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Munyi, Peter; De Jonge, Bram

2015-12-15

http://hdl.handle.net/10539/19311

Munyi, P., & De Jonge, B. (2015). Farmers' and breeders' rights: Bridging access to, and IP protection of, plant varieties in Africa. The African Journal of Information and Communication (AJIC), 16, 16-25. https://doi.org/10.23962/10539/19311

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FARMERS' AND BREEDERS' RIGHTS: BRIDGING ACCESS TO, AND IP PROTECTION OF, PLANT VARIETIES IN AFRICA

Peter Munyi
PhD Candidate, Law and Governance Group, Wageningen University, The Netherlands

Bram De Jonge
Postdoctoral Researcher, Law and Governance Group, Wageningen University, The Netherlands; and Intellectual Property Unit, Faculty of Law, University of Cape Town

ABSTRACT
Studies in Africa have shown that saving, using, exchanging and selling farm-saved seed is the main channel through which farmers access seed and planting material. Moreover, these saving and related practices are recognised in international law, mainly through the International Treaty on Plant Genetic Resources for Food and Agriculture (Plant Treaty), which many African countries have ratified. These practices are also recognised by, inter alia, obligations at the national level to protect traditional knowledge relevant to seeds and planting material. The standard being employed in developing plant variety protection (PVP) mechanisms in Africa, as with elsewhere in the world, is the 1991 revision of the Convention of the International Union for the Protection of New Varieties of Plants (UPOV, 1991). This Convention has, since its inception, been developed with reference to developed-world farming practices. This article looks at how farmers' rights are enshrined in Africa's legal frameworks, and the extent to which the current process of developing regional PVP systems on the continent is taking farmers' rights into account. The article then makes recommendations on how a balance can be struck between farmers' and breeders' rights, while still complying with the UPOV 1991 framework.

KEYWORDS
breeders' rights, farmers' rights, intellectual property, plant varieties, plant variety protection (PVP), smallholder farmers

INTRODUCTION
Seeds are a carrier of genetic information that is often associated with traditional or scientific knowledge. Access to seeds and the liberty to work and adjust the information they entail – by means of crossing and selection – is inherent to farming anywhere in the world, but in particular in those places where breeding companies are few. This is especially the case in Africa, where most farmers are smallholders and farming is typically for subsistence and in support of the local community. For these farming communities, seed is considered a common resource that farmers save and exchange amongst each other every cropping cycle. At the same time, advances that professional plant breeders have made in developing planting material that is able to overcome biotic and abiotic stress have brought about the idea to protect plant varieties through intellectual property rights (IPRs), specifically plant breeders' rights, also known as plant variety protection (PVP). PVP is a tool through which a plant breeder is able to control market access to seeds and planting material for a new plant variety. These breeders' rights, secured via PVP, are controversial because they conflict, to some extent with farmers' rights, particularly in the smallholder contexts typical of Africa.

THE BEGINNINGS OF PLANT VARIETY PROTECTION (PVP)
The idea that the efforts made by plant breeders, when developing new varieties of plants, should be recognised and given limited protection via plant varieties protection (PVP) is relatively new when compared to protection of other intellectual creations. In Europe, the rediscovery of Mendel's laws of heredity in 1900, which created a better understanding of plant breeding, also generated a greater interest in crop improvement by the scientific community (Louwaars et al., 2013). This re-discovery heightened awareness of the lack of legal protection of the inventions by plant breeders and appears to have contributed to calls in the early 20th century – for example, at the Pomological Society in France in 1904 (Llewelyn & Adcock, 2006) and at the Horticultural Congress in Paris in 1919 (Bos, 1920; Heitz, 1987) – for rights of plant breeders to be protected. The myriad responses to this call were a mix of tools such as a breeder's seal based on trademark law in Germany, and prizes for good new varieties in the Netherlands.

However, it was not until the 1940s that the first *sui generis* PVP systems were created in the Netherlands, and thereafter in Austria and Germany, providing for protection based on fulfilment of requirements distinct and different from those for other IP protections (chiefly patents, copyrights and trademarks).

In 1961, a harmonised system for PVP was created by a few European countries, who came together as the International Union for the Protection of New Varieties of Plants (UPOV), under the International Convention for the Protection of New Varieties of Plants (UPOV, 1961). This system adopted criteria for protection of new varieties of plants that had earlier been established in European countries, with a key provision being that for a new plant variety to qualify for protection, it had to be new, distinct, uniform and stable (UPOV, 1961). Another important feature of the new IP system was the breeders' exemption, which entailed that anyone was allowed to use a protected variety for the purpose of breeding a new variety. (This recognised the incremental nature of plant breeding, which relies on access to the latest improvements and variations.) The criteria for protection, and the breeders' exemption, have in principle remained unchanged since 1961, notwithstanding the UPOV Convention's revisions in 1972, 1978 and 1991.

However, while the criteria for protection have remained a constant during the revisions of the UPOV Convention, the scope of rights granted to the breeder has widened over time, particularly in the 1991 revision of the Convention. The 1991 revision, for example, narrowed the breeders' exemption by requiring right-holder authorisation when a new variety is "essentially derived" from a protected variety, i.e., if the new variety is very similar to the parent variety or if one requires the repeated use of the protected variety for producing the new variety (UPOV, 1991, Art. 14.5). Even more significantly for farmers, the expanded scope of the breeders' right under Article 14.1 of UPOV 1991 covers any form of "production or reproduction (multiplication), conditioning for the purpose of propagation, offering for sale, selling or marketing, exporting, importing, or stocking for any of the above purposes". This scope is much broader than that under Article 15.1 of UPOV 1978, which, under the breeders' right, only protected the production for purposes of commercial marketing, the offering for sale and the marketing of the reproductive or propagating material, i.e., the seed.[1] In other words, the scope of the right under UPOV 1991 has now extended to include any use of the protected variety for propagation purposes while under UPOV 1978 it only extended to commercial marketing of seed. In addition, the duration for the grant of the right has lengthened over time. Initially, the right conferred was for a period of 15 years, under Article 8 of UPOV 1961. This duration remained unchanged in UPOV 1972 and UPOV 1978. However, under Article 19.2 of UPOV 1991, the minimum period for protection is 20 years.

UPOV 1978 was understood to implicitly allow farmers to use and exchange, on a non-commercial scale, seed of a protected variety, while these acts explicitly fall under the breeders' right under UPOV 1991. To compensate for this broader scope of protection, UPOV 1991 provides for an optional farmer's privilege exemption, in Article 15.2. This privilege provides that at the discretion of a member country, farmers may be allowed to save and re-use seed on their own holdings, within reasonable limits and subject to safeguarding the legitimate interests of the right-holder. Breeders' rights have also been advanced by other international trade rules, particularly those of the World Trade Organisation (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Adopted in 1994, TRIPS, through its Article 27.3(b), makes it mandatory for IP protection to be provided to plant varieties "either by patents or by an effective sui generis system or by any combination thereof".

TRIPS does not provide template legislation for protection of plant varieties, meaning that countries can develop their own legal frameworks for the protection of plant varieties. Also, least developed countries (LDCs), 34 of which are in Africa, have until 2021 to comply with the TRIPS provisions (or until the moment they cease to be LDCs).[2] Despite the apparent freedom under TRIPS for countries to adopt *sui generis* PVP frameworks and, in the case of LDCs, to delay PVP implementation, the UPOV system has emerged as the de facto system to extend IP protection to plant varieties in in Africa, in line with practices elsewhere in the developing world and also in the developed world (Munyi, 2015). As a result, what was initially a Eurocentric, developed-world system for PVP is now widely utilised in countries with vastly different economic, social and cultural conditions from those that exist in Europe.

BIOLOGICAL DIVERSITY AND FARMERS' RIGHTS

Parallel to the progression in granting of breeders' rights were two separate but related discussions at the United Nations regarding protection of the environment, including conservation and sustainable use of biological diversity. One forum, led by the UN Environment Programme (UNEP), focused on conservation and sustainable use of biological diversity, while the other, led by the UN Food and Agriculture Organisation (FAO), dealt specifically with plant genetic resources for food and agriculture (PGRFA).

Recognition of a common and global need to conserve and sustainably use the earth's resources was concretised by the 1972 Declaration of the UN Conference on the Human Environment. Principle 2 of this Declaration is categorical in stating that "[t]he natural resources of the earth [...] must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate." This Declaration, followed by the subsequent recognition that biological diversity is a global asset of tremendous value to present and future generations, and recognition of the continued threat to species and ecosystems caused by, inter alia, human activities, led UNEP in 1988 to convene a working group of experts on biological diversity to explore the need for an international convention on biological diversity. The work of the working group ultimately culminated with the adoption of the Convention on Biological Diversity, an instrument that later on opened for signature at the Rio Earth Summit, and finally entered into force in 1993. This Convention "[r]epresents a dramatic step forward in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources" (CBD, n.d.).

Previous to the CBD, an International Undertaking on Plant Genetic Resources for Food and Agriculture (PGRFA) had in 1983 been adopted under the auspices of the FAO. Despite being voluntary in nature, this Undertaking was "adhered" to by 113 countries (Moore & Tymowski, 2005). Its objective, as stated in Article 1, was "[t]o ensure that plant genetic resources of economic and/or social interest, particularly for agriculture, will be explored, preserved, evaluated and made available for plant breeding and scientific purposes. This Undertaking is based on the universally accepted principle that plant genetic resources are a heritage of mankind and consequently should be made available without restriction."

The fact that this International Undertaking was in place at the adoption of the CBD led the negotiating countries to recognise the need to seek solutions to outstanding matters concerning PGRFA, such as access to ex situ collections (e.g., gene banks) not addressed by the CBD and the realisation of farmers' rights. The task of steering negotiations on these outstanding issues was bestowed upon the FAO, culminating after several years in adoption of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, or Plant Treaty) in 2001, which entered into force in 2004.

1 In this paper, we use the term "seed" to refer to any kind of plant reproductive material, including seeds, cuttings, tubers, etc.

2 This transition period can be further extended according to Article 66.1 of the TRIPS Agreement (see WTO (2013)).

One key component of the Plant Treaty is its explicit reference to farmers' rights and affirmation of the contributions of local and indigenous communities and farmers to the conservation and development of PGRFA as a basis for food and agricultural production. Article 9 of the Plant Treaty places the responsibility for realising farmers' rights on national governments and enumerates some of the measures that countries may take to realise these rights. These measures may include protection of traditional knowledge relevant to PGRFA; the right to equitably participate in sharing benefits arising from the utilisation of PGRFA; and the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of PGRFA. For the first time, therefore, farmers' rights were, via the Plant Treaty, recognised in an international treaty, making them part of international law.

FARMERS' VERSUS BREEDERS' RIGHTS

At the international level, therefore, TRIPS makes it mandatory for countries wishing to participate in international trade to provide for IP protection in relation to new varieties of plants. Complementary to TRIPS, the UPOV system not only provides for a framework for protection of new varieties of plants but also frames PVP in a manner that limits the exchange and trade of protected material between farmers, and only allows for the use of farm-saved seed to a limited extent. This is despite the fact that these farming practices are considered "fundamental to the realization of farmers' rights" in the preamble to the Plant Treaty. Indeed, the final provision of the Plant Treaty's Article 9 on farmers' rights states that "[n]othing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate". Despite this apparent conflict between the Plant Treaty and UPOV 1991 regarding the freedoms farmers can exercise in relation to protected plant varieties, the official UPOV view is that these two conventions are not in conflict (UPOV, n.d.)

This conflict between the Plant Treaty and UPOV 1991 presents real challenges to countries in their quest to implement farmers' rights, a fact acknowledged by the Governing Body to the Plant Treaty in its various resolutions.[3] Despite the Governing Body's continued calls for countries to submit statements of their views and experiences on implementation of farmers' rights, only three out of 153 contracting countries – Madagascar, Norway and Poland – have made submissions (ITPGRFA, n.d.). However, civil society organisations, farmers' groups and seed associations have been active in providing inputs to the Governing Body on the implementation of farmers' rights in the communities and countries they operate in (including from countries that are not contracting parties to the Plant Treaty). According to the submissions made, the prime concern appears to be lack of guidance and support (from international level) on how to develop or adjust national legislation, policies, strategies and programmes for the realisation of farmers' rights. A particular concern is how to ensure or re-establish sufficient legal space within seed laws and IP legislation to enable farmers to continue conserving, developing and sustainably using the diversity of plant genetic resources.

The concerns specific to the African context are outlined in the next section of this article. Following on from that is a section looking at how the tensions can be bridged between farmers' access to, and breeders' protection of, new plant varieties. The final section provides conclusions.

THE AFRICAN PVP CONTEXT

The agricultural sector in most African countries looks very different from those in developed countries (whose characteristics informed the negotiation and adoption of the UPOV Conventions). Across sub-Saharan African nations, 82% of all farms are smaller than two hectares (Lowder et al., 2014), but at the same time, these small farms contribute up to 90% of food production in some of these countries (Wiggins, 2009).

Smallholder farmers are strongly dependent on their customary practices of saving, exchanging and selling farm-saved seed amongst each other and at local markets (Maredia et al., 1999). According to the World Bank (2008), this "informal" system plays an important role in fulfilling seed demand as it often safeguards the availability and affordability of seed – because the "formal" sector can, on average, only cater for less than 20% of total seed demand for food crops in African countries. Also, in order to get access to improved varieties developed by public or private breeding institutions, smallholder farmers acquire seed mainly through informal channels (Louwaars & De Boef, 2012). Furthermore, according to Lipper, Anderson and Dalton (2010), in addition to "over-the-fence" exchanging of farm-saved seed, many farmers earn a small amount of extra income by selling their surplus seed at the local grain markets after a good season.

The above notwithstanding, agriculture is a key provider of incomes and livelihoods on the African continent (World Bank, 2008). Yet the continent provides only a very insignificant market for global seed companies,[4] because for most African countries, breeding activities are public-sector-led – as opposed to the situation in Europe where seed-breeding and seed production have historically been perceived as business activities and are carried out by the private sector (Louwaars et al., 2013).

Until recently, very few African countries – Kenya, Morocco, South Africa, Tanzania, Tunisia and Zimbabwe – had an operational PVP system in place, and granting of plant breeders' rights was thus largely an alien concept. The increased adoption of PVP by African countries in recent years has been driven by several factors. First, there has been the aforementioned influence of the WTO TRIPS Agreement. Second, adoption of PVP has been found to attract foreign direct investment in some agricultural sectors (UPOV, 2005). Third, as illustrated by the wording of the preamble to the 2015 Arusha Protocol for the Protection of New varieties of Plants as adopted by the African

3 See, for example, ITPGRFA Governing Body Resolution 2/2007 (ITPGRFA Governing Body, 2007).

4 According to International Seed Federation (ISF) estimates for the value of the domestic seed market in selected countries in 2011, Africa provided only 3% of a USD30 billion global market. See ISF (2012a, 2012b).

Regional Intellectual Property Organisation (ARIPO), plant varieties protection is being positioned as serving as a basis for farmers and breeders to obtain new and improved planting materials. Accordingly, several PVP systems have emerged on the continent, at both regional and national levels (Arusha Protocol, 2015).

AFRICAN PVP INSTRUMENTS

For the Francophone countries of West and Central Africa who belong to the Organisation Africaine de la Propriété Intellectuelle (OAPI),[5] a PVP registration system has been in existence since the 1999 revision of the OAPI Bangui Agreement. Known as Annex X of the 1999 Revised Bangui Agreement, this PVP system (operationalised in 2006) provides a mechanism in which an application for PVP made through the system applies to all 17 OAPI Member States. This system is modelled in line with UPOV 1991. As at 2012, only 12 PVP certificates had been granted under this system. All grantees were public agricultural research institutions from OAPI states, and of the 12 grants, 10 were in relation to trees and two were for agricultural crops (Mahop et al., 2013).

In July 2015, ARIPO adopted the Arusha Protocol, modelled around UPOV 1991 standards. Another regional PVP system, similarly modelled around UPOV 1991, is currently being negotiated under the aegis of the Southern African Development Community (SADC). These two regional blocs (ARIPO and SADC) have a combined membership of 25 countries, some of whom already have national PVP registration systems in place.[6] Yet only three of these 25 countries, Kenya, South Africa and Tanzania, are required, as UPOV Member States, to follow UPOV standards. (Kenya and South Africa have subscribed to UPOV 1978. In 2012, Kenya revised its legislation in an attempt to upgrade to UPOV 1991 standards, and South Africa is, at the time of writing in 2015, engaged in a similar process. Tanzania's legislation complies with UPOV 1991 standards, and in October 2015, the country deposited an instrument of accession to UPOV. Tanzania became a party to UPOV on 22 November 2015).

Several criticisms have been levelled against the PVP systems either already in operation or under development in Africa, mostly by civil society organisations. First, there is the criticism that since these systems are based on UPOV 1991 standards, they are not designed to serve the needs of African farmers, who are mostly smallholders. Key to this criticism is the aforementioned reality that these farmers depend strongly on informal sources of seed to assure the availability and affordability of both traditional and improved plant varieties. As stated above, UPOV 1991 limits the possibilities for farmers to use, exchange and trade farm-saved seed of protected varieties.

The second criticism is that the existing UPOV-modelled regional and national PVP systems appear not to be acting as incentives for investment in plant-breeding. As stated above, since the OAPI system was operationalised in 2006, only 12 grants have been made across 17 countries and mostly for trees, not agricultural crops (Mahop et al., 2013). Also notable is the fact that in the countries with national systems in place, most of the applicants for registration of PVP are foreign, not local[7] – potentially a positive indicator for proponents of foreign direct investment, but a negative indicator for civil society organisations prioritising local investment in support of local farmers.

A third criticism relates to the criteria for protection, which are based on the standards for novelty, distinctness, uniformity and stability as set out in UPOV 1991. Civil society organisations question the appropriateness of these criteria in sub-Saharan Africa for several reasons:

- the novelty requirement focuses exclusively on commercial novelty;
- the distinctness requirement contains a very low threshold for inventiveness;
- the uniformity requirement could lead to erosion of genetic diversity and thus increased genetic vulnerability; and
- the uniformity and stability requirements make it extremely difficult for farmer varieties to be eligible for protection (De Jonge, 2014).

Another set of criticisms relate to African PVP systems' approach to farmers' rights. First, it is felt that the rights of farmers are generally marginalised and subordinated to the rights of breeders, as seen in most of the national and regional PVP instruments already in place or under development (De Jonge, 2014). This argument finds its authority in the fact that while 19 out of the 25 countries that are members of ARIPO and SADC are parties to the Plant Treaty, the Arusha Protocol and SADC Draft Protocol do not reflect any specific measures to protect and promote farmers' rights (in spite of provisions of that sort existing in the Plant Treaty).

Second, some commentators argue that the African regional PVP systems lack concrete mechanisms to prevent misappropriation of genetic resources and associated traditional knowledge. In fact, there is some concern that the regional PVP regimes will actually facilitate such misappropriation, arguing that foreign breeding companies can apply for exclusive rights on new varieties that may well have been created through use of local germplasm (De Jonge, 2014). A third set of criticisms, which are being levelled against the recently adopted Arusha Protocol under ARIPO and against the SADC PVP system currently under development, relates to uncertainty whether or not the new instruments, once they come to force, will confer rights directly to individuals in the Member States without requiring domesticating national laws to be put in place (Munyi et al., forthcoming). Also unclear is how the regional PVP systems are intended to interact with national PVP systems already in place in ARIPO and SADC countries (Munyi et al., forthcoming).

5 OAPI member states are Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Republic of Congo, Senegal and Togo.

6 The countries with national PVP registration systems in place are Kenya, Mozambique, South Africa, Tanzania, Zambia, Zimbabwe and, most recently, Uganda.

7 For example, according to UPOV statistics, in 2013 only two out of 56 applications in Morocco, nine out of 95 applications in Kenya, and 91 out of 309 applications in South Africa, were filed by residents (UPOV, 2014).

FARMERS' RIGHTS IN AFRICA

One of the earliest measures in support of farmers' rights in Africa was under the auspices of the Organisation of African Unity (the precursor to today's African Union), which in 2000 adopted the African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources (African Model Law). The African Model Law sought to recognise, protect and support the inalienable rights of local communities, including farming communities, over their biological resources, knowledge and technologies, and also to recognise and protect both farmers and breeders. In a nutshell, this model legislation sought to provide guidance on how a balance could be struck between the rights of farmers (and farming communities) on one hand and those of breeders on the other. As an example of that balance, the African Model Law provides, in Article 26(1), that farmers can "collectively save, use, multiply and process farm-saved seed of protected varieties" but cannot sell farm-saved seed of a protected variety on the seed industry on a commercial scale.

In spite of existence of these provisions in the African Model Law, they are for the most part not found in the existing national PVP legislation of African countries, creating the impression that the Model Law has largely been ignored (De Jonge, 2014). However, there has been renewed interest in the Model Law since the adoption of the Nagoya Protocol on Access and Benefit-sharing in 2010 (a supplementary agreement to the Convention on Biological Diversity). The Nagoya Protocol requires countries to take into account already existing access and benefit-sharing measures such as those set out by the Plant Treaty, and also the special nature of PGRFA, in implementing the Protocol at the national level. Accordingly, the meeting of the African Ministerial Conference on the Environment (AMCEN) in Cairo in March 2015 adopted a set of guidelines on the coordinated implementation of the Nagoya Protocol in Africa. These guidelines seek to complement and build upon the African Model Law.

Also relevant to African farmers' rights is the ARIPO Swakopmund Protocol on the Protection of Traditional Knowledge and Expressions of Folklore (which was adopted in 2010 and came into force on 11 May 2015), and a similar instrument adopted by OAPI in 2007. The two instruments, both seeking to protect traditional knowledge and expressions of folklore are similar in substance (Sackey & Kasilo, 2010).[8] The only provision dealing with protection of farmers' rights in the Swakopmund Protocol – a provision that, it could be argued, is in parlance with a similar provision in the Plant Treaty – is Article 15 dealing with protection of traditional knowledge associated with genetic resources, which reads as follows: "Authorization under this Protocol to access protected traditional knowledge associated with genetic resources shall not imply authorization to access genetic resources derived from the traditional knowledge" (Swakopmund Protocol, 2010). Even if this Swakopmund Protocol provision is construed as representing one of the measures provided under the Plant Treaty for protecting farmers' rights, the Protocol does not provide the other farmer' rights provided for in the Treaty.

Another forum where matters of African farmers' rights are dealt with is the meetings of the Governing Body of the Plant Treaty since the Treaty came into force in 2004. The Governing Body has, since 2007, through various resolutions, solicited views, experiences and best practices on implementation of farmers' rights from the Treaty's Contracting Parties and relevant organisations, in recognition of the uncertainty in many countries regarding implementation of farmers' rights. As noted above, the response by countries to these calls by the Governing Body has been poor.

However, efforts that countries have made in implementation of farmers' rights can be discerned from a report arising from a global consultation survey and conference on farmers' rights held in 2010 (Andersen & Winge, 2011; ITPGRFA Governing Body, 2011). African respondents to the survey and conference held a common view that farmers' rights are important in the maintenance of traditional seed systems and in decreasing the vulnerability of African smallholder farmers to food insecurity (Andersen & Winge, 2011). Also mentioned in the survey responses was the pronounced loss of plant varieties and traditional knowledge, and the need to reverse this trend. In terms of achievements made on realisation of farmers' rights, African respondents mentioned, inter alia, increased awareness of traditional knowledge and benefit-sharing, and a greater number of government-run programmes related to farmer participation in decision-making on seed practices. However, no African respondent mentioned adoption and implementation of relevant legislation as an achievement. Andersen and Winge (2011, p. 23) observe that only one stated that the country has good laws, and even in that case the respondent added that "their application remain irrelevant".

Andersen and Winge (2011) further state that the African respondents also pointed to a number of obstacles to the realisation of farmers' rights in their countries, including:

- lack of awareness by farmers of their rights;
- lack of awareness of farmers' rights among policymakers and government officials;
- legislation and policies that are counterproductive to the realisation of farmers' rights;
- domination of the agenda by the interests of large-scale and commercial farmers;
- lack of land rights;
- disagreements between breeders and farmers; and
- corruption.

While some of these cited obstacles are not uniquely African, a picture emerges of African countries as largely helpless in progressing farmers' rights.

8 The backdrop to these ARIPO and OAPI instruments is the ongoing work towards development of instruments by the World Intellectual Property Organisation (WIPO) Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, www.wipo.int/tk/en/igc

BRIDGING AFRICAN FARMER ACCESS WITH BREEDER IP PROTECTION

In seeking ways in which African countries can balance recognition and implementation of both farmers' rights and breeders' rights in their PVP systems, a limitation that immediately arises relates to the scope of the two sets of rights.

Farmers' rights and breeder's rights are separate and different, with farmers' rights encompassing broader issues, some of which have little if anything to do with IP per se. An example is the farmer's right to participate in making decisions, at national level, on matters related to the conservation and sustainable use of PGRFA, as provided for in the Plant Treaty. Not surprisingly, no equivalent right exists in PVP legislation.

Meanwhile, the protection of traditional knowledge relevant to PGRFA, and the right to equitably participate in sharing of benefits arising from utilisation of PGRFA, are farmers' rights but at the same time indirectly relate to breeders' rights. Despite the fact that these rights are not further defined or explained in the Plant Treaty, they seem to imply that farmers should be consulted and compensated if a newly protected variety has been developed through direct use of their traditional knowledge or traditional varieties.

The component of farmers' rights that is in direct clash with breeders' rights is the right that farmers have to save, use, exchange and sell farm-saved seed. This is the issue for which bridging mechanisms are now explored in the remainder of this section.

While a number of countries not party to the UPOV Convention, in both Africa and Asia, have taken steps to create a bridge between access to and protection of plant varieties,[9] in this article we focus on some provisions within UPOV 1991 itself that could potentially act as such a bridge. Our main motivation for this limited focus is that current developments in Africa suggest that most of the continent may well be adhering to UPOV 1991 standards in the not too distant future.

Before delving into the discussion about the provisions in UPOV 1991 that may facilitate bridging between farmers' and breeders' rights, it is important to re-state that the use, exchange and sale of farm-saved seed between farmers and at local markets play an important role in fulfilling seed demand for the vast majority of farmers on the African continent. These practices are not permitted in terms of UPOV 1991, unless under authorised and limited conditions. It is in this context, therefore, that we now explore two provisions of UPOV 1991 that can possibly be exploited in order to bridge access to, and protection of, plant varieties in Africa. The two elements – (1) the farmer's privilege, and (2) private, non-commercial use – are part of the exceptions to the breeders' right under article 15 of UPOV 1991.

THE FARMER'S PRIVILEGE EXCEPTION

The farmer's privilege exception (Article 15.2) provides that

> each Contracting Party may, within reasonable limits and subject to the safeguarding of the legitimate interest of the breeder, restrict the breeder's right in relation to any variety in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety […]. (UPOV, 1991)

As stated above, this optional exception is formulated very narrowly and only permits farmers to use farm-saved seed on their own holding, not allowing for the exchange (or sale) of farm-saved seed amongst farmers. In addition, the recommendations of the Diplomatic Conference for the Revision of the International Convention for the Protection of New Varieties of Plants (UPOV, 1992) state that the farmer's privilege

> should not be read so as to be intended to open the possibility of extending the practice [i.e., using farm-saved seed] […] to sectors of agricultural or horticultural production in which such privilege is not a common practice on the territory of the Contracting Party concerned. (UPOV, 1992)

As such, the farmer's privilege should only target those crops where, for a country concerned, there is and has been a common practice of farmers using farm-saved seed for further propagation.

Furthermore, the UPOV Council's 2009 Explanatory Notes on Exception to the Breeder's Right carefully stipulate how Contracting Parties can establish "reasonable limits" and safeguard the "legitimate interest of the breeder". For example, a country could choose to specify the maximum percentage of the harvested crop that the farmer may use for further propagation. A standard procedure to safeguard the breeders' interests is the requirement that a farmer using farm-saved seed of a protected variety pays an equitable remuneration to the breeder of that variety. This implies that a farmer has to pay a reduced royalty (often 50%) in comparison to the full royalty that is included in the price of seed as sold by a seed company (Ghijsen, 2007).

The only flexibility under the UPOV farmers' privilege that is offered to smallholder farmers relates to the level of remuneration to be paid to the breeder. The UPOV Council (UPOV, 2009) provides that "small farmers" with smallholdings (or small areas of crop) might be permitted to use farm-saved seed to a different extent and with a different level of remuneration to breeders than "large farmers". This approach has, for example, been applied by Article 14 of the European Council Regulation on Community Plant Variety Rights, which exempts small farmers from remuneration, with small farmers defined as farmers who do not grow plants on an area bigger than that which would be needed to produce 92 tonnes of cereal, or comparable criteria for other plant species.

9 These include Ethiopia, Zambia, India and Malaysia.

ARIPO's Arusha Protocol contains a similar approach in implementing the farmer's privilege. First, in Article 22(2), it provides that agricultural crops and vegetables for which there is a common historical practice of saving seed will be subject to the farmer's privilege exception, with the exception of fruits, ornamental plants and forest trees. Second, in Article 22(3), the draft Protocol provides that the conditions for implementing the farmers' privilege exception – e.g., the variance in level of remuneration to be paid by small- versus large-scale commercial farmers shall be stipulated in regulations linked to the Protocol. As such, the Arusha PVP Protocol seems to ignore the needs of smallholder farmers that strongly depend on the exchange and trade of farm-saved seed to fulfil their seed demand. This can hamper the accessibility and affordability of new but protected varieties for those farmers, which may need them the most. Under pressure from civil society organisations, SADC has included a broader definition of the farmers' privilege (Alliance for Food Sovereignty in Africa, 2014). Article 28(d) of the May 2014 Draft Protocol on PVP formulates the farmer's privilege as follows:

> acts done by a farmer to save, use, sow, re-sow or exchange for non-commercial purposes his or her farm produce including seed of a protected variety, within reasonable limits subject to the safeguarding of the legitimate interests of the holder of the breeder's right. The reasonable limits and the means of safeguarding the legitimate interests of the holder of the breeder's right shall be prescribed. (SADC Draft Protocol, 2014)

Here, the draft SADC Protocol goes a step further than ARIPO's Arusha Protocol in that the farmers' privilege also includes the "exchange for non-commercial purposes" in the scope of the exception. This is a possible way of reformulating the UPOV farmers' privilege in order to bridge access to, and protection of, plant varieties in the SADC region. However, given the fact that the reformulated exemption clearly deviates from the parameters of the exemption formulated in the UPOV 1991 Convention, it may not be approved by the UPOV Council in the event that SADC wants to become a member of UPOV.

THE PRIVATE AND NON-COMMERCIAL USE EXCEPTION

Article 15(1)(i) of UPOV 1991 provides that the breeder's right shall not extend to "acts done privately and for non-commercial purposes". The text does not define or clarify what are to be considered private and non-commercial acts, but UPOV's 2009 Explanatory Notes state that

> the propagation of a variety by a farmer exclusively for the production of a food crop to be consumed entirely by that farmer and the dependents of the farmer living on that holding, may be considered to fall within the meaning of acts done privately and for non-commercial purposes. Therefore, activities, including for example "subsistence farming", where these constitute acts done privately and for non-commercial purposes, may be considered to be excluded from the scope of the breeder's right, and farmers who conduct these kinds of activities freely benefit from the availability of protected new varieties. (UPOV, 2009)

It is apparent in this text that the UPOV Council's interpretation of "acts done privately and for non-commercial purposes" is very narrow. The Council's interpretation leaves out the issue of exchange, which is a key component for facilitating access to seeds and planting material in the African context, and thus a key component in implementation of farmers' rights. The Council's guidance only refers to propagation of a variety by a farmer for the production of a food crop "to be consumed entirely by that farmer and the dependents of the farmer living on that holding", thus clearly, though not explicitly, excluding exchange between neighbours (De Jonge, 2014). Further, there is no reference, explicit or otherwise, to acts such as selling or trading of seed surplus in the local grain market. As such, it cannot be construed that these acts fall within the definition of the private and non-commercial use exemption as presented in UPOV's Explanatory Notes.

Recently, however, UPOV has gone further in explaining the meaning of "acts done privately and for non-commercial purposes" in the frequently asked questions (FAQ) section of its website, as follows:

> UPOV Contracting Parties have the flexibility to consider, where the legitimate interests of the breeders are not significantly affected, in the occasional case of propagating material of protected varieties, allowing subsistence farmers to exchange this against other vital goods within the local community. (UPOV, n.d.)

According to De Jonge, Louwaars and Kinderlerer (2015), this explanation on the UPOV website is a small but significant step, as it shows that the UPOV Council is now apparently willing to accept a broader interpretation of this exemption than was the case before.

The most important thing to note, however, is that both the UPOV Council's Explanatory Notes of 2009 and the FAQ text on the UPOV website only provide guidance to countries seeking to interpret Article 15(1)(i); they have no legal force. And since the UPOV Convention itself does not define "private and non-commercial use", countries are at liberty, in national or regional implementation rules and regulations complementary to national PVP laws, to interpret and define Article 15(1)(i) more broadly than the UPOV guidance suggests. De Jonge et al. (2015) argue, for example, that since seed exchange among smallholder farmers is an indispensable aspect of subsistence farming, this practice then clearly falls within the scope of private and non-commercial use. Likewise, the sale of surplus harvest by smallholder farmers in local markets provides these farmers with a badly needed extra income for purchase of basic human necessities such as food, medical care and schooling (Berne Declaration, 2014) and can also fall within this exception. Indeed, members of the European Seed Association (2011) have taken the view that such practices

do not affect their commercial interests (ESA, 2011). With breeding companies taking this broader view, there is no reason for African countries not to adopt the same approach in their national and regional PVP laws and Protocols in order to bridge access to, and protection of, plant varieties within their territories.

CONCLUSIONS

Currently, African countries, through national instruments and regional platforms, have adopted, or are in the process of adopting, systems for PVP based on the UPOV 1991 Convention. These developments have not been without criticisms, because of concerns that, inter alia, the processes under way are not adequately taking into account farmers' rights, in particular the rights of farmers to save, exchange and sell farm-saved seed.

In this article, we have explored two UPOV 1991 provisions for their potential to provide a bridge between access to new plant varieties by African smallholder farmers and protection of breeder's rights in these new varieties. From the two exemptions to breeders' rights discussed in this article, we may conclude that the private and non-commercial use exemption can best be exploited by African countries to establish plant breeders' IP rights while still safeguarding the farmers' traditional practices of saving, exchanging and selling farm-saved seed.

By bridging access to and protection of plant varieties, African countries would overcome at least some of the conflicts and tensions that have so far beset the quest to implement PVP on the continent.

ACKNOWLEDGEMENTS

This work is part of the research programme Responsible Innovation, which is financed by the Netherlands Organisation for Scientific Research (NWO).

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