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Help Save the Seeds: A Call to Action for Local Governments to Introduce Legislation to Protect Community Seed Sharing, Libraries and Exchanges

by JORDYN ASHLEY BISHOP*

Abstract: This Note calls for local governments to enact legislation to protect noncommercial seed libraries and the human right to save and share seeds. Modern industrial agriculture, the promotion of genetically uniform crops, and the corporation consolidation of the seed industry have each contributed to the devastating loss of seed biodiversity over the last century, leaving global food production systems highly vulnerable to the impacts of climate change. To ensure food security in a changing climate, it is increasingly necessary to build and sustain ecologically resilient agricultural systems. Seed diversity is critical for providing sustainable, resilient, and adaptable food crops, and therefore diverse seed resources are critical for global food security in a warming climate. Unfortunately, what was once a free and renewable resource is now privatized and monopolized by a handful of multinational agrochemical corporations. These biotechnology corporations created intellectual property and patent laws to prevent farmers from saving and replanting seeds and criminalizes farmers when they do so. This Note argues that local legislators must institute a fundamental change by adopting a peoples-rights based food sovereignty approach to local seed resources. This Note calls on local policymakers to promote seed diversity and recognize the human right to save and share seeds by enacting or modifying seed laws to protect this long-standing and life-essential agricultural way of life.

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I. Background and Introduction

Seeds are incredibly vital to human life. For roughly 12,000 years, farming communities around the world have selected, replanted, saved, and shared seeds.¹ These longstanding traditional farming practices, and the traditional ecological knowledge² associated with them, considerably advanced the planet’s overall food crop diversity.³ By cultivating a larger selection of seed varieties and exchanging seeds among communities, humans navigated and adapted their crops to environmental challenges such as difficult soils, harsh climates, diseases, and pests.⁴ Our ancestors accomplished the vast

1. Humans began cultivating plants ten thousand to twelve thousand years ago during the transition from hunting and gathering to agriculture. Keith Aoki, *Seeds of Dispute: Intellectual-Property Rights and Agricultural Biodiversity*, 3 GOLDEN GATE U. ENVTL. L.J. 79, 82 (2009).

2. There are legal distinctions between the different terms and definitions, as well as disagreements regarding the overall concept of *traditional ecological knowledge*. For the purposes of this Note, traditional ecological knowledge is the knowledge and information of a given community (indigenous or nonindigenous including locally based farming communities) based on experience and adaptation to a local culture and environment, developed over time, used to sustain the community and its culture, and to maintain the environment and resources necessary for the continued survival of the community. Within an agricultural context, this includes communities who rely on traditional systems of production. See, e.g., Tesh Dange, *Protecting Traditional Knowledge in International Intellectual Property Law: Imperatives for Protection and Choice of Modalities*, 14 J. MARSHALL REV. INTELL. PROP. L. 25, 28–29 (2014); Marie Yasmin M. Sanchez, *Combating Biopiracy: Harmonizing The Convention on Biological Diversity and the WTO Treaty on TRIPS Related to Protection of Traditional Knowledge and Genetic Resources*, 57 ATENEO L.J. 142, 146 (2012).

3. Teresa Anderson & Christine Campeau, ECUMENICAL ADVOCACY ALLIANCE, *Seeds For Life: Scaling Up Agro-Biodiversity I* (2013).

4. *Id.*

majority of historical crop diversity improvement and made centuries of advances without any system of “innovation-promoting” intellectual property “protection” for the agricultural practices, seeds, or knowledge.⁵

Despite our ancestors’ accomplishments in agricultural biodiversity, a drastic change occurred over the last century. The expansion of modern industrial agriculture and the promotion of genetically uniform crops caused a devastating loss of biodiversity.⁶ An estimated 75 percent of the world’s food crop diversity was lost during 1900-2000,⁷ and in the United States a tragic 93 percent was lost over the course of 80 years.⁸ Corporate consolidation of the seed industry and the exertion of Western-capitalist concepts of property over seeds have also significantly contributed to the loss of biodiversity.⁹ Presently, the top three agricultural biotechnology corporations — Monsanto, DuPont, and Syngenta — own 53 percent of the global commercial seed market.¹⁰ These corporations succeeded in their intention to commodify seeds into private objects of profit-generating property and thereby established a monopoly over the most precious element of the food supply.¹¹ The resulting lack of diverse seed resources impedes upon the rights of farmers and their ability to deal with the effects of global

5. CTR. FOR FOOD SAFETY & SAVE OUR SEEDS, *SEED GIANTS VS. U.S. FARMERS* 4 (2013). [hereinafter CTR. FOR FOOD SAFETY].

6. Debbie Barker et al., CTR. FOR FOOD SAFETY & SAVE OUR SEEDS, *History of Seed in the U.S. The Untold American Revolution* 3 (2012). After World War II, the United States government significantly subsidized the domestic agricultural sector and encouraged a rapid transition from small-scale farming to large-scale industrial agriculture. Carmen G. Gonzalez, *The Global Food System, Environmental Protection, and Human Rights*, 26 WTR NAT. RESOURCES & ENV’T 7 (2012). The nerve agents and explosives used in the war were reformulated to become chemical pesticides/fertilizers and corporations quickly moved into the agrochemical and seed industry, seeking to profit from the world’s millions of farmers. Anderson & Campeau, *supra* note 3, at 2. The resulting “Green Revolution” resulted in genetically uniform, high-yielding crops but the seeds for these crops require massive amounts of pesticides and fertilizers. *Id.* To illustrate, almost all genetically engineered seeds are sold by Monsanto and are resistant to the herbicide glyphosate, marketed as Roundup Ready. BARKER, *supra* note 6, at 3. Roundup Ready and the glyphosate-resistant seeds are sold together to the world’s farmers as a highly profitable, packaged system. *Id.* Although the Green Revolution increased global food production, it perpetuated overall food insecurity because only wealthy farmers could afford the agrochemicals and fertilizers needed to produce the high yields. Gonzales, *supra* note 6, at 7. The livelihood of millions of small farmers were destroyed and those who survived were forced to transition onto a dependence on costly seeds, fertilizers and pesticides manufactured by the multinational biotechnology corporations. *Id.*

7. ANDERSON & CAMPEAU, *supra* note 3, at 2.

8. BARKER, *supra* note 6, at 3.

9. Allyson Martin, *Seed Savers v. Monsanto: Farmers Need a Victory for Wilting Biodiversity*, 24 DEPAUL J. ART, TECH. & INTELL. PROP. L. 95 (2013).

10. CTR. FOR FOOD SAFETY & SAVE OUR SEEDS, *supra* note 5, at 2. The top ten seed corporations own 73 percent. *Id.*

11. *See id.*

warming because diverse seed resources are increasingly critical for food security¹² in a changing climate.¹³

Today, traditional farming practices (saving and cultivating seed diversity, sharing and exchanging seeds, and the associated traditional ecological knowledge) are at odds with corporate interests and investments from the biotechnological agricultural industry.¹⁴ Corporate concepts of intellectual property have eviscerated a farmer's right to save and replant seeds.¹⁵ From a human rights perspective, the right to save and share seeds is a way of life known to humans for thousands of years and it should not be subdued to the benefit of corporate profits.¹⁶ Criminalizing farmers for saving and replanting seed, an act performed for upwards of 10,000 years, is a deeply concerning human rights violation.¹⁷ The good news is that when presented with the truth, most people reject the idea that a corporation can own a seed and create laws that prevent farmers from saving and replanting seeds from harvests.¹⁸ Nevertheless, this repugnant idea reflects the current legal and policy framework in the United States and Western countries, and it is increasing and expanding at a frightening pace.

As a much-needed alternative to the current corporate domination of the food supply, grassroots organizations around the globe are mobilizing and fighting for food justice, food sovereignty, and food security. The food justice movement melds economic, social, and environmental justice values with ecological sustainability.¹⁹ One of the foundational missions of the movement is to protect the human right to save and share seed.²⁰ Through the establishment and operation of seed libraries and other noncommercial shares

12. Food security is "a situation that exists when all people, at all times, have physical, social, cultural, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life." Liza Guerra Garcia, *Free the Land: A Call for Local Governments to Address Climate Change-Induced Food Security in Environmental Justice Communities*, 41 WM. MITCHELL L. REV. 572, 593 (2015) (citations omitted).

13. Mary Jane Angelo & Joanna Reilly-Brown, *Whole-System Agricultural Certification: Using Lessons Learned from Leed to Build A Resilient Agricultural System to Adapt to Climate Change*, 85 U. COLO. L. REV. 689, 693 (2014). See also discussion *infra* Section II.

14. See MARTIN, *supra* note 9, at 97.

15. Justin T. Rogers, *The Encroachment of Intellectual Property Protections on the Rights of Farmers*, 15 DRAKE J. AGRIC. L. 149, 162 (2010).

16. See *id.*

17. See, e.g. BARKER, *supra* note 6, at 8.

18. LA VIA CAMPESINA AND GRAIN, SEED LAWS THAT CRIMINALIZE FARMERS: RESISTANCE AND FIGHTBACK 6 (2015).

19. Devon Peña & Miguel Robles, *Welcome Letter to 4th Annual Justice Begins with Seeds Conference*, ENVIRONMENTAL AND FOOD JUSTICE BLOG (Sept. 9, 2014), <http://ejfood.blogspot.com/2014/09/justice-begins-with-seeds-4th-gathering.html>.

20. See, e.g., ANDERSON & CAMPEAU, *supra* note 3, at 9.

and exchanges, communities are organizing and mobilizing to protect the fundamental right to save and share seeds, and to enhance the seed diversity in their regions.²¹

Seed libraries and exchanges promote the right to save and share seed, and simultaneously help cultivate seed biodiversity, which is becoming increasingly necessary to ensure food security in a rapidly changing climate.²² These noncommercial practices, reflective of thousands of years of traditional systems, can increase the diversity of seed resources because biodiversity progresses through the exchange of local heirloom varieties, and seed libraries provide a forum for this type of exchange.²³ This Note argues that local legislators should adopt laws and policies that reflect a food sovereignty/food justice approach to local seed sharing practices. Specifically, this Note argues that legislators should enact or modify seed laws to: (1) define the term “sell” so that noncommercial seed sharing, libraries, and exchanges are not interpreted as “selling” seed (which can trigger the expensive and burdensome labeling, testing, and/or permitting requirements) and (2) allow for noncommercial seed sharing, exchanges and libraries by expressly excluding these activities from any labeling, testing, and permitting requirements that are intended for commercial seed businesses.²⁴

Section II addresses the increasing necessity of seed diversity to deal with the impacts of global warming on agricultural crop production. Section III explains the history of intellectual property laws over seeds in the United States and Section IV discusses the consequences. Section V highlights the lack of legal recourse for accessing and protecting diverse seed resources within international frameworks. Section VI describes and promotes food sovereignty and food justice values and approaches, and then concludes by describing and arguing for the legislative protection of noncommercial seed sharing, libraries, and exchanges.

II. The Increasingly Critical Importance of Seed Diversity

Climate change is the most significant and urgent crisis facing the world today. A March 2016 study suggests that the effects of global warming are

21. See Cat Johnson, *US Seed Libraries Mobilize to Protect Their Right to Share*, SHAREABLE (Sept. 8, 2014), <http://www.shareable.net/blog/us-seed-libraries-mobilize-to-protect-their-right-to-share>.

22. *Id.*

23. *Id.*

24. See, e.g., *CA Seed Exchange Democracy Act*, SUSTAINABLE ECONOMIES LAW CENTER http://www.theselc.org/seed_democracy_act (last visited Apr. 2, 2016) (describing the main changes proposed by California’s Assembly Bill 1810 which seeks to clear the legal grey areas in which seed libraries operate).

approaching quicker and will occur with more catastrophic impact than originally envisioned.²⁵ The time to act is now. The relationship between the food production system and global warming is complex.²⁶ On one hand, the current industrial agricultural system is highly fossil-fuel intensive and a significant contributor to the earth's warming climate.²⁷ On the other hand, the impacts of climate change are already causing negative impacts on global food crop production, with particularly disproportionate impacts on poor, rural, and indigenous communities.²⁸ Domestically, severe droughts and wildfires are ravaging the Western and Midwest (i.e., the U.S. food basket).²⁹

According to the U.S. Global Research Program, the most recent decade was earth's hottest on record.³⁰ In addition to rising temperatures, the entire planet is watching icebergs melt, sea levels rise, changes in rainfall, heat waves, droughts, "and an overall increase in frequency and intensity of weather events that are directly or indirectly linked to climate change."³¹ As we move forward in a warming climate, these impacts will continue in size and scale, significantly impacting worldwide food production and overall food insecurity.³² It is urgent that all geographic regions build local, equitable, and sustainable food production systems.³³

The decimation of the planet's seed diversity makes it difficult for the current food production system to deal with the effects of global warming.³⁴ The industrial agricultural production system is extremely vulnerable to the widespread ecosystem changes that are accompanying climate change.³⁵ The Green Revolution³⁶ transformed local, small-scale agricultural systems into large-scale commercial monocultures where more than half of the world's

25. James Hansen et al., *Ice Melt, Sea Level Rise and Superstorms: Evidence from Paleoclimate Data, Climate Modeling, and Modern Observations That 2°C Global Warming Could be Dangerous*, 16 *ATMOS. CHEM. PHYS.* 3761 (2016).

26. ANGELO & REILLY-BROWN, *supra* note 13, at 693.

27. The industrial food system is estimated to contribute 44 percent to 57 percent of all global greenhouse gas emissions, GRAIN, *FOOD AND CLIMATE CHANGE: THE FORGOTTEN LINK 4* (2011).

28. Intergovernmental Panel on Climate Change Fifth Assessment Report, *Climate Change 2014: Impacts, Adaptation, and Vulnerability, Summary for Policy Makers* 6 (Christopher B. Field et al., eds. 2014), http://ipcc-wg2.gov/AR5/images/uploads/WG2AR5_SPM_FINAL.pdf.

29. GARCIA, *supra* note 12, at 578.

30. *Id.* at 577.

31. *Id.*

32. *Id.*

33. *Id.*

34. ANGELO & REILLY-BROWN, *supra* note 13, at 693.

35. *Id.* at 700.

36. *See supra* text accompanying note 6.

current calorie intake is from just three plant species.³⁷ Monocultures, the recent homogenization of food sources into genetically uniform crops, has been coined the “plague of sameness.”³⁸ This kind of reliance on a very few homogenous food sources leaves many populations at risk of catastrophic food shortages due to the genetic vulnerability of the food supply.³⁹

Genetic vulnerability will affect the volume and quality of global food production as agricultural systems around the world struggle to adapt to their changing climates.⁴⁰ If one of the monocultured food sources undergoes failure from weather, disease, or predation, widespread malnutrition or starvation could result.⁴¹ In the United States, environmental justice communities will bear the most significant impacts.⁴² Globally, the poorest developing nations and most vulnerable nations will experience the most significant threats.⁴³ This is particularly upsetting because the developing world and indigenous groups are not significant contributors to global warming and yet they will nevertheless suffer the consequences.⁴⁴

Plant genetic resources for food and agriculture are the “biological cornerstones” of global food security.⁴⁵ Genetic biodiversity among seed resources is vital for adapting global crop production to the effects of climate change.⁴⁶ Diverse species, varieties, and cultivation practices are necessary for crop growth across a wide range of environments.⁴⁷ The challenge in the immediate and urgent future is to maintain good matches between crops and their respective production environments as the effects of climate change increase.⁴⁸ To ensure food security for a growing global population in

37. ANDERSON & CAMPEAU, *supra* note 3, at 2.

38. MARTIN, *supra* note 9, at 118.

39. Scott C. Lucas, *Halting the Downward Spiral of Monoculturation and Genetic Vulnerability: Toward A Sustainable and Biodiverse Food Supply*, 17 J. ENVTL. L. & LITIG. 161, 162 (2002); *see also* Rogers, *supra* note 15, at 161 (discussing how terminator technology, where seeds are engineered to prevent them from reproducing, “poses an enormous threat” because by patenting plants which kill their own embryos, the corporate seed companies are destroying a life-essential function of reproduction).

40. ANGELO & REILLY-BROWN, *supra* note 13, at 700.

41. LUCAS, *supra* note 39, at 162.

42. GARCIA, *supra*, note 12, at 585–87.

43. ANGELO & REILLY-BROWN, *supra* note 13, at 704.

44. Carmen G. Gonzalez, *Climate Change, Food Security, and Agrobiodiversity: Toward A Just, Resilient, and Sustainable Food System*, 22 FORDHAM ENVTL. L. REV. 493, 512 (2011).

45. FOOD & AGRIC. ORG. [FAO], COPING WITH CLIMATE CHANGE – THE ROLES OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE V, 9 (2015).

46. *Id.* at xvii.

47. *Id.* at ix.

48. *Id.* at 13.

changing climate, it is increasingly necessary to build and sustain ecologically resilient agricultural systems that contain the biodiversity necessary to enhance each particular ecosystem's ability to adapt to new and changing climate conditions.⁴⁹ Seed diversity is critical for providing sustainable, resilient, and adaptable food crops and therefore seed diversity is critical for global food security in a changing climate.⁵⁰

III. History of United States Intellectual Property Laws Over Seeds

In the United States, there is currently no law that recognizes the inherent right of farmers to save seed.⁵¹ Traditional farming practices, including seed saving and sharing, are “continually undercut by the ever-expanding reach of intellectual property laws on genetically modified crop varieties.”⁵² Legislators around the globe have folded to the biotech seed corporations' aggressive legal and lobbying tactics and have enacted an array of laws to protect corporate interests over seeds.⁵³ In the United States, the commercialization, consolidation, and privatization of seed resources was accomplished by way of patent and intellectual property laws promoted by the biotech industry.⁵⁴

In 1930, Congress passed the Plant Protection Act (PPA), which established a patent system for asexually propagated plants, that is, plants that reproduce via budding, cutting, and grafting.⁵⁵ Significantly, Congress purposefully excluded all sexually reproduced plants (i.e., seed producing plants) as these seed varieties composed the majority of the nation's food

49. BARKER, *supra* note 6, at 11.

50. *Id.*

51. Rogers, *supra* note 15, at 158.

52. *Id.*

53. Ever since the establishment of the World Trade Organization (WTO), almost every country in the world has passed laws giving corporate ownership over life forms. LA VIA CAMPESINA AND GRAIN, *supra* note 18, at 4.

54. Although this Note uses the United States as an example, it must be noted that corporate seed domination is a global crisis. The United States, on behalf of multinational corporations, is a major actor internationally and has made significant attempts (often successful) to promote the privatizing and commodification of seeds on the international level (e.g., recent Trans-Pacific Partnership). See, e.g., Debra M. Strauss, *The Application of TRIPS to GMOs: International Intellectual Property Rights and Biotechnology*, 45 STAN. J. INT'L L. 287, 295 (2009).

55. 35 U.S.C. § 161 (2015). This law did not arise because of new technologies, but because of political pressure from nursery companies trying to protect their market share in asexually reproduced plants (such as fruit trees). See Aoki, *supra* note 1, at 89. The American Seed Trade Association lobbied to amend the PPA to have sexually reproduced plants (seeds) included, but it was ultimately unsuccessful. Rogers, *supra* note 15, at 154.

crops (e.g., wheat, corn, rice, and soy).⁵⁶ Seemingly, it was common sense that private companies should not be trusted with a monopoly control over the very source of the food supply.⁵⁷

Unfortunately, this necessary seed exclusion did not remain intact for long. In 1970, Congress began eroding fundamental rights to seed resources by passing the Plant Variety Protection Act (PVPA).⁵⁸ The PVPA authorized the United States Department of Agriculture (USDA) to grant Certifications of Plant Variety Protection (PVP Certificates) for novel sexually reproduced plant varieties grown from seed.⁵⁹ Notably, under these first PVP Certificates, farmers were granted a critical exemption that allowed them to save and replant the “protected” seed.⁶⁰ Although the PVPA opened the door for the privatization of seeds, Congress at the time still recognized the fundamental and long-standing human right to save and replant seeds.⁶¹

A critical shift came in the 1980 United States Supreme Court landmark case, *Diamond v. Chakrabarty*.⁶² Setting a troublesome and controversial precedent, the high Court held in a 5-4 decision that a living organism was patentable.⁶³ Ananda Chakrabarty applied for a utility patent for a bacterium and the United States Patent Trade Office (USPTO) rejected the application on grounds that living things were not patentable.⁶⁴ Both the Board of Patent Appeals and Inferences, and the Court of Customs and Patent Appeals upheld the decision.⁶⁵ In reversing, the Supreme Court held that the living, human-made bacterium was patentable because it was a product of creative human agency containing characteristics “markedly different” from those found in nature and possessed potential for significant utility.⁶⁶

Although the Court had decided that a genetically modified organism was patentable, the question remained as to whether this holding was

56. CTR. FOR FOOD SAFETY & SAVE OUR SEEDS, *supra* note 5, at 4.

57. *Id.*

58. 7 U.S.C. § 2544 (2015).

59. *Id.*

60. *Id.*

61. BARKER, *supra* note 6, at 14.

62. *Diamond v. Chakrabarty*, 447 U.S. 303, 317-318 (1980).

63. *Id.* at 310. Up until that point, the PPA and PVPA enactments, and more importantly the exemptions within, were understood by some as a reflection of Congress’ understanding that living things cannot be patented by way of “manufacturing” them somehow, or otherwise changing the “composition of matter.” Martin, *supra* note 9, at 107.

64. *Diamond*, 447 U.S. at 306.

65. *Id.*

66. *Id.* at 310.

applicable to patents for plant varieties.⁶⁷ A short five years later, *Ex parte Hibberd* answered the question in the affirmative.⁶⁸ In *Hibberd*, a USPTO examiner rejected a patent application for a maize plant containing high levels of tryptophan on grounds that the PVPA precluded granting a utility patent for plant matter.⁶⁹ The U.S. Board of Patent Appeals and Inferences disagreed with the examiner's decision, noting that the PVPA did not expressly exclude any plant from being utility patent subject matter.⁷⁰ However, unlike the first PVP Certificates, these utility patents made it legal for corporate patent holders to deny farmers the right to save and replant their seed.⁷¹

IV. Consequences of United States Intellectual Property Laws Over Seeds

After *Diamond v. Chakrabarty*, the floodgates were open for corporations to gain ownership and control over plant and seed varieties.⁷² Companies raced to patent different genetic resources and technologies and to acquire other existing seed companies.⁷³ The modern day "Gene Giant" Goliath, commonly known as the agricultural biotechnological industry, was created through the rapid acquisition of existing seed companies by chemical and pesticide companies such as Monsanto, DuPont, Syngenta, and Dow.⁷⁴ These Gene Giants acquired and consolidated at least 200 seed companies from 1996-2009.⁷⁵ The top ten seed corporations now own 73 percent of the global seed market.⁷⁶ What used to be a free and renewable resource for food production and food security has tragically become another monopolized and corporate-owned commodity.⁷⁷

67. ROGERS, *supra* note 15, at 154.

68. *Ex parte Hibberd*, et al., No. 645-91.227 (B.P.A.I, Sept. 24, 1985).

69. *Id.*

70. *Id.*

71. ROGERS, *supra* note 15, at 154. The Supreme Court subsequently affirmed the administrative adjudication of *Hibberd* and the overall practice of granting utility patents for plants in *J.E.M. Ag. Supply v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 127 (2001), which upheld a utility patent protection for a hybrid plant (versus a genetically modified plant).

72. ROGERS, *supra* note 15, at 154.

73. CTR. FOR FOOD SAFETY & SAVE OUR SEEDS, *supra* note 5, at 5.

74. *Id.* The global biotech market currently produces \$5.5 billion per year. Strauss, *supra* note 54, at 289.

75. CTR. FOR FOOD SAFETY & SAVE OUR SEEDS, *supra* note 5, at 5.

76. *Id.*

77. *See, e.g., id.*

Intellectual property rights over seeds contributes to the continued erosion of remaining biodiversity⁷⁸ and has also eradicated the farmer's right to save seeds.⁷⁹ Every time a farmer replants a saved seed, the corporation has lost a profit; thus, to protect their revenues, agrochemical corporations fashioned patent laws to restrict farmers from saving their seeds, forcing farmers to buy new seed every single season.⁸⁰ On an international level, the transnational Gene Giants use trade and investment agreements to impose seed laws that are favorable to the industry.⁸¹ When these intellectual property laws are enforced, the results are appalling. Seeds are confiscated and destroyed, farmers are targeted and put under surveillance, and some even face criminal charges and jail sentences for replanting seeds.⁸² As a result, farmers are effectively unable to choose which seeds to purchase and plant.⁸³

This corporate-driven degradation of choice and access to diverse seed resources is in direct contradiction to the traditional seed saving and sharing practices by humans for over ten thousand years. In discussing what she calls a "food dictatorship," Dr. Vandana Shiva warns:

The biggest corporate takeover on the planet is the hijacking of the food system, the cost of which has had huge and irreversible consequences for the Earth and people everywhere. From the seed to the farm to the store to your table, corporations are seeking total control over biodiversity, land, and water. They are seeking control over how food is grown, processed, and distributed. And in seeking this total control, they are destroying the Earth's ecological processes, our farmers, our health, and our freedoms.⁸⁴

Dr. Vandana Shiva calls for action to "Occupy Our Food Supply" in order to fight back against the multinational corporations who are relentlessly attacking and destroying our seeds, soils, water, land, climate, and

78. AOKI, *supra* note 1, at 159.

79. ROGERS, *supra* note 15, at 162.

80. *Id.* Monsanto actually wrote the World Trade Organization (WTO) treaty on Intellectual Property, which forces countries to patent seeds. Dr. Vandana Shiva, *Occupy of Food Supply!* GRIST BLOG (Feb. 26, 2012), <http://grist.org/sustainable-food/dr-vandana-shiva-occupy-our-food-supply>. See also *supra* text accompanying note 54.

81. LA VIA CAMPESINA AND GRAIN, *supra* note 18, at 8.

82. *Id.* See also ROGERS, *supra* note 15, at 163 ("Monsanto, a single corporate seed-giant, has filed more than 475 seed piracy lawsuits against farmers for violations of seed-license agreements.")

83. See MARTIN, *supra* note 9, at 113.

84. SHIVA, *supra* note 80.

biodiversity.⁸⁵ Contrary to what the Gene Giants would have the public believe, there are alternatives that protect the planet, protect the farmers, and protect food and other natural resources.⁸⁶ In order to occupy the food supply, communities must simultaneously resist corporate control and build sustainable and just alternatives.⁸⁷

V. No Recourse Under International Law for “Top-Down” Protection Over Seed Resources

Pursuant to Article 25 of the Universal Declaration of Human Rights, the right to food is a fundamental human right.⁸⁸ This fundamental human right to food has been recognized since the inception of the international rights regime.⁸⁹ Unfortunately, international attempts to address global planet biodiversity and global corporate seed control have failed to protect the right to seed resources, particularly thanks to the United States.⁹⁰ In short, there is a stark “disconnect” between Western conceptions of ownership and traditional attitudes toward genetic resources, which contributes to the lack of “global consensus . . . over who owns plant resources and what rights should be accorded . . .”⁹¹

There are over 300 international legal documents that aim to support various aspects of sustainable development.⁹² One of the most well-known and accepted of these is the Convention of Biological Diversity (CBD).⁹³ Part of this legal instrument discusses access to and benefit sharing from genetic resources, including food genetic resources (i.e., seeds).⁹⁴ In 2010, the international community met to specifically discuss this aspect of the CBD and the resulting document was the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their

85. *Id.* (“Forty percent of the greenhouse gases that are destabilizing the climate right now come from corporate industrial agriculture. Seventy percent of water is wasted for industrial agriculture. Seventy-five percent of biodiversity has been lost due to industrial monocultures.”).

86. *Id.*

87. *Id.*

88. G.A. Res. 217 (III) A, Universal Declaration of Human Rights (Dec. 10, 1948).

89. GONZALEZ, *supra* note 6, at 7.

90. *See* AOKI, *supra* note 1, at 159.

91. Katherine A. Kelter, *Pirate Patents: Arguing for Improved Biopiracy Prevention and Protection of Indigenous Rights Through A New Legislative Model*, 47 SUFFOLK U. L. REV. 373, 380 (2014).

92. Dr. Konstantia Koutouki & Katharina Rogalla von Bieberstein, *The Nagoya Protocol: Sustainable Access and Benefits-Sharing for Indigenous and Local Communities*, 13 VT. J. ENVTL. L. 513, 513–14 (2012).

93. *Id.*

94. *Id.*

Utilization.⁹⁵ Although the Nagoya Protocol did improve some of the shortcomings of the CBD's access and benefits-sharing provisions, the protocol otherwise fails to protect traditional knowledge and local control of genetic resources.⁹⁶ With over 70 percent of remaining global biological or genetic resources located in indigenous and local communities,⁹⁷ the increasing removal of these resources through biotechnological privatization and control only exacerbates the disparity between public and private access to these resources.⁹⁸ As such, for the protection of seed diversity and the right to share seed, "the Nagoya Protocol disappoints."⁹⁹

Biotechnological companies have fought vigorously for the adoption and enforcement of intellectual property rights over seeds in the international community.¹⁰⁰ These corporate interests, "and the pressure exerted internationally by the U.S. government on their behalf, resulted in the 1994 Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), a treaty that is generally recognized as the most robust embodiment of intellectual property rights."¹⁰¹ The World Trade Organization (WTO) mandates that any country wanting to join the organization must accept the terms of TRIPS, which is "intended to 'reduce distortions and impediments to international trade.'"¹⁰² In other words, TRIPS was created for the purpose of breaking down actual and potential barriers to transnational corporate profit generation. TRIPS requires protections for Western conceptions of property rights under a Western patents system by imposing minimum protection standards and placing the burden of creating an appropriate patenting systems on poor and underdeveloped nations.¹⁰³ TRIPS forces such nations to bend to corporate interests by requiring them to recognize the

95. U.N. Convention on Biodiversity, *Nagoya Protocol on Access and Benefit Sharing* (Oct. 29, 2010).

96. Koutouki & Rogalla von Bieberstein, *supra* note 92, at 535.

97. *Id.*

98. STRAUSS, *supra* note 54, at 298.

99. Koutouki & Rogalla von Bieberstein, *supra* note 92, at 535. The United States is not a signatory to the Nagoya Protocol and although "[t]he International Treaty on Plant Genetic Resources for Food and Agriculture provides similar protections . . . [it] falls subject to the same perils of the CBD, however, because it also provides protection subject to national legislation and the United States has not ratified the treaty." Shannon F. Smith, *All Hands on Deck: Biopiracy & the Available Protections for Traditional Knowledge*, 10 J. ANIMAL & NAT. RESOURCE L. 273, 285 (2014).

100. STRAUSS, *supra* note 54, at 290.

101. *Id.*

102. Smith, *supra* note 99, at 283.

103. *Id.*

biotechnology industry's patents over life forms, including seeds.¹⁰⁴ Thus, there is a blatant lack of protection for seed biodiversity and seed sharing under TRIPS.

The effect of a "post-TRIPS regime" of intellectual property rights has amplified the incentive for commercialization and privatization of *existing* life forms, "instead of promoting inventions and creativity."¹⁰⁵ This directly "runs against the conventional justification of patents — that protection is needed to reward individuals who come up with innovations and creations that do not previously exist."¹⁰⁶ Thus, the true effect of intellectual property rights over seeds is the continuance of corporate commercialization and increasing the industry's profits. This is clearly "distinguishable from, and should not be conflated with, the promotion of inventiveness and creativity."¹⁰⁷ In regards to seed patents, these incentives are devastating because, as we have seen, "research and development on drought resistant, nutritive, and genetically diversified crop varieties" has dramatically shifted to research and development of "homogenous pesticide- and herbicide-dependent varieties of GM crops that are suitable" and profitable for the Gene Giants.¹⁰⁸

With the lack of international protection over seeds, the potential for biopiracy increases.¹⁰⁹ Biopiracy is the "appropriation of the knowledge and genetic resources of farming and indigenous communities by individuals or institutions who seek exclusive control (patent or intellectual property) over these resources and knowledge."¹¹⁰ Biopiracy is a violation of CBD provisions, including the Nagoya Protocol; however, TRIPS and U.S. patent law has allowed and even facilitated biopiracy both domestic and abroad.¹¹¹ This misappropriation furthers the inequitable and unjust profit and resource distribution between multinational corporate interests and poor, vulnerable farming nations and communities "because the claimed inventions are most often based on [traditional knowledge] of the medicinal and agricultural value of the product that [indigenous and local communities] acquired, maintained,

104. *Id.*

105. Tesh Dange, *Protecting Traditional Knowledge in International Intellectual Property Law: Imperatives for Protection and Choice of Modalities*, 14 J. MARSHALL REV. INTELL. PROP. L. 25, 35 (2014) (emphasis added).

106. *Id.*

107. *Id.*

108. *Id.*

109. *Id.*

110. Vanessa Danley, *Biopiracy in the Brazilian Amazon: Learning from International and Comparative Law Successes and Shortcomings to Help Promote Biodiversity Conservation in Brazil*, 7 FLA. A & M U. L. REV. 291, 292 (2012).

111. *Id.* at 293.

and preserved through inter-generational processes of knowledge production and practice.”¹¹²

Unfortunately, a proper discussion of the complex relationship among biopiracy, international agreements, and transnational corporate interests is beyond the scope of this Note. Nevertheless, it is important to understand that the international attempts to protect the biodiversity of seed resources has been largely unsuccessful due to the steadfast efforts and global strong-arm reach of the multinational biotechnological corporate regime.

IV. Equitable and Sustainable Alternative Approaches from the “Ground Up”

A. Food Justice, Food Sovereignty, Food Security

While the top-down international approaches to protect seed resources may have failed to date, grassroots approaches built from the ground up are deeply committed and engaged in the fight for food justice and food security. The food justice movement is more than a set of non-GE seed struggles.¹¹³ The food justice movement “melds economic, social, and environmental justice values with ecological sustainability; sound public health policies for clean air, water, and food conjoined with a return to wholesome heritage cuisines; all of which are buttressed by wise equity-minded investments in radical (*qua* transformative) social entrepreneurship.”¹¹⁴ As food security becomes more elusive in a changing climate, it becomes increasingly critical for governments to consider the human rights associated with food policies, beginning with equitable access to necessary natural resources for sustainable agriculture, including seeds.

A discussion of food justice is incomplete without acknowledging the transnational agrarian movement known as La Vía Campesina, and the movement’s contributions to an alternative conception of human rights.¹¹⁵ La Via Campesina was developed in the early 1990s so that peasants and small-scale farmers from all around the globe could articulate a common response to the rising corporate food regime.¹¹⁶ La Via Campesina created and defined the concept of “food sovereignty” as a fundamental *collective* human right and “the right of each nation to maintain and develop its own capacity to

112. DANGE, *supra* note 105, at 36.

113. PEÑA & ROBLES, *supra* note 19.

114. *Id.*

115. See Priscilla Claeys, FROM FOOD SOVEREIGNTY TO PEASANTS’ RIGHTS: AN OVERVIEW OF VIA CAMPESINA’S STRUGGLE FOR NEW HUMAN RIGHTS, LA VIA CAMPESINA 2 (2013).

116. *Id.*

produce its basic foods respecting cultural and productive diversity.”¹¹⁷ The use of human rights to frame a social movement has many advantages because it “does not emphasize particular or sectorial interests.”¹¹⁸ A human rights framing “facilitates the integration of multiple ideologies” and helps unify movements with “divergent ideological, political, or cultural references.”¹¹⁹ Through the food sovereignty movement, La Via Campesina is developing a new conception of rights that emphasizes the collective dimension over the individual one.¹²⁰ By fighting for the right of *peoples* to food sovereignty, the movement targets the multiple levels in need of addressing food and agricultural political concerns and provides the tools to fight neoliberalism¹²¹ and capitalist forces in agriculture through local, autonomous, and equitable food systems.¹²² Since its inception, the food sovereignty movement has evolved considerably and developed into a worldwide *peoples-rights* based movement that has spread to almost all geographic regions.¹²³ The food sovereignty movement articulates viable, sustainable, and equitable alternatives to the current food dictatorship exerted upon the planet by the multinational biotechnology corporations.

However, there are noteworthy challenges to framing a social movement on human rights.¹²⁴ First, the contemporary international human rights model is “dominated by a Western, liberal, and individualist conception of rights.”¹²⁵ Furthermore, international models are often “built around the obligations of states and fail to adequately address the human rights responsibilities of private and transnational actors.”¹²⁶ These challenges help to explain why La Via Campesina has not used the existing universally recognized human rights, such as the right to food under the Universal Declaration of Human Rights, to frame its movement.¹²⁷ These concerns also help to explain why the international attempts discussed above were ineffective in addressing the

117. *Id.* at 3.

118. *Id.* at 2.

119. *Id.*

120. *Id.*

121. Neoliberalism is “a theory of political economic practices that proposes that human well being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade.” DAVID HARVEY, OXFORD UNIVERSITY PRESS, A BRIEF HISTORY OF NEOLIBERALISM 2 (2007).

122. CLAEYS, *supra* note 115, at 2.

123. *Id.*

124. *Id.* at 6.

125. *Id.* at 2.

126. *Id.*

127. *Id.*

protection of seed biodiversity.¹²⁸ Conceptions of human rights also typically rely on “top-down social change,” and therefore this framing is generally “at odds” with grassroots mobilization, which is built from the ground up.¹²⁹ Lastly, claims for human rights usually demand some sort of codification in law and the underlying potential for recognizing human rights is typically “wilted away” in the legislative process.¹³⁰

B. Sustainable Agriculture

In order to accomplish sustainable production systems for the planet’s food supply, “profound changes in the way that people think about the rights of people” is required.¹³¹ A just and equitable food system requires “localized food production that meets the needs of food insecure populations without harming the natural resource base upon which food production depends” and “democratic national and local control over food production, distribution, and marketing in ways that are socially just and ecologically sustainable.”¹³²

Contrary to the false promises made by the Gene Giants, a sustainable agricultural approach is not only a possible alternative; it is a superior alternative to the existing industrial system.¹³³ Promoting a sustainable agricultural system that is based on increasing the biodiversity of food crops will also facilitate a decrease in chemical inputs and the intensity of fossil-fuel use, because (unlike the GMO monocultures) biodiverse, heirloom seeds are not bred to rely on chemical fertilizers and fossil fuel intensive products and processes.¹³⁴ Thus, while the modern industrialized agricultural system is one of the largest sources of greenhouse gases, a small-scale, sustainable, agro-ecology approach to agriculture can play a significant role in mitigating and adapting to climate change.¹³⁵ In response to the concerns for global food production yields, the Special Rapporteur on the Right to Food for the United Nations recently reported that small farmers can double food production in the next 10 years in the regions of the world plagued by food insecurity by shifting to sustainable, agro-ecological methods.¹³⁶

128. See *supra* text accompanying Section IV.

129. CLAEYS, *supra* note 115, at 2.

130. *Id.*

131. LUCAS, *supra* note 39, at 191.

132. *Id.*

133. *Id.*

134. *Id.* at 196.

135. *Id.*

136. Oliver de Schutter (Special Rapporteur on the Right to Food), *Agro-Ecology and the Right to Food*, U.N. Doc. A/HRC/16/49 (December 20, 2010).

Sustainable agriculture, which depends on seed diversity, can also simultaneously promote and protect agrobiodiversity.¹³⁷ Global food sovereignty advocates all agree that the best way to defend seeds and the practice of saving and sharing them is to continue to grow them, nurture them, save them, and exchange them in every locality.¹³⁸ Keeping these traditional practices alive is the best way to keep seed diversity alive and growing.¹³⁹

C. Protecting Seed Sharing Through Local Legislation

Sharing seeds is an easy and effective place to start building a sustainable food system “because seeds by their nature almost beg to be shared.”¹⁴⁰ For example, one tomato plant can produce over 500 seeds, each of which could subsequently be planted in 500 different gardens the next season.¹⁴¹ Expanding on this, imagine that 100 households each grow five crops and share their seeds with their neighbors, it is quickly illustrated how the multiplying effect of community-based seed sharing could have a positive effect on local seed diversity and food crop sustainability.¹⁴²

Seed libraries, seed exchanges, and other noncommercial seed sharing practices have recently emerged as a way to promote and protect the practice of saving and sharing humanity’s most precious and vital food resource.¹⁴³ Seed libraries are community-based spaces — often just a designated corner in a public library — that operate by giving away seeds to the community with the understanding that members will later harvest their seeds and return some back to the library.¹⁴⁴ For small-scale community members and farmers, this is an extremely necessary alternative to the Gene Giant’s monopoly over seed resources and the corresponding laws that require farmers to purchase new GMO seeds and chemical fertilizers each season.¹⁴⁵ Thus, seed libraries promote the human right to share and save seed, and simultaneously strengthen the community’s access to an alternative source of

137. GONZALEZ, *supra* note 44, at 513.

138. LA VIA CAMPESINA AND GRAIN, *supra* note 18, at 44.

139. *Id.*

140. Neil Thapar, *3 Ways Seeds Can Democratize Our Food System*, SHAREABLE (Nov. 30, 2015), <http://www.shareable.net/blog/3-ways-seeds-can-democratize-our-food-system>.

141. *Id.*

142. *Id.*

143. JOHNSON, *supra* note 21.

144. Janelle Orsi and Neil Thapar, *Setting the Record Straight on the Legality of Seed Libraries*, SHAREABLE (Aug. 11, 2004), <http://www.shareable.net/blog/setting-the-record-straight-on-the-legality-of-seed-libraries>.

145. *Id.*

locally-adapted and heirloom varieties.¹⁴⁶ By saving seeds from season to season and sharing them through libraries and exchanges, local communities can help rebuild the genetic biodiversity of available seed resources.¹⁴⁷

Seed libraries are currently gaining strength as one small building block toward sustainable agriculture. In 2010, there were only 12 seed libraries in the U.S., but now there are over 300 and counting.¹⁴⁸ Currently, a number of these seed libraries are operating in a “legal grey area” because of the “nuances” of state laws that mandate testing and labeling requirements in order to “sell” seeds.¹⁴⁹ Some of these state laws exist for good reason because they protect large-scale farmers “whose livelihoods depends on access to quality seeds.”¹⁵⁰ However, for small-scale farmers and neighbors — whose ancestors have been sharing seeds for thousands of years — these seed labeling and testing requirements are inappropriate, especially for seeds that come from a seed library.¹⁵¹ Right now the seed library movement is still in the beginning stages and a main priority is to educate “both the public and agricultural officials by making them aware of what seed libraries are, how they operate, and the fact that they are not a threat to agriculture or seed quality on a large scale.”¹⁵² One solution to protect seed libraries and address this legal grey area is for local officials to enact laws that clarify that the seed testing and labeling requirements for commercial seed providers do not apply to small, local noncommercial seed library operations and other noncommercial shares and exchanges.¹⁵³

Five states — Minnesota, Nebraska, California, Illinois, and Pennsylvania — have already enacted laws that specifically exempt noncommercial seed sharing from the state seed laws.¹⁵⁴ Local, grassroots efforts lead to the passing of the bills in each of these states.¹⁵⁵ In Nebraska, the Common Soil Seed Library led the campaign.¹⁵⁶ In Minnesota,

146. *Id.*

147. JOHNSON, *supra* note 21.

148. *Id.*

149. Orsi and Thapar, *supra*, note 144 (discussing how some states’ laws define sell as including barter, exchange, or trade).

150. *Id.*

151. JOHNSON, *supra* note 21.

152. *Id.*

153. *Id.*

154. See Cat Johnson, *4 Updates from the Seed Sharing Movement*, SHAREABLE (Feb. 24, 2016), <http://www.shareable.net/blog/4-updates-from-the-seed-sharing-movement>; Christina Oatfield, *Governor Brown Signs Seed Exchange Democracy Act*, FOOD NEWS BLOG (Sept. 12, 2016), http://www.theseclc.org/governor_brown_signs_seed_exchange_democracy_act.

155. Johnson, *supra* note 154.

156. *Id.*

a coalition of groups worked together to get the bill passed.¹⁵⁷ In California, the Seed Exchange Democracy Act passed due to “the collaborative efforts of all the individual and organizational advocates coming together”, including a class of 4th grade students who testified to the importance of seed saving and sharing and biodiversity at the Agriculture Committees of both the Assembly and Senate.¹⁵⁸ In Pennsylvania, the Department of Agriculture has officially clarified that seed libraries and other noncommercial seed exchanges are not subject to the cost-prohibitive licensing, labeling, and testing requirements required of commercial seed distributors.¹⁵⁹ This clarification was likewise a result of the efforts of a statewide coalition of concerned advocates.¹⁶⁰ A broader movement called the “Save Seed Sharing” campaign has mobilized, and it includes seed librarians, attorneys, activists, concerned citizens, and government officials from all across the nation.¹⁶¹

These laws, and the movements behind them are significant for the “Save Seed Sharing” campaign because precedent is forming and sending the message to other states that the application of commercial seed laws to noncommercial seed sharing is misguided.¹⁶² These laws are grassroots victories for the collective peoples-right and for the understanding that noncommercial seed sharing should not be held to the same expensive, rigorous testing as commercial seed operations. These victories embody the power of people asserting their collective right to save and share seeds, a way of life practiced for thousands of years longer than any corporate conception of private or intellectual property. This Note argues that local governments should join the “Save Seed Sharing” campaign and enact or modify seed laws to: (1) define the term “sell” so that noncommercial seed sharing, libraries, and exchanges are not interpreted as “selling” seed and (2) allow for noncommercial seed sharing, exchanges and libraries by expressly excluding these activities from any labeling, testing, and permitting requirements that are intended for commercial seed businesses.¹⁶³

157. *Id.*

158. Oatfield, *supra* note 154.

159. Pennsylvania Association for Sustainable Agriculture, *Seed Libraries in Pennsylvania Allowed to Engage in Free Seed Exchange*, PASA NEWS (Mar. 15, 2016), <https://www.pasafarming.org/news/seed-libraries-in-pennsylvania-allowed-to-engage-in-free-seed-exchange>.

160. *Id.*

161. Cat Johnson, *SELIC and Shareable Kickoff Campaign to Save Seed Sharing in the U.S.*, SHAREABLE (Jan. 12, 2015), <http://www.shareable.net/blog/selc-and-shareable-kickoff-campaign-to-save-seed-sharing-in-the-us>.

162. Johnson, *supra* note 154.

163. See, e.g., *CA Seed Exchange Democracy Act*, SUSTAINABLE ECONOMIES LAW CENTER http://www.theselc.org/seed_democracy_act (last visited Apr. 2, 2016) (describing the main changes

The “Save Seed Sharing” campaign is continuing to promote and protect seed sharing and saving through legislative action.¹⁶⁴ In July 2015, the Sustainable Economies Law Center (SELCO), a founding member of the “Save Seed Sharing” campaign, petitioned for the Association of American Seed Control Officials (AASCO) to adopt an exemption for noncommercial seed sharing into their model seed law.¹⁶⁵ In response, AASCO created a working group consisting of seed control officials, seed industry representatives, and seed librarians to review the recommendation.¹⁶⁶ After months of discussions, a negotiated amendment was submitted and approved in July 2016.¹⁶⁷

VII. Conclusion

Scholars and activists from around the globe have long called for an equitable, sustainable, locally controlled food production system as an alternative to the fossil-fuel intensive and corporate monopoly that is the modern industrial agriculture system.¹⁶⁸ In the face of increasing extreme weather caused by global warming and decreasing biodiversity caused by corporate-driven agricultural systems, protecting and promoting seed biodiversity and access has never been more critical for global food security.¹⁶⁹

The food justice movement continues to fight against the injustices imbedded within the current corporate-dominated food production system.¹⁷⁰ Through a collective mobilization from the ground up for the recognition of the people's right to food security and food sovereignty, grassroots organizations are fighting to overcome the power and monopoly of the transnational agribusinesses to create a just, resilient, and sustainable agricultural system.¹⁷¹

While there are many obstacles toward obtaining global food security and food sovereignty, one small solution is for local governments to recognize the collective people's right to save and exchange seeds. This Note calls for

proposed by California's Assembly Bill 1810 to clear the legal grey areas in which seed libraries operate).

164. Johnson, *supra* note 154.

165. *Id.*

166. *Id.*

167. The approved model seed law recommendation can be found at: [https://d3n8a8pro7vhm.cloudfront.net/theselc/pages/458/attachments/original/1471306626/20160714_-_Noncommercial_Seed_Sharing_RUSSL_Amendment_\(as_adopted\).pdf?1471306626](https://d3n8a8pro7vhm.cloudfront.net/theselc/pages/458/attachments/original/1471306626/20160714_-_Noncommercial_Seed_Sharing_RUSSL_Amendment_(as_adopted).pdf?1471306626).

168. GONZALEZ, *supra* note 44, at 522.

169. *Id.*

170. See, e.g., ROBLES & PEÑA, *supra* note 19.

171. *Id.*

local policymakers to enact or modify laws to protect the collective human right to food sovereignty by specifying that noncommercial seed sharing practices are exempt from the burdensome and expensive testing and labeling requirements imposed by the Gene Giants.¹⁷²

By taking a stance for the right to seed saving and sharing, local legislators can join the food justice movement and promote food sovereignty and food security from the ground up.¹⁷³ As the planet enters an age of unknown weather patterns and corresponding food insecurity, local governments can and should take action to provide legal protection for local, resilient, and biodiverse food sources for their communities.¹⁷⁴ In short, this Note is a call to action for local governments to help save the seeds and traditional seed saving and sharing practices. With “one seed at a time,” the planet can break out of the current corporate food dictatorship and create an equitable and robust food democracy.¹⁷⁵

172. See ORSI AND THAPAR, *supra* note 144.

173. *Id.*

174. *Id.*

175. SHIVA, *supra* note 80.