FARMERS' RIGHTS, TRADITIONAL KNOWLEDGE, AND INTELLECTUAL PROPERTY*

Abstract
Intellectual Property Rights (IPRs) can play a critical role in protecting the genetic integrity of a variety and generating revenue to support continued breeding work among farmers. Where farmers' rights are appreciated, plants variety can increase, which in turn increases food security in society. These enhanced varieties have positive effects for the economy, ecology, and health of mankind. Only by acknowledging such inventions can the world ensure enhanced plant types that can help with food security, climate change, and poverty alleviation. Protecting the accomplishments of farmers is relevant therefore both to the entrepreneurial interests of the breeder as well as to the general public. Paper examined the concept of farmers' rights and IP concerning the international and local laws on farmers' rights (with special reference to Nigeria Plant Variety Protection Act, 2021). It outlines the provisions of this Act with some of its limitations. This paper argues that the UPOV system is unsuited to Nigeria's small-scale centered agricultural sector and recommended a sui generis system that safeguards the interests of both small-scale farmers and agribusinesses which is most appropriate for Nigeria's small-scale-centered agricultural sector. Paying attention to small-scale farmers and agribusinesses can considerably contribute to Nigeria's economic growth in the face of the erratic nature of global oil prices, which the country is presently dependent on.

Keywords: Farmers' Rights, Plant Breeders, Plant Variety Act, Traditional knowledge, Intellectual Property

1. Introduction

Presently, Intellectual Property Rights (IPRs) protect ideas that can be demonstrated as being novel and undiscovered at the time of their legal claim as intellectual property. This definition of originality, however, has been flexible throughout the history of intellectual property law, both internationally, and locally. The proponents of law acknowledge the critical need for financial assistance in R&D. To sustainably feed a growing global population, agricultural research and development has been identified as a particularly challenging task. Intellectual property is a tool to ensure innovation takes place. These are rights resulting from intellectual activity in industrial, scientific, literary, or artistic fields.[1] Intellectual property rights protect ideas that can be demonstrated as being novel and undiscovered at the time of their legal claim including Copyrights[2], Patents[3], Trademarks, Trade Dress, Trademark Utility Model, Trade Secret, Database Rights, Indigenous Intellectual Property, Industrial Designs, Performers' Rights, Plant Breeder's Rights, or Plant Varieties Rights Plant breeders' rights, among others. Plant breeding is a science that changes the traits of plants to produce more desirable characteristics. So, the concept of Plant Breeders' Rights (PBR) is to ensure that the farmers' rights are rightly protected. Intellectual property is crucial for plant breeders as it stimulates ongoing innovation. While the rights of plant breeders are crucial for any country's economic development, it is crucial to encourage farmers to contribute to the creation of new plant varieties, which will hasten the development of agriculture. The Intellectual Property rights were not originally extended to include plant variety management. Intellectual Property Plant Variety protection offers a suitable legal framework that ensures an adequate return on investment to plant breeders for discovering and developing new varieties. This is important because innovative plant breeding is a time-consuming and costly endeavor.

2. Clarification of Concepts

Farmers' Rights

Farmers' Rights are defined as entitlements resulting from farmers' historical, current, and future contributions to the preservation, enhancement, and availability of plant genetic resources, particularly those in the regions of origin and diversity. The problem of the inadequate framework regarding Farmers' Rights, as well as proper implementation has been an issue of concern. Despite international acknowledgment and the call to governments to adopt measures to promote and safeguard Farmers' Rights, these rights are still not promoted or protected by national legal and policy frameworks in most countries. There are still many challenges in the realization of Farmers' Rights at the national level despite the International Treaty. Traditional farmers' varieties have provided many individual traits that have been introduced into existing, improved breeding lines[4]. For instance, one local variety of wheat that is found in Turkey, collected by Harlan in 1948, was ignored for many years because of its many negative agricultural characteristics. But in the 1980s it was discovered that the variety carries genes that are resistant to many disease-causing fungi. Another is the primitive Japanese dwarf wheat variety, Norin 10, introduced into America in 1946, which had a key role in the genetic

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[1] See *Convention Establishing the World Intellectual Property Organization*, 1967.
[2] Copyright Act Cap C 28, Laws of the Federation of Nigeria, 2004
[3] Patents and Designs Act Cap. P2, Laws of the Federation of Nigeria, 2004.
[4] Several legislations have been enacted to support and strengthen national participatory plant breeding (PPB) programs and to start new programmes of evolutionary participatory plant breeding (EPPB) in Iran and Jordan by developing locally adapted varieties of wheat, barley, rice, and maize while enhancing biodiversity within and among farmers.

improvement of wheat during the so-called 'Green Revolution.'[5] Farmers are believed to have seed sovereignty[6] which needs to be protected. This comes from the belief that farmers should have control over their seed stock, as a means to increase agricultural biodiversity, resilience, and food security. Seed sovereignty is strongly tied to the food justice and food sovereignty movements, due to its focus on increasing food security for all communities. Seed sovereignty has been defined as the right 'to breed and exchange diverse open-sourced seeds.'[7] Seed sovereignty is closely connected to issues of intellectual property rights, mostly related to the patenting of plant genetics, due to the importance of preserving seed. Activists argue that farmers and individuals should have legal protection for the practice of maintaining traditional plant varieties. It is believed that seed saving should be protected on the grounds of environmentalism and food security.

Farmers or Plant Breeders' Rights

Plant Breeders' Rights are also a form of intellectual property that is specifically designed to protect new plant varieties. The right as defined by UPOV[8] is an exclusive right over the commercial production and marketing of the reproductive or vegetative propagating material of the protected variety. These rights are assigned to the breeder of a new variety of plant which gives him/her exclusive control over it; be it seeds, flowers, fruits, foliage, or the like. Protection of Plant Varieties and Farmers Rights Act was framed in India in the year 2001 to grant rights to the farmers as well as the breeders. Plant Breeders' Rights (PBR), also known as Plant Variety Rights (PVR), are rights granted to the Breeder of a new variety of plant that give the breeder exclusive control over the propagating material (including seed, cuttings, divisions, tissue culture) and harvested material (cut flowers, fruit, foliage) of a new variety for some years. With these rights, the breeder can choose to become the exclusive marketer of the variety or license the variety to others. To qualify for these exclusive rights, a variety must be new, distinct, uniform, and stable. Hence, farmers can claim the Intellectual Property Right, provided their varieties are novel, distinct, uniform, and stable (NDUS) and are given an exclusive right to produce, sell, market, distribute, import, or export the variety.

3. International Protection for Farmers' Rights

The Plant Breeders' Rights system based on the 1991 Act of the UPOV Convention[9] provides for effective protection of plant varieties of all genera and species to obtain an appropriate return on investment. This convention also ensures the continuous flow of improved plant varieties by safeguarding access to genetic variability through the so-called breeder's exemption. This compulsory exemption – which is a key element of the system – provides that all varieties protected by Plant Breeders' Rights can be used for further breeding and the resulting variety can be commercialized without any obligation towards the rights holder. This feature has always been counted on by breeders as they further improve on each other's varieties and boost innovation in plant breeding.

International Convention for the Protection of New Varieties of Plants (UPOV Convention)

In 1957, in France negotiations took place on the protection of new varieties. This led to the creation of the Union Internationale pour la Protection des Obtentions Végétales (UPOV) and the adoption of the first text of the International Convention for the Protection of New Varieties of Plants (UPOV Convention) in 1961. The purpose of the Convention was to ensure that the member states parties to the Convention acknowledge the achievements of breeders of new plant varieties by making available to them an exclusive property right, based on a set of uniform and clearly defined principles. The Convention was revised in Geneva in 1972, 1978, and 1991. Both the 1978 and 1991 Acts set out a minimum scope of protection and offer member States the possibility of taking national circumstances into account in their legislation. The convention was designed with the farming system of the developed countries in mind. In total, 78 countries have signed the UPOV Convention and adopted Plant Breeders' Rights legislation consistent with the requirements of the Convention.[10]

Under the 1978 Act, the minimum scope of the farmers' rights requires that the holder's prior authorization is necessary for the production for purposes of commercial marketing, the offering for sale, and the marketing of propagating material of the protected variety. The UPOV system provides a model of protection focused on breeders' commercial interests for developed countries and not well-suited for developing countries like Nigeria. Under that provision, for example, if Egypt does not grant plant breeders' rights, a flower breeder who protects their variety in the Netherlands could prevent cut flowers of that variety from being imported into the Netherlands from Egypt because the breeder had no opportunity to exercise any rights there. Member countries also have the option to require the breeder's authorization concerning the specified acts as applied to products directly obtained from the harvested material (such as flour or oil from grain, or juice from fruit), unless the breeder has had a reasonable opportunity to exercise their right with the harvested material. Breeders can bring suit to enforce their rights and can recover damages for infringement. Plant breeders' rights contain

[5]It served as a donor for the dwarfism-causing genes, enabling improved nitrogen uptake and hence higher production in intensive agricultural systems.

[6] https://www.seedsovereignty.info/ Accessed 20th February 2023

[7] Seed Sovereignty, Ibid

[8] International Convention for the Protection of New Varieties of Plants

[9] Ibid

[10] https://www.upov.int/export/sites/upov/members/en/pdf/status.pdf accessed 20th February 2023

exemptions from infringement that are not recognized under patent law. The UPOV Convention is not self-executing, that is it does not operate automatically. Each member state must adopt legislation consistent with the requirements of the convention and submit that legislation to the UPOV Secretariat for review and approval by the UPOV Council, which consists of all the UPOV member states acting in committee. The UPOV Convention also establishes a multilateral system of national treatment, under which citizens of any member state are treated as citizens of all member states to obtain plant breeders' rights. There is a multilateral priority filing system, under which an application for protection filed in one-member state establishes a filing date for applications filed in all other member states within one year of that original filing date.[11] While in developed countries farmers heavily depend on seed supplies from commercial breeders; in most developing countries, farmers rely on farm-saved seed and the exchange and sale of seeds among farmers, which are crucial to protect them from uncertainties (in availability, the quantity of commercial seed supply). The UPOV forbids farmers from selling seeds or other propagating materials gained via the cultivation of a protected plant variety, depriving small-scale farmers in developing nations of a crucial source of income.[12] The protection offered by UPOV may serve foreign rather than local farmers. For instance, in Kenya,[13] the PVP rights seem to have been majorly applied for by the foreign-owned commercial exporters of flowers and vegetables to underpin commercialization and exporting, not actually relevant to the direct concerns of Kenya's poor farmers and the crops they grow.

European Union's Community Plant Variety Rights (CVPR)

For decades European plant breeders have been relying on the international level on the sui generis intellectual property system of plant breeders' rights (PBR) based on the Convention for the International Union for the Protection of New Varieties of Plants (UPOV Convention), which provides effective IP protection for new plant varieties as such and fits the specific needs and nature of the industry. This means a system of protection that is unique to the needs of the plant breeders. The EU legislation on Community Plant Variety Rights (CPVR) has been aligned with the UPOV 1991 AC since 1994. As regards the International Treaty, the EU has been a Contracting Party since 31 March 2004. The conservation of genetic resources as related to farmers has been integrated into various EU legislative frameworks and strategies. The Community Plant Variety Office (CPVO)[14] a system for the protection of plant variety rights has been established by the European Commission legislation. The system allows intellectual property rights, valid throughout the European Union, to be granted for plant varieties.

Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement)

Since the adoption of the TRIPS Agreement, plant variety protection has become a profound aspect of intellectual property rights in Africa. The World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) requires Member States to provide a patent, sui generis or, combination of both systems for the protection of plant varieties. However, it also gives Member States the liberty to exclude from patentability, biological processes for the production of plants or animals other than non-biological and microbiological processes. Most countries meet this requirement through UPOV Convention-compliant legislation.

4. Farmers' Rights, Traditional Knowledge (TK), And Intellectual Property (IP)

The preservation of every community's traditional knowledge must be seen as preserving not only its intellectual property rights but also its members' own existence; preserving that knowledge or invention is preserving their identity. To protect farmers' rights, there is need to prevent misappropriation of biological resources of Traditional Knowledge through the patent system.[15] The International Treaty on Plant Genetic Resources for Food and Agriculture or Plant Treaty was signed in 2001 as a cornerstone treaty for Farmers' Rights[16.] Their realization is a precondition for achieving its three objectives of conservation, sustainable use, and fair and equitable benefit sharing.[17] Under this Treat, the components of Farmers'

[11] In compliance with these treaty obligations, the United Kingdom enacted the Plant Variety and Seeds Act 1964. Similar legislation was passed in the Netherlands, Denmark, Germany, and New Zealand. In 1970 the United States followed the lead of seventeen Western European nations and passed the Plant Variety Protection Act 1970 (US). This legislation protected developers of novel, sexually reproduced plants. Australia passed the Plant Variety Protection Act 1987 and the Plant Breeders Rights, 1994. Australian patent law also permits the patenting of plant varieties.

[12] Carlos M. Correa, 2013: Plant Varieties Protection in Developing Countries- A Tool for Designing a Sui Generis Plant Variety Protection System: an Alternative to UPOV 1991

[13] Carlos M. Correa, 2013, Ibid

[14] Over the past 20 years, CPVO has granted over 30 000 Community plant variety rights to varieties of more than 1700 plant species. Today, around 2500 applications/year are received of which 93% are made online and around 25 000 rights are currently in force

[15] Bio-piracy is where organizations, without proper authorization gain access to genetic resources and traditional knowledge of indigenous people, then developed, rebranded, and patented it. The most popular case of bio-piracy is the Turmeric case- India/US Patent Office. The US patents office granted patent No. 5,401,504 for use of powdered Turmeric to speed the healing of wounds, without acknowledging the source or giving any form of compensation to the original discoverers, guides, or possessors of that bio-cultural knowledge.

[16]Farmers´ Rights in the International Treaty on Plant Genetic Resources for Food and Agriculture https://globalpact.informea.org/sites/default/files/documents/Pdf%20text%20-%20Farmers%20Rights%20-%20Lesson%203.pdf

[17] Farmers´ Rights in the International Treaty on Plant Genetic Resources for Food and Agriculture, United Nation Information Portal on Multilateral Environmental Agreements, https://globalpact.informea.org/sites/default/files/documents/Pdf%20text%20-%20Farmers%20Rights%20-%20Lesson%203.pdf Accessed 19th February 2023

Rights are protection of traditional knowledge; the fair and equitable sharing of benefits; the right to participate in decision-making; and no limitation to rights that farmers have to save, use, exchange, and sell farm-saved seed/propagating material. The ITPGRFA frames farmers' rights as both IPRs and socio-political rights.[18] The first right is an IP right, while the other three are socio-political rights.[19] However, it leaves the implementation of these rights to the discretion of the contracting parties, without providing conditions, guidelines or timelines for implementation.[20] Over the years, progress is being made concerning the protection of traditional knowledge; equitable benefit sharing; participation in decision-making; and the right of farmers to save, use, exchange, and sell farm-saved seed/propagating material.

Farmers' Rights in Relation to the Protection of Traditional Knowledge (TK)

TK includes expertise in the selection, storage, use, and management of seeds. This knowledge is vital for understanding the properties or characteristics of plants and varieties, their uses, cultural significance, and cultivation practices. Safeguarding TK can involve two approaches i.e. protection against extinction; and protection against misappropriation. Protecting TK against extinction means ensuring that it is kept alive and developed further. Measures for its protection are considered crucial by farmers and the best way of protecting traditional knowledge against extinction is to use and share it. Traditional knowledge is integral to the identity of most local communities. The preservation, protection, and promotion of traditional knowledge-based innovations and practices of local communities are particularly important for developing countries. Their rich endowment of TK and biodiversity plays a critical role in their health care, food security, culture, religion, identity, environment, trade, and development. The Traditional Knowledge Digital Library (TKDL) is a pioneering initiative launched in India to prevent the misappropriation of the country's traditional medicinal knowledge by international patent offices. The healthcare needs of more than 70 percent of the population, and the livelihoods of millions of Indian people depend on traditional medicinal knowledge. TKDL's genesis dates back to Indian efforts to revoke a patent on the wound-healing properties of turmeric at the United States Patent & Trademark Office (USPTO). Despite Nigeria's booming agriculture sector, the majority of its farmers—around 80%—are small-scale farmers who protect and advance plant genetic resources. For their livelihoods, these small-scale farmers rely on age-old customs of gathering, storing, and selling farm-saved seeds. There is still inadequate protection for them despite the introduction of the new Plant Variety Act, 2021 for the country.

Nigeria is a country blessed with fertile large vast land with a high growth potential for agriculture. 84 million hectares of arable land out of which only 40% is cultivated, abundant water resources: 230 billion cubic meters of water, and rich biodiversity: plants, animals, fungi and microbial species.[21] Based on the agricultural system in the country, Nigeria has a large number of smallholder farmers and also over 69 research institutes, which are empowered to carry out research. Some of these research institutes are agriculturally based[22] and have created several varieties of plants/spices which have not been registered, because of Section 1(4) of the Patents Act. Research Institutions play a major role in innovation, generating new ideas and technologies research for decades. Some have worked with international companies/countries that have taken advantage of their plant variety. There has been a lack of a proper framework for the protection of these varieties. The essence of the PVP is to enhance food security, which must be adequately taken care of. Section 1.4(a) of its Patents and Designs Act (1970), which was the first post-independent patent system prohibits patents for plant or animal varieties. Despite the prohibition, Nigeria fails to fulfill its obligations under Article 27.3(b) of TRIPS through a *sui generis* system. This section prohibits the registration of the plant variety, which does not protect the research institutes or indigenous farmers' work. The PVP Act is not sufficient for protecting the TK of the Nigerian farmers.

The UPOV system is unsuited to Nigeria's small-scale centered agricultural sector. The UPOV plant breeder's rights system expressly prohibits the inclusion of alternative conditions of protection or legal principles (Article 5 of the UPOV 1991 Convention). Article 5.1 of the UPOV 1991 Convention provides for breeder's rights over plant varieties that *are 'new, distinct, uniform and stable',* while Article 5.2 expressly provides that *'the grant of the breeder's rights shall not be subject to any further or other different conditions. . .'* In other words, accession to UPOV requires strict compliance with its plant breeder's rights system. The conditions of protection coupled with the prohibition of alternative conditions marginalize farmers' varieties, which are genetically variable, making it difficult to meet the distinct, uniform and stable conditions. A comprehensive *sui generis* IPR systems[23] that embodies the interconnections between breeder's rights, farmers' rights, access and benefit sharing as well as biodiversity conservation which is invaluable to small-scale centered agricultural systems[24] should be introduced in Nigeria. Countries such like India and Thailand are hybrids in the sense that they combine the NDUS requirements of the UPOV type with additional criteria that either prohibit the application for particular categories of varieties or impose new requirements entirely. The Malaysian sui generis regime implements a PVP system that significantly departs from NDUS principles.

[18] Article 9.
[19] socio-political rights are not justiciable under Nigerian laws
[20] Ibid.
[21] Source: (Federal Ministry of Agriculture and Rural Development [FMARD], 2017)
[22] The National Horticultural Research Institute (NIHORT), Forestry, Horticulture, and Tree Crops Research Institute, Institute for Agricultural Research (IAR), Institute of Agricultural Research and Training, etc.
[23] Titilayo Adebola, 2021 Examining Plant Variety Protection in Nigeria: Realities, Obligations and Prospects https://files.core.ac.uk/pdf/1/334596091.pdf
[24] Titilayo Adebola, ibid

Farmers' Rights to Participate Equitably in the Sharing of Benefits

To interpret this provision of Farmers' Rights, some guidance can be found in Article 13 of the International Treaty on the Multilateral System of Access and Benefit-sharing, the most important benefits are facilitated access to plant genetic resources for food and agriculture; the exchange of information which includes catalogs and inventories, information on technologies; access to and transfer of technology; and capacity-building. Technology Transfer Technology transfer is a key element of the Benefit-sharing Fund's priorities, and it is considered by the International Treaty as a primary form of non-monetary benefit-sharing. Several of the projects of the Benefit-sharing Fund's first portfolio had a pronounced technology transfer component. The Convention on Biological Diversity (CBD) and the Nagoya Protocol on Access to Equitable Sharing of Benefits have been relevant in the utilization of genetic resources and how they relate to the protection of local and indigenous communities/farmers. The CBD set out guidelines to implement access and benefit-sharing principles provided in the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (Nagoya Protocol).[25] While like the ITPGRFA, the CBD leaves the implementation of its access and benefit-sharing provisions to the contracting parties' discretion (Articles 15 and 22, CBD), the Nagoya Protocol further creates a framework for implementation.26 For instance, several varieties of Teff have been adopted in Europe and ABS has been established between Ethiopia and Europe.

Farmers' Rights to participate equitably in decision-making

This Treaty believes in the participation of farmers in the development of laws, regulations, policies, and programmes related to plant genetic resources. As farmers are the key actors and ideally, policies and programmes that target them must consider their situation and perspectives. To accomplish this, it is crucial to raise awareness and enhance understanding and capacity building among farmers, policy-makers, and decision-makers alike on this issue, and to ensure their informed participation in the decision-making process. For instance, in Norway, farmers and their organizations have a wide range of channels for ensuring participation in and influence on policy processes.[27] Annual negotiations are organized between the Government and farmers' unions to discuss the Agricultural Act.[28]

Farmers' Rights to save, use, exchange, and sell farm-saved seed

Article 9.3 states that nothing in the relevant article 'shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate'. This implies that '*the rights… to save, use, exchange and sell farm-saved seed and other propagating material… are fundamental to the realization of Farmers' Rights.*' While this Article indicates the importance of the issue, it does not give any clear guidance. Farmers are granted rights in this direction subject to state sovereignty.

Plant Breeder's Rights under Nigeria's Plant Variety Protection Act 2021 (PVP Act)[29]

Before now, there was no proper legal IP framework in Nigeria for protecting plant varieties, either through patents, an effective sui generis system, or a combination of systems. The only reference to it was in Section 1.4(a) of its Patents and Designs Act 1970, which expressly prohibits the patenting of plant varieties. It provides that:

> Patents cannot be validly obtained in respect of plant or animal varieties, or essentially biological processes for the production of plants or animals (other than microbiological processes and their products). The Patents and Designs Act 1970 prohibited the patents of plant varieties. Nigeria has several research institutes that have produces varieties of plants, spices, and flowers but have been unable to protect their innovation. The National Horticultural Research Institute has worked with several international organizations since 1978 that have benefited from their innovations, while the country has not created a proper framework to protect its plant varieties, limited by this Section 1(4) of the Patent Act. Nigeria has delayed in implementing adequate plant intellectual property protection for even smallholder farmers. The lack of plant patents under the Patent Act leaves seed developers in these numerous research institutes defenseless and vulnerable to exploitation. Despite this lacuna, Nigeria has two laws that regulate the registration, release, and commercialization of plant varieties and seeds- the National Crop Varieties and Livestock Breeds Act, 1987 (NCVLBA) and the National Agricultural Seeds Act, 1992 (NASA). Section 22 of NASA provides for formal registration as a condition for producing, processing, and marketing seeds for commercial purposes in Nigeria. The NCVLBA establishes a national register for crop varieties and livestock breeds where names of old and new crop varieties and livestock breeds are permanently registered, while NASA oversees seed programmes and policies in the country. However, as these are non-IP laws, they do not provide exclusive rights over new varieties of plants as required under Article 27.3(b) of TRIPS.

[25] Articles 1 and 2, CBD

[26] The Nagoya Protocol establishes predictable conditions for access to biological resources and ensures sharing of benefits when biological resources are obtained from its parties.

[27]In the field of genetic resources, Felleskjøpet, a farmers' cooperative, is one of the owners of a breeding company in Norway, Graminor AS, and is also the main distributor of seeds. There are also projects on developing new varieties of forage, involving a high level of farmer participation

[28] Farmers Rights, Ibid

[29] Plant Breeder's Rights under Nigeria's Plant Variety Protection Act 2021 - https://jee.africa/plant-breeders-rights-under-nigerias-plant-variety-protection-act-2021/ Accessed 19th February 2023.

In recent times, improved agricultural techniques and modern plant breeding have enabled impactful yields in the agricultural sector. There are several discussions on how developing countries can key into opportunities associated with plant variety breeding. This includes the establishment of regulatory institutional frameworks that support plant breeding and the protection of new varieties of plants. The TRIPS Agreement mandates Member States to provide a patent, sui generis, or, the combination of both systems for the protection of plant varieties, This Agreement also gives Member States the liberty to exclude from patentability, biological processes for the production of plants or animals other than non-biological and microbiological processes. Nigeria's Patents and Designs Act shares similar provisions of excluding plant and animal varieties from patent protection.

Plant varieties' rights are territorial and need to be registered in the country in which protection is sought. It was developed as an alternative to patents. It was first internationally recognized in 1961 by the International Convention for the Protection of New Varieties of Plants. In May 2021, the Plant Variety Protection Act 2021[30] was signed into law in Nigeria to protect plant breeders' rights in their new plant varieties. It is also predicted that the introduction of breeder's rights could translate into an increase in seed production, exports, and food production within the Country. The PVP Act 2021, grants exclusive intellectual property rights to plant breeders over new plant varieties ('Plant Breeders Rights'). The three objectives of the Act are to:[31] promote increased staple crop productivity for smallholder farmers in Nigeria and encourage investment in plant breeding and crop variety development; promote increased mutual accountability in the seed sector; and protect new varieties of plants. The Act contains very important segments that highlight the active participation of private sectors, multinationals, and inter-governmental agencies in the Nigerian seeds industry. This includes establishment of a Plant Variety Protection Office,[32] conditions for Plant Variety Protection,[33] plant Variety Protection Advisory Committee; nature of Plant Bleeders' Rights,[34] procedures for Obtaining Plant Breeders' Rights; grounds for objection; duration of Plant Breeder's rights; [35] plant Breeders' Rights Development Fund[36]

Notwithstanding its admirable goals, there are several issues with the Act that demand the attention of experts and concerned parties.

Appeals

A major concern is the implication of Section 43(2) of the PVPA on appeals to the Minister. An appeal from the decisions of the Registrar made under this Act shall lie to the Minister. The Minister may investigate and then confirm, set aside, or vary any decision or action of the Registrar.[37] Subject to the provisions of this section, a decision of the Minister shall be final. The finality of such a decision deprives an appellant of the right to seek remedy in a court of law. The provisions of the Act in section 43 (2) contravene the Constitution of Nigeria and its validity is already challenged in the law court. The Registered Trustees of Health of Mother Earth Foundation supported by over 50 organizations filed a lawsuit[38] challenging the undemocratic process and the inconsistency of the UPOV-based PBR law with the Nigerian constitution and have sought an order of perpetual injunction restraining the Ministry of Agriculture and Rural Development by themselves, their agents, servants, workmen, or otherwise whatsoever from carrying out any activity or further activity according to section 43(2) of the Plant Variety Protection Act 2021.[39] It seeks a declaration that section 43(2) of the PVP law is illegal, invalid, null, void, and contrary to Sections 6 and 36 of the 1999 Constitution.[40] In other jurisdictions, however, the decision of the Registrar is subject to appeal to an appeal board and then the court. In the South African case of *Agricultural Research Council v. Registrar of Plant Breeders Rights & Sunskit Growers*, the Appellant applied for a grant of Plant breeders rights in a Japanese plum variety

[30] The Act came after so many years of struggle by a coalition led by the National Agricultural Seed Council (NASC) an Agency of the Federal Ministry of Agriculture and Rural Development (FMARD) involving both business and academic groups including the Nigerian Economic Summit Group (NESG), the National Assembly Business Environment Roundtable (NASSBER), the Partnership for Inclusive Agricultural Transformation in Africa (PIATA), The Nigerian Plant Breeders Association (NPBA), Agricultural Research Council of Nigeria(ARCN), Association of Seed Scientist of Nigeria (ASSN), Genetic Society of Nigeria (GSN), All Farmers Association of Nigeria(AFAN), Alliance for a Green Revolution in Africa (AGRA), the Media among others

[31] Section 1, PVPA, 2021

[32] The Act establishes a Plant Variety Protection Office, through which breeders will be granted rights, and information on plant breeders' rights issued in Nigeria can be obtained.

[33] The Act provides for the Registrar to grant protection to plant varieties that are new (novel), distinct, uniform, and stable with the required conditions.

[34] A plant breeder has exclusive rights to propagate materials of a protected variety.

[35] A plant breeder's right will expire after 20 years from the date of the grant except for trees and vines whose breeder's right shall expire 25 years after the date of the grant. Grant for the above breeders is extendable for an additional 5 years each, upon notice to the Registrar 6 months before the expiration of the original term.

[36] The Fund shall be applied for the development and promotion of the plant breeders' rights; training of plant breeders on matters concerning plant breeders' rights; establishment and maintenance of variety collection and database.

[37] Sections 42 and 43

[38] Nigeria: Plant Variety Protection Act, 2021, FLORA IP, 2022 https://www.floraip.com/2022/02/04/nigeria-plant-variety-protection-act-2021/

[39] The lawsuit: FHC/ABJ/CS/815/2021, suing the Federal Republic of Nigeria, the Attorney General of the Federation, and the Honourable Minister of Agriculture and Rural Development was filed at the Federal High Court Abuja.

[40] Constitution of the Federal Republic of Nigeria – as amended in 2011.

bearing the denomination SUN KISS in 1997. The Appeal Board set aside the decision of the Registrar instructing the alteration in 2021.[41]

Overlap with other IPS

The interaction between plant breeders' rights and patent rights is contentious. It has been ruled in court cases in places like Australia, the United States, and Canada that plant breeders' rights and patents do not conflict and do not preclude one another. Plant breeders' rights exemptions, such as the exemption for conserved seeds, do not provide comparable exemptions against infringement of the patents protecting the same plants.[42] Each of these cases was decided on the principle that patents and plant breeders' rights were overlapping and not mutually exclusive. Thus, the exemptions from infringement of plant breeders' rights, such as the saved seed exemption, do not create corresponding exemptions from infringement of the patents covering the same plants.

Indigenous varieties and Modified Genetic Seeds

Some African countries are now given Modified Genetic Seeds. There is a real and present danger that indigenous species may be eradicated by improved plant varieties because the latter may be more bountiful in yielding for-profit purposes. But will not produce after the first set. Hence, the country will need to keep getting seeds. These seeds will give you seeds but have been restricted genetically not to reproduce. IF care is not taken, we will have a country without its seeds. For instance, South African varieties in their original forms are still required to be in existence for biodiversity and as an index of the cultural identity of the locations where they naturally occur.

Unsuitable for Nigeria's agriculture system

Concerned stakeholders such as the Health of Mother Earth Fund (HOMEF) oppose the Act. They argued that the law was modeled after the UPOV which benefits commercial plant breeders at the expense of smallholder farmers. A coalition of 101 farmers, researchers, CSOs, youth, and women's organizations protested the passage of PVP law in a petition to the Secretary-General of UPOV dated August 23, 2021. They demand that Nigeria repeal the law and adopt a sui generis law that is specifically tailored to the needs of its agricultural system.

5. Conclusion and Recommendations

Intellectual Property Rights (IPRs) can play a critical role in protecting the genetic integrity of a variety and generating revenue to support continued breeding work. Farmers are custodians and developers of plant genetic resources, so recognizing and rewarding them for their indispensable contribution to the global gene pool and associated knowledge is crucial so that they can maintain this role for local and global food security. The passing of the Plant Protection Variety Act announces numerous opportunities in the agricultural sector as plant breeders can commercialize their intellectual property by assigning or authorizing any activity concerning any registered plant variety. However, considering the agricultural system in the country, there is need for amendments. Smallholder farmers make up the majority of the agricultural sector in the nation, so it is important to provide them with the right policies, infrastructure, extension services, credit programs, access to land, etc. to increase their production and sustainability. The following recommendations:

Appropriate Sui Generis Law for Farmers

Such law should take into consideration the degree to which farmers are free to save, trade, and sell seeds and other propagating materials, the kind of domestic seed industry and the presence of public breeding, the capacity of current domestic breeding, any applicable international obligations (such as the CBD, Nagoya Protocol, ITPGRFA, human rights, etc.), and pertinent national goals and policies (e.g., on nutrition, food security, poverty reduction, agriculture). The law should aim to create a sui generis system that is ingeniously designed and incorporates alternative principles like farmers' rights, as well as access and benefit-sharing clauses outlined in the ITPGRFA and the CBD. Agribusinesses and small-scale farmers alike will be safeguarded by the sui generis system. A sui generis system that safeguards the interests of both small-scale farmers and agribusinesses is most appropriate for Nigeria's small-scale-centered agricultural sector. Farmers who grow seeds should be given the freedom to continue doing so for the sake of the nation's food security.

Amendment of the PVP Act

The Act should be amended to allow decisions of the Registrar to be subject to appeal. In an increasingly globalized economy, the justice system cannot afford to be a clog in the process.

Amendment of the Patents Act

In view of the Patent Act, where plant patents are unavailable leaving seed developers in these various research institutes (and local farmers) unprotected and subject to exploitation, Section 1(4) of the Patents Act which prohibit the patent of their plant innovations, should be expunged, to enhance and promote their innovation.

Support for Local farmers

The government should ensure the support of local farmers through adequate and consistent trainings for them. For the small-scale farmers, training on the consequences of contemporary biotechnology, seed treaties, and the danger to farmers' rights

[41] Idih & Ikemefuna, 2021, Ibid

[42] Matthew Rimmer. "Franklin Barley Patent Law and Plant Breeders' Rights", Murdoch University Electronic Journal of Law, December 2003, Vol. 10, No. 4.

should be supported with the development fund. This will aid complete understanding, information and terminologies on genetic engineering technique and seed concerns. The Development Fund should be used majorly to support research institutes and local farmers. This will help to develop agricultural research institutions to produce wholesome foods and to proffer sustainable, consumer-friendly solutions to challenges of agricultural productivity.