeds were largely replaced by "improved" and higher yielding seeds, aiming at curbing significantly hunger. However, this would have been possible only under ideal conditions of soil, water and sunlight, which were applicable to only a small number of farming communities. The technological advancements conflicted with peasants and indigenous farming system, which were thought to be inadequate and were therefore replaced my monoculture to expand the agricultural frontier, leading to the displacement of communities, traditional knowledge and seed diversity loss, and genetic erosion.[110]

Armed conflict in Colombia has never ceased to exist since the arrival of the Spanish crown, firstly because of the territorial displacement suffered by the indigenous communities, and the numerous territorial arrangements relegating peasants, Afro and indigenous peoples to least fertile, steep and difficult to access lands. When in 1991 the Political Constitution recognized the indigenous reserves as territorial entities and granted land titles to the Afro communities, began a social and political transformation. Nevertheless, violence and dispossessions were still taking place. This situation, paired with unrest sparked by the stipulation of the free trade agreement

[109] According to an NGO representative from Colombia. Interview conducted on April 2, 2025.

[110] Ibid.

with the US, motivated these communities to mobilize.[111] This moment coincided with the approval of Resolution 970, deeming legal only certified seeds, resulting in farmers' seeds confiscations. The National Agrarian Strike of 2013, which was also against the Resolution 970, led to it being replaced in 2015 by Resolution 3168, which only refers to certified seeds and thus ignores farmers' seed systems (Silva Garzón & Gutiérrez Escobar, 2019). However, this new resolution, in contrast to Resolution 970 of 2010, does not explicitly prohibit the right of farmers to save, use, exchange and sell their seeds.[112][113] The National Agrarian Strike, however, was never solely about seeds but encompassed multiple pressing issues and involved many segments of the civil society, such as cotton farmers working for agribusiness, indigenous communities, small scale miners and so forth, fighting for access to land. The rural struggle that led to the strike has always been there but was latent for a long time due to conflict and political repression, until President Santos created a favorable political climate for the strike.[114]

In Colombia, peasants still depend largely on the farmers' seeds system, where seeds are exchanged between peasants through community seed houses, seed fairs and local markets. The country's seed policies are partially favorable to smallholder peasants; however, the local seed systems are under pressure from market forces, therefore action is needed to reduce the insecurity and vulnerability of rural communities. In fact, transgenic seeds are affecting native varieties, and climate change is affecting seed production systems impacting peasants' traditional practices (Lorena, 2017). However, the expansion of the free market, agricultural innovation and resource extraction led to disastrous consequences, such as: decline of edible plant varieties, cultural erosion, displacement and loss of traditional knowledge, while getting absorbed into the market economy (Lorena, 2017).

[111] Ibid.

[112] According to an NGO representative from Colombia. Interview conducted on April 2, 2025.

[113] See Ch. 2.2.

[114] According to an expert on farmers' rights in Colombia. Interview conducted on March 26, 2025.

Instrument	Year	Overview of the instrument
Policies and Strategies		
Havana Peace Agreements	2016	First explicit governmental recognition to native and creole seeds.
Laws		
National Constitution of Colombia	1991	Article 64 recognizes peasants as right-holders and subject to special protection.
Decision 345, Andean Community of Nations	1993	Common Regime for the Protection of Plant Breeders' Rights for the member countries of the Andean Community of Nations (CAN). Grants intellectual property rights over plant varieties, aligning with UPOV 1978.
Law No. 243	1995	Implemented the Decision of the Andean Community into Colombia's legislation.
Resolution No. 3168	2015	Governs the management, certification, and commercialization of seeds.
Resolution No. 464	2017	Recognition of farmers' seeds and grants peasants right to conserve, reproduce and sell their seeds without submitting to state control and certification.
Law No. 2285	2023	Approval of ratification of the ITPGRFA.
Proyecto de Resolución ICA sobre semillas nativas y criollas	2023	Draft Resolution to regulate production, use, distribution, and commercialization of native and creole seeds.
Resolution No. 331	2024	Resolution on agroecology.
Regulations		
Decree No. 533	1994	Establishes the Colombian Institute for Agriculture and Livestock (ICA) as the administering national authority for Plant Variety Protection system and defines the national PVP system.

2 Policy analysis

2.1 Intellectual Property System

In 1993, Decision 345 established the Common Regime for the Protection of Plant Breeders' Rights for the member countries of the Andean Community of Nations (CAN): Bolivia, Colombia, Ecuador, and Peru. This framework grants intellectual property rights over plant varieties, aligning with UPOV 1978. UPOV 1978 was formally adopted in 1995 (Ramos et al., 2024). The subsequent years saw the approval of strict frameworks favoring the commercial seed systems originated from neoliberal policies, such as Resolution 970 in 2010,

which limited access to indigenous seeds and led to large seed confiscation from the government (Degelo & García Álvarez, 2024), but was later replaced by Resolution 3168, which, however, still relegated farmers' seeds in a legal grey area (Peschard, 2021). In 2012, after the US-Colombia Trade Promotion Agreement entered into force, Law No. 1518 approved Colombia's accession to the UPOV 1991 Convention. However, Law No. 1518 was later declared to be unenforceable by a ruling of the Constitutional Court of Colombia (Peschard, 2021). This Ruling C-1051/12 (Corte Constitucional de Colombia, 2012) was based on the argument that Law No. 1518 violated fundamental rights of Afro-Colombian and indigenous communities, and because Afro-Colombian communities should have been consulted before it was adopted (Ibid.). As a result of the ruling, Colombia did not join UPOV 91. However, the constitutional decision did not significantly alter the national legislation, which was still based on UPOV 91 (Ibid.). Resolution No. 3168 of 2015 (see Ch. 2.2), in fact, is aligned to UPOV 78 but still presents aspects of UPOV 91, such as longer intellectual property protection and restriction of re-sowing seed practices without authorization from the companies. According to Peschard (2021), Colombia "offers a cautionary tale of how a country can implement UPOV 91 standards at the domestic level regardless of whether or not it is a signatory of the 1991 Act." (Peschard, 2021).

2.1.1 National Plant Variety Protection system

Decision 345 of the Andean community in 1993 introduced PBRs in Colombia, aligning the country's regulation with UPOV 1978 but presenting traits of UPOV 1991 (Peschard, 2021). Decree No. 533 of 1994 indicates the Colombian Institute for Agriculture and Livestock (ICA) as the administering national authority for Plant Variety Protection system. Cultivated varieties of botanical general and species must meet four criteria to be eligible for protection: novelty, distinctiveness, uniformity and stability. If the ICA technical report on novelty and DUS requirements is compliant, plant breeders' rights can be granted. These requirements do not apply to wild species that have not been planted or improved. Law No. 243 of 1995 implemented the Decision of the Andean Community into Colombia's legislation, and is complemented by following resolutions, such as Resolution No. 3168 of 2015. The latter resolution, which contains provisions on the farmer's privilege, allows farmers to resow seeds from their own harvests on their land, subject to limits on the land size and the quantity of seeds.[115]. Specifically, "the farmer interested in a variety protected by breeder's right, as contemplated in Decision CAN 345 of 1993, may reserve the product of his own harvest for use as seed for sowing on his own farm in accordance with the areas per species as follows: Rice up to 5 hectares (one ton), soybean up to: 10 hectares (800 kilos), cotton up to 5 hectares (60 kilos).[116][117] As mentioned above, Resolution 3168 still implements traits of UPOV 91, but specify that the provisions only apply to certified seeds (Peschard, 2021).

[115] Art. 22, Resolution No. 3168 of 2015.

[116] Translated with DeepL Translate from Spanish to English.

[117] Art. 22, Resolution No. 3168 of 2015.

2.2 Seed trade regulation

The seed production and trade in Colombia are mainly governed by Resolution No. 3168 of 2015. The Resolution, issued by the ICA aims to "regulate and control the production, import, and export of genetically improved seeds for commercialization and planting in the country, as well as the registration of agronomic evaluation units and/or research units in plant improvement" (Aguilar Gómez et al., 2024, p. 9). According to the ICA, seed quality is assessed based on genetic, physical, physiological, and health factors, which are relevant for the production and marketing of certified seeds. ICA regulates the commercialization of two seed categories: certified and selected seeds. Certified seeds must undergo field inspections as they are derived from basic or registered seed and must complete the certification process, while selected seeds, which result from genetic enhancement, are monitored at the sales point (ibid.). Seed producers in Colombia are responsible for maintaining seed quality and ensuring proper preservation until the seeds reach distributors and retailers, who must uphold quality standards during storage and distribution. To make sure that the seed meets the minimum quality requirements at any time, the ICA conducts random field inspections. Additionally, all seed producers are required to perform agronomic evaluations and semi-commercial tests to guarantee seed quality. To certify their seeds, they must provide detailed information on "seed classes field requirements, sowing, isolation, genetic purity, field inspections, treatment, packaging, and sample collection" (Aguilar Gómez et al., 2024, p. 10).

In response, in 2016 SWISSAID Colombia and the Movimiento Agroecológico de América Latina y El Caribe (MAELA) has developed a Participatory Guarantee System (PGS) for native and creole seeds under the joint initiative "Semillas de Identidad" (SWISSAID, 2020; Degelo et al., 2025). PGS was already established in the 1990s for other forms of agroecological produce, but its adaptation to seeds was new (ibid.). The PGS for seeds aims to provide farmers and gardeners in Colombia with a way to ensure the quality of their seeds and acts as an alternative to third-party certification and therefore to the strict and expensive state seed certification system governed by the ICA (Aguilar Gómez et al., 2024). It guarantees that seeds can be evaluated in community seed banks, before peasants sell, donate or exchange them (ibid.). As a result, seeds that have been approved by PGS are eligible to use a specific label that allows peasants to sell their seeds without registering them to the national seed catalogue. In addition, according to Degelo and García Álvarez (2024), the PGS sends a strong political message that farmers are capable of producing their own quality seeds and aims to increase the recognition of farmers' seed systems and the protection of their rights to seed in Colombia.

As a result, seed networks in Colombia, linked to "Semillas de Identidad" from SWISSAID, have defined their own quality criteria and have created the methodology and procedures to follow up on the production and verify the quality of native seeds offered in the Community Seed Houses ("Casas Comunitarias de Semillas", CCS). The seed PGS guarantees five criteria with 28 standards: "1) organic and open-pollinated seed 2) non-transgenic quality 3) physical, psychological and sanitary quality 4) native and creole quality, and 5) articulation with a CCS. Although the PGS for seed quality expanded to different regions, it has not yet been recognized by the

country's institutional framework. However, PGS seeds are marketed as long as there is no regulation that explicitly prevents them.[118]

3 Peasants' rights analysis

At the international level, Colombia declared to support and implement the UNDROP at the end of 2022 and ratified the ITPGRFA in late 2024 – based on Law 2285 of 2023. On domestic level, the recognition of the right of peasants to their native and creole seeds has been growing since the lawsuit against UPOV 91 with Ruling C-1051/12 and Law 1032 of 2006, which penalized the "illegal" planting of seeds owned by companies.[119]

The first explicit governmental recognition to native and creole seeds is given in the Havana Peace Agreements, in 2016 (Santos & Jiménez, 2016, Art. 1.3.3.2). It was followed by the approval of Resolution 464 of 2017 of Family and Community Peasant Agriculture - ACFC and later by Resolution 331 of 2024 of agroecology. In addition, Article 64 of the Colombian Constitution of 1991, recognizes peasants as rights-holders and subject to special constitutional protection and therefore sees it as the duty of the State to give agricultural workers access to marketing of products and aims to improve the incomes and quality of their lives. An NGO representative from Colombia[120], sees this as the most important step in the recognition of peasants' rights to seed. Pachón and GRAIN (2023) further highlight that Article 64 of the Colombian Constitution lays the groundwork for the recognition of the UNDROP. However, beyond those resolutions, there is no development on the farmers' privilege in Colombia.[121]

In contrast, Resolution 3168 of 2015, that governs seed trade in Colombia, does not recognize the right of peasants to produce, conserve, exchange and sell their seeds. However, it also makes no mention of control or illegality of their seeds, unlike the replaced Resolution 970 from 2010. This fact, however, has prompted the ICA to introduce a regulation to control the sowing and distribution of native and creole seeds. A measure that the local seed companies, which are represented by ACOSEMILLAS, have strongly advocated. But it should be further noted that the ICA has pushed, promoted and recommended in the media the use of certified seeds as the best option for competitive and high-yield agriculture. By doing this, it invalidates the use of native and creole seeds and upholds the notion that they are of low quality, which has an impact on the work done by seed networks and farmers' usage of them.[122]

[118] According to an NGO representative from Colombia. Interview conducted on April 2, 2025.

[119] Ibid.

[120] Ibid.

[121] Ibid.

[122] Ibid.

At present, the ruling T-247 of 2023 by the Constitutional Court on transgenic contamination, orders the Ministry of Agriculture and Rural Development to adopt measure to protect native and creole seeds (Corte Constitucional de Colombia, 2023). According to an NGO representative[123] this would have the ability to serve to structure a policy which is favorable to seed custodians, seed networks, the operation of the Community Seed Banks, the regulation or prohibition of transgenic seeds and in situ conservation.[124] With compliance of the provision of Ruling T-247, the ICA has generated a draft resolution that seeks to regulate the production, use, distribution and commercialization of native seeds for planting in Colombia (Ramos et al., 2024). The reason for this was the Court's conclusion that the Colombian State still lacks a legal recognition or special protection regime for plant varieties acquired by indigenous peoples, which hinders the creation of an environment that can effectively address their unique and distinct risks or concerns (ibid.). According to the draft resolution, all natural and legal people involved in the production, conservation, use, storage, and commercialization of native and creole seed would be subject to the regulation.[125] However, a lack of an alternative seed quality certification method – the resolution suggests adopting the same certification process established in Resolution 3168 of 2015 – is one of the main criticisms identified by native seed groups (Ramos et al., 2024).

4 Conclusion and policy recommendations

Colombia's policies, laws and regulations have evolved over time towards greater respect for peasants' right to seeds, thanks to the mobilization of civil society. This positive trend led to the adoption of Law Nr. 2285 of 2023, which formally approved the ratification of the ITPGRFA. In the same year, following a constitutional ruling that required the Colombian state to adopt measures to protect indigenous and creole seeds (T-247 of 2023), the ICA drafted a resolution aimed at regulating the production, use, distribution and marketing of indigenous seeds for planting (Ramos et al., 2024). However, the draft resolution proposes the adoption of the seed certification system established by Resolution 3168 of 2015, which does not recognize farmers' seed systems and therefore defines certified seeds as those of better quality. Specifically, Colombia's seed trade regulations focus primarily on certified seeds, thus disregarding the rights of farmers highlighted in Article 9 of the ITPGRFA. This reflects the legal grey area in which native and creole seeds still exist.

In addition, Colombia's intellectual property norms are largely influenced by UPOV91, although the Convention has not been formally adopted, and continue to exclude the country's peasants. While there have been important steps to recognize peasants' rights to seeds, such as Article 64 of the Colombian Constitution, the 2016 Havana Peace Accords, and the recent Constitutional Court rulings T-247 of 2023, these have yet to be fully translated into binding and inclusive policies.

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[123] Ibid.

[124] Ibid.

[125] Art. 2, "Proyecto de Resolución ICA sobre semillas nativas y criollas".

In contrast, the PGS for indigenous and Creole seeds developed by SWISSAID and MAELA under "Semillas de Identidad" represents a promising alternative to third-party certification in Colombia. By offering a community-based method of seed quality assurance, PGS bridges the gap between farmers' seed systems and the commercial system. Compared to the PGS, the FAO's Quality Declared Seed System (QDS) does not involve an organizational process, collective evaluation or recommendations to seed producers. However, it should be noted that the PGS for native and creole seeds is not yet recognized within the Colombian institutional framework.[126]

Based on the analysis in this country profile for Colombia, the following policy recommendations are made: The draft resolution based on decision T-247 of 2023 should be implemented and should lead to a public policy for the protection of indigenous and creole seeds in the country. However, the seed certification process should be modified to recognize farmers' seed systems. The PGS for native and creole seeds would be a promising alternative for farmers to bring their seeds up to quality standards and thus be able to exchange, save and sell them.

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Appendix 5: Documentation Table

Additional tools used	**Type of use**	**Affected parts of the work**
ChatGPT	Spell check, improvement of flow and clarity.	Final report and Appendices 1-4, without bibliographies.
DeepL Write	Spell check	Final report and Appendices 1-4, without bibliographies.
DeepL Translate	Translation aid of text passages	Legal documents for country profiles.
MyBib	Creation of bibliographies.	Bibliographies of final report and Appendices 1-4.