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The TPP's New Plant-Related Intellectual Property Provisions:

Strengthening the Rights of Breeders and Seed Manufacturers at the Expense of Traditional Farming Practices and Food Security in the Developing World¹

The new language will prohibit farmers from exchanging seeds and harvested materials, in turn preventing farmers from cultivating and selling improved crops and increasing multinational control of farming. Accordingly, this new TPP language poses a threat food security in developing countries.

Summary

The draft of the Trans-Pacific Partnership (TPP) that was leaked on October 16, 2014 contains new language that requires signatories to increase the exclusionary rights available to plant breeders. The intellectual property rights (IPRs) on plants provide breeders with varying degrees of control over the propagating materials (seeds, tissue cultures, cuttings) and sometimes harvested materials (fruits, foliage, flowers) of the plant varieties they produce. **The new TPP language indicates that signatories will either have to make patents for plants available OR protect plant varieties under the 1991 UPOV and make patents available for plant-related inventions that are not protectable under the 1991 UPOV.** Currently, most nations set their own plant protection policies without interference from international authorities. Although most nations do offer some form of protection to plant varieties, most nations have not acceded to the 1991 version of the UPOV, and very few nations offer patents on plants or plant-related inventions. Thus, the new provisions of the TPP will force half of the current parties to the TPP to change their domestic laws and policies in ways that **will significantly harm** their populations. **This new language will prohibit farmers from exchanging seeds and harvested materials and prevent farmers from cultivating and selling improved crops, in turn increasing multinational control of farming. Therefore, this new TPP language poses a threat to farming and food security among the less developed parties to the TPP.**

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The TPP Language Regarding Plants

The October 16, 2014 Version of the TPP

Article QQ.E.1: {Patents / Patentable Subject Matter}

3. [US/JP/SG propose; AU/NZ/VN/BN/CL/PE/MY/CA/MX oppose: Consistent with paragraph 1, each Party shall make patents available for inventions for plants and animals.]

Alt. 3: {Consistent with paragraph 1, each Party confirms that it makes available patents for plant-related inventions.⁵⁵}

FN55: {For greater certainty, no Party shall be required to make patents available for plant varieties that are protectable in that Party under the International Convention for the Protection of New Varieties of Plants [1991](UPOV Convention).} {Negotiator's Note: AU would prefer this footnote to be in the main text}.

[Note: This formulation is premised upon the understanding that TPP Parties will make a commitment to accede to UPOV 1991].

Article QQ.A.8: {Existing Rights and Obligations / International Agreements}⁷

[NZ/MY/CA/MX/VN/BN/PE/CL oppose: 1. Each Party affirms that it has ratified or acceded to the following agreements, as revised and amended:

(c) *International Convention for the Protection of New Varieties of Plants* (1991) (UPOV Convention);

Therefore, under the most recent TPP language, parties will either be forced to make patents for plants available OR protect plant varieties under the 1991 UPOV and make patents available for plant-related inventions that are not protectable under the 1991 UPOV.

- The United States, Japan, and Singapore prefer that the TPP force parties to make patents available for plants as the United States currently does. This provision would radically change the patent law of many TPP signatories as this paper later explains.
- Most nations oppose this plant patent proposal, and instead suggest that the TPP language only force nations to make patents available on plant-related inventions when such inventions are not protectable under the 1991 UPOV. However, as this memorandum later explains, **this alternative language may not be very different in**

practice from the language the U.S., Japan, and Singapore prefer. Moreover, Article QQ.E.1.3 adds another layer of enforceability to the 1991 UPOV.

- Currently, six of the twelve TPP signatories have not ascended to the 1991 version of the UPOV, and only 3 parties make plant patents available.
- Thus, signing the TPP would force six nations to significantly alter their intellectual property laws and policies.

The Current Membership Status of TPP Parties to International Agreements that Provide for Plant-Related Intellectual Property Protection				
Trans-Pacific Partnership Signatory	TRIPS Signatory	UPOV 1978 Signatory	UPOV 1991 Signatory	Patent Protection for Plants
Australia	✓	✓	✓	✓
Brunei Darussalam	✓	✗	✗ ²	Unclear. ³
Canada	✓	✓	✗	Canada does not grant patents on “higher life forms,” a term that includes plants, but will grant patents on plant cells and genes. ⁴
Chile	✓	✓	✗	✗
Japan	✓	✓	✓	✓
Malaysia	✓	✗	✗	✗
Mexico	✓	✓	✗	✗
New Zealand	✓	✓	✗	No patents on plant varieties.
Peru	✓	✓	✓	✗ ⁵

² However, Brunei Darussalam will join the UPOV by 2015. Intellectual Property Office of Brunei Darussalam, *Intellectual Property Regime*, BruIP, <http://www.brunei-patents.com.bn/index.php/about-us/ip-regime> (last visited Sept. 30, 2014).

³ Brunei Darussalam’s current patent law neither explicitly includes nor excludes plants from its provision on patentable subject matter. See Brunei Darussalam Patent Order 2011, Part III, *available at* <http://www.wipo.int/edocs/lexdocs/laws/en/bn/bn027en.pdf>.

⁴ See *Monsanto Canada Inc. v. Schmeiser* [2004] 1 S.C.R. 902, 2004 SCC 34 (patents on plant genes and cells are valid, patents on plants are not); *Harvard College v. Canada* (Commissioner of Patents), 2002 S.C.C. 76, 5, 7 (“Since patenting higher life forms would involve a radical departure from the traditional patent regime, and since the patentability of such life forms is a highly contentious matter that raises a number of extremely complex issues, clear and unequivocal legislation is required for higher life forms to be patentable. The current Act does not clearly indicate that higher life forms are patentable.”).

⁵ The Andean Pact countries, Brazil, and Argentina have chosen not to grant patents on plants.

Singapore	✓	✓	✓	Unclear. ⁶
United States	✓	✓	✓	✓
Vietnam	✓	✓	✓	✓

Sources: International Convention for the Protection of New Varieties of Plants, *Members of the International Union for the Protection of New Varieties of Plants*, UPOV, <http://www.upov.int/export/sites/upov/members/en/pdf/pub423.pdf> (last visited Sept. 26, 2014); World Trade Organization, *Members and Observers*, WTO, http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm (last visited Sept. 30, 2014).

The November 2013 Version of the TPP

- The prior leaked version of the TPP, released in November 2013, left the issue of plant IPR protection undecided.
- The **United States proposed** that the following language be included:
 - “each Party shall make patents available for inventions for the following: (a) plants and animals.”
- **Australia, New Zealand, Viet Nam, Brunei Darussalam, Chile, Peru, Malaysia, Singapore, Canada, and Mexico opposed** this language and instead proposed that the agreement read:
 - “each party may also exclude from patentability: (a) plants and animals, other than microorganisms.”
- Furthermore, the prior version of the TPP left unsettled whether all parties would accede to the 1991 version of the UPOV.⁷
 - The United States and Australia proposed that such ascension be required
 - Canada, New Zealand, Malaysia, Peru, Brunei Darussalam, Chile, Mexico, Japan, and Viet Nam opposed this measure.⁸
 - **The current version of the TPP requires all parties to accede to the 1991 version of the UPOV.**

The current version of the TPP makes clear that Australia, New Zealand, Viet Nam, Brunei Darussalam, Chile, Peru, Malaysia, Singapore, Canada, and Mexico largely lost the battle to retain control over their protection of plant-related intellectual property.

Under the most recent version of the TPP, parties must protect plant varieties under the 1991 UPOV and make patents available for any plant-related invention that is not protectable under the 1991 UPOV. As this memorandum will explain, these alternatives may not be very different from one another in practice. **Thus, under the current language of the TPP, parties have lost the flexibility to create their own systems of plant protection.**

⁶ Intellectual Property Office of Singapore, *What is a Patent?*, IPOS, <http://www.ipos.gov.sg/AboutIP/TypesofIPWhatIsIntellectualProperty/Whatisapatent.aspx> (last visited Sept. 30, 2014).

⁷ Article QQ.A.6.4(g), available at <http://wikileaks.org/tpp/static/pdf/Wikileaks-secret-TPP-treaty-IP-chapter.pdf>

⁸ *Id.*

The Basic Obligations of the 1991 UPOV

Subject Matter

- The 1991 UPOV requires states to protect **at least fifteen plant genera or species upon ratifying or acceding to the Act**, and to extend protection to **all plant varieties within ten years**.⁹
- The 1991 UPOV defines plant “variety” as a “plant grouping within a single botanical taxon of the lowest known rank” which can be “defined by the expression of the characteristics resulting from a given genotype or combination of genotypes; distinguished from any other plant grouping by the expression of at least one of the said characteristics; and considered as a unit with regard to its suitability for being propagated unchanged.”¹⁰
- Under this language, multinational seed manufacturers, such as Monsanto, can obtain plant variety protection for their seeds. **In other words, genetically modified crops can qualify for plant variety protection.**
- The 1991 UPOV permits member states to protect the same plant variety with both a **breeders’ right** and a **patent**.
- The 1991 UPOV specifies that certain **discovered varieties** qualify for protection.¹¹

Eligibility Requirements

- Even if a plant variety falls within a class of protected genera or species, it is only eligible for protection under the 1978 UPOV if it is: **1) new**,¹² **2) distinct from existing or commonly known varieties**,¹³ **3) homogenous or uniform**,¹⁴ and **4) stable**.¹⁵
 - By requiring stability and homogeneity to qualify for protection, the UPOV encourages genetic standardization, thereby disfavoring plant diversity, traditional varieties, and cultivated landraces.

National Treatment

- **Member states must provide the nationals of other countries the same exclusive rights that they provide to their own citizens.**¹⁶

Term of Protection

- The term of protection for most plants is twenty years; for tree and vine varieties the term is twenty-five years.¹⁷

⁹ International Convention for the Protection of New Varieties of Plants art. 3(2), Mar. 19, 1991.

¹⁰ *Id.* art. 1(vi).

¹¹ *Id.* art. 1(vi).

¹² *Id.* art. 6.

¹³ *Id.* art. 7.

¹⁴ *Id.* art. 8.

¹⁵ *Id.* art. 9.

¹⁶ *Id.* art. 4.

¹⁷ *Id.* art. 19(2).

Scope of Protection

- The 1991 UPOV excludes non-rights holders from:¹⁸
 - Producing or reproducing protected plants,
 - Conditioning protected plants for the purpose of propagation,
 - Offering protected plants for sale,
 - Selling or marketing protected plants,
 - Exporting protected plants,
 - Importing protected plants, and
 - Stocking protected varieties.
- More importantly, these exclusive rights **apply not only to propagating materials but also to harvested materials**, where the harvest has been obtained through an unauthorized use of the propagating material and the breeder has not had a reasonable opportunity to exercise his right in relation to that material.
- **This provision is critical: the 1991 act prohibits farmers from selling fruits and flowers harvested from protected varieties.**
 - In other words, the 1991 UPOV extends breeders' monopoly to the harvests of farmers' crops: "If the farmer sowed his or her field to a [protected plant] variety without paying the royalty fee, the breeder can claim ownership of the output (e.g. wheat) and the products of the output (e.g. wheat flour)."¹⁹
 - **This revision gives breeders greater control over trade in processed foods, ornamentals, and other high-value commodities.**

Exceptions and Limitations to Breeders' Rights

- **The Breeders' Exception:** Article 5(3) precludes member states from granting breeders the right to authorize or refrain from authorizing other breeders **to use their protected variety to create new varieties or market those new varieties.**
 - However, the 1991 UPOV restricts the application of this exception to new varieties that are not "**essentially derived**" from protected varieties.²⁰
 - According to one expert in the field, "[t]he drafters added this restriction to prevent second generation breeders from making merely cosmetic changes to existing varieties in order to claim protection for a new variety."²¹
 - Nevertheless, the scope of this concept has proved difficult to define: breeders have been "unable to agree on a definition of the minimum genetic distance required for second generation varieties to be treated as

¹⁸ *Id.* art. 14(1)(a).

¹⁹ GAIA/ GRAIN, *Ten Reasons not To Join UPOV*, GRAIN (May 1998), <http://www.grain.org/article/entries/1-ten-reasons-not-to-join-upov>.

²⁰ International Convention for the Protection of New Varieties of Plants art. 14(5), Mar. 19, 1991.

²¹ LAURENCE R. HELFER, FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, *INTELLECTUAL PROPERTY RIGHTS IN PLANT VARIETIES INTERNATIONAL LEGAL REGIMES AND POLICY OPTIONS FOR NATIONAL GOVERNMENTS 28*, (2004), available at <http://www.fao.org/3/a-y5714e.pdf>.

not essentially derived from an earlier variety and thus outside of the first breeder's control."²²

- **Yet, is it clear that this provision expands the exclusive rights of first generation breeders.**
- **The Farmers' Privilege:** Farmers are allowed to use the seeds (and other propagating materials) of protected plant varieties for noncommercial purposes on their own land without breeders' prior authorization.
 - **However, this privilege must be exercised "within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder."²³**
 - That is to say, farmers may use the fruits or flowers obtained from cultivating a protected plant variety on their land to further grow that plant on their own land, but this right or "privilege" is subject to the interests of breeders'.
 - **According to the International Association of Plant Breeders, the "reasonable limits" language in article 15(2) requires states to restrict the acreage, quantity of seed, and species subject to the farmers' privilege, while the requirement to safeguard breeders' "legitimate interests" requires farmers to pay some form of remuneration to breeders for their "privileged" acts.²⁴**
 - As one commentator points out, however, this "assertion is controversial," and "has not been enacted in the national laws of all the 1991 Act member states."²⁵
 - **Moreover, the 1991 UPOV prohibits farmers from selling or exchanging seeds with other farmers for propagating purposes.²⁶**
 - Farmers in developing countries traditionally save, exchange, and sell seeds and other propagating materials informally. In these countries, informal "farmers' systems of seed supply and crop improvement are by far the most important sources of seeds, playing a fundamental role in ensuring household food security."²⁷ In developing countries, informal seed systems often account for 98% of seed supply.²⁸
 - Informal seed-trading systems enable farmers to access a stock of different plant genes. Access to gene diversity is crucial to the

²² *Id.* (citing FIS/ASSINSEL, ESSENTIAL DERIVATION AND DEPENDENCE: PRACTICE INFORMATION (1999)).

²³ International Convention for the Protection of New Varieties of Plants art. 15(2), Mar. 19, 1991.

²⁴ HELFER, *supra* note 21, at 29 (citing FIS/ASSINSEL, POSITION PAPER ON FARM SAVED SEED (2001)).

²⁵ *Id.*

²⁶ J. WATAL, INTELLECTUAL PROPERTY RIGHTS IN THE WTO AND DEVELOPING COUNTRIES 141 (2000).

²⁷ Claudio Chiarolla, *The Right to Food and Intellectual Property for Plant Genetic Resources*, in RESEARCH HANDBOOK ON HUMAN RIGHTS AND INTELLECTUAL PROPERTY 13 (Edward Elgar ed., 2014); see BERNE DECLARATION, OWNING SEEDS, ACCESSING FOOD: A HUMAN RIGHTS IMPACT ASSESSMENT OF UPOV 1991 BASED ON CASE STUDIES IN KENYA PERU AND THE PHILIPPINES 7 (2014), available at http://www.bernedeclaration.ch/media/press-release/press/stronger_plant_variety_protection_may_threaten_the_right_to_food/.

²⁸ BERNE DECLARATION, *supra* note 27, at 7.

- improvement and conservation of traditional varieties that are well adapted to local environments.
- Despite these drawbacks, the **1991 UPOV does make explicit two important farmers' rights.**
 - First, the 1991 UPOV clarifies that that private, noncommercial activities with respect to new varieties are outside of breeders' control. **This exception permits subsistence farmers to use protected seeds and other propagating material for their own consumption.**
 - The 1991 UPOV also recognizes that breeders cannot restrict acts "done for experimental purposes."²⁹ **This exception permits research and testing of protected plants for scientific purposes that do not lead to commercial exploitation.**
 - Finally, article 17 of the 1991 Act continues to permit nations to issue compulsory licenses on protected varieties for reasons of public interest.³⁰

For more on the 1991 UPOV and other international agreements regulating plant IPRs, see: *Existing Protection of Plant-Related Intellectual Property in International Agreements*, PUBLIC CITIZEN, available at <http://www.citizen.org/documents/existing-protection-of-plant-related-intellectual-property-in-international-agreements.pdf>.

Patents on Plant-Related Inventions

What is a Patent?

- A patent grants an individual the right to exclude all other people from manufacturing, using, or selling the product on which the patent was granted.
- Although patent law differs from country to country, 160 nations have signed the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and, accordingly, recognize the minimum standards of patent protection set forth in this agreement.

TRIPS

- **Subject Matter.**
 - The TRIPS agreement requires nations to make patents available for "any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application."³¹

²⁹ International Convention for the Protection of New Varieties of Plants art. 15(1)(ii), Mar. 19, 1991.

³⁰ *Id.* art. 17.

³¹ Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 27, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 33 I.L.M. 1197, 1869 U.N.T.S. 299.

- The terms “inventive step” and “capable of industrial application” may be deemed by a member nation to be synonymous with the terms “non-obvious” and “useful,” respectively.³²
 - The agreement then lists a number of categories of inventions that member states may exclude from patentability:
 - “[D]iagnostic, therapeutic and surgical methods for the treatment of humans or animals”³³;
 - “[P]lants and animals other than micro-organisms,”³⁴
 - “[E]ssentially biological processes for the production of plants or animals other than non-biological and microbiological processes.”³⁵
 - Nevertheless, member nations may choose to make patents available for such inventions. Some nations choose to make patents on plants available.
- **Scope of Rights.**
 - TRIPS confers the exclusive right to make, use, offer for sale, sell, or import the product or process protected by that patent.³⁶ Patent owners also have the right “to assign, or transfer by succession, the patent and to conclude licensing contracts.”³⁷
- **Term of Protection**
 - The minimum term of patent protection provided by the TRIPS agreement is twenty years counted from the filing date.³⁸
- **Limitations and Exceptions to Exclusive Rights**
 - Although the TRIPS agreement does afford limited exceptions to these exclusive rights (namely, the TRIPS agreement allows nations to issue compulsory licenses on particular patented products or processes), the patent rights conferred by the TRIPS agreement are strong.

For more on patents and the differences between patents and plant variety protection, see: *The Differences between Plant Variety Protection and Patent Protection on Plants*, PUBLIC CITIZEN, available at <http://www.citizen.org/documents/differences-between-plant-variety-protection-and-patents-on-plants.pdf>.

³² *Id.*

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.* art. 28.

³⁷ *Id.*

³⁸ *Id.* art. 33.

Patents on Plants versus Patents on Plant-Related Inventions

- Put simply, a plant patent can be described as a patent on a plant as a whole, whereas a patent on a plant-related invention would be a patent on a particular aspect or feature of a plant, such as a plant gene.
- Some patent systems allow individuals to obtain patents on both plants and features of those plants.
 - For example, if a manufacturer creates a new gene that enables plants to become resistant to a certain type of pesticide and then implants that gene into a particular plant's genome, the manufacturer may be able to obtain patent protection on both the pesticide-resistant **gene** and the **plant genome** into which it was inserted.
 - The patent on the **plant** would prevent any person, other than the patent holder, from making, using, offering for sale, selling, or importing the pesticide-resistant **plant**.
 - The patent on the **gene** would prevent any person, other than the patent holder, from making, using, offering for sale, selling, or importing any organism containing that **gene**.
- Thus, the patent on the gene—the plant-related invention—actually has a broader scope than the plant patent. Because the gene patent provides the patent holder with an exclusive right to the gene, any plant genome into which the gene has been inserted effectively becomes patent protected.
- **The functional difference between patents on plants and plant-related inventions is largely non-existent.**
- **Therefore, even if a nation does not make patents on plants available, if that nation permits patents on plant-related inventions, manufacturers will be able to obtain exclusive rights to the plants they sell *in effectively the same way*.**

For more on the difference between plant patents and patents on plant-related inventions, see: *The Differences between Plant Variety Protection and Patent Protection on Plants*, PUBLIC CITIZEN, available at <http://www.citizen.org/documents/differences-between-plant-variety-protection-and-patents-on-plants.pdf>.

Analysis of the Plant-Related Patent Provision of the TPP

Under the most recent TPP language, parties will either be forced to make patents on plants available OR protect plant varieties under the 1991 UPOV and make patents available for plant-related inventions that are not protectable under the 1991 UPOV. Thus, if the TPP is signed, parties will either be forced to: (1) provide plant patents, or (2) provide PVP protection to plants and make patents on plant-related inventions, such as plant genes, available. Because plant genes are not protectable under PVP systems, the current TPP language will force nations to make patents on plant genes available. **Therefore, either version of the current TPP language achieves effectively the same result: seed manufacturers will be able to prevent farmers from saving and using seeds that contain patented genes, even if such use is for their own personal consumption.**

Both versions of the proposed language constitute **a huge step in the wrong direction**. Both versions of the text would **severely change the plant IPRs systems of many of the signatories**, to the detriment of their populations. The following section discusses the harmful effects of these changes in greater length.

The Impact of Increased Protection of Plant IPRs

Harm to Small-Scale Farmers in Developing Nations

- In most developing countries, a significant proportion of the farming population consists of smallholders.
 - Worldwide, at least 1.5 billion individuals depend on small-scale farming for their livelihoods.³⁹
- **For such farmers, saving, selling, and exchanging seed is pervasive and essential to the viability of their farming practices.**⁴⁰
 - In developing countries, informal seed systems often account for 98% of seed supply.⁴¹
- Because the 1991 UPOV as well as plant patents **prevent farmers from selling and exchanging protected seeds, such IPR provisions prevent farmers from cultivating and selling improved crops.**⁴²
- The UN Special Rapporteur on the Right to Food has found that even when farmers in developing nations gain access to protected plant varieties, such access may be detrimental to them in the long term.

“[A]lthough commercial seed varieties may improve yields in the short term, their higher performance often has been a response to inputs (fertilizers) and to water availability, making it difficult for farmers unable to access to such inputs and conditions to reap their benefits. Those who acquire inputs with their own means, often encouraged to do so during an initial period of subsidized inputs, **may find themselves trapped in the vicious circle of debt as a result of a bad harvest and consequent impossibility to reimburse input loans.** This may occur particularly when they have switched to monocropping leading to revenues which may be higher in certain seasons but less stable across the years, and diminish resilience in the face of climate change. Second, commercial seed varieties may be less suited to the specific agroecological environments in which

³⁹ Special Rapporteur on the Right to Food, *Report on Seed Policies and The Right to Food*, General Assembly, ¶ 24, U.N. Doc. A/64/170 (July 23, 2009) (by Olivier De Schutter), available at http://www.srfood.org/images/stories/pdf/officialreports/20091021_report-ga64_seed-policies-and-the-right-to-food_en.pdf [Hereinafter “De Schutter, *Report on Seed Policies*”].

⁴⁰ BERNE DECLARATION, *supra* note 27, at 7.

⁴¹ *Id.*

⁴² *See id.* at 7, 14; GEOFF TANSEY, *THE FUTURE CONTROL OF FOOD* 41 (2008).

farmers work, and for which landraces (traditional farmers' varieties) may be more appropriate."⁴³

- **Thus, even farmers that are able to purchase and cultivate protected plant varieties may not benefit in the long term.**
- As a recent report on the effect of plant IPRs on human rights explains,

"From a human rights perspective, restrictions on the use, exchange and sale of protected seeds could adversely affect the right to food, as seeds might become either more costly or harder to access. These restrictions could also affect other human rights, by reducing the amount of household income which is available for food, healthcare or education."⁴⁴

Harm to Genetic Diversity and Implications for Developing Countries

- **Increased IP protection of plant varieties may skew incentives in the seed industry in ways that reduce genetic diversity among plants and harm developing nations.**⁴⁵
- Plant variety protection **does not** encourage breeding related to **minor crops** with small markets "because the likelihood of good returns on breeders' research investment is small even with the legal protection provided by [plant variety protection]."⁴⁶
- Instead, IPRs for plant varieties **encourage breeding targeted at major crops** with significant commercial potential.
 - "It is conceivable, then, that [plant variety protection] may contribute to a trend whereby traditional diverse agro-ecosystems, containing a wide range of traditional crop varieties, are replaced with monocultures of single agrochemical-dependent varieties."⁴⁷

⁴³ De Schutter, *Report on Seed Policies*, *supra* note 39, at ¶ 24. The Special Rapporteur further explains that the coexistence between farmers' seed systems — "operating at local or community levels between farmers" — and commercial seed systems is problematic because "[f]armers often receive commercial varieties as part of a package that includes credit (often vouchers), seed, fertilizer and pesticide," and, "[i]n many cases, acceptance of such packages is the only way farmers can access credit in rural areas." *Id.* ¶ 36. Moreover, "traditional varieties circulating farmers' seed systems — and on which the vast majority of farmers in developing countries still rely for most crops — are often excluded from government-approved seed lists that countries maintain under their seed regulations, and they are seldom included in seed distribution programmes subsidized by governments. The end result is a progressive marginalization or disappearance of local varieties." *Id.* ¶ 36.

⁴⁴ BERNE DECLARATION, *supra* note 27, at 7.

⁴⁵ De Schutter, *Report on Seed Policies*, *supra* note 39, at ¶ 24 ("[T]he expansion of surfaces cultivated with commercial seeds accelerates crop diversity erosion, as an increasing number of farmers grow the same crops, using the same, 'improved' varieties on their fields."); TANSEY, *supra* note 42, at 41; S. Ragavan, *To Sow or Not to Sow: Dilemmas in Creating New Rights in Food*, in *Agricultural and Biotechnology and Intellectual Property: Seeds of Change* 318, 323-24 (J. Kesan ed., 2007).

⁴⁶ TANSEY, *supra* note 42, at 41.

⁴⁷ TANSEY, *supra* note 42, at 41.

- Indeed, most of “mankind now lives off no more than 12 plant species, with the four biggest staple crops (wheat, rice, maize and potato) taking the lion’s share.”⁴⁸
- Furthermore, because private multinational corporations are the primary beneficiaries of increased IPRs on plants,⁴⁹ implementation of the 1991 UPOV or a system of plant plants **may orientate research and development towards the needs of farmers in rich countries, while neglecting poor farmers in developing countries.**⁵⁰
 - For example, very little research has been directed towards developing new varieties of tropical maize, sorghum, millet, banana, cassava, groundnut, oilseed, potato or sweet potato.⁵¹ Increased protection of IPRs on plants may threaten the genetic diversity that is “vital” to the social and economic structure of developing nations.⁵²
- **This reduction in biodiversity and crop availability has the potential to threaten food security in developing nations.**
- Many researchers have warned that increased protection of plant IPRs narrows the range of nutritious foods available in local markets.⁵³
- The Special Rapporteur on the Right to Food has warned that:

“The oligopolistic structure of [the breeders’] market **may result in poor farmers being deprived of access to seeds productive resources essential for their livelihoods, and it could raise the price of food, thus making food less affordable for the poorest.**”⁵⁴

- Accordingly, increased protection of IPRs on plants has the potential to threaten food security in nations where populations rely heavily on small scale farming.

⁴⁸ De Schutter, *Report on Seed Policies*, supra note 39, at ¶ 38; José Esquinas-Alcázar, *Protecting crop genetic diversity for food security: political, ethical and technical challenges*, 5 NATURE 946 (2005); see also TIMOTHY SWANSON, GLOBAL ACTION FOR BIODIVERSITY 52 (2005).

⁴⁹ Harbir Singh, *Plant Variety Protection and Food Security: Lessons for Developing Countries*, 12 J. INTELL. PROP. L. 391, 396 (2007) (“Data on the North American seed market revealed that in case of hybrid corn and soybean, top five companies account for 69% and 51% share, respectively. In case of cottonseed, Monsanto alone controls 84% of the market on account of its purchase of Delta and Pine Land.”).

⁵⁰ De Schutter, *Report on Seed Policies*, supra note 39, at ¶ 34.

⁵¹ *Id.*

⁵² Ragavan, supra note 45, at 327.

⁵³ De Schutter, *Report on Seed Policies*, supra note 39, at ¶¶ 26-27; Tansey, supra note 42, at 41; Ragavan, supra note 45, at 322-24.

⁵⁴ De Schutter, *Report on Seed Policies*, supra note 39, at ¶ 27.

Unclear Gains in Biotechnical Research and Development

- Finally, it is unclear that more stringent protection of breeders' rights has led to significant gains in biotechnical research and development.
- As one researcher found:

“[T]he [Plant Variety Protection] Act of United States did not lead to any increase in experimental or commercial wheat yield. However, the share of US wheat acreage sown to private varieties has increased from 3% in 1970 to 30% in the 1990s, **implying that [Plant Variety Protection] Act served primarily as a marketing tool with little impact on excludability or appropriability.**”⁵⁵

- As another commentator points out “[e]mpirical evidence casts doubt on whether [plant variety protection] (as well as patents) does much to encourage investment in plant breeding except in just a few commercially important crop species such as wheat and soya bean and ornamentals.”⁵⁶
- **Thus, the gains to be had from increased protection of plant IPRs are less than clear.**

For more on the difference between plant patents and patents on plant-related inventions, see: *The Impact of Increased Protection of Intellectual Property on Plants*, PUBLIC CITIZEN, available at: <http://www.citizen.org/documents/impact-of-increased-protection-of-plant-intellectual-property-rights.pdf>.

Trends in Plant Patents and Plant Variety Protection

- The UN Special Rapporteur on the Right to Food has decried the increasing pressure on low- and middle-income countries to adopt national legislation that complies with the 1991 version of the UPOV Convention.⁵⁷
- More specifically, **he has criticized free trade agreements that require the introduction of patent protection for plants or legislation implementing the 1991 UPOV.**⁵⁸

⁵⁵ Singh, *supra* note 49, at 396; Alston Julian & Venner Raymond, *The Effects of the US Plant Variety Protection Act on Wheat Genetic Improvement* (EPTD Discussion Paper 62, International Food Policy Research Institute, 2000).

⁵⁶ TANSEY, *supra* note 42, at 41.

⁵⁷ De Schutter, *Report on Seed Policies*, *supra* note 39, at ¶ 40 (“This convention prohibits the commercialization of varieties which are essentially derived from a PVP-protected variety (article 14 (5)), and farmers are now prohibited from exchanging or selling seeds saved from the harvest of protected varieties (article 15). In order to circumvent these limitations, developing countries where the function of traditional, farmers’ seed systems is most important both for the prevention of genetic erosion and for the livelihoods of farming communities should design sui generis forms of protection of plant varieties which allow these systems to flourish, even if this means adopting non-UPOV compliant legislation.”).

- A recent report from a network of NGOs, including the Third World Network and the Berne Declaration, echoed this criticism, noting that governments in industrialized nations regularly pressure developing countries into introducing stringent intellectual property protection for plants.⁵⁹
- The TPP's current provision on plant IPRs is not only an example of that mounting pressure, but also, in of itself, would serve to augment it.
- In requiring parties to make plant patents available or else implement 1991 UPOV agreement, the **TPP further normalizes the pressure on developing nations to jeopardize farmers' rights and food security in favor of unclear gains in biotechnical research and development.**

Conclusions

If the TPP is signed, parties that have neither made patents on plants available nor ascended to the 1991 version of the UPOV would be forced to join the 1991 UPOV as well as make available patents on plant-related materials that are not protected by UPOV. **Ascension to the 1991 UPOV will force many low- and middle-income TPP parties to trade away the rights of their farmers for the benefit of breeders—primarily large multinational corporations.**⁶⁰ **The plant-related IPRs set forth in the TPP also have the potential to harm food security.** Finally, implementation of the TPP's current plant IPR provisions will further bolster the expectation that developing nations protect breeders at the expense of their populations' food and farming security.

Public Citizen urges the TPP negotiators **to reconsider both versions** of the proposed language on plant IPRs. **Developing nations should neither be forced to make available patents on plants or plant-related inventions nor accede to the 1991 UPOV.** As the UN Special Rapporteur on the Right to Food recommends, states should be permitted to identify systems of intellectual property rights "best suited to their specific needs," and states should be "supported by independent and participatory human rights impact assessments, in order to inform their choices."⁶¹ No state should be forced to establish an intellectual property regime that goes beyond the minimum requirements of the TRIPS Agreement. By forcing parties to either grant patents on plants or plant-related inventions as well as accede to the 1991 UPOV, the TPP would do just that.

⁵⁸ De Schutter, *Report on Seed Policies*, *supra* note 39, at ¶ 18.

⁵⁹ BERNE DECLARATION, *supra* note 27.

⁶⁰ Singh, *supra* note 49, at 396 ("Data on the North American seed market revealed that in case of hybrid corn and soybean, top five companies account for 69% and 51% share, respectively. In case of cottonseed, Monsanto alone controls 84% of the market on account of its purchase of Delta and Pine Land.").

⁶¹ De Schutter, *Report on Seed Policies*, *supra* note 39, at ¶ 41; see G. Dutfield, *Making TRIPS work for developing countries*, in *DEVELOPING COUNTRIES AND THE WTO: POLICY APPROACHES* (G. Sampson & W. B. Chambers eds., 2008).