The Battle over Plant Genetic Resources: Interpreting the International Treaty for Plant Genetic Resources

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The Battle over Plant Genetic Resources: Interpreting the International Treaty for Plant Genetic Resources

Katie Bass*

Abstract

International law is full of holes, inconsistencies, and ambiguities because of the number of overlapping treaties, agreements, and actors at play. One such ambiguity can be found in the overlapping system of treaties that govern plant genetic resources. Specifically, the International Treaty for Plant Genetic Resources (ITPGR) provides for international sharing of plant genetic resources to protect the biodiversity necessary for human food production. However, the ITPGR is a non-binding treaty that is challenging to implement in light of international treaties that allow plant genetic resources to be claimed as intellectual property rights. ITPGR is not as a matter of law in conflict with either the International Union for the Protection of New Varieties of Plants (UPOV) or the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), the two relevant intellectual property treaties. However, there are inherent and fundamental tensions between them. First, the treaties are pursuing different goals that are at odds. Second, the ITPGR explicitly bans claiming intellectual property rights on “genetic parts and components, in the form received” from the Multilateral System which is designed to share plant genetic materials internationally. Depending upon how a nation interprets ITPGR’s ban, it could be inconsistent with the total control of plant genetic materials allowed under UPOV and TRIPS. This Comment proposes interpretations of ambiguous provisions in the ITPGR as a guide for nations that are trying to implement it but are bound by obligations under TRIPS. The ITPGR phrase “genetic parts and components” should be interpreted to mean any segment of plant genetic material that can be found in its entirety in the Multilateral System. This would require that plant producers alter the composition of genetic materials to be able to claim intellectual property over them. This Comment further suggests that “in the form received” can and should be interpreted broadly to include simple variations on Multilateral System plant genetic resources to better protect farmers from accidental encroachment. Finally, it argues that payments made to ITPGR could be put to their highest use by providing legal representation for farmers.

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# Table of Contents

I. Introduction ............................................................................................................. 153  
II. Background ........................................................................................................... 155  
   A. Biotechnology ................................................................................................... 155  
   B. Intellectual Property Protections .................................................................... 158  
III. Treaties .................................................................................................................. 160  
   A. International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGR) .................................................................................................................. 160  
      1. Formation ....................................................................................................... 160  
      2. Main provisions ............................................................................................. 162  
      3. Ambiguities in treaty provisions. ................................................................... 164  
      4. Interpretation language. ................................................................................ 166  
   B. International Union for the Protection of New Varieties of Plants (UPOV) ....................................................................................................................... 166  
      1. Formation ....................................................................................................... 166  
      2. Main Provisions ............................................................................................. 167  
   C. Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) .................................................................................................................. 168  
      1. Formation ....................................................................................................... 168  
      2. Main provisions ............................................................................................. 169  
IV. The Challenges of Implementing the Treaties ........................................................................... 170  
   A. Treaty Interpretation Generally ...................................................................... 170  
   B. The Interaction between ITPGR, UPOV, and TRIPS ...................................... 172  
   C. Potential Implementation Issues ...................................................................... 174  
V. Suggested Interpretation .......................................................................................... 176  
   A. Genetic Parts or Components ......................................................................... 178  
   B. “In the Form Received” .................................................................................. 180  
   C. Form and Manner of Payment ....................................................................... 183  
VI. Conclusion ............................................................................................................ 184
I. INTRODUCTION

There is an inherent tension between the purposes of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR)\(^1\)—which fundamentally protects the availability of plant genetic resources for farming—and the International Union for the Protection of New Varieties of Plants (UPOV) and Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)\(^2\)—intellectual property (IP) treaties protecting the rights of plant genetic material producers. Because of this tension, member nations that are bound by TRIPS might encounter difficulty when trying to incorporate ITPGR into national law.

Consider an example from Brazil: in 2000, Brazil and Switzerland were both subject to TRIPS.\(^3\) Neither country had signed, let alone ratified, the ITPGR.\(^4\) A Brazilian not-for-profit organization, the Brazilian Association for the Sustainable Use of Amazonian Biodiversity, transferred 10,000 micro-organisms from the Amazon to a Swiss company without consent from the Ministry of the Environment.\(^5\) This transfer gave the Swiss company, Novartis, the right to patent those genetic materials that came from the Amazon rainforest; TRIPS ensured that both nations offered the necessary intellectual property protections.\(^6\) Various members of civil society and government objected to this transfer after it was completed, arguing that Brazil did not retain enough benefits or protection for traditional uses of the organisms transferred.\(^7\) Had Brazil signed and ratified the ITPGR at the time, many of the plant genetic materials transferred would have

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1 Some literature quoted refers to this treaty as ITPGRFA. See International Treaty on Plant Genetic Resources for Food and Agriculture, Nov. 3, 2001, 2400 U.N.T.C. 303 [hereinafter ITPGR].
4 Since then, both countries have signed and ratified the ITPGR, supra note 1. BRA, THE INTERNATIONAL TREATY FOR PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE, available at http://www.planttreaty.org/content/bra (last visited Feb. 7, 2015); CHE, THE INTERNATIONAL TREATY FOR PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE, available at http://www.planttreaty.org/content/che (last visited Feb. 7, 2015).
6 See id. at 153.
7 See id.
been subject to ITPGR protection. Depending on Brazil’s interpretation of the ITPGR, the protection offered by the national legislation implementing that treaty would restrict the rights that Novartis had to patent the transferred plant genetic resources. Had Brazil adopted an interpretation of ITPGR that was too broad, it would have conflicted with their obligations under TRIPS; however, a narrow interpretation might not have reserved any of the plant genetic material for food and agriculture.\(^8\) In fact, the Brazilian government passed a pre-ITPGR protection for plant genetic resources in response to this incident.\(^9\)

This anecdote imparts several lessons: TRIPS and the ITPGR generally cover the same material but offer different kinds of protection to those dealing in plant genetic resources. Because of this difference, implementing the ITPGR in light of the rigid and binding TRIPS agreement can be challenging for nations, but its implementation can offer critical protection of certain plant genetic materials used for food production and agriculture. Furthermore, implementing ITPGR is complicated by the fact that several of its critical phrases are undefined.

The goal of this Comment is to suggest an interpretation of ITPGR’s ambiguous provisions, so that nations that are subject to TRIPS can meaningfully integrate ITPGR into their national law. The need for such an interpretation has a degree of immediacy, as less developed countries will come under certain TRIPS requirements soon. Despite the fact that “TRIPS is now in force internationally, . . . least developed countries may delay granting patents over pharmaceuticals until 1 January 2016.”\(^10\) Pharmaceutical patents often relate to plant genetic materials, so it is likely that after this requirement goes into effect, some nations would need to consider how to embody their ITPGR commitment in national law. This Comment is also meant to address more developed nations looking to implement the ITPGR in light of TRIPS. For example, Argentina, Chile, Thailand, and the U.S. are all World Trade Organization (WTO) member nations that have signed but not ratified the ITPGR.\(^11\) Furthermore, there are also WTO member nations that have not yet signed the ITPGR, but someday might:

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\(^8\) It should be noted that ITPGR was not yet in force.

\(^9\) See Rodrigues, supra note 5, at 153.


examples include Belize, China, Mozambique, New Zealand, Vietnam, and South Africa.\textsuperscript{12}

The tension between the ITPGR and TRIPS/UPOV points to a fundamental impasse in international law concerning the property rights of the genetic materials that make up plants.\textsuperscript{13} That is, the intellectual property rights of plant seed producers and the plant-use rights of traditional farmers are in conflict.\textsuperscript{14} Humans need a diversity of plants for food and agricultural production, particularly as changing conditions demand that plant seeds change in tandem.\textsuperscript{15} The goal of plant genetic diversity can be achieved by encouraging widespread use and manipulation of seeds to ensure genetic permutations. This makes for a robust and biodiverse planet. The process of creating genetic permutations can be done naturally or through modern genetic engineering.

Section II of this Comment explores these processes by providing background information on biotechnology and giving a brief overview of intellectual property rights, laying the foundation for a more comprehensive examination of the relevant treaties. Section III details the main provisions of the ITPGR, UPOV, and TRIPS, as well as their ambiguities. Section IV considers the ways that nations implement the treaties, examining the ITPGR, UPOV, and TRIPS as overlapping legal regimes to suggest how a nation can best implement ITPGR given the requirements of TRIPS. Section V discusses how to interpret the treaties in light of one another and recommends an interpretation of ITPGR that allows it to do work in light of UPOV and TRIPS.

II. BACKGROUND

A. Biotechnology

The differences between the treaties to be discussed are fundamentally about the use of biotechnology. Biotechnology is the manipulation of biological items or processes through the use of technology.\textsuperscript{16} More specifically for the purposes of this Comment, the subset of biotechnology known as genetic engineering allows researchers to insert genes from one type of organism into another

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\textsuperscript{12} Id.

\textsuperscript{13} See generally Rodrigues, supra note 5.

\textsuperscript{14} See id.


organism to create desired characteristics. Among other things, it allows them to engineer seeds. Generally, the goal of biotechnology is to improve on natural processes and derive outcomes that would be difficult or impossible in nature. Because biotechnology is a relatively new practice in human history that is evolving quickly, law may have a hard time keeping pace with its developments.

The area of biotechnology most important for this Comment is genetic engineering of plant genetic resources. Plant genetic resources, at a basic level, are “the raw material for breeding new plant varieties”; they act as “a reservoir of genetic diversity.” For example, the genetic make-up of an entire variety of spinach could be a plant genetic resource. However, plant genetic resources do not need to comprise a genetic selection that large, which is to say that a plant genetic resource can be a certain characteristic of a plant instead of the entire genetic code of that plant. Researchers, for example, can isolate the gene sequence that determines the size of the spinach leaf. That genetic sequence is also a plant genetic resource, despite the fact that it does not comprise an entire plant. Biotechnology allows researchers to manipulate that plant genetic resource to make larger or smaller spinach leaves. They can then insert that plant genetic resource into a preexisting spinach genetic sequence, and produce spinach seeds to grow spinach plants with engineered leaf sizes. Plant engineers might also be able to use engineered plant genetic resources across plant types; the knowledge gained from learning how to manipulate the size of spinach leaves might similarly be used to manipulate the size of cabbages.

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17 See 1-2 Biotechnology & Nanotechnology Regulation § 2.01.
20 See LESSER, supra note 19, at 5.
21 See Hannig, supra note 18, at 186.
23 For a more general discussion of biotechnological processes, see id.
24 See id. at 138.
25 See id.
Plant genetic engineering seeks to replicate traditional practices.\textsuperscript{26} A fundamental principle of genetics is that there are characteristic variations among individuals, and that some of those variations will better help individuals survive.\textsuperscript{27} For example, some humans have longer legs than others as a result of genetic differences. For some populations, this characteristic was more likely to help an individual survive because he or she could run faster and avoid being eaten by certain predators. The individuals in those populations with shorter legs were more likely to be eaten, and therefore not reproduce, leaving the longer legged individuals to pass on their genes for longer legs to their children. In other populations of humans, perhaps shorter, stronger legs were more advantageous for survival because, for example, they equip a person with better climbing abilities. These variations have resulted in a modern heterogeneous population with a mix of both long and short legs.\textsuperscript{28} Genetic variability and inheritability are the two primary tools of genetic change over time.\textsuperscript{29}

The same principles hold true for plants. Fuji apple trees in Washington will generally be more reproductively successful if they bloom early, as it doesn't often snow in Washington, and an early-blooming tree will produce more robust fruit and seeds for dissemination. In contrast, a Fuji apple tree in snowy Michigan is more likely to successfully pass on its genetic material if it is late-blooming, as freezing temperatures decimate apple populations. Different conditions naturally ensure genetic diversity among plant genetic resources. Enter humans, who began manipulating agriculture around 13,000 years ago.\textsuperscript{30} Through the process of genetic variation and heritability, humans increased the diversity of the plant genetic resource pool by moving plants to new habitats. As agriculture became slightly more sophisticated, farmers began splicing seeds in a primitive (and successful) attempt to create new plant hybrids.\textsuperscript{31} They also began selectively "breeding" seeds to express desirable traits.\textsuperscript{32} Biotechnology mimics these processes and makes them more efficient.\textsuperscript{33}

\textsuperscript{26} See Hannig, \textit{supra} note 18, at 185.


\textsuperscript{31} See Biotechnology & Nanotechnology Regulation, \textit{supra} note 17, § 2.01.

\textsuperscript{32} See Hannig, \textit{supra} note 18, at 185.

\textsuperscript{33} See \textit{id.} at 186.
B. Intellectual Property Protections

Intellectual property protections are enforced pursuant to national law and, therefore, differ across nations. Intellectual property protections concerning plants are a particular challenge for inventors because plants' ability to self-reproduce makes plant-related inventions harder to control. Several varieties of intellectual property protection exist. Perhaps the most well known and broadly used—and also the most applicable to genetic resources—is patent protection. Any examination of general intellectual property protection regimes are far outside of the scope of this Comment. However, a primer on intellectual property, particularly patent protections, in the context of plant genetic resources is relevant to understanding the international tension over best practices for food and agriculture.

Patent protection applies to plant genetic material. International patent protection does not exist, which weakens the protections available to plant producers as seeds are easily transported and used across borders. The World Intellectual Property Organization (WIPO), an agency of the UN, helps solve this problem by setting international policy for intellectual property rights and providing a forum for international intellectual property (IP) dispute settlements.

Although there are various types of patents, this Comment will only address the specific requirements for utility patents, because they are most relevant to

34 See Mary E. Footer, A Tale of Two Commons: Plant Genetic Resources and Agricultural Trade Reform, in THE REGULATORY CHALLENGE OF BIOTECHNOLOGY: HUMAN GENETICS, FOOD AND PATENTS 174, 191 (Han Somsen ed., 2007); Geoff Tansey, Farming, Food and Global Rules, in THE FUTURE CONTROL OF FOOD: A GUIDE TO INTERNATIONAL NEGOTIATIONS AND RULES ON INTELLECTUAL PROPERTY, BIODIVERSITY AND FOOD SECURITY 3, 13 (Geoff Tansey & Tasmin Rajotte eds., 2008).
36 See Tansey, supra note 34, at 12.
37 Id. at 17.
38 See generally id.
plant genetic resources. Utility patents are available in the U.S. to anyone who “discovered or invented any new and useful art, machine, manufacture, or composition of matter.” Inventors, using a utility patent, can patent the entire plant or individual components (such as genes, methods of breeding, DNA strands, or tissue samples), as long as the patented material meets the criteria for a utility patent. In the U.S., there are four requirements for a utility patent, and they are set forth in § 101 of the U.S. Patent Act. Those four requirements are: the material must be (1) statutory, (2) new, (3) useful, and (4) nonobvious. Most developed countries’ patent systems track these requirements. In Europe there are generally three recognized requirements for a patent. The invention must be (1) novel, (2) have an industrial application, and (3) involve an inventive step.

Plant producers can also use trade secret law as a separate intellectual property regime to protect their plant variety rights. Trade secret law protects certain qualifying intellectual property from infringement—so long as the IP remains a secret. Trade secret law was effective at protecting plant hybrids, which had improvements that could not be easily replicated. However, as biotechnology became more prevalent and it became easier for competitors to reverse engineer plant hybrids, the biotech industry turned to utility patents instead of trade secret law as the preferred form of protecting plant variety rights.

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42 This statement applies specifically to the U.S. As mentioned, there is no international system of IP protection, so each nation will have slightly different requirements and terminology for patent protection. While this comment covers the requirements for a U.S.-specific utility patent, many other countries will have similar requirements.


44 § 101 of the U.S. Patent Act only permits patents on certain types of inventions. The limited categories are a process, machine, manufacture, or composition of matter. This requirement is commonly called the statutory requirement. See, for example, Patent Requirements, Bitlaw.com, http://www.bitlaw.com/patent/requirements.html (last visited Jan. 27, 2015).


46 See Tansey, supra note 34, at 17.

47 Id.

48 Note that many nations do not provide trade secret law as a legal remedy. The U.S. is the only significant exception.


50 See Tansey, supra note 34, at 20.

Instead, utility patents became the most popular form of protection for plant variety rights because inventors think that they provide the most comprehensive protection for plant varieties.\textsuperscript{53}

III. TREATIES

Many international IP protection regimes implicate seeds and plant genetic resources. Some of the current treaties and organizations that affect IP rights and relate to plant genetic material include the Convention on Biodiversity (CBD), the World Trade Organization (WTO), the ongoing implementation of the Agreement on TRIPS, the network of international agricultural research centers (IARCs), seed conservation banks administered by the Consultative Group on International Agricultural Research (CGIAR), and several treaties administered by the United Nations' Food and Agriculture Organization (UNFAO).\textsuperscript{54} The UNFAO established the ITPGR.

A. International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGR)

1. Formation.

The ITPGR is the primary international treaty protecting the agricultural biodiversity necessary for long-term human food consumption.\textsuperscript{55} The treaty was adopted in 2001 and entered into force in 2004.\textsuperscript{56} The stated purposes of the treaty are the “conservation and sustainable use of plant genetic resources for food and agriculture,” as well as the “fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity (CBD), for sustainable agriculture and food security.”\textsuperscript{57} The ITPGR was informed by failed efforts to protect biodiversity under other agreements. Specifically, it was passed in the wake of a non-binding 1983 International Understanding on Plant Genetic

\textsuperscript{53} See id.


\textsuperscript{56} See Christine Gerstetter et al., The International Treaty on Plant Genetic Resources for Food and Agriculture within the Current Legal Regime Complex on Plant Genetic Resources, 10 J. World Intell. Prop. 259, 259 (2007).

\textsuperscript{57} See ITPGR, supra note 1, art. 1.1.
Plant Genetic Resources (IUPGR), which had the same fundamental goals that the ITPGR later adopted. The earlier agreement largely failed because it was non-binding and lacked support from key countries, including the U.S. Notably, the U.S. is only a signatory to the ITPGR, not a contracting party. Even that relatively low level of U.S. support seems to be enough to make the ITPGR more successful than its predecessor, the Convention on Biological Diversity, to which the U.S. was not a party.

The ITPGR was passed to pursue some of the goals of the non-binding but influential CBD. The CBD remains persuasive in the international legal arena as guidance on what plant genetic resources should be protected internationally. The CBD was a “complete, if complex, framework treaty.” There is still much dispute about the best methods to implement the ideals from the CBD.

Like the CBD and the IUPGR, the ITPGR is non-binding on non-member nations. The ITPGR takes a global commons approach to plant genetic resources, in contrast to the CBD’s failed national sovereignty approach. A global commons approach treats plant genetic resources as international property, regardless of where they are located. The theory is that all nations need and benefit from a diversity of genetic resources, and so plant genetic resources are a common good. The oceans are an example of a global commons: they are recognized as a common good that all nations have an interest in and which no nation owns. In contrast, the national sovereignty approach treats plant genetic

58 See Aoki & Luvai, supra note 54, at 52 (outlining the history of the ITPGR).
59 See id. at 42.
60 See List of Countries, supra note 11.
62 See ITPGR, supra note 1.
63 See generally LESSER, supra note 19.
64 See id. at 3.
65 See id. at 19, at 11.
66 See INTERNATIONAL LAW RELEVANCE TO PLANT GENETIC RESOURCES: A PRACTICAL REVIEW FOR SCIENTISTS AND OTHER PROFESSIONALS WORKING WITH PLANT GENETIC RESOURCES 7 (Susan Bragdon ed., 2004).
68 C.E. Karunakaran, Climate Change Response: Equity or Nothing, in PROBLEMS AND PROSPECTS OF ENVIRONMENT POLICY: INDIAN PERSPECTIVE 155, 160 (M. S. Bhatt et al. eds., 2008).
69 See LESSER, supra note 19, at 14.
70 Note, oceans are relatively unique among common goods because they allow nations to have a limited amount of sovereign control over certain parts of the common good. See Cyrille De
resources found in a nation as the sovereign property of that nation.\footnote{Lesser, supra note 19, at 13.} Analogously, this is the approach that the international community has taken to land ownership—a single nation owns a piece of land and may reap all of its benefits.

2. Main provisions.

For this Comment’s purposes, the four most relevant provisions of the ITPGR are Article 9, Article 11, Article 12, and Article 13. Article 9 effectuates one of the two primary purposes of the ITPGR: the protection of farmers’ rights. Specifically, Article 9 recognizes a farmer’s right to “save, use, exchange and sell” seeds, but it leaves the implementation of these rights up to national legislation.\footnote{See ITPGR, supra note 1, art. 9.} This is an important provision for achieving the other primary goal of the treaty—diverse plant genetic resources—because traditional farming practices help promote local biodiversity as farmers trade seeds locally and breed new varieties of plants over time.\footnote{See Rebecca Crookshanks & Peter W.B. Phillips, A Comparative Analysis of Access and Benefits-Sharing Systems, in Genetic Resources and Traditional Knowledge 63, 69 (Tania Bubela & E. Richard Gold eds., 2012).}

Furthermore, traditional farming practices are important for using plant genetic resources for their intended purpose (food and agriculture); farmers, after all, actually produce food. However, those traditional farming practices are often at odds with intellectual property protections for plant genetic materials.\footnote{Much of the intellectual property system is set up with the intention of protecting plant genetic resources used for pharmaceutical development instead of protecting plant genetic resources used for food.} Recall that ITPGR is not self-executing. Nevertheless, Article 9 is explicitly dependent on national laws for implementation.\footnote{See ITPGR, supra note 1, art. 9.} Despite Article 9’s inability to compel contracting nations to adopt protections for farmers’ rights, it is still an important provision because it calls for nations to grant the right for farmers to be part of the discussions and decision-making processes that affect their rights.

Article 10 of ITPGR creates a Multilateral System (MLS) for plant genetic resource sharing founded on a national sovereignty approach.\footnote{See id., art. 10.} The MLS is distinct from the public domain, as the plant genetic resources in the MLS can only be used for “the purpose of utilization and conservation for research,
breeding and training for food and agriculture, provided that such purpose does not include chemical, pharmaceutical and/or other non-food/feed industrial uses."

While Article 10 creates the MLS, Article 11 details its coverage. In particular, it establishes that the MLS covers "all plant genetic resources for food and agriculture listed in Annex I that are under the management and control of the Contracting Parties and in the public domain." It protects sixty-four of the most used crops in the world, which account for 80% of all agricultural goods used internationally. In addition, it sets out a plan for sustainable use of the world's four most cultivated crops: maize, potatoes, wheat, and rice. It also requires Contracting States to encourage private parties within their jurisdiction to contribute to the MLS if they hold plant genetic resources covered by the treaty. Those private parties are not required to contribute, as only nations can be parties to the ITPGR.

Article 12 details how parties can access the MLS. It grants access to the international collection of plant genetic resources to nations for genetic research and plant breeding. Article 12.3 works in conjunction with Article 10 to grant access to MLS materials for the purpose of pharmaceutical developments. Of particular importance is Article 12.3(d), which prohibits recipients of MLS material from "claim[ing] any intellectual property or other rights that limit the facilitated access to the plant genetic resources for food and agriculture, or their genetic parts or components, in the form received from the Multilateral System."
Article 13 establishes a benefit-sharing procedure under the MLS. The idea of the benefit sharing system is that those parties benefitting monetarily from MLS-derived materials are to make a payment into a joint fund so that all contracting parties can share the benefits. The treaty gives the Governing Body of the treaty significant discretion to adjust how much payment is appropriate. Benefit sharing encourages innovation and monetization of plant genetic materials. However, in order for the benefits of innovation and monetization to occur, individual nations must contribute to the MLS. Article 13 also specifies that nations should share the benefits of the MLS through the exchange of information, technology transfers, and capacity building.

3. Ambiguities in treaty provisions.

Part of the difficulty states face in implementing ITPGR in light of intellectual property treaties derives from ambiguities in certain ITPGR provisions. Primarily, there are three ambiguous provisions written such that the international community does not know how to interpret them. The interpretation of these provisions will determine a treaty’s effect once integrated into a nation’s domestic law. This section will only describe the ambiguities in the treaty provisions; later sections will discuss how those ambiguities should be interpreted.

The first ambiguity relates to how broadly one should interpret the reach of the MLS. Under Article 11.2, only those plant genetic resources “that are ‘under the management and control of the Contracting Parties and in the public domain’ fall within the Multilateral System.” This part of the treaty seems to be in tension with “the prohibition in Article 12.3(d) against claiming any intellectual property or other rights that limit facilitated access to [plant genetic resources], ‘or their genetic parts or components, in the form received from the Multilateral System.’” This tension arises because the plant genetic resources in Article 12.3(d) “would not, in any event, be entitled to intellectual property protection because they are by definition in the public domain.” McManis and

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88 See id., art. 13.
89 See id., art. 13.2(d)(ii).
90 See id., art. 13.2(d).
91 See id., art. 13.
92 See generally McManis & Seo, supra note 67; Gerstetter et al., supra note 56.
93 McManis & Seo, supra note 67, at 452 (citing ITPGR, supra note 1, art. 11.2).
94 Id.
95 Id.
Seo argue that this tension indicates that Article 12.3(d) is not doing much work in the ITPGR. \textsuperscript{96}

The second ambiguity in the ITPGR relates to this same section of the treaty. Prominent authors have questioned the definition of two key phrases in the prohibition against claiming property rights over plant genetic materials. Article 12.3(d) contains the ambiguous requirement "that recipients of PGRFA shall not claim any IPR or other rights that limit the facilitated access to that PGRFA or their genetic parts or components in the form received from the Multilateral System." \textsuperscript{97} Specifically, the phrases "genetic parts or components" and "in the form received" are undefined. \textsuperscript{98} As these two phrases are significant in controlling what intellectual property can be claimed, a consistent definition is key to understanding the interaction between ITPGR and intellectual property regimes. \textsuperscript{99}

Third, there is an ambiguity related to the benefit-sharing provision of the ITPGR. Article 13.2 covers benefit sharing under the MLS. Article 13.2(d)(ii) indicates that the MLS access agreement between nations shall include a clause that a recipient who commercializes a product that incorporates material accessed from the Multilateral System and who restricts the availability of that product for further research and breeding has to pay an equitable share of the benefits from commercialization into the financial mechanism referred to in Article 19.3(f). \textsuperscript{100}

This provision is meant to make parties that access materials from the MLS pay a fee to a group fund if they commercialize the derivatives of those products. This requirement has three ambiguities: (1) "the treaty does not specify what activities ‘restrict the availability’ of a product”; (2) “it does not make clear what constitutes ‘commercialization’”; and (3) “[ ] it does not clarify the meaning of the term ‘incorporates’."

By leaving these terms undefined, the scope of the ITPGR is critically unclear. It should be noted that later revisions to the ITPGR’s supporting documents provided some clarity on the logistics related to these questions. \textsuperscript{102} Specifically, the ITPGR delegated the determination of the form and

\textsuperscript{96} See id.
\textsuperscript{97} Gerstetter et al., supra note 56, at 264.
\textsuperscript{98} See id.
\textsuperscript{99} This section of the ITPGR, supra note 1, was left ambiguous by design as the result of a negotiated agreement by the contracting parties. Nations disagreed about allowing intellectual property rights to be claimed from genes derived from MLS materials, and so they compromised by drafting ambiguous language. See Halewood & Nnadozie, supra note 77, at 129.
\textsuperscript{100} Gerstetter et al., supra note 56, at 264.
\textsuperscript{101} Id. at 264–65.
\textsuperscript{102} See id. at 265.
amount of payment required under Article 13.2 to the governing body; however, the question of what the required payments to the group fund should be used for is still an open one.

4. Interpretation language.

Treaties generally contain language establishing their relationship to other treaties, and the ITPGR contains language about how it is to be interpreted. First, its preamble states that it should be considered “mutually supportive” of other treaties. This implies that it is meant to work with other treaties rather than invalidate them. Furthermore, the preamble goes on to state that the treaty is not meant to change legal rights or obligations of the contracting parties under other international agreements. What is more, the preamble claims not to create a hierarchy between the ITPGR and other treaties. Because it was drafted as a compromise, the language of these two provisions is contradictory. This interpretive language interacts with international norms about how to interpret treaties, which will be explored more thoroughly below.

B. International Union for the Protection of New Varieties of Plants (UPOV)

1. Formation.

UPOV is the older of the two intellectual property rights treaties to be discussed. UPOV, unlike TRIPS, is specific to plant genetic resources. UPOV began in 1961 as an organization of nations to protect the rights of plant breeders, which were already framed in opposition to the rights of farmers. The current version of the agreement was implemented in 1991. There are fifty-

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103 See id.
104 Neither UPOV nor TRIPS contains language about interpretation relative to other treaties. See id. at 261–62.
105 See ITPGR, supra note 1; see also, Gerstetter et al., supra note 56, at 262.
106 See Gerstetter et al., supra note 56 at 262.
107 See id.
108 See id. (citing Gerald K. Moore & Witold Tymowski, Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture (IUCN 2005)).
110 See id. at 32–37.
111 See Aoki & Luvai, supra note 54, at 43.
112 See Dutfield, supra note 109, at 35.
four member nations to UPOV; forty-three of those nations are parties to the 1991 version of the treaty,\textsuperscript{113} including the U.S.\textsuperscript{114}

Functionally, UPOV is meant to provide intellectual property protections for plant genetic materials to benefit plant producers.\textsuperscript{115} It protects all varieties of plants as long as they are new, distinct, uniform, and stable.\textsuperscript{116} “Plant variety” under UPOV means any grouping of plant type which can be defined by an expression of a physical characteristic that makes it distinguishable from other plant groups and which can be reproduced while retaining that defining characteristic.\textsuperscript{117} There is no enforcement mechanism in the 1991 UPOV treaty; instead, it is dependent on member nations to implement the provisions via national legislation.\textsuperscript{118} Proponents of UPOV claim that, despite prioritizing plant breeders, the convention has helped farmers, growers, and breeders alike gain access to better varieties of plants, thereby helping them grow better crops.\textsuperscript{119}


UPOV specifies the plant genetic material that each country must protect, but it does not specify how each country is to do so, leaving that to national legislation.\textsuperscript{120} Thus, plant producers can have uniform expectations about which plant genetic rights will be protected in UPOV countries, but they will have to go through each nation’s IP protection process individually. UPOV stipulates that each member country must provide intellectual property protection with national legislation for at least twenty-four species of plants within eight years of signing the treaty.\textsuperscript{121} In 1991, this requirement expanded to include “requiring that all member countries apply the convention to all genera and species [and] by extending the exclusive rights to include harvested material ([for example,] fruit,
wheat grown for milling into flour).”\textsuperscript{122} This more expansive provision gives the owners of plant genetic resources greater control over those rights, including the for-consumption end product.\textsuperscript{123}

The 1991 UPOV agreement witnessed the erosion of a 1978 protection that allowed farmers to purchase protected seeds and reuse them without paying a royalty.\textsuperscript{124} In the 1991 treaty, it was up to national law to provide an exception for farmers to save and reuse seeds.\textsuperscript{125} UPOV 1978 was reasonably permissible: “Article 14 of UPOV 1991, in turn, requires authorization by the breeder, inter alia, for producing, selling and exporting the propagating material of a protected variety.”\textsuperscript{126} Farmers cannot trade seeds with other farmers, as is traditional practice in many places, under the 1991 provision.\textsuperscript{127} These changes indicate a normative shift away from protecting farmers’ rights.

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

1. Formation.

Remediying some of UPOV’s failures, TRIPS came into force in response to dissatisfaction among developed nations with many developing nations’ failure to respect intellectual property rights regimes.\textsuperscript{128} TRIPS was adopted in 1994 and became effective in 1995.\textsuperscript{129} There are several major differences between UPOV and TRIPS. TRIPS recognized certain implementation failures of UPOV and other international IP agreements, and it created a comprehensive, self-executing agreement regarding intellectual property rights.\textsuperscript{130} Second, whereas UPOV created a patent-like system, TRIPS dealt with patents and other established intellectual property rights regimes.\textsuperscript{131}

\textsuperscript{122} Id.
\textsuperscript{123} See id.
\textsuperscript{124} See Aoki & Luvai, supra note 54, at 45.
\textsuperscript{125} See id. at 45.
\textsuperscript{126} Gerstetter et. al., supra note 56, at 269.
\textsuperscript{128} See Pedro Roffe, Bringing Minimum Global Intellectual Property Standards into Agriculture: The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), in THE FUTURE CONTROL OF FOOD, supra note 34, at 48, 49.
\textsuperscript{129} See Aoki & Luvai, supra note 54, at 51.
\textsuperscript{130} See Roffe, supra note 128, at 52.
\textsuperscript{131} See id. at 52.
2. Main provisions.

TRIPS provides more effective protection for intellectual property rights than previous IP treaties because it is self-executing and has "teeth." That is, there are provisions in TRIPS to compel member nations' compliance with the treaty provisions. Specifically, TRIPS is a treaty among World Trade Organization members. TRIPS, unlike many treaties, can be self-executing because it is linked to WTO's "hard-edged dispute settlement system whereby treaty bargains are enforced through mandatory adjudication backed up by threat of retaliatory sanctions." Many developing nations did not want an international IP rights treaty for plant genetic resources, so that it would be easier to access seeds for food production. The nations were forced to accept TRIPS if they wanted to retain WTO membership, which provides tremendous economic benefits.

Functionally, TRIPS is more expansive and more rigid than UPOV. Because the WTO is primarily focused on trade, TRIPS provides more access to free markets in exchange for protecting the IP rights of other nations. Furthermore, TRIPS covers a broad array of subject material: "although Article 27.3(b) allows the patentability exclusion for plants and animals other than microorganisms, it obliges member countries to provide either patent or effective sui generis protection, or any combination of the two, to protect plant varieties." Despite this, "nothing in TRIPS requires sharing of financial or technological benefits of biodiversity-related patents and plant innovations with source countries or communities." Note the stark contrast to ITPGR's requirement to share financial and technological benefits.

132 See id.
133 See id.
134 See id.
135 Aoki & Luvai, supra note 54, at 56.
136 See Winter, supra note 127, at 233.
137 See id. at 225.
139 McManis & Seo, supra note 67, at 428.
IV. THE CHALLENGES OF IMPLEMENTING THE TREATIES

A. Treaty Interpretation Generally

The relationship between ITPGR, UPOV, and TRIPS is a matter of treaty interpretation. This section will examine the canons of treaty interpretation, whereas the next section will address how to interpret ITPGR and UPOV/TRIPS in light of each other and these canons.

There are competing theories about how overlapping international treaties should be interpreted. One of the most fundamental canons of interpretation is to prefer any treaty interpretation that avoids conflict with other treaties. This method would dictate that “of several possible interpretations of a certain treaty norm, the one that does not lead to a collision with the norm of the second treaty is to be preferred.” This method, however, does not necessarily guarantee that the treaties are interpreted as intended, or even in the best way for achieving their international goals. Instead, interpretation premised on avoidance manipulates words to avoid challenging legal questions. Further, this interpretation does not take into account that some treaties take precedence over other treaties.

The Vienna Convention attempted to codify customary international law on how treaties should be interpreted to provide a consistent set of guidelines for implementing nations. It is the closest thing that international law has to a treaty interpretation guide. The Vienna Convention was drafted by the UN and entered into force in 1980. The Convention is itself a treaty and therefore binds the nations that have signed and ratified it. The rules laid out in the Vienna Convention are treated as customary international law and widely followed, even by nations that have not ratified the Convention, such as the U.S. Furthermore, the Vienna Convention has “been used in (almost) every international treaties interpretation.”

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142 See Gerstetter et. al., supra note 56, at 260.
143 Id. at 260 (citing Harald Hohmann, Der Konflikt zwischen freiem Handel und Umweltschutz in WTO und EG [The Conflict between Free Trade and Environmental Protection in the WTO and EC], 46 RECHT DER INTERNATIONALEN WIRTSCHAFT [RIW] 88 (2000) (Ger.).
145 See Borgen supra note 141, at 576–77.
146 See Criddle, supra note 144, at 433–34.
147 See id. at 434.
148 See id.
Because of the uncontested preeminence of the Vienna Convention, this Comment relies on it to interpret ITPGR, UPOV, and TRIPS.

The Vienna Convention requires consideration of how treaties come into force, that is, how they become international agreements. Signatories of treaties are merely required to “refrain from acts which would defeat the object and purpose of [the] treaty.” Once a signatory implements domestic legislation to meet treaty obligations, it becomes a contracting nation. Binding treaty obligations therefore take precedence over non-binding treaty obligations, because binding treaties are a legal obligation. This norm is codified in Article 30 of the Vienna Convention: “When a treaty specifies that it is subject to, or that it is not to be considered as incompatible with, an earlier or later treaty, the provisions of that other treaty prevail.” Non-binding treaties generally indicate their status as non-binding by including language similar to this provision.

The Vienna Convention also prescribes how to interpret treaties that might conflict. When two treaties conflict or might conflict, typical Vienna Convention interpretation means that the latter treaty takes precedence over the earlier treaty, if it was entered into by the same parties. This would mean that ITPGR as the latter treaty would take precedence over both UPOV and TRIPS. However, this guideline only applies if there is no language in either of the treaties to indicate which treaty is inferior and which is superior. Notice the two important caveats to this rule: the treaties must be made by the same parties, and there must not be interpretation language in the treaties. ITPGR and UPOV/TRIPS do not meet either caveat, and consequently that Vienna Convention principle is not useful for interpreting the treaties described above.

The Vienna Convention imposes another condition on treaty interpretation: a good faith requirement that a treaty should be interpreted “in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.” This general obligation indicates that treaties are not bare written agreements, but instead complex documents that should not be manipulated until they have lost all ordinary meaning. In other words, a nation should not implement treaty obligations if doing so would require the nation to strip all meaning out of the treaty.

150 Vienna Convention, supra note 144, art. 18.
151 Id., art. 30.2.
152 See Gerstetter et. al., supra note 56, at 261.
153 Id. at 262–63.
154 Vienna Convention, supra note 144, art. 31.1.
Section V will look at how the different treaties bearing on plant genetic resources can be implemented and interpreted together. Where necessary, it will suggest an interpretation of an ambiguous ITPGR provision that accords with and relies on language within the controlling treaties. However, conflicts can arise when one treaty allows what another forbids. In the context of ITPGR tensions were created by TRIPS’s more stringent compliance mechanisms as compared to those of treaty systems outside of the WTO. This created an imbalance whereby compliance with the principles, norms, and rules of another regime could be subordinated to compliance with TRIPS in areas where the two regimes overlapped.

Enforcement mechanisms for the treaties are just as important for determining how the treaties interact as the substantive text of the treaties themselves.

B. The Interaction between ITPGR, UPOV, and TRIPS

The different content of ITPGR and UPOV/TRIPS seems to generate inter-treaty conflict. The UNFAO indicates that ITPGR is legally binding on member nations. All WTO member nations are legally obligated to fulfill their treaty obligations under TRIPS. As described in Section III, TRIPS is the only of the three treaties at issue that has a built-in enforcement mechanism. TRIPS contains penalties and uses the WTO’s internal mechanism of sanctions to force nations to comply with its provisions. However, signatories of UPOV and ITPGR are not legally obligated to pass domestic implementing legislation to fulfill their treaty obligations under those agreements, as these treaties are not self-enforcing. Once nations do pass such legislation, they will be considered a contracting party, rather than just a signatory of the treaty. Furthermore, because ITPGR contains significantly vague language, member nations can pass domestic implementing legislation that doesn’t conflict with TRIPS, but which doesn’t really meet any of the intended obligations of ITPGR. The obligations of UPOV and TRIPS are similar enough that they can generally be implemented by the same nation without conflict. However, the substantive provisions of ITPGR and UPOV/TRIPS seemingly are in contradiction and cannot be implemented together so easily. But,

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155 See Gerstetter et al., supra note 56, at 260.
156 Helfet, supra note 138, at 27.
158 In fact, Free Trade Agreements, which are at the heart of TRIPS, often include provisions requiring that both nations must implement UPOV. See Tasmin Rajotte, The Negotiations Web: Complex Connections, in THE FUTURE CONTROL OF FOOD, supra note 34, at 141, 142.
as a practical matter, ITPGR and TRIPS do not conflict under international law because nations that are parties to both treaties are only obligated under one treaty—TRIPS. The role of ITPGR in some nations, then, is to be implemented in light of TRIPS in a way that avoids conflicting with TRIPS but still accomplishes ITPGR's goals.

Most scholars in the field argue that there is no inherent conflict between ITPGR and UPOV/TRIPS. For example, Gerstetter et al. argue that the treaties are not in conflict if ITPGR creates obligations for individuals rather than nations.159 The authors go on to argue that even if the ITPGR creates obligations for nations, the treaties do not conflict: nothing in TRIPS specifically requires any action that conflicts with ITPGR, but rather, the way some nations have chosen to implement TRIPS conflicts with ITPGR.160 Some developed nations, finding TRIPS not to be comprehensive enough, include TRIPS-plus provisions within free trade agreements.161 Often, these agreements will explicitly require nations to join UPOV.162 Tasmin Rajotte, the primary developer of intellectual property rights studies at the Quaker International Affairs Program, points out that the ITPGR's governing body has not released a statement about the treaty's interaction with TRIPS.163 She expects that the interaction between the treaties will cause more nations to abolish breeder and research exemptions, which she expects will result in the increased use of the ITPGR's benefit sharing provision.164 Finally, Rolf Jördens, the Vice Secretary General for UPOV, argues that ITPGR does not change a country's obligations under UPOV in any way.165 He argues that, as the latter treaty, ITPGR should be interpreted in a way that respects existing treaties, including UPOV.166 Jördens further claims that the two treaties pursue different goals and should be administered separately.167 However, he believes that the goals of the two treaties are reconcilable.168

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159 See Gerstetter et al., supra note 56, at 270–71.
160 Id. at 271–72.
161 See Tasmin Rajotte, supra note 158, at 141, 142–144.
162 Id.
163 Id. at 153.
164 Id. at 154.
166 See id.
167 See id.
168 See id.
The text of the treaties supports Jördens' position that there is not a conflict between ITPGR and UPOV/TRIPS. The first textual support derives from an aforementioned ambiguity in Article 13.2(d)(ii) of ITPGR. Gerstetter et al. argue that ITPGR contemplates profit from intellectual property rights, which is consistent with an IP regime concerning plant genetic resources. They support this argument textually by pointing out that ITPGR contemplates payments to the collective fund when someone collects monetary benefits from derivatives of materials accessed through the MLS. Second, Gerstetter et al. argue that plant breeders are able to fulfill the goals of UPOV—by turning a profit and accessing plant based rights—even if they have to pay some money to the collective system for MLS-accessed products. Third, Article 15.2 of UPOV provides an optional exception that allows parties to offer farmers “certain uses of the harvest obtained from a protected variety.” This flexibility diminishes the significance of a potential overlap between UPOV and ITPGR by providing countries some implementing flexibility.

C. Potential Implementation Issues

Although TRIPS/UPOV and ITPGR do not conflict, implementing ITPGR in the context of TRIPS poses a challenge for nations. This section addresses some of the specific challenges that nations might face when implementing ITPGR.

The treaties are challenging to implement together because they are pursuing different goals on the same subject matter. Their respective goals and spirit are generally contradictory. That is, ITPGR is fundamentally about protecting farmers’ rights, whereas UPOV and TRIPS are fundamentally about protecting plant developers’ rights. Farmers’ rights and developers’ rights are in tension with each other in practice. Pragmatically, farmers can resell seeds in competition with plant breeders. Intellectual property rights related to plant genetic materials, at their core, are meant to prevent this exact practice. The potential for competition from farmers incentivizes plant breeder to protect their own rights at the expense of farmers’ rights to improve profit margins. The

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169 See Gerstetter et al., supra note 56, at 267.
170 See id.
171 Id. at 269.
172 Id.
173 See id. at 261.
175 See Winter, supra note 127, at 224.
incentives also exist for plant breeders to lobby for intellectual property rights at the expense of traditional farming practices. In many areas of the world, traditional farming practices include saving seeds to reuse them in subsequent seasons and/or trading seeds with other farmers in the local community. However, these practices can significantly erode a seed developer’s profit because they allow farmers to buy significantly fewer seeds. Even when a farmer is not directly in competition with a seed producer, their rights are inherently framed in opposition.

Second, ITPGR and UPOV/TRIPS are challenging to implement together in practice. This is because of the structure of the benefit-sharing system under ITPGR’s MLS. Benefit sharing under the MLS restricts IP rights and requires a payment into the Multilateral System for benefits received from the commercialization of any of its plant genetic resources. UPOV contains no restrictions on which intellectual property rights can be claimed based on where the genetic material came from; the only requirements are that the claimed plant-based rights have novel, distinct, uniform, and stable characteristics. This difference makes integration of ITPGR into national laws that already comply with UPOV and TRIPS challenging. To avoid this challenge, some scholars have argued “that the prohibition on claiming IPRs contained in the [ITPGR] must be understood not to prohibit the seeking of PBR for varieties that are derivatives of the accession obtained from the MLS.” But this interpretation would only protect the specific plant varieties accessed from the MLS, and not plant materials derived from MLS sources. This is a relatively small pool of plant genetic resources that is inconsistent with the spirit of the ITPGR.

Furthermore, this interpretation effectively invalidates an ambiguous part of the ITPGR by simply ignoring that provision. The ITPGR’s provision against claiming intellectual property rights is vague. It prohibits claiming IP rights over “genetic parts or components, in the form received” from the MLS. While there is not a clear international understanding of what this language means, it seems expansive in its protections of MLS material—including “parts and components” rather than simply protecting entire plants.

Despite this, many plant breeders interpret the ITPGR restrictively to apply only to specific varieties of plants accessed from the MLS rather than plant materials. There is an even more fundamental tension between the treaties here.

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176 See Crookshanks & Phillips, supra note 73, at 69.
178 Gerstetter et al., supra note 56, at 267.
179 See ITPGR, supra note 1, art. 12.
IP rights allow the owners to restrict access to a particular plant genetic material fully. The ITPGR conflicts with such absolute control over plant genetic resources derived from MLS materials, because the ITPGR requires facilitated access to all plant genetic resources derived from MLS materials for research, breeding, and training for food and agricultural production.\(^\text{180}\) The required scheme of facilitated access is incompatible with complete intellectual property rights over plant genetic resources.

This analysis of the ITPGR and UPOV/TRIPS reveals a potential implementation impasse concerning benefit sharing under the MLS. In practice, this conflict is resolved by generally ignoring an undefined term in the ITPGR, that is, “parts or components, in the form received.” This pragmatic approach to treaty interpretation follows the internal language of the treaties themselves. However, this approach is problematic for the ITPGR because it significantly diminishes its effectiveness and erodes the protections that it can offer. Furthermore, it may contravene the Vienna Convention’s requirement that treaties be implemented and interpreted in good faith. The following section offers some solutions that could allow a nation to implement the ITPGR in light of TRIPS while still respecting the spirit of the ITPGR.

V. SUGGESTED INTERPRETATION

One possible solution is an interpretation of ITPGR that recognizes the challenges of implementing the ITPGR in light of TRIPS. This section will propose an interpretation of certain vague phrases in the ITPGR as a suggestion for how both developed and developing nations can interpret the treaty domestically and give it meaning during implementation. The interpretation will be based in part on how the ambiguous phrases were understood by various nations at implementation. It will aim to harmonize the discordant goals and practices of the treaties. This Comment has four explicit goals in proposing this interpretation: (1) to be consistent with the ITPGR’s purpose (biological diversity in plant genetic resources); (2) to avoid conflict with UPOV and TRIPS; (3) to maintain a reasonable expectation of acceptability by both rich and poor member nations of ITPGR; and (4) to clarify some of the unclear language in the ITPGR. Interpreting the ITPGR to be more expansive than it practically is meets the first of these goals. Taking into account the provisions of UPOV/TRIPS that might conflict furthers the second goal. Achieving the third goal is trickiest: interpretations of ITPGR that are too broad will lose support from developed nations, whereas interpretations of ITPGR that are too narrow will lose support.

\(^{180}\) See Gerstetter, et al., supra note 56, at 267.
from the least developed nations. The fourth goal is the inevitable result of a good
interpretation.

This interpretation is complicated by nations having vastly different sets of
obligations under the different treaty regimes addressed. TRIPS has different
implementation timelines for rich and poor nations, so some nations are bound
to provisions from which others are exempted. Furthermore, countries sometimes
voluntarily go beyond the requirements of TRIPS. Surprisingly, "over a third of
the WTO's 106 developing country members included a broad range of TRIPS-
plus provisions in their laws. Over half of the countries in this TRIPS-plus group
were [least developed countries] – the same countries that the economic literature
anticipates would adopt the lowest levels of IP protection." Often, these
TRIPS-plus provisions require nations to agree to become members of UPOV,
or agree to adopt language substantially similar to UPOV. Furthermore, nations
often exploit ambiguities in the language of the treaties to protect socially
important features domestically.

The ambiguity in the ITPGR is well known within the international
community. The first two vague phrases that this comment seeks to interpret—
"genetic parts or components" and "in the form received"—were crafted to be
deliberately vague as a compromise between developed and developing nations
that had different conceptions about the scope of the ITPGR. Food-rich
developed nations preferred a narrow interpretation of ITPGR, favoring instead
robust protections for domestic companies producing plant-based genetic
materials for sale. The United Nations' Food and Agriculture Organization
(UNFAO), which was instrumental in writing the ITPGR indicates that "[n]either
textual interpretation nor national jurisprudence is likely to resolve this debate."

As such, this Comment will consider the broadest and the narrowest
interpretations of the ambiguous phrases, representing respective preferences of
developing and developed nations. It will then propose a compromise between
the broadest and narrowest possible definitions. UNFAO instructs that "[i]n
interpreting Article 12.3(d), the Governing Body may seek advice from WIPO or

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181 See Laurence R. Helfer, Intellectual Property Rights in Plant Varieties, FAO LEGISLATIVE STUDY 60–61
183 See Helfer, supra note 181, at 61.
184 See Kennedy, supra note 55, at 28.
185 Future Revisions of International IPR Agreements Affecting the Protection of Plant Varieties: The WTO DOHA
Round and the ITPGR, Food and Agriculture Organization of the United Nations, available at
186 Id.
the TRIPs Council. Alternatively, a dispute over the proper interpretation of the provision may be submitted to arbitration or to the International Court of Justice.”187 This implies that the ITPGR governing body could adopt any interpretation of the ambiguous language it pleases.

A. Genetic Parts or Components

The ITPGR does not define what the term “genetic parts or components” means. This is a crucial phrase for determining the scope of the ITPGR’s prohibition against claiming intellectual property rights on materials derived from the Multilateral System. Specifically, this phrase will determine how large a piece of genetic material must be in order to meet the ITPGR’s prohibitions on claiming intellectual property rights.188 Currently, there is not a prevailing international interpretation of this language; this is one of the features crippling the ITPGR.

This phrase is particularly challenging because it has viable interpretations that are both broad and narrow. Developing nations tend to interpret this phrase broadly, whereas developed nations tend to prefer a narrow definition.189 The broadest definition of this phrase is that plant genetic material producers cannot claim intellectual property rights for any plant part derived from MLS material. This would include genetic materials that do not constitute an entire plant, such as a strand of genetic material that constitutes a single plant characteristic. It would also include claiming IP rights over any plant that contains any genetic materials of a plant accessed from the MLS. For example, if a plant producer were to start with corn from the MLS, no derivative of that corn could be claimed for intellectual property protection as long as any part of the original genetic material remained.

Conversely, the narrowest definition of “genetic parts or components” would only indicate that plant producers cannot claim intellectual property rights for any part of MLS material in the form received. Under the narrow definition, any modification of the genetic resources from materials accessed in the MLS would mean that those genetic “parts or components” could be claimed under intellectual property law. Considering again corn taken from the MLS: any change to the genetic code of the corn would mean that the entire corn derivative could be patented. The broad definition ignores the benefit-sharing MLS provisions, which anticipate some IP rights from MLS-derived plants. The broad definition probably will not find support among rich nations, as it is contrary to current practices.

187 Id.
188 For more on interpreting ambiguities in ITPGR provisions, see discussion and sources cited supra Section III.
189 See Kennedy, supra note 55, at 28.
The proposed interpretation for this phrase falls somewhere between the broadest and the narrowest definition, and can be expressed as follows: a party cannot claim intellectual property rights for any plant genetic resource that could be found in its entirety in an MLS plant. In other words, any genetic material that makes up a cognizable characteristic in any MLS plant cannot be claimed as intellectual property. However, entire plants that use material from the MLS but which have been modified could be claimed.\footnote{This suggestion is similar to but distinct from existing suggested interpretations in international law. See, for example, Helfer, supra note 181, at 89.} This requires innovation from plant producers to vary genetic resources in order to claim intellectual property rights. As an example, consider again corn taken from the MLS. The \textit{corn} in the form taken from the MLS could not be claimed by anyone under a system of intellectual property rights, and no \textit{specific part} of the corn could be claimed. However, if a breeder were to modify the corn to be more yellow, so long as the gene that produces a more yellow corn met other IP rights requirements, and couldn’t be found in the original MLS corn or any other MLS corn products, then it could be patented. So too could the whole corn seed producing the more yellow corn. However, all of the other subparts of the corn, which were accessible in MLS but have not been changed by the breeding process would not be protectable under this proposed interpretation. The advantage of this suggested definition is that it protects all of the genetic materials found in the MLS in whole and in part. However, it also gives plant producers the incentives and freedom to protect their intellectual property when they create a true innovation, even when that innovation is derived from materials in the MLS.

The proposed definition draws support from a textual reading of a declaration made by at least fourteen ITPGR parties upon ratification of the treaty.\footnote{See International Treaty on Plant Genetic Resources for Food and Agriculture, WORLD INTELLECTUAL PROPERTY ORGANIZATION, available at http://www.wipo.int/wipolex/en/other_treaties/details_notes.jsp?treaty_id=255.} Nations can submit reservations, understandings, and declarations when ratifying a treaty to indicate their understanding of the agreement, or to hedge potentially objectionable readings of the text of the treaty. In the case of the ITPGR, certain nations made a declaration “concerning the interpretation of Article 12.3.d of the International Treaty on Plant Genetic Resources as recognising that plant genetic resources for food and agriculture or their genetic parts or components which have undergone innovation may be the subject of intellectual property rights provided that the criteria relating to such rights are met.”\footnote{See id. The specific text of the declaration might vary slightly from nation to nation, but most adopted the quoted language or substantially similar language. The language quoted was taken from Austria’s declaration.} This declaration indicated that these nations understand the term “genetic parts or components” to allow some materials accessed from the MLS to be
patented. Specifically, the text of the understanding supports allowing materials to be patented in two instances. They are when plant genetic resources for food and agriculture (that is, an entire plant's genetic code) has undergone innovation OR when genetic parts or components (that is, part of a plant’s genetic code) have undergone innovation. This textual reading of the understanding comports with the definition advanced above. That is, entire plants taken from the MLS that have been innovated can be patented. So too can specific genes or characteristics that have been changed from the form accessed under the MLS. Similarly, neither the understanding nor the suggested interpretation allow for patents on any MLS materials (in whole or in part) that have not been changed.

Many expected this ambiguity to be resolved in the standard material transfer agreement (MTA) that the ITPGR requires in order for parties to access materials from the MLS. If the governing body of the ITPGR had adopted (or were to adopt) a definition of “genetic parts or components”, it could include that definition in the definitions section of the MTA. An examination of the standard MTA indicates that the governing body has yet to define this term.

B. “In the Form Received”

The second path to a solution involves interpreting a line in the ITPGR that has the potential to critically undermine the effectiveness of its farmers’ rights provisions. Article 12.3(d) of the ITPGR states: “Recipients shall not claim any intellectual property or other rights that limit the facilitated access to the plant genetic resources for food and agriculture, or their genetic parts or components, in the form received from the Multilateral System.” This section is plainly a limitation on plant producers claiming intellectual property rights on plants received from the MLS, but it leaves open the possibility that plant producers could claim intellectual property rights on simple mutations or variations of plants. However, “[b]ecause the ITPGR does not recognize any rights in individual farmers or breeders who develop new plant varieties through systemic practices, the ‘in the form received’ language works to substantially undermine the ITPGR’s

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193 See, for example, CARY FOWLER ET AL., THE INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE 32 (2003).


195 ITPGR, supra note 1, art. 12.3(d).
Plant Genetic Resources

famers’ rights provisions.” During negotiations of the text of the ITPGR, the U.S. called to delete this language. Other developed nations interpret this language in a very restricted way by functionally ignoring it. Standard farming practices will generally result in seeds and plants changing over time. However, the restrictive interpretation of the phrase “in the form received” makes farmers engaging in standard farming practices vulnerable to intellectual property infringement. The farmers are protected in using materials directly accessed from MLS, but if their seeds develop after several seasons of use, they might be innocently infringing on IP rights. However, “in the form received” could be interpreted broadly to include simple variations and changes resulting from standard farming practices. This will use the ITPGR to fulfill its purpose, while protecting farmers from infringing on protected plant varieties.

A nation can implement this suggestion by crafting legislation to fulfill that nation’s obligations under TRIPS that is compatible with the suggested interpretation. The organization that administers the ITPGR, the UNFAO, released a study in 2004 examining the compatibility of TRIPS with farmers’ rights and other goals. That study identified certain flexibility that nations have under TRIPS and suggested various domestic legislation that could fulfill TRIPS obligations but still allow a nation to pursue the protection of other socially


198 It should be noted that the “genetic parts or components” language discussed above is doing much of the work here, and that “in the form received” is supplementary to that.

199 For examples of other moderated approaches that legal authors suggest for interpreting this clause, see Kennedy, supra note 55, at 40; REGINE ANDERSEN, GOVERNING AGROBIODIVERSITY: PLANT GENETICS AND DEVELOPING COUNTRIES 200 (2008). For an anecdote about the potential harms to farmers of a narrow interpretation of this language, see Puck Lo, Monsanto Bullies Small Farmers Over Plating Harvested GMO Seeds, CORPWATCH BLOG (March 24, 2013), http://www.corpwatch.org/article.php?id=15825 (last visited Mar. 16, 2015).

200 This interpretation offers a dual advantage over a normative policy advocating for nations to implement legislation eliminating statutory penalties for innocent infringement. First, it uses the text of the ITPGR to protect farmers’ rights, rather than lowering penalties but maintaining the illegality of the behavior. While the result might be approximately the same, the proposed solution carries a much stronger message of fulfilling the obligations of the ITPGR and protecting farmers. Second, the interpretation clears up a contentious issue in the text of the ITPGR. Critical phrases remaining undefined weakens the treaty as a whole.

201 See generally Heifer, supra note 181.
valuable goals—including protecting plant varieties and farmers rights. Most notably, nations that are WTO members but not subject to UPOV requirements can set their own requirements for plant patent eligibility when designing a *sui generis* legal system. "The four eligibility requirements of the UPOV—novelty, distinctiveness, uniformity, and stability—have been criticized as unnecessarily rigid, undervaluing plant genetic diversity and precluding IPR claims by traditional farmers as opposed to commercial breeders." By setting different patentability requirements, the nations can exclude from patentability derivatives of MLS materials "in the form received" as defined above. As part of this solution, a nation could design *sui generis* legal protection that does not allow patents on plant varieties that have been discovered, rather than developed. This would assuage the concern identified above about farmers accidentally infringing on IP rights by using discovered plant varieties that are basic evolutions from MLS materials. The UNFAO also suggested that nations could require plant breeders to provide a declaration of the origin of the plant genetic material before granting a patent. One of the major values of this suggestion is that it "provides a check against 'biopiracy' by helping to identify breeders seeking protection of plant genetic material that is widely known or used in other jurisdictions or found in ex situ collections." A declaration requirement could be used to help nations control the patents granted domestically so that they are compatible with the aims of ITPGR.

Brazil provides a compelling example of a nation using a patent-examination process to comply with the TRIPS requirement of pharmaceutical patentability, while simultaneously pursuing socially beneficial goals. While Brazil's domestic legislation is different than that suggested above, Brazil's example grounds this Comment's suggestion in empirical possibility. The Brazilian two-stage examination process relies on two different agencies to each evaluate patent claims

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202 See id. at 71.
203 See id.
204 Id.
205 See id. at 73 ("WTO members are not required to protect varieties that have merely been discovered.").
206 See id. at 74.
207 Id.
209 Id.
on plant genetic material. Each examination employs different criteria. The second examination uses criteria with less technical sophistication. This system allows the second agency to veto any pharmaceutical patent, despite an initial determination that patentability was consistent with the technical requirements. Some nations have argued that this violates TRIPS Article 27.1, but it indicates that nations can use domestic legislation implemented pursuant to TRIPS requirements as a means of advancing the goals of the ITPGR. In order to do so, however, the nations must first give meaning to ambiguous phrases in ITPGR.

C. Form and Manner of Payment

The ITPGR stipulates certain conditions under which plant producers must make a payment to the Multilateral System. This payment is to be shared among all of the member nations in a system of benefit sharing, so that all nations will benefit from the commercialization of plant genetic materials derived from MLS materials. However, “[w]hile the ITPGR ostensibly creates a mechanism for sharing the benefits of commercialization, the form and manner of payment are not delineated.” Unlike the other areas of ambiguity discussed, this section was probably deliberately left flexible to respond to the different needs of different nations. The ITPGR provides some guidance about the intended beneficiaries of benefit sharing: “[A]rticle 13.3 states that benefits resulting from the use of PGRFA should flow primarily to farmers in all countries, especially in developing countries and countries with economies in transition.” The best possible form and manner of payment could be put to the highest use by helping farmers access necessary legal services. That is, the payments to the MLS could be used to help farmers get assistance filing for patents, defending against patent infringement suits related to plant genetic resources, etcetera. This is a very broad interpretation of the language in the treaty, and there is no present practice to support this part of the suggested interpretation; however, the goal of the provision at issue is “benefit sharing” between member nations, and it is a benefit to have farmers producing foods. They are functionally unable to compete in the modern marketplace without occasional legal representation.

210 Id.
211 Id.
212 Id.
213 Id.
214 Aoki, supra note 196, at 796.
215 PGRFA means plant genetic resources for food and agriculture.
216 Gerstetter et. al., supra note 56, at 263.
217 See, for example, Hannig, supra note 18, at 175.
VI. CONCLUSION

ITPGR and UPOV/TRIPS are important treaties that relate to the same subject material but pursue widely different goals. All of these treaties are important internationally and their overall purposes should be respected. The suggested interpretation this Comment has advanced is an attempt to recognize the challenges of implementing an important, albeit non-binding, treaty into national law when constrained by a binding treaty with overlapping obligations. That TRIPS is binding and ITPGR is not might indicate that the international community normatively places more importance on protecting intellectual property rights than plant genetic resource access rights. However, the existence of the ITPGR indicates a general international recognition of the importance of preserving diverse biological material for food production. Furthermore, the ITPGR’s ambiguities should not be interpreted in such a way that the treaty loses all meaning, even though nations are under no legal obligation not to interpret it that way. Instead, nations should adopt an interpretation of the ITPGR that gives the treaty meaning in order to provide farmers a different kind of protection than TRIPS can offer while still remaining faithful to TRIPS/UPOV’s binding commitments.