

# ISSD Africa

## Synthesis paper



# Creating space for 'informal' seed systems in a plant variety protection system that is based on UPOV 1991

## Summary

Plant variety protection (PVP) gives a right holder (breeder) the possibility to exclude others from using his or her invention (plant variety) for a particular period. African regional organizations are currently establishing PVP systems that are in line with the international standards set by the International Union for the Protection of New Varieties of Plants (UPOV). Proponents hope that a UPOV-compliant PVP system will incentivize breeding and the introduction of new varieties, while opponents fear that such a PVP system would favour foreign seed companies and criminalize farmers. The dichotomies between proponents and opponents have taken centre stage in national and international debates on this topic, and there is much distrust and misunderstanding between the various parties involved.

The challenge for African countries is to strike a balance between protecting the interests of breeders in order to maintain the incentive function of plant breeders' rights in the commercial market, while providing leeway to smallholder farmers that depend on informal sources for their seed security and survival. The project has created space for key stakeholders to meet and discuss their viewpoints, thereby starting a process of mutual learning and understanding, both at the international and national level.

From these efforts, it can be concluded that in most African countries PVP is relevant for only a small segment of the formal seed sector. PVP, like any intellectual property right, is intended to stimulate innovation and development by regulating rights and obligations amongst parties involved in commercial trade. A PVP system will not incentivize breeding in crops for which there is no

commercial market. For that reason, public research organizations should carefully manage PVP applications and not overestimate prospective revenues.

It was also concluded that a PVP system compliant with UPOV 1991 can restrict the accessibility of protected varieties for smallholder farmers as it does not allow farmers to trade seed of a protected variety. Recent research confirms that smallholder farmers access their seed mainly from informal channels, with the majority being bought from local markets. Therefore, it is recommended that UPOV member countries apply a broad interpretation of the UPOV exemption for acts conducted privately and for non-commercial purposes. This can be achieved by developing regulations that allow a certain category of farmers (i.e. smallholder or resource-poor farmers) to freely save, exchange and sell farm-saved seed of protected varieties of food crops.

Other concerns raised during the stakeholder meetings relate to the need to improve transparency and democratic accountability in decision-making processes on PVP, and the compatibility of the UPOV system with national and international legislation on access and benefit-sharing.

## Introduction

Several African countries have made commitments to international agreements and protocols that directly or indirectly affect their agricultural sector, including its key building blocks: seed and germplasm. A key question in this respect is: *How can governments implement their international commitments in ways that foster a viable and pluralistic seed sector?* International commitments in the

field of intellectual property rights (IPRs) are one example. Through IPRs, people can protect their creations of the mind, be it a technical invention, a poem or a new plant variety. An IPR gives the holder the right to exclude others from using his or her creation for a particular duration of time.

Most African countries are members of the World Trade Organization (WTO), which has established minimum standards of intellectual property (IP) protection for all its member states through the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). With respect to plant varieties, the TRIPS Agreement obliges members to provide for the protection of plant varieties either by patents or by an effective *sui generis* system, or by any combination thereof.<sup>1</sup>

No African country grants patent protection on new plant varieties (some countries do allow for the patenting of plant material), and few countries have so far established a *sui generis* system for that purpose. This is not surprising, since 34 African countries are classified as least-developed countries (LDCs), which have until 2021 to comply with the TRIPS provisions, or until the moment that they cease to be an LDC (and this transition period can be further extended).<sup>2</sup>

However, this situation is about to change, as African regional organizations are in the process of establishing plant variety protection (PVP) systems that are in line with the international standards set by the International Union for the Protection of New Varieties of Plants (UPOV). In 2014, the regional IP organization of West Africa, the African Intellectual Property Organization (OAPI), joined UPOV as its fifth member in Africa. One year later, the African

Regional Intellectual Property Organization (ARIPO) of mainly eastern and southern African countries adopted the Arusha Protocol for the Protection of New Varieties of Plants, which is largely in conformity with the UPOV 1991 Convention. Other regional organizations, such as the South African Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA) and the East African Community (EAC) have planned to establish similar PVP systems. Together, these regional organizations encompass most countries in sub-Saharan Africa.

By establishing such PVP systems, African countries hope to incentivize breeding and the introduction of new varieties, allowing farmers to access a wide range of improved varieties to contribute to both economic development and food security.<sup>3</sup> Yet, these developments are being strongly opposed by several civil society organizations (CSOs), which are of the opinion that the proposed legal frameworks are unsuitable for most African countries. A key concern is that a UPOV-based PVP system merely favours the interests of commercial breeders and marginalizes smallholder farmers by impeding the traditional farming practices of using, exchanging and selling farm-saved seed (Saez, 2013).<sup>4</sup>

The dichotomies between proponents and opponents of the ongoing regional harmonization processes have taken centre stage and can be found both at the regional and national levels in Africa. Yet, proponents and antagonists seldom if ever sit together to openly discuss their viewpoints, which obstructs processes of mutual learning and understanding. In addition, many consider the topic extremely complex, and misconceptions and uncertainties about the potential effects of PVP systems (both the UPOV system and alternative *sui-generis* systems) proliferate.

## Box 1 Integrated seed sector development

Integrated seed sector development (ISSD) acknowledges the coexistence of multiple seed systems in any country, which all play their role in providing farmers with seed, ranging from 'informal' farmer-to-farmer exchange to formal production and marketing of certified seed. By recognizing that each seed system has its own benefits and limitations, and requires a unique approach in strengthening it, ISSD aims to foster pluralism and guide national policymaking in its design to strengthen multiple seed systems that provide farmers with quality seed of the varieties they prefer.

The ISSD concept has evolved as a response to the predominant and exclusive focus on formal seed systems in seed sector development policies, which operate with a linear perspective expecting that informal seed systems will gradually evolve into formal and commercial systems. Despite all past public and private efforts in seed sector development, informal or farmer-managed seed systems continue to dominate in most African countries, supplying more than 80% of the total food crop seed used by farmers (Louwaars, de Boef and Edeme, 2013). Smallholder farmers in particular rely on farmer-saved seed for many crops since seed is simply not available (or affordable) through other sources.

<sup>1</sup> TRIPs Agreement, 1995. Article 27.3b, see: [https://www.wto.org/english/tratop\\_e/trips\\_e/trips\\_e.htm](https://www.wto.org/english/tratop_e/trips_e/trips_e.htm), accessed 13 February 2017.

<sup>2</sup> TRIPS Agreement, 1995. Article 66.1, see: [https://www.wto.org/english/tratop\\_e/trips\\_e/ldc\\_e.htm](https://www.wto.org/english/tratop_e/trips_e/ldc_e.htm), accessed 13 February 2017.

<sup>3</sup> See New (2013) for the Draft ARIPO legal framework for the protection of new varieties of plants.

<sup>4</sup> See Saez (2013) for civil society concerns on the draft protocol for the protection of new varieties of plants (plant breeders' rights) in the SADC region.

The authors believe it is important to look at the potential benefits and drawbacks of plant variety protection for different seed systems. The integrated seed sector development (ISSD, see box 1) approach aims to contribute to improved access to quality seed of better (adapted) varieties of food and cash crops. This requires investments in plant breeding in which plant breeders' rights are likely to play an important role, in particular with respect to the formal – and above all commercial – seed systems. However, many smallholder farmers in Africa have difficulties in accessing quality seed of genetically superior varieties from these formal seed systems due to physical and financial constraints. These farmers may only access new varieties through the use and exchange of farm-saved seed.

The challenge for African countries is to strike a balance between protecting the interests of breeders, to maintain the incentive function of plant breeders' rights in the commercial market, while providing sufficient leeway to smallholder farmers that depend on informal sources for their seed security and survival. An equally pressing challenge is to establish a PVP system that is acceptable to the key stakeholders (notably farmers and breeders), as this is very likely a prerequisite for successful implementation. ISSD Africa aims to actively contribute to this endeavour by answering the action learning question:

*How can room be created for 'informal' seed systems in a UPOV 1991 informed plant variety protection system?*

## Activities undertaken

The following methods have been used to address the research question:

### 1 A desktop study assessing plant variety protection in Africa

This study has taken stock of the legal flexibilities within the UPOV 1991 Convention to accommodate some of the needs of smallholder farmers while protecting the interests of rights holders. A discussion paper (De Jonge and Munyi, 2015)<sup>5</sup> and viewpoint article (De Jonge, Louwaars and Kinderlerer, 2015) were prepared, with the aim of exploring opportunities for a differentiated approach to plant variety protection, i.e. a PVP system that creates different levels of protection in relation to different crops and/or farmers. The discussion paper was widely disseminated to key stakeholders who were invited to comment. This has fed the discussion and conclusions on the topic presented here.

### 2 Organization of regional and national meetings, creating space for an open dialogue on PVP in Africa between key stakeholders

The social controversies that exist with respect to the current processes of harmonizing PVP laws in Africa, in combination with the many uncertainties and misconceptions that seem to exist regarding the potential effects of these laws on different farming systems, warrant the need for the establishment of open dialogues between proponents and opponents. Space was created for key stakeholders to meet and discuss their viewpoints, which triggered a process of mutual learning and understanding, both at the regional and the national level. The following three meetings were organized, bringing together key stakeholders from international, regional and national levels:

- High level round-table meeting on plant variety protection in Africa, 27-28 November 2014, Cape Town, South Africa<sup>6</sup>.
- Seed laws: can room be created for informal and intermediary seed systems in a UPOV '91 informed plant variety protection system? 20 October 2015, Harare, Zimbabwe<sup>7</sup>.
- Experts' meeting on the impact of seed laws on smallholder farming systems in Africa: challenges and opportunities. 16-17 March 2016, Cape Town, South Africa<sup>8</sup>.

## Outcomes and lessons learned

African countries and regional organizations are investing in the establishment of PVP systems across the continent. Given the importance of both formal and informal seed systems for economic development and food security at national and household levels, the challenge for African countries is to implement a PVP system that incentivizes investments in commercial breeding without creating extra impediments to the accessibility of protected varieties for smallholder farmers. The goal of this action learning question has been to explore the possibilities for, and describe the contours of, a differentiated PVP system that can achieve that challenge, especially in relation to UPOV 1991 since the regional trade and IP organizations in Africa explicitly aim to establish a harmonized PVP law on the basis of this Convention. From these desktop studies and stakeholder meetings the following conclusions can be drawn:

<sup>5</sup> The discussion paper was later published in slightly revised form as De Jonge and Munyi (2016).

<sup>6</sup> The meeting report is available at <http://www.issdseed.org/thematic-working-group-3-matching-global-commitments-national-realities>, accessed 3 March 2017.

<sup>7</sup> The meeting report is available at <http://www.ctdt.co.zw/download/3030/>, accessed 3 March 2017.

<sup>8</sup> The meeting report is available at <http://www.issdseed.org/thematic-working-group-3-matching-global-commitments-national-realities>, accessed 3 March 2017.

## 1 In most African countries, PVP is relevant for only a small segment of the formal seed sector

PVP, like any intellectual property rights, are intended to stimulate innovation and development by regulating rights and obligations amongst parties involved in commercial trade. A PVP system will not incentivize breeding in crops for which there is no commercial market. This implies that in many African countries a PVP system will only serve a minor share of the existing seed systems, most notably those that cater to the needs of large commercial farmers linked to national and international markets.

This can be exemplified by looking at experiences in Kenya, which is one of the few long-standing UPOV members in sub-Saharan Africa, having joined in 1999. Since the instalment of its PVP law up until August 2016, 1,458 PVP applications have been filed in Kenya. Of these applications, 60% account for ornamentals, most of which are roses (82%). 99% of these applications are filed by foreign companies. Food crops account for only 29% of all applications filed. Of these, 36% are for maize. It is also notable that 90% of the food crops applicants come from Kenya and only 10% from abroad, which mainly focus on maize and French beans, which is an export crop.<sup>9</sup> A detailed summary of the PVP applications filed in Kenya since 1999 is annexed to this report (see Annex 1).

Figure 1 shows a percentage summary of the 1,458 PVP applications filed in Kenya between 1999 and August 2016.

Figure 2 further shows the distribution of the 15% of PVP applications made in relation to cereal crops. Over 60% of those applications made concern maize.

Figure 3 shows the distribution of the 3% of PVP applications made in relation to vegetable crops. Over 75% of the applications relate to French beans, which is an export crop.

## 2 Public research organizations should manage PVP applications carefully and not overestimate prospective revenues

It is important to note that public research organizations should not overestimate potential revenues to be derived from plant variety protection. For example, upon the passage of the Kenyan Seeds and Plant Varieties Regulations in 1994, the Kenya Agricultural Research Institute (KARI, now the Kenyan Agricultural and Livestock Research Organization) projected an 8% contribution of their operating income from breeder royalties (Ndii and Byerlee, 2004). This appears to have been a very optimistic projection; in 2011, breeder royalties contributed only about 0.031% of KARI's operating income (De Jonge and Munyi, 2016). For many crops and farming areas, breeding will continue to depend on public investments and farmer breeding without PVP playing an incentivizing role for many years to come.

Figure 1. Summary of PVP applications in Kenya, 1999 to August 2016

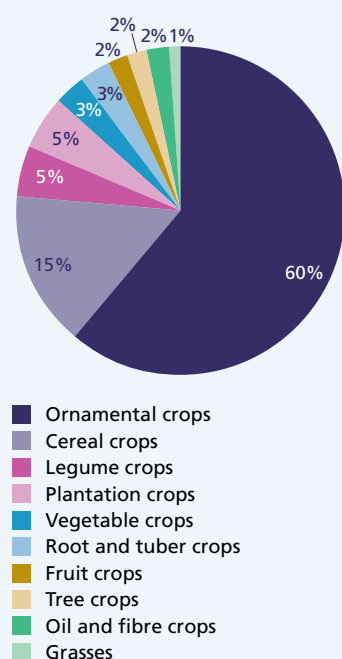


Figure 2. Distribution of PVP applications made in Kenya for cereal crops, 1999 to August 2016

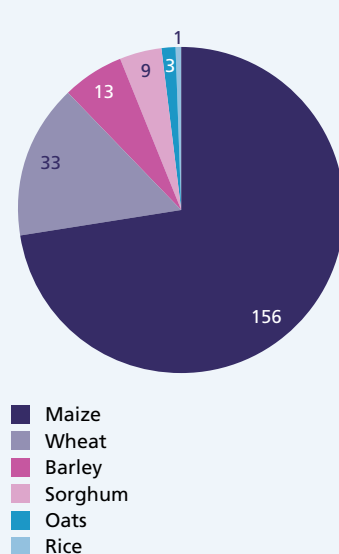
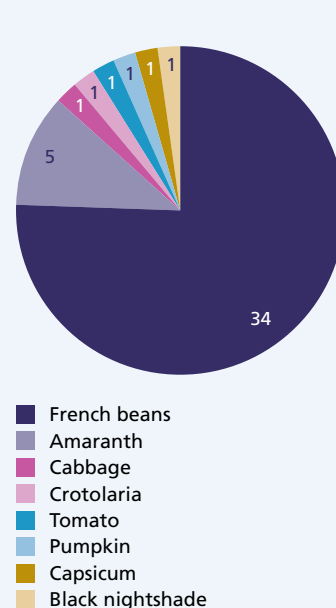


Figure 3. Distribution of PVP applications made in Kenya for vegetable crops, 1999 to August 2016



<sup>9</sup> Data derived from the UPOV website on 26 August 2016; available at <http://www.upov.int/databases/en/>, accessed 13 February 2017.





*Participants of the High Level Round-Table Meeting on PVP in Africa, Cape Town South Africa, November 2014*

In the case of public-private seed systems, where a commercial seed market may be emerging but investments in breeding are still predominantly made by the public sector, carefully considered IP management is of crucial importance. For example, plant breeders' rights taken out by a public research organization can strengthen the incentive function of a semi-exclusive license to be provided to a seed company for distributing a new variety to farmers in a particular region. Yet, when public organizations work with local seed businesses in an effort to strengthen the production of quality seed in a marginalized area (e.g. by providing improved and clean propagation material for multiplication), any increase in seed price due to costs of IP protection may negatively affect business vitality.

### **3 The UPOV 1991 Convention can restrict the accessibility of protected varieties for smallholder farmers**

Most importantly, the UPOV 1991 Convention does not allow (smallholder) farmers to exchange and trade farm-saved seed of a protected variety. Several studies have shown that smallholder farmers in developing countries depend on the informal exchange of farm-saved seed for their seed security (Louwaars and de Boef, 2012). A recent study, drawing conclusions from 9,660 observations across six countries and covering 40 crops, shows that smallholder farmers access 90.2% of

their seed from informal systems with the majority being bought from local markets (McGuire and Sperling, 2016). Smallholder farmers access new, improved varieties mainly through the same informal channels of seed exchange and local trade, primarily because most farmers have no access to formal seed outlets or cannot afford to buy their seed. By not allowing for these traditional farming practices, smallholder farmers can be criminalized and their main channel to access new, improved varieties may be blocked.

### **4 African countries should seize the opportunity to establish a PVP system that suits their specific needs**

As has repeatedly been emphasized, the WTO TRIPS Agreement does not prescribe a specific PVP system, and least-developed countries (LDCs, which comprise 35 of the 53 African countries) are exempted from complying with the TRIPS provisions until 2021 (and this transition period can be further extended), or until the moment the country ceases to be an LDC.<sup>10</sup> Obviously, it is up to a country or regional organization to decide whether to apply for UPOV membership or not. There are several examples of countries that have drafted an alternative sui generis system for the protection of plant varieties, like Thailand and India, while at the regional level there is the African Model Legislation for the Protection of the Rights of

<sup>10</sup> See [https://www.wto.org/english/tratop\\_e/trips\\_e/ldc\\_e.htm](https://www.wto.org/english/tratop_e/trips_e/ldc_e.htm), accessed 13 February 2017.

<sup>11</sup> For more information, see Correa, Shashikant and Meienberg (2015).

Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources.<sup>11</sup> For countries and regional organizations that aim to stimulate investments and (international) trade in commercial (export) crops by joining UPOV 1991, there are two possibilities through which legal space for smallholder farmers and their so-called 'informal' farming practices can be created.

#### 5 The UPOV exemption for acts done privately and for non-commercial purposes provides the best opportunity to create legal space for farmer-managed seed systems in a UPOV 1991 compliant PVP system

One optional exemption in UPOV 1991 is the so-called 'farmers' privilege', which holds that countries may allow farmers to save and reuse seed of a protected variety "on their own holding" and "within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder" (Article 15.2). This means that the exemption may only apply to a specific set of crops, and does not allow for any form of exchange of farm-saved seed. In addition, farmers may need to remunerate the breeder for reusing seed of a protected variety. Some countries have broadened this exemption in order to also allow farmers to exchange their farm-saved seed (e.g. the Republic of Uganda, through Article 15c of its PVP law of 2014). Yet, since UPOV candidate members need to submit their PVP law for review, approval of a broadened farmers' privilege is dependent on the decision of the UPOV Council.

A better option, therefore, is the exemption for "acts done privately and for non-commercial purposes" (Article 15.1.i). Since this compulsory exemption is not further defined in UPOV 1991, members are free to define the farming practices that they consider to fall within the scope of this exception.<sup>12</sup> For example, African countries can develop regulations that allow a certain category of farmers (i.e. smallholder or resource-poor farmers) to freely save, exchange and sell farm-saved seed of protected varieties. Such interpretation of the private and non-commercial use exemption can be included in the national or regional implementation rules that complement their primary PVP laws. In this way, African countries and regional organizations can establish a PVP system that maintains the incentive function of plant breeders' rights in the commercial market without creating extra impediments to the accessibility of protected varieties of food crops for smallholder farmers operating in farmer-managed seed systems.

#### 6 Clear definitions are needed to make the exemption operational: What is a smallholder farmer?

A differentiated PVP system establishes different levels of protection for different crops in relation to different categories of farmers. A broader interpretation of UPOV's private and non-commercial use exemption can create freedom to operate for smallholder farmers within the UPOV system. In order to make this broad exception to the breeders' right legally and practically operational, a precise definition of the targeted category of farmers, and the specific activities the exemption allows for, are necessary. Generally, smallholder farmers have been classified in terms of 1) farm size or cropping area; 2) production or production capacity; and 3) profits or income. Even though farm size is the predominant indicator used to define smallholder farmers, a more accurate approach is to use a definition on the basis of cropping area, setting parameters for different crops and in relation to different agro-ecological zones in a country or region. Another option to distinguish the resource-poor farmers that one wants to allow free use of protected varieties is to set a threshold in relation to the average household income in a country. For example, the Ethiopian draft PVP bill defines a smallholder farmer as someone whose total earnings from the sale of crops produced do not exceed the average household income. By linking to a country's average income, this approach can equally be applied to different countries and is independent of agro-ecological differences between regions.

#### 7 The exchange and local trade of farm-saved seed of protected varieties need to fall within the scope of the exemption

With respect to the specific activities the private and non-commercial use exemption should allow for, it must be emphasized that smallholder farmers strongly depend on the exchange and local trade of farm-saved seed for their seed security. In a recently published FAQ on its website, UPOV states that "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."<sup>13</sup> This interpretation of UPOV's private and non-commercial use exemption is too narrow as any person farming for subsistence needs will aim to sell some of his or her harvest after a good season, or exchange seed with, for example, family members living outside the local community. Therefore, UPOV is urged to widen its interpretation of the private and non-commercial use exemption in the UPOV 1991 Convention.

<sup>11</sup> For more information, see Correa, Shashikant and Meienberg (2015).

<sup>12</sup> UPOV has produced some interpretations of the exemption (e.g. in UPOV's explanatory notes and FAQs) but these have no legal force and member countries do not need to submit their secondary legislation for approval by the UPOV council.

<sup>13</sup> See: <http://www.upov.int/about/en/faq.html#Q30>.

## 8 Other solutions raised range from establishing an alternative PVP system to re-opening the UPOV 1978 Convention for developing countries

In 2015, a handbook was developed that clearly describes how developing countries can design and establish a sui generis PVP system as an alternative to UPOV 1991 (Correa, Shashikant and Meienberg, 2015). Another option repeatedly raised was to re-open the UPOV 1978 Convention for developing countries. It was considered that the UPOV 1978 Convention contains several provisions that better suit developing countries. For example, the 1978 Convention does not require member countries to apply plant variety protection to all crops. Developing countries may thus only apply PVP to certain high-value crops like ornamentals and vegetables. In addition, the scope of the breeders' right under UPOV 1978 only extends to commercial use, implying that non-commercial use of protected varieties is allowed for. It has to be noted, however, that to create legal certainty for both farmers and breeders, this implicit exemption – i.e. what is considered (non-)commercial use – needs to be clearly defined in the regulations relating to a country's PVP law.

## 9 Other concerns raised during the stakeholder meetings relate to the need to improve transparency and democratic accountability in decision-making processes on PVP, and the compatibility of the UPOV system with national and international legislation on access and benefit-sharing

Some stakeholders are concerned about the lack of transparency and democratic accountability in decision-making processes on PVP, which often take place behind closed doors. One example is the exclusion of farmers' organizations during the deliberations where ARIPO's Arusha Protocol was adopted. Another concern relates to the fact that UPOV does not support member states in aligning their PVP laws with international obligations on the protection of traditional knowledge and benefit sharing, as formulated under the Convention on Biological Diversity (CBD), the Nagoya Protocol on Access and Benefit-Sharing (Nagoya Protocol), and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). In particular, the lack of concrete mechanisms in a UPOV-compliant PVP law to help prevent misappropriation of genetic resources and associated traditional knowledge was often raised. Possible ways to deal with these concerns have been discussed elsewhere.<sup>14</sup>

## 10 The topic remains controversial with strong disagreements and mutual misunderstanding

The project has succeeded in bringing together key stakeholders active in the current debate on plant variety protection in Africa. By creating space for informal discussions and the sharing of viewpoints, a process of learning and building mutual understanding has begun. Yet, this has proven to be just a starting point in a process that needs more time and efforts from all parties involved to overcome the dichotomy between proponents and opponents of a UPOV-based PVP system. Next to strongly divergent viewpoints between those active at either side of the debate, there remains a great deal of misconception and uncertainty amongst stakeholders about the pros and cons of PVP and the impact of UPOV on innovation and smallholder farmers. In addition, it is important to note that (smallholder) farmers and breeding companies, despite being the main stakeholders, are often under-represented in the PVP discussions.

### A solution to the controversy on plant variety protection in Africa

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African countries can establish a plant variety protection system that supports commercial seed systems without negatively affecting smallholder farmers.

African countries are fast-tracking the protection of plant varieties by embracing the 1991 Convention of the International Union for the Protection of New Varieties of Plants (UPOV). The West-African Organisation Africaine de la Propriété Intellectuelle joined UPOV as its fifth African member in 2014. Around the same time, UPOV assessed a draft legislation of the African Regional Intellectual Property Organization to be in conformity with its 1991 Act, paving the way for this East-African organization to become a UPOV member as well. The Southern African Development Community is currently drafting similar legislation. Altogether, these regional organizations represent 42 African countries. These decisions are controversial among those who believe they will have a negative impact on smallholder farmers' seed systems. Here, we show in this commentary that African countries, by seizing the opportunity to implement a broad interpretation of one of the UPOV 1991 provisions, can overcome the controversy and establish a plant variety protection system that supports commercial seed systems without negatively affecting smallholders.

#### UPOV embraced and criticized

Plant variety protection is a proven method for supporting commercial seed systems in many countries. By granting an exclusive right to the commercialization of new varieties, it provides an incentive to invest in plant breeding.

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An Ethiopian farmer in her barley seed crop field.

ing and organizing seed markets, two important tools permitting farmers to access a wide range of new varieties. By establishing such systems, African countries aim to meet requirements of the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) Article 27.3.b and, in addition, hope to incentivize breeding and the introduction of new varieties, allowing farmers to access a wide range of improved varieties to contribute to the attainment of the regional goal of economic development and food security<sup>15</sup>.

UPOV is, however, strongly opposed by a wide range of civil society organizations. They are of the opinion that the proposed legal framework is unsuitable for African countries, as they fear that the UPOV 1991 system 'outlaws centuries-old practices of farmers freely using,

exchanging and sowing seeds/propagating material'<sup>16</sup>. Such practices, which are often referred to as the informal seed sector, are of crucial importance for seed security in Africa, supplying more than 80% of the total food crop seed used by farmers<sup>17</sup>. The same practices are also considered an important farmers' right in the International Treaty on Plant Genetic Resources for Food and Agriculture. Yet, the breeder's right under the UPOV 1991 Convention has always been understood as forbidding farmer-to-farmer exchange of seed of protected varieties.

#### Assessment of the critique

The UPOV 1991 system will protect only new varieties that are granted a plant breeder's right, which means that all varieties currently in use by farmers in the region will remain free of

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<sup>14</sup> See, for example, Dutfield (2011), p. 17.



## Next Steps

This report has aimed to answer the action learning question of how to create room for ‘informal’ seed systems in a UPOV 1991 informed plant variety protection system.

The research was conducted in order to assist countries in establishing a PVP system that is supportive of, or at least not detrimental to, the various seed systems that operate within the country, and that is acceptable to its key stakeholders, notably farmers and breeders. ISSD Africa should continue contributing to this endeavour by:

- Building understanding and capacity amongst farmers, (public) breeders and policymakers on PVP and its role in seed sector development through open and constructive dialogue.
- Monitoring the impact of existing PVP systems on various seed systems.
- Promoting inclusive and transparent decision-making processes at national, regional and international levels.
- Promoting a broader interpretation of the private and non-commercial use exemption in UPOV and its member countries, to create legal space for farmer-managed seed systems.

In addition, several extra action points were selected by the participants of the experts’ meeting in Cape Town; these include the following:

- Review and amend current PVP laws (plus Article 15 in UPOV) to create more space for smallholder farming practices.
- Support the domestication of farmers’ rights (Article 9 of the ITPGRFA); e.g. by developing guidelines for their implementation.
- Support blocks of African country delegates (in UPOV etc.) to participate as farmer-managed seed system champions (through awareness raising, capacity building and coalition building).
- Explore alternative mechanisms to facilitate smallholder farmers’ access to protected varieties (e.g. subsidy programmes, review of fiscal policies).
- Support (fund) implementation of alternative PVP systems.
- Explore PVP systems that incorporate smallholders’ knowledge and/or protect farmers’ varieties.
- Strengthen collaboration between plant breeders and smallholder farmers (e.g. participatory plant breeding and variety selection).
- Conduct comparative studies on the impact of (UPOV-compliant and alternative) PVP laws on research and development (R&D) in different crops.
- Conduct comparative studies on the impact of patent laws on R&D in plant breeding and smallholder farmers’ access to protected varieties.

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## References

- Correa, C.M., Shashikant, S. and Meienberg, F. (2015) *Plant variety protection in developing countries: a tool for designing a sui generis plant variety protection system: an alternative to UPOV 1991*. Association for Plant Breeding for the Benefit of Society (APBREBES) and its member organizations: Berne Declaration, Development Fund, SEARICE, Third World Network. Available at <http://www.apbrebes.org/news/new-publication-plant-variety-protection-developing-countries-tool-designing-sui-generis-plant>, accessed 13 February 2017.
- De Jonge, B. and Munyi, P. (2016) 'A differentiated approach to plant variety protection in Africa', *The Journal of World Intellectual Property*, 19(1-2), pp. 28–52.
- De Jonge, B. and Munyi, P. (2015) *A differentiated approach to plant variety protection in Africa*. Available at SSRN: <http://ssrn.com/abstract=2619763>, accessed 13 February 2017.
- De Jonge, B., Louwaars, N.P., Kinderlerer, J. (2015) 'A solution to the controversy on plant variety protection in Africa', *Nature Biotechnology*, 33(5), pp. 487–488.
- De Jonge, B., Hickling, B. and Warner, N. (2014) 'Report', *High level round-table meeting on plant variety protection in Africa, 27-28 November 2014, Cape Town, South Africa*. Available at <http://www.issdseed.org/resource/high-level-round-table-meeting-plant-variety-protection-africa-27---28th-november-2014>, accessed 13 February 2017.
- Dutfield, G. (2011) 'Food, biological diversity and intellectual property: the role of the International Union for the Protection of New Varieties of Plants (UPOV)', *Intellectual Property Issue*, 9, pp. 24. Geneva: QUNO. Available at <http://www.quno.org/resource/2011/2/food-biological-diversity-and-intellectual-property>, accessed 14 February 2017.
- Louwaars, N. P., de Boef, W. S. and Edeme, J. (2013) 'Integrated seed sector development in Africa: a basis for seed policy and law', *Journal of Crop Improvement*, 27(2), pp. 186–214.
- Louwaars, N.P., and de Boef, W.S. (2012) 'Integrated seed sector development in Africa: a conceptual framework for creating coherence between practices, programs, and policies', *Journal of Crop Improvement*, 26, pp. 39–59.
- McGuire, S.J. and Sperling, L. (2016) 'Seed systems small-holder farmers use', *Food Security*, 8(1), pp. 179–195.
- Ndii, D. and Byerlee, D. (2004) 'Realizing the potential for private-sector participation in agricultural research in Kenya', in Ndiritu, C.G., Lynam, J.K. and Mbabu, A.N. (eds.) *Transformation of agricultural research systems: lessons from Kenya*. East Lansing: Michigan State University Press.
- New, W. (2013) 'Critical moment for Africa's small farmers as ARIPO decides on plant variety protection', *Intellectual property watch*, 28 November. Available at <http://www.ip-watch.org/2013/11/28/critical-moment-for-africas-small-farmers-as-aripo-decides-on-plant-variety-protection/>, accessed 13 February 2017.
- Saez, C. (2013) 'African regional plant variety protection draft legislation raises protest', *Intellectual property watch*, 5 April. Available at <http://www.ip-watch.org/2013/04/05/african-regional-plant-variety-protection-draft-legislation-raises-protest/>, accessed 13 February 2017.

## Annex 1

### PVP applications in Kenya, 1999 to August 2016<sup>15</sup>

Common name	Variety description		Total
Rose	Ornamental crop	720	875
Hypericum	Ornamental crop	6	
Pelargonium	Ornamental crop	4	
Eryngium	Ornamental crop	1	
Marigold	Ornamental crop	1	
Pyrethrum	Ornamental crop	23	
Carnations	Ornamental crop	7	
Gypsophila	Ornamental crop	14	
Mandevilla	Ornamental crop	2	
Spider plant	Ornamental crop	1	
Calla lilly	Ornamental crop	5	
Limonium (Statice)	Ornamental crop	6	
Phlox	Ornamental crop	5	
Pin cushion flower	Ornamental crop	1	
Chrysanthemum	Ornamental crop	27	
Zantedeschia	Ornamental crop	1	
Alstroemeria	Ornamental crop	38	
Carnation	Ornamental crop	7	
Milk weed	Ornamental crop	1	
Golden rod	Ornamental crop	2	
Aster	Ornamental crop	2	
Birds of paradise	Ornamental crop	1	
Sugar cane	Grass crop	6	18
Rhodes grass	Grass crop	6	
Coloured guinea grass	Grass crop	1	
Setaria grass	Grass crop	2	
Congo signal grass	Grass crop	1	
Pepper grass	Grass crop	1	
Other grass	Grass crop	1	
Cotton	Oil and fibre crop	2	29
Safflower	Oil crop	1	
Rape seed	Oil crop	14	
Sunflower	Oil crop	12	
Blueberry	Fruit crop	5	33
Raspberry	Fruit crop	8	
Strawberry	Fruit crop	6	
Sweet yellow passion fruit	Fruit crop	5	
Granadilla	Fruit crop	1	
Pineapple	Fruit crop	3	
Avocado	Fruit crop	5	

<sup>15</sup> Data analysed from the UPOV website: [www.upov.int](http://www.upov.int), accessed 13 February 2017.

## PVP applications in Kenya, 1999 to August 2016<sup>15</sup>

Common name	Variety description		Total
Mung bean	Legume crop	3	74
Cowpea	Legume crop	4	
Finger millet	Legume crop	2	
Proso millet	Legume crop	1	
Pearl millet	Legume crop	3	
Pigeon pea	Legume crop	4	
Dolichos bean	Legume crop	2	
Castor bean	Legume crop	2	
Pea	Legume crop	9	
Dry bean	Legume crop	15	
Runner bean	Legume crop	3	
Snap pea	Legume crop	1	
Other beans	Legume crop	24	
Sun hemp	Legume crop	1	
French bean	Vegetable crop	34	45
Amaranthus	Vegetable crop	5	
Cabbage	Vegetable crop	1	
Crotolaria	Vegetable crop	1	
Tomato	Vegetable crop	1	
Pumpkin	Vegetable crop	1	
Pepper (Capsicum)	Vegetable crop	1	
Black night shade	Vegetable crop	1	
Sweet potato	Root and tuber crop	1	38
Cassava	Root and tuber crop	8	
Irish potato	Root and tuber crop	29	
Maize	Cereal crop	156	215
Sorghum	Cereal crop	9	
Oats	Cereal crop	3	
Wheat	Cereal crop	33	
Barley	Cereal crop	13	
Rice	Cereal crop	1	
Macadamia nut	Tree crop	22	30
Eucalyptus	Tree crop	8	
Coffee	Plantation crop	7	66
Tea	Plantation crop	55	
Stevia	Plantation crop	3	
Clover	Plantation crop	1	
Grape vine	Vine crop	1	1

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ISSD Africa is a community of practice that unites African seed experts, seed programmes and associated organizations, and which aims to increase farmers' access to quality seed through the development of a market-oriented, pluralistic and vibrant seed sector in Africa.

The ISSD approach is a farmer-focused and demand-driven seed sector development approach, which caters for the diversity of seed demands. Through this approach interventions are designed that are tailored to specific crops, value

chains and seed systems. It is a seed sector-wide and inclusive approach.

ISSD Africa is coordinated by a consortium of Wageningen Centre of Development Innovation (CDI) of Wageningen University & Research, the Royal Tropical Institute (KIT), the Future Agricultures Consortium and Tegemeo Institute of Agricultural Policy and Development in Nairobi Kenya.

For more information on our ISSD portfolio please visit our website [www.ISSDseed.org](http://www.ISSDseed.org).

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