### South Africa's new seed law and its impacts on farmer seed systems and agricultural biodiversity



#### african centre for biodiuersity

April 2019

www.acbio.org.za



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**Acknowledgements** The ACB is grateful to numerous donors who support our work.

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#### Background

South Africa's seed law, the Plant Improvement Act (PIA) No. 53 of 1976 has been replaced by a new seed law, the Plant Improvement Act 2018 (Act No. 11 of 2018), which was passed by Parliament on 23 October 2018, and signed by the president on the 29th March 2019. The new Act covers the registration of businesses that produce and sell seed, quality standards for seed intended for cultivation and sale, a national plant variety list (NVL), value for cultivation and use where needed, import and export of seed and plants, and certification schemes where relevant.<sup>1</sup>

The African Centre for Biodiversity (ACB) has been engaged in work on seed policy in South Africa for some time, including in relation to the Plant Improvement Bill (PIB) and drafts before it. In relation to the Bill, we have been actively involved with a network of farmer associations and other civil society organisations (CSOs) to raise concerns about the framing and scope of the Bill. Specifically, we have highlighted that the law focuses exclusively on commercial seed sector requirements. There is evidence, even in South Africa, where smallholder farming operates on the margins, that smallholder producers play an important role in maintaining, adapting and using agricultural biodiversity, and that rural local exchange and trade in farm-saved seed is an important source of seed access for these smallholders. This is especially, though not exclusively, the case for indigenous and other crops, where there is little commercial interest.

We raised further specific concerns with the Bill, including:

- All forms of seed exchange are included in the definition of sale, thereby criminalising seed exchange that underpins effective farmer seed systems;
- The Distinct, Uniform and Stable (DUS) criteria for the legal recognition of a variety and listing on the national varietal list is too static and is inappropriate for accommodating farmer seed which is heterogenous and adapts to dynamic production conditions over time. DUS entrenches genetic uniformity and monocultures;
- Quality controls based on commercial seed production frameworks are rigid and not always appropriate for farmer seed quality control and production. The processes outlined in the PIB are onerous and costly and designed to maintain the fixed "variety" way of looking at what is produced and cultivated. While quality controls are important, there needs to be some flexibility

. Phytosanitary requirements are regulated by the Agricultural Pests Act (Act No. 36 of 1983).

built in to accommodate diverse seeds and planting materials beyond sales of commercial varieties;

- There is lack of clarity about at what point farmers/farmer collectives will be required to register as businesses in order to produce and sell seed;
- Exemptions to the law do not apply to seed that is protected by plant breeders' rights (PBRs) as laid out in the Plant Breeders' Rights Act of 1976 and now its successor, the Plant Breeders' Rights Act of 2018.<sup>2</sup> Read together with the narrow exceptions currently provided in the newly enacted PBR Act 2018, this restricts the rights of smallholder farmers to freely exchange and sell seed in their seed systems.

### Core regulatory provisions of the newly **enacted PI Act**

The PI Act covers 96 crops, which include most major food and fodder crops in South Africa. Seed/plant material of any crops not on the list are not regulated by the Act and may be used, adapted and exchanged without restriction. In Chapter Four the Act requires that for the purposes of cultivation for sale,<sup>3</sup> plants and propagating materials must comply with certain requirements of the law, including that they must conform to the definition and requirements of "variety", registration and certification, labelling, seed cleaning and other requirements.

Two points of concern remain in this regard. First, in order for a variety to get onto the NVL, it must go through the onerous and restrictive DUS procedures. Second, a variety must appear on the NVL before it can be sold (commercially). This poses barriers to entry and effectively excludes farmers' diverse, adapting, heterogenous seed from being considered for sale or from use in public sector programmes for seed distribution, for example. This entrenches corporate market share and control over the seed system and public sector programmes. It is, thus, clear that the Act only caters for commercial seed varieties.

Is there a relationship between the provisions of the PI Act that speak to commercial seed varieties on the one hand, and farmers' seed on the other hand?

As we challenge the orientation of commercial seed laws, we need to clearly differentiate what is in farmers' fields from the varieties for which these laws and regulations are designed and which are regulated by the PI Act.

Seed in farmers' seed systems comprises of populations of wild species/relatives, germplasm/ breeding material, landraces, traditional/farmer/folk varieties/cultivars, and improved varieties/ cultivars (also described as monoculture varieties) (see Annex 1).

"Variety" is defined in terms of the Plant Improvement Act as: "... any plant grouping within a single botanical taxon of the lowest known rank, which grouping can be — (a) defined by the expression of the characteristics resulting from a given genotype or combination of genotypes; (b) distinguished from any other plant grouping by the expression of at least one of the said characteristics; and (c) considered as a unit with regard to its suitability for being propagated unchanged".

This definition of variety has its roots in taxonomists' criteria for distinguishing

<sup>2.</sup> The Plant Breeders' Rights Act of 1976 was reviewed together with the Plant Improvement Act of 1976. ACB and other organisations also made submissions during the PBR Bill review and consultation process (see https://acbio.org.za/sites/default/files/2017/03/Lobby-paper-PBR.pdf). A key concern is the expansion of breeders' rights and the related restriction on farmer's rights to save, reuse and exchange seed at will. Exceptions are limited to non-commercial use on own holdings.

<sup>3.</sup> The term "sell" includes – (a) agree to sell or to offer, keep, expose, send, convey or deliver for sale; and (b) to exchange or to otherwise dispose of to any person in any manner.



and naming cultivars, that is, distinctness, uniformity and stability, as set out in the International Code of Nomenclature for Cultivated Plants (ICNCP)<sup>4</sup> (Sherman, 2008; adopted by the International Convention for the Protection of New Varieties of Plants (the UPOV Convention), establishing minimum standards for plant breeders' rights and for national seed trade laws, as well as regional seed trade harmonisation agreements (Halewood and Lapeña, 2016; ACB, 2018). The ICNCP's main purpose is to ensure organisms have an agreed scientific name that is accepted worldwide, and to establish the rules governing the different ranks of a taxonomy (Cherfas, 2016).

The question, then, is whether "variety" as defined by the PI Act applies to farmers' seed,

especially farmers' varieties. Currently there is no fixed, internationally recognised taxonomic or legal definition of farmers' varieties. There have been efforts to recognise landrace varieties through registration procedures, such as the Southern African Development Community (SADC) seed trade harmonisation technical agreements; however it has become apparent that, while many such varieties may not fulfil the DUS criteria, others may have a clear set of qualities and characteristics, at least for a certain time period.

Our understanding of a "variety", read together with other relevant provisions of the PI Act is as follows: (a) a variety is a seed or plant type that qualifies for registration in terms of the Act, because it is distinguishable from the other varieties already registered in the country, because it has traits (genotypes) that

4. International Code of Nomenclature for Cultivated Plants, online: www.ishs.org/sci/ icracpco.htm



**Figure 1: PIA flowchart** 

express different characteristics (phenotypes) to the varieties already registered; (b) it must be able to be reproduced with its variety identity and purity intact (true to type) when it is produced or bulked up, whether through stringent mandatory or voluntary certification procedures or shortened procedures; and (c) in order to qualify for registration, a variety also goes through supervised testing procedures under the Act for a period of time.

If this interpretation is correct, the scope of a "variety" or "varieties" regulated by the PI Act do not include farmers' varieties. Nevertheless, there is a default impact on farmers' seed, in the sense that it is excluded from entering commercial seed markets.

# Exemptions provided by the PI Act

In the event that farmers' plant varieties are regulated by the PI Act, then the exemptions become important. The most relevant exemptions are those set out in certain subsections of section 23 (1) of the Act: "This Act does not apply to— (d) non-commercial varieties of the kinds of plants regulated by this Act. (2) For the purposes of subsection (1) (d), "non-commercial variety"— (a) means an unprotected variety<sup>5</sup> of any kind of plant

5. Here, reference is being made to varieties that are protected by the granting of plant breeders' rights in terms of the Plant Breeders' Rights Act.



regulated by this Act that is available for cultivation and sale on such non-commercial scale as may be prescribed; and (b) in the case of any kind of plant of which seeds are regulated by this Act, means any openpollinated variety of that kind of plant."

These exemptions are drafted in a way to also regulate what, in terms of the Act, smallholder farmers may or may not do with registered varieties that are not protected and that are open pollinated varieties (OPVs). The exemptions say that such varieties are not regulated by the Act but only as long as they are available for cultivation and sale on a "noncommercial scale". This is to be defined in the regulations. According to the Registrar of the Plant Improvement Act in the Department of Agriculture, Forestry and Fisheries (DAFF): "If a variety is listed in the NVL and is not protected by PBR, there is no restriction on use and exchange. The basic requirement for seed of the kinds of plants that were regulated by the old Plant Improvement Act 1976 and now continue to be regulated by the PI Act of 2018 is that the seed must comply with the minimum germination requirement and purity as stipulated in the Regulations".<sup>6</sup>

Therefore, neither seed production of protected varieties – including protected OPVs – nor commercial production of varieties regulated by the Act, will be eligible for exemption on the part of smallholder farmers or anyone else.

6. Email communications, Joan Sadie, Registrar: Plant Improvement Act, 17 Sept 2018

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### What are the **next steps?**

There are two main tasks for smallholder farmers and CSOs in the next phase. Make proposals on the regulations on exemptions to extend the scope of what might be permissible as far as possible for farmers and other small and medium enterprises that are engaged in seed production and sale of unprotected OPVs. This will also have a bearing on the scope of the exemptions to be further articulated in the Regulations for the Plant Breeders' Rights Act. The task here is to secure a definition of "non-commercial scale" that enables farmers, farmer collectives and other small and medium enterprises to produce and exchange/sell seed without undue restrictions and requirements. This could either be a blanket exemption for categories of farmers (for example, smallholders defined by turnover or volume of production) or may need to be differentiated by crop. Ultimately, a balance should be struck between, on the one hand, reducing obstacles to seed production for sale to a minimum, and, on the other hand, safeguarding the interests of farmers as seed buyers by enabling them to access good quality seed, with appropriate guarantees that they are getting what they want and need.

A further task for those who are interested in producing listed varieties at commercial scale (and are therefore ineligible for exemption), there are other regulations that should also be considered, including registration of businesses and premises, application fees and inspection processes. However, as we have already mentioned, seed production under the PI Act is extremely onerous and inappropriate for smallholder farmers' seed in farmermanaged seed systems.<sup>7</sup> Finally, it is extremely important to work towards recognition, support and strengthening of farmer seed and seed systems that go beyond narrowly defined varieties according to requirements of the PI Act. Such recognition can lay the basis for public sector support, to strengthen and build the critical work smallholder farmers can play in maintaining, adapting, sharing and using agricultural biodiversity.

### Recognition and support for farmer seed systems

Exemptions from the PI Act for smallholder farmers who are producing and selling seed is a necessary but insufficient condition for protecting and promoting farmers' access to diverse adapted seed in enough quantities at the right time. On their own, exemptions for unprotected OPVs may simply reinforce the channelling of research and investment into a few commercial varieties that will be protected, rather than into a wide diversity of reproductive material deemed noncommercial. This could see the decline of research and development of OPVs unless they are considered profitable enough to protect. Such exemptions may fit well with a quality declared seed (QDS) system, where smallholder farmers are brought into shortcircuited formal commercial seed production schemes.

As mentioned, the Act provides a very particular and narrow definition of a variety based on DUS criteria. The majority of seed

<sup>7.</sup> Certified seed is produced according to the rules and regulations of an official Seed Certification Scheme and for which proof of certification is available. Generally, certified seed must meet more and stricter requirements than other seed and there exists a more intensive control system with over 90 check points. The certification certificates, seals and labels issued by the South African National Seed Organisation (SANSOR) are a guarantee of varietal purity and seed quality. The aim of seed certification is to conduct genetic maintenance of existing varieties, as well as new varieties as developed and described by the breeder. The Scheme exercises control from breeder seed, though pre-basic to basic and finally to certified seed; and aims specifically to guarantee varietal purity and seed with good physical qualities.

maintained and used by smallholder farmers does not fit into this narrow definition, which artificially fixes the variety to facilitate ownership claims and commercial sale. Most seed in farmer systems adapts from season to season in response to farmer and natural selection pressures, and fixed characteristics may evolve over time. Such seed may be exempted from the Act. But without explicit recognition of this seed, and the role of farmers in maintaining and adapting it, it is left in limbo, unregulated but also unrecognised.

DAFF has indicated that it is committed to strengthening farmers' rights as expressed in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), whether South Africa signs up to the Treaty or not. In line with this, DAFF (2017) has approved the National Plan for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture, which states that: "Farmers and indigenous and local communities play a crucial role in the development and conservation of plant genetic diversity in situ, especially on-farm. The management of crop diversity at farm level has since been considered as a recognised method of conservation, particularly for traditional crop varieties ... Farmer seed systems are the key to the production and to the conservation of plant genetic resources."

There is, therefore, some basic recognition of the important role farmer seed systems play but the programme of action and budget are very small. Farmers and CSOs, hopefully with the support of government and public research institutions, will need to elaborate on different elements of farmer seed systems and to organise and put forward detailed proposals on the types of support that may be required. This requires its own political process and possibly even a defined policy on farmer seed systems and agricultural biodiversity maintenance, conservation, adaptation and use with adequate implementation and funding imperatives.

Widening the base and increasing participation in productive activity is a national imperative in responding to the legacy of apartheid, which has produced a concentrated and racially skewed economic structure. The realisation of the goals of widening economic participation and a more equitable distribution of resources and opportunities will require:

- Stabilising and supporting the expansion of smallholder farmers in diversified agricultural production;
- Supporting farmer and small enterprise participation in seed production – this is completely neglected, and only a few very small programmes exist, touching not even hundreds of participants;
- Involving farmers and small businesses in crop protection innovation and development – this can include contextspecific and cost-effective alternatives, such as integrated pest management and use of biological controls, which are especially appropriate for smallholder production.

### Abbreviations

- CSO Civil society organisation
- DAFF Department of Agriculture, Forestry and Fisheries
- DUS Distinct, Uniform and Stable
- ICNCP International Code of Nomenclature for Cultivated Plants
- NVL National Variety List
- OPV Open pollinated variety
- PBR Plant breeders' right
- PIA Plant Improvement Act
- PIB Plant Improvement Bill
- SADC Southern African Development Community

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### Annex 1

A population is a group or community of plants (or other beings) whose members can interbreed. A **wild species or wild relative** is defined as a wild, undomesticated plant occurring naturally, which has evolved through natural selection processes only. **Landraces** are genetically heterogenous populations, usually associated with a specific place or area from where they often derive their names, and clearly cultivated populations rather than wild species. Originally, landraces were viewed as a source of plant breeding and little more (Cherfas, 2016). Over time, recognition has been given to the fact that these have evolved through both natural and farmer selection and may be considered a result of co-evolutionary processes, including seed exchange among individual farmers or farmer communities and through local markets. Landraces require continuous intervention by farmers, through large, interconnected and dynamic networks that defy strict definition (Cherfas, 2016). They often have a stable yield, due to their genetic heterogeneity, allowing a population to yield under a wide range of environmental conditions in a growing season, and to shift with changing conditions between years. They are also commonly referred to as farmers' varieties, although a more appropriate term to describe these would be *farmers' seed*, explained further below.

A **plant variety** (or cultivar) is a taxonomic category ranking below species and subspecies, whose members differ from other varieties of the same species or subspecies in heritable characteristics and are defined by the ICNCP above. A **farmer variety** (also a traditional or folk variety, forming part of larger populations) has identifiable characteristics. **Heritage or heirloom varieties** are a form of popular farmer variety, which have been maintained specifically to retain original characteristics. All farmer varieties are considered OPVs.

OPVs of cross-pollinated crops are genetically heterogenous and evolve over generations (Serpolay-Besson et al., 2014). Cross-pollinated plants produce more genetic variation than self-pollinated plants, and retain greater genetic diversity through domestication and selection than self-pollinated crops.

While hybridisation is a natural phenomenon, and a source of new allelic<sup>8</sup> combinations, and may occur spontaneously, to exploit the heterosis (improved or increased function of any biological quality in a hybrid offspring) requires rigorous self-pollination to sustain an inbred line from such open-pollinated populations. This intraspecific breeding lowers the overall genetic diversity.





(Source: Rauf et al., 2010)

**Improved varieties** may also be considered as **monocultural varieties**, as they are genetically uniform, modern, single genotypes (genes responsible for a particular trait). Physical mixtures of monocultural varieties can be termed as variety mixtures, which initially are static, but as the seed is grown, selected and harvested it is converted into a dynamic mixture, and over a

<sup>8.</sup> This refers to a variation of a given gene that can result in different observable phenotypic traits (characteristics of the individual in interaction with the environment).

few seasons and inter-crossings, may become populations. Evolutionary plant breeding, where the local natural environment is the main selective agent, furthers the development towards populations. In a population, performance may tend towards the average within a genetic pool but retain genetic variation, to return to average performance under a wide range of unpredictable environmental conditions, including low or limited external inputs (Wolfe and Doering, 2016). Performance of genetically limited monocultures will be fully expressed only within a limited range of environmental conditions (Wolfe and Doering, 2016). Improved varieties can be either improved OPVs or hybrids. Improved OPVs would have a greater genetic diversity than hybrids. In the development of "elite breeding materials" there is a tendency for breeders to use few, preferred cultivars of parental lines, often leading to genetic erosion. Genetic diversity and genetic variability of cultivated germplasm can be expanded through interspecific hybridisation (crosses between different plant species), and participatory and evolutionary plant breeding (Rauf et al., 2010).

Landraces exist in farmers' fields, based on the use, cultivation and management of a given landrace in a specific location. Many so-called farmer varieties, some which may have the same local name, may be genetically diverse. Therefore, in order to cater for the need to support a co-evolutionary approach to agricultural and genetic diversity on field, it could be helpful to rethink farmer/landrace varieties rather as *farmers' seed* or *open-pollinated populations (OPPs)* as a totality to capture the variety of genotypes present in farmers' fields, which the distinctness associated with a variety is unable to capture fully.



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