

Intellectual Property, In Situ Conservation and Community Gardens: A Pilot Study¹

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This article reports on a study of the source of plants in community gardens in South East Queensland, Australia. The results suggest community gardens are a node of in situ conservation in developed countries; that the plants grown in these gardens are potentially affected by both the United Nations Convention on Biological Diversity and the Food and Agriculture Organisation of the United Nations' International Treaty on Plant Genetic Resources for Food and Agriculture (Plant Treaty); and that for-profit firms are major providers of seedlings and seeds, while non-profit ventures are important sources for cuttings, seedlings and seeds. With many of these plant materials being sourced from for-profit firms and potentially covered by the Plant Treaty, intellectual property will increasingly become an important consideration.

Introduction

The positive potential of plant breeding to increase the production of food, feed and fibre necessary to sustain human health and wellbeing relies on access to and use of plant genetic resources for food and agriculture (PGRFA). These genetic resources are a source of particular characteristics, such as increased yields, pest

resistance, drought tolerance, plant architecture, flavours and so on. It is these resources that are necessary to develop the increased yields to feed and sustain more humans, develop specific attributes for more discerning consumers and develop the adaptations for climate change and more marginal farming lands.²

In recent times the major focus of conservation has been on ex situ collections where genetic materials are taken from their natural habitats and stored, usually in seed banks, germplasm banks, DNA banks, and so on, outside their natural habitats.³ While these have proved useful and contributed to the significant benefits that have flowed from plant breeding, future conservation will increasingly require in situ conservation.⁴ Both the United Nations Convention on Biological Diversity (CBD) and the Food and Agriculture Organisation of the United Nations' (FAO) International Treaty on Plant Genetic Resources for Food and Agriculture (Plant Treaty) recognise the significance of in situ conservation and adopt the same definition⁵:

*"In situ conservation" means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.*⁶

Within these international agreements PGRFA are recognised as a special category of biodiversity with "distinctive features and problems requiring distinctive solutions".⁷ The PGRFA is the "genetic material of plant origin of actual or potential value for food and agriculture"⁸ including "reproductive and vegetative propagating materials, containing functional units of heredity".⁹ The main target of in situ conservation is intra-specific genetic diversity. This is the genetic diversity within species and provides the major sources of diversity available to plant breeders in developing plants. The CBD expresses a general concern about, in particular, in situ conservation:

*"Noting further that the fundamental requirement for the conservation of biological diversity is the in situ conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings."*¹⁰

¹ This project has been generously supported by Griffith University and the Australian Research Council (DP12010434).

² For an overview of these challenges see, for example, Commission on Genetic Resources for Food and Agriculture, *The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture* (FAO, 2010), pp.183–201 and the references therein.

³ See Convention on Biological Diversity art.2; International Treaty on Plant Genetic Resources for Food and Agriculture art.2.

⁴ The contested balance between the appropriateness of ex situ and in situ conservation has a long heritage, with in situ conservation being marginalised to some extent: see, for example, Robin Pistorius, *Scientists, Plants and Politics: A History of the Plant Genetic Resources Movement* (IPGRI, 1997), pp.27–30.

⁵ See Conference of the Parties to the Convention on Biological Diversity, *Report of the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity* (2011), UNEP/CBD/COP/10/27, para.233 and Annex (Decision X/17). See also Suzanne Sharrock, *Global Strategy for Plant Conservation: A Guide to the GSPC* (2012), pp.16–17.

⁶ Convention on Biological Diversity art.2; International Treaty on Plant Genetic Resources for Food and Agriculture art.2.

⁷ Conference of the Parties to the Convention on Biological Diversity, *Report of the Second Meeting of the Conference of the Parties to the Convention on Biological Diversity* (1995) UNEP/CBD/COP/2/19, para.125 and Annex II (Decision II/15). See also Conference of the Parties to the Convention on Biological Diversity, *Report of the Fifth Meeting of the Conference of the Parties to the Convention on Biological Diversity* (2000), UNEP/CBD/COP/5/23, para.131 and Annex III (Decision V/5, Appendix, [1]).

⁸ International Treaty on Plant Genetic Resources for Food and Agriculture art.2.

⁹ International Treaty on Plant Genetic Resources for Food and Agriculture art.2.

¹⁰ Convention on Biological Diversity, Preamble.

The CBD then provides a general scheme for in situ conservation in addressing "protected areas" and the "protection of ecosystems, habitats and viable populations" according to "guidelines", "regulations" and "management".¹¹ The major advance in the CBD and various other forums addressing agricultural in situ conservation has been recognition of the role and place of on-farm activities.¹² Recent analysis suggests that considerable crop genetic diversity is maintained on-farm with perhaps surprisingly high levels of richness, evenness and divergence.¹³ While the major focus of recent work and analysis on in situ agricultural conservation has been on farming systems in developing countries,¹⁴ important reservoirs of genetic diversity may be found in community gardens in developed countries.¹⁵ Community gardens, in this context, are communally shared gardening spaces that, among a whole range of other benefits, promote the socio-cultural importance of food and maintain diverse food plants within urban communities.¹⁶

The purpose of this article is to address the likely intellectual property applying to community garden plant materials within the broader context of in situ conservation. This is a significant question as community gardens potentially contain a significant diversity of food plants and this exists within the legal environment of developed intellectual property systems.¹⁷ The next part of the article provides an overview of relevant intellectual property applying to community garden plants in the context of in situ conservation regulations; then follows an overview of the results of a study in Australia about the sources of plant materials used in community gardens; and then the article concludes with a discussion about the likely importance of intellectual property in community gardens within a context of in situ conservation. This pilot study accepts the potential importance of community

gardens as a developed country location for in situ conservation and then demonstrates that intellectual property is likely to become an important consideration as a consequence of the Plant Treaty.

Intellectual property and community garden plants

Intellectual property in agriculture has become increasingly important because of its broader application to the previously free sharing of germplasm that characterised the Green Revolution in the 1950s, 1960s and 1970s. The CBD in 1993 (and the subsequent Bonn Guidelines in 2002¹⁸ and Nagoya Protocol in 2010)¹⁹ and the Plant Treaty in 2004 (and the subsequent Standard Material Transfer Agreement in 2006)²⁰ imposed a regulatory regime on germplasm exchanges that promotes intellectual property in the context of formal agreements (contracts) between the genetic resource holders and those accessing the genetic resource. The CBD and Plant Treaty adopt the intellectual property norms set down in both international and domestic regulation,²¹ such as the mandatory minimum standards for copyright, patents, trade marks, and so on, in the World Trade Organization's Trade-Related Aspects of Intellectual Property Rights (or TRIPS). The effect of these various regulations is a matrix of rules about the ways germplasm can be collected and the kinds of interests (exclusivity) that can be asserted through intellectual property. Importantly, however, the scope of the CBD and Plant Treaty are limited meaning that significant agricultural plant materials are not subject to these schemes.

The CBD establishes a nation state's sovereignty over genetic resources²² within their jurisdiction²³ from December 29, 1993.²⁴ These resources are then subject

¹¹ Convention on Biological Diversity, art.8.

¹² See, for examples, *Report of the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity* (2011), UNEP/CBD/COP/10/27, para.363 and Annex (Decision X/34); Food and Agriculture Organization of the United Nations, *Report of the Conference of FAO, Thirty-seventh Session* (2011) C 2011/RBP, para.71 (referring to the updated Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture: Food and Agriculture Organization of the United Nations, *Report of the Council of FAO, Hundred and Forty-third Session* (2011) CL 143/RBP, para.43).

¹³ See Devra Jarvis, Anthony Brown et al., "A Global Perspective of the Richness and Evenness of Traditional Crop-variety Diversity Maintained by Farming Communities" (2008) 105 *Proceedings of the National Academy of Science USA* 5326.

¹⁴ See, for examples, S. Padulosi, N. Bergamini and T. Lawrence (eds), *On-farm Conservation of Neglected and Underutilized Species: Status, Trends and Novel Approaches to Cope with Climate Change* (Bioversity International, 2012) and the various contributions therein; Devra Jarvis and Toby Hodgkin, "The Maintenance of Crop Genetic Diversity On Farm: Supporting the Convention on Biological Diversity's Programme of Work on Agricultural Biodiversity" (2008) 9 *Biodiversity* 23; U. Hodel, M. Gessler, H. Cai, V. Thoan, N. Ha, N. Thu and T. Ba, *In Situ Conservation of Plant Genetic Resources in Home Gardens of Southern Vietnam: A Report of Home Garden Surveys* (IPGRI, 1999); and so on.

¹⁵ See, for examples, Daniela Guitart, "Environmental Sustainability of Community Gardens in South-eastern Australia" (School of Environment, Griffith University, 2011); Laura Saldivar-Tanaka and Marianne Krasny, "Culturing Community Development, Neighborhood Open Space, and Civic Agriculture: The Case of Latino Community Gardens in New York City" (2004) 21 *Agriculture and Human Values* 399, 403-404.

¹⁶ See, for examples, Daniela Guitart, Catherine Pickering and Jason Byrne, "Past Results and Future Directions in Urban Community Gardens Research" (2012) 11 *Urban Forestry and Urban Greening* 364; Saldivar-Tanaka and Krasny, "Culturing Community Development, Neighborhood Open Space, and Civic Agriculture: The Case of Latino Community Gardens in New York City" (2004) 21 *Agriculture and Human Values* 399; Karen Schmelzkopf, "Urban Community Gardens as Contested Spaces" (1995) 85 *Geographical Review* 364.

¹⁷ Thus, for example, Australia is a developed economy with high levels of intellectual property including the minimum standards required by the World Trade Organization's Trade-Related Aspects of Intellectual Property Rights [1995] ATS 8 and TRIPS-plus standards according to the Australia-United States Free Trade Agreement [2005] ATS 1.

¹⁸ Conference of the Parties to the Convention on Biological Diversity, *Report of the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity*, UNEP/CBD/COP/6/20 (2002), para.342 and Annex I (Decision VI/24A, pp.253-269 (Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilisation)).

¹⁹ *Report of the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity* (2011), UNEP/CBD/COP/10/27, para.103 and Annex (Decision X/1, Annex 1, pp.89-109 (Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization)).

²⁰ Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture, *First Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture* (2006) IT/GB-1/06/Report, para.12 (Resolution 2/2006) and Appendix G (Standard Material Transfer Agreement).

²¹ See Convention on Biological Diversity arts 15(7) and 16(2); International Treaty on Plant Genetic Resources for Food and Agriculture art.12(3)(f).

²² Convention on Biological Diversity art.3.

²³ Convention on Biological Diversity art.4.

²⁴ Convention on Biological Diversity art.36. See also Secretariat of the Convention on Biological Diversity, *Handbook of the Convention on Biological Diversity including its Cartagena Protocol on Biosafety*, 3rd edn (Friesen, 2005), p.304.

to domestic laws that are consistent with the nation state's commitments to the CBD. This essentially requires that access to genetic resources be regulated from countries of origin (or where the resources have been accessed according to the CBD) following prior informed consent and mutually agreed terms.²⁵ The Bonn Guidelines clarify that this means a voluntary contract between the resource holder and the resource exploiter,²⁶ and the Nagoya Protocol confirms that associated traditional knowledge, innovations and practices need to be taken into consideration.²⁷ Various nation states have implemented regulations that are consistent with the CBD. Australia provides a model with Commonwealth laws regulating Commonwealth lands and seas,²⁸ and various state and territory laws regulating their lands and waters.²⁹ Importantly these schemes do not apply to private (non-government controlled) lands and waters.

The Plant Treaty recognises a nation state's sovereignty over PGRFA³⁰ within their jurisdiction³¹ from June 29, 2004.³² The PGRFA covered by the Plant Treaty are those within the "Multilateral System"—these are essentially the PGRFA that have been designated to be available according to a Standard Material Transfer Agreement under the Plant Treaty irrespective of when and where they were collected.³³ Importantly the materials in the Multilateral System include the ex situ collections of the International Agricultural Research Centres (IARCs) of the Consultative Group on International Agricultural Research (CGIAR).³⁴

The main forms of intellectual property applying to genetic resources under the CBD and PGRFA under the Plant Treaty will be patents and plant breeder's rights. Again the minimum standards are established in international forums and then implemented through regulations. Again Australia provides a model with a TRIPS (and Australia-United States Free Trade Agreement) consistent patent law³⁵ and a TRIPS and International Convention for the Protection of New Varieties of Plants (UPOV Convention) consistent plant breeder's rights law.³⁶ The effect of these intellectual property laws is to provide a period of exclusivity for inventions and varieties that satisfy certain thresholds of

invention and breeding. The exclusivity is an exemption from competition for certain activities³⁷ for the term of the patent or plant breeder's right.³⁸

The effect of this matrix of regulation for community gardens is that plant materials sourced and used within community gardens will need to have been obtained according to the CBD and Plant Treaty (recognising that these instruments may not apply), and any use will need to comply with any patent or plant breeder's rights applying to the materials. The question is whether this regulation is likely to be a significant factor in Community gardens?

A pilot study of the sources of plant materials used in community gardens

A pilot study was conducted of 50 community gardens in the rapidly expanding urbanised community around Brisbane and the Gold Coast in South East Queensland, Australia. This is a community that is developed with Australians enjoying gross domestic product per capita of approximately US\$69,000.³⁹ Community gardens are areas of land set aside for communities to establish and conduct plant growing as part of building community, and principally conducted through schools and non-profit organisations. The study identified community gardens through a snowballing search asking subsequently identified communities to confirm and identify further gardens. Of the 53 gardens identified, 50 were willing to participate in the research and were provided with a questionnaire about the plants grown in the gardens and the sourcing of these, the motivations of the gardeners to establish community gardens and the management of the gardens. The garden manager or community representative provided a response for the community garden so that there was only one questionnaire completed from each community garden.

The scope of the study was directed primarily to the diversity of plants grown in community gardens and the sourcing of plants.⁴⁰ This study found that there were two main organisations running the gardens: schools (23 gardens) and non-profit organisations (27 gardens). There were also two types of gardening philosophies, which

²⁵ Convention on Biological Diversity art.15.

²⁶ Report of the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity, UNEP/CBD/COP/6/20, para.342 and Annex I (Decision VI/24A, Annex, paras 13–21 (pp.256–259)).

²⁷ Report of the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity (2011), UNEP/CBD/COP/10/27, para.103 and Annex (Decision XI/1, Annex 1, arts 5 and 6 (pp.92–93)).

²⁸ See Environment Protection and Biodiversity Conservation Act 1999 (Cth) s.301; Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) regs 8A.01 to 8A.20.

²⁹ See Biological Resources Act 2011 (NT); Biodiscovery Act 2004 (Qld).

³⁰ International Treaty on Plant Genetic Resources for Food and Agriculture art.10.

³¹ International Treaty on Plant Genetic Resources for Food and Agriculture art.11(2).

³² International Treaty on Plant Genetic Resources for Food and Agriculture art.28. See also Gerald Moore and Witold Tymowski, "Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture", IUCN Environmental Policy and Law Paper No.57 (IUCN, 2005), p.171.

³³ International Treaty on Plant Genetic Resources for Food and Agriculture art.11. This will also include materials that have been designated as part of the Multilateral System that are listed in Annex 1 (arts 11(5) and 15(5)) and any other non-Annex 1 materials made available under the Multilateral System's Standard Material Transfer Agreement (art.15(5)).

³⁴ International Treaty on Plant Genetic Resources for Food and Agriculture art.11(5).

³⁵ See Patents Act 1990 (Cth).

³⁶ See Plant Breeder's Rights Act 1994 (Cth).

³⁷ Plant Breeder's Rights Act 1994 (Cth) s.11; Patents Act 1990 (Cth) s.13.

³⁸ Plant Breeder's Rights Act 1994 (Cth) s.22; Patents Act 1990 (Cth) s.67.

³⁹ Department of Foreign Affairs and Trade, *Australia — Facts Sheet* (2012), <http://www.dfat.gov.au/geoffs/aust.pdf> [Accessed July 24, 2013].

⁴⁰ Guitart, "Environmental Sustainability of Community Gardens in South-eastern Australia" (2011).

matched their practices (21 permaculture and 29 non-permaculture gardens). The main motivations to establish the gardens were for education, community building and environmental sustainability. A total of 317 different types of plant were grown across the 50 community gardens surveyed, including 294 food plants. This article reports only a part of this study.

The results from Table 1 show that the form of the plants sourced for growing in the community gardens are predominantly as seeds and seedlings (seeds 36 per cent, seedlings 38 per cent, and cuttings 26 per cent). These forms are then sourced from a range of places. Cuttings are predominantly sourced from personal associations (friends'/family's garden 60 per cent). Seedlings predominantly from profit making firms (garden outlets 41 per cent, online purchases 19 per cent and farmers' markets 16 per cent) with some non-profit firms (grower meetings 10 per cent and swapping 14 per cent). Seeds were predominantly from profit making firms (garden outlets 27 per cent, online purchases 21 per cent and farmers' markets 16 per cent) and a significant contribution from seed saving and swapping (grower meetings 5 per cent, seed saving 30 per cent and swapping 13 per cent). In each instance the option for an "other" response and that this option was not checked suggests that the questions addressed the major sources for cuttings, seedlings and seeds among community gardeners.

The further questions about and policy/emphasis on seed sourcing and seed saving showed that only a small minority of community gardens were part of a seed saving network (14 per cent). The majority had no express policy/emphasis about seed sources (53 per cent) and very few had any strict compliance policy/emphasis (certified organic seeds 4 per cent and only heirloom varieties 2 per cent). Where there was emphasis it was towards organic (25 per cent) and heirloom varieties (17 per cent).

In summary, the pilot study showed that seeds and seedlings as the major forms of source plant materials (seeds/seedlings 74 per cent and cuttings 26 per cent), that profit making firms are the major providers of seeds and seedlings (seedlings 76 per cent and seeds 51 per cent) and that seed saving is significant (seed saving 30 per cent).

Discussion and conclusions

The significance of this pilot study has been to examine the sources of plant materials used in community gardens in a developed country. With the major focus of in situ conservation being in the developing countries and the concerns about crop wild relatives and neglected and underutilised crops,⁴¹ this study has accepted that community gardens are a distinctive node of in situ conservation and provides some insight into the sourcing of plant materials grown in those gardens. This is a timely

study as Australia is committed to both the conservation regulation (through the CBD and Plant Treaty) and intellectual property regulation (through TRIPS, UPOV and the Australia-United States Free Trade Agreement) and, as such, provides a case study of how these regulations might work in practice.

The results demonstrate that profit-making firms are the major providers of seedlings (76 per cent) and seeds (51 per cent) to community gardens. The results also demonstrate, however, that there are other significant providers of plant materials. Turning the emphasis to these other sources: cuttings (84 per cent), seedlings (24 per cent) and seeds (49 per cent) are sourced outside profit making ventures. This distinction is important as this suggests a significant proportion of plant materials in community gardens are outside the for-profit interest of firms that might be expected to be concerned about intellectual property.

In a market economy like Australia, intellectual property is a means of capturing market share and the profits associated with exclusivity so as to reward and fund plant inventing (patents) and plant breeding (plant breeder's rights). Posited this way, intellectual property is a commercial imperative directed to the commercial return from the sale of plants. This pilot study suggests that intellectual property is likely to be of interest for the for-profit providers of seeds and seedlings to community gardens given their significant contribution to gardens. The results so far, however, have not identified the significance of intellectual property in the plant materials sourced from these for profit firms. Further work is now required to assess what proportions of these materials is protected by patents, plant breeder's rights, and so on. Perhaps interestingly, our preliminary investigations show that most of the seeds and seedlings made available by for-profit providers are not intellectual property protected, albeit this has not yet been quantified. More interestingly, the results from this pilot study suggest that for a significant portion of plant materials used in community gardens intellectual property is unlikely to be a concern. These materials are saved from earlier crops or exchanged (cuttings 84 per cent, seedlings 24 per cent and seeds 43 per cent) within the gardening community. Further work is now required to determine the original source of these saved and exchanged materials and whether they are actually intellectual property infringing activities.

Perhaps the most significant outcome of this pilot study is to demonstrate the likely reach of the CBD and Plant Treaty into community gardens. The CBD is relevant because these gardens are a node for in situ conservation in developed countries and that some of the work of the CBD might usefully be directed to conserving some of the germplasm in community gardens. This will, however, require further analysis of the materials maintained in community gardens to determine their conservation values. Otherwise the CBD is unlikely to have much impact on these activities as most of these materials will

⁴¹ See, for example, Padulosi, Bergamini and Lawrence (eds) *On-farm Conservation of Neglected and Underutilized Species* (2012), and the various contributions therein.

have been obtained, used and exchanged outside the scope of the CBD. In these circumstances intellectual property will be independent of the CBD considerations. Where access and benefit sharing arrangements are required to access genetic resources from a country of origin, then intellectual property will be an element in negotiating that access agreement.⁴²

More significantly, however, many of the plants identified within community gardens are within the scope of the Plant Treaty. Table 2 sets out a comparison of Plant Treaty covered food crops (Annex 1 materials) with those identified in the community gardens examined in this study.⁴³ While the Plant Treaty does not automatically cover these materials, Table 2 does demonstrate that the Plant Treaty's Multilateral System can cover substantial parts of community garden materials.⁴⁴ The covered materials will be the materials listed in the Plant Treaty Annex 1 that are "under the management and control of the Contracting Party" and "in the public domain".⁴⁵ What constitutes management and control is probably addressed by some positive act demonstrating that the materials are within the Multilateral System, and public domain probably just means that no rights (ownership including intellectual property) are asserted.⁴⁶ Also covered will be materials, both Annex 1 and non-Annex 1, that have been included in the Multilateral System through "appropriate measures" taken by contracting parties.⁴⁷ These "appropriate measures" are likely to include agreements between the contracting party and natural and legal persons in their jurisdiction to make designated materials that are listed in Annex 1 a part of the Multilateral System an accessible according to the mechanisms in the Plant Treaty.⁴⁸ Further coverage will apply to any other non-Annex 1 materials made available under agreement.⁴⁹ Thus the Plant Treaty will apply when:

- **Materials are contributed to the Multilateral System—**

to provide materials requires only that they be overtly made available through the Multilateral System.⁵⁰ In practice this will probably require making available the "passport data" and "any other associated non-confidential descriptive information"

associated with the materials to the Global Information System on Plant Genetic Resources for Food and Agriculture.⁵¹ Once notified then this will require that this material is available ("facilitated access") according to a Standard Material Transfer Agreement.⁵² This making available will require respect for existing intellectual property claims that might limit some uses of the materials.

- **Materials are used in the community garden that are sourced from the Multilateral System:**

to access these materials will require agreeing to the Standard Material Transfer Agreement.⁵³ This particular form of the agreement will depend on whether the materials were sourced from the ex situ collections of the CG Centers for transfers of non-Annex 1 materials collected before the entry into force of the Plant Treaty,⁵⁴ or all other Multilateral System materials.⁵⁵ This agreement imposes intellectual property obligations, primarily to maintain and respect existing intellectual property obligations annexed to the materials, and making no further intellectual property claims unless the materials change from "in the form received".⁵⁶ This will require community gardeners to respect existing intellectual property claims and refrain from making any claims unless they change the materials from the form in which they were received.

The purpose of this article was to address the likely intellectual property applying to community garden plant materials within the broader context of in situ conservation. The pilot study revealed that intellectual property may be important given the significant proportion of for-profit sources of plant materials and that there is the potential for intellectual property to be relevant in dealings with materials under the Plant Treaty.

⁴² See Charles Lawson, *Regulating Genetic Resources: Access and Benefit Sharing in International Law* (Edward Elgar, 2012), pp.125–180.

⁴³ See International Treaty on Plant Genetic Resources for Food and Agriculture art.11(1) and Annex 1.

⁴⁴ International Treaty on Plant Genetic Resources for Food and Agriculture art.11(1).

⁴⁵ International Treaty on Plant Genetic Resources for Food and Agriculture art.11(2).

⁴⁶ See Moore and Tymowski, "Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture" (2005), pp.83–84.

⁴⁷ International Treaty on Plant Genetic Resources for Food and Agriculture art.11(3).

⁴⁸ See International Treaty on Plant Genetic Resources for Food and Agriculture art.11(3).

⁴⁹ International Treaty on Plant Genetic Resources for Food and Agriculture art.15(5).

⁵⁰ International Treaty on Plant Genetic Resources for Food and Agriculture art.11(1).

⁵¹ International Treaty on Plant Genetic Resources for Food and Agriculture arts 13(2)(a) and 17(1).

⁵² International Treaty on Plant Genetic Resources for Food and Agriculture art.12(1).

⁵³ International Treaty on Plant Genetic Resources for Food and Agriculture art.12(4).

⁵⁴ See Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture, *Report of the Second Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture* (2007) IT/GB-2/07/Report, para.68. The difference between the two Standard Material Transfer Agreements is that the one directed to non-Annex 1 materials collected before the entry into force of the Plant Treaty includes interpretative footnotes for relevant provisions indicating that these provisions should not be interpreted as precluding transfers of non-Annex 1 material collected before the entry into force of the Plant Treaty.

⁵⁵ See *First Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture*, IT/GB-1/06/Report, para.12 (Resolution 2/2006) and Appendix G.

⁵⁶ See *First Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture*, IT/GB-1/06/Report, para.12 (Resolution 2/2006) and Appendix G (cll 6.2 and 6.10). See also Charles Lawson, "Intellectual Property and the Material Transfer Agreement under the International Treaty on Plant Genetic Resources for Food and Agriculture" [2009] E.I.P.R. 244, 245–251.

Further work is now necessary to determine the intellectual property content of the sourced materials and how this is negotiated within these gardening communities.

Table 1: Questions and results of community garden study

Of the 53 identified community gardens in the region, 50 responded to the questions.

Question	Answers	Results
Where are the majority of the plants sourced from?	Cuttings	33
	Seedlings	47
(Check all that apply)	Seeds	45
	Other	—
If <i>cuttings</i> , where are the majority of them sourced from?	We swap in between members from the garden	13
	From friends'/family's gardens	32
(Check all that apply)	From gardening workshops	2
	Local farmers' markets	6
	Other	—
If <i>seedlings</i> , where are the majority of them sourced from?	Supermarket	—
	Gardening outlet (e.g. Bunning's, Garden World, etc.)	34
(Check all that apply)	Online Organic Seedlings Store (e.g. Heirloom Seedlings)	16
	Local farmers' markets	13
	Gold Coast/Brisbane Organic Growers Club Meetings	8
	We swap in between members from the garden	12
	Other	—
If <i>seeds</i> , where are the majority of them sourced from?	Supermarket	3
	Gardening outlet (e.g. Bunning's, Garden World, etc.)	27
(Check all that apply)	Online Organic Seed Store (e.g. Eden Seeds)	21
	Gold Coast/Brisbane Organic Growers Club Meetings	5
	We don't buy seeds anymore, only save	30
	We swap in between members from the garden	13
	Other	—
Is there any policy/emphasis for sourcing seeds?	We only use certified organic seeds	2
	We only use heirloom varieties	1
(Check only one) ⁵⁷	We try to use as much organic but it's not always possible	13
	We try to use as much heirloom varieties but it's not always possible	9
	No, anyone is free to use any seeds	28
	Other	—
Is the garden a member of Seed Savers Network?	Yes	7
(Check only one)	No	43

Table 2: Community garden materials potentially covered by the Plant Treaty

A listing of plant materials covered by the Plant Treaty and also reported as growing in the studied community gardens.

⁵⁷ Notably some questionnaires checked more than one response.

Plant Treaty Annex 1 — food crops covered by the Multilateral System and found in the studied community gardens		Number of community garden materials containing the materials
Food crop	Genus (and observations)	
Asparagus	<i>Asparagus</i>	17
Oat	<i>Avena</i>	3
Beet	<i>Beta</i>	36
Brassica complex	<i>Brassica</i> et al. (comprises oilseed and vegetable crops such as cabbage, rapeseed, mustard, cress, rocket, radish, and turnip)	42
Pigeon Pea	<i>Cajanus</i>	22
Chickpea	<i>Cicer</i>	5
Citrus	<i>Citrus</i> (<i>Poncirus</i> and <i>Fortunella</i> included as root stock)	11
Coconut	<i>Cocos</i>	2
Major aroids	<i>Colocasia</i> , <i>Xanthosoma</i> (include taro, cocoyam, dasheen and tannia)	15
Carrot	<i>Daucus</i>	32
Yams	<i>Dioscorea</i>	8
Finger/Pearl Millet	<i>Eleusine</i> and <i>Pennisetum</i>	8
Strawberry	<i>Fragaria</i>	30
Sunflower	<i>Helianthus</i>	36
Barley	<i>Hordeum</i>	5
Sweet Potato	<i>Ipomoea</i>	37
Grass pea	<i>Lathyrus</i>	1
Lentil	<i>Lens</i>	2
Apple	<i>Malus</i>	4
Cassava	<i>Manihot</i> (<i>M. esculenta</i> only)	17
Banana / Plantain	<i>Musa</i> (except <i>M. textilis</i>)	26
Beans	<i>Phaseolus</i> (except <i>P. polyanthus</i>)	36
Pea	<i>Pisum</i>	31
Rye	<i>Secale</i>	1
Potato	<i>Solanum</i> (including section <i>tuberosa</i> , except <i>S. phureja</i>)	31
Eggplant	<i>Solanum</i> (including section <i>melongena</i>)	34
Sorghum	<i>Sorghum</i>	5
Wheat	<i>Triticum</i> et al. (including <i>Agropyron</i> , <i>Elymus</i> , and <i>Secale</i>)	8
Faba Bean / Vetch	<i>Vicia</i>	8
Cowpea et al.	<i>Vigna</i>	28
Maize	<i>Zea</i> (excluding <i>Z. perennis</i> , <i>Z. diploperennis</i> , and <i>Z. luxurians</i>)	21
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