biowatch SOUTH AFRICA

Fact Sheet: Household seed banks

and why they are important

biodiversity | food sovereignty | agroecology | social justice

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Seed revival through household seed banks

The relationship between seed and humans began around 10 000 years ago in the Neolithic period, when we first began domesticating wild plants for food.[1] This intimate relationship with seed has been nurtured by countless farmers through the ages in a careful process of observation, seed selection and saving. Not only does seed give us life, it is also alive and interacts with and responds to its environment. This dynamic process resulted in globally diverse food crops and varieties suited to local cultures and environments. Approximately 7 000 plants were once collected or cultivated for food around the world.[2]

However, in the past 100 years, industrial agriculture has curtailed these age-old practices. By 2013 it was estimated that 75% of the immense agricultural diversity we inherited from our ancestors had been lost. Now only 120 crops supply regional diets and just 30 crops provide 90% of the world's energy and protein intake.[3] Land clearing, predominantly for industrial monocultures, is also the greatest threat to biodiversity generally, including to the wild relatives of modern crops which carry important genes that could help adapt to climate change and other production challenges.[4]

As chemical companies converted their operations from weapons production to fertilisers and pesticides in the 1930s, the first hybrid crops were introduced.[5] By the 1970s the so-called "Green Revolution" promoting high-yielding, but input-needy hybrids was bolstered by a new international convention for the Protection of New Varieties of Plants (UPOV),[6] giving plant breeders intellectual property rights. This was followed in the 1990s with patent-like protection for new genetically modified crops.

The opportunity to profit from royalties on these "protected" plant varieties provided the incentive for chemical companies to enter the seed sector. In a few decades, six multinational chemical corporations have taken control of the commercial seed sector by buying up hundreds of seed companies, investing in biotechnology ventures, and merging with competitors.[7]

South Africa has not escaped the private sector push to own seed. Just four companies own 83% of the registered seed varieties in the six main crops.[8]

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Why is it important for farmers to save seed?

According to the FAO, women small-holders produce 80% of the food in sub-Saharan Africa,[9] and in South Africa 2.5 million small-holders still farm for subsistence.[10] Despite the increasing control that the corporate sector has over our seed system, small-holders rely on farm-saved seed for 60-70% of their seed needs.[11]

These locally adapted farmer varieties, or landraces, are variable in appearance and traits due to their diverse genetic make-up. This inherent diversity is also their strength; enabling the plants to quickly adapt to changing conditions such as climate variability, difficult growing conditions and pests.

Uniformity is central to the formal and corporate seed system. To qualify for plant breeders' rights new varieties of plants must be distinct, uniform and stable (these requirements are known as DUS).[12] Hybrid seeds, favoured in the formal sector, are bred from a limited gene pool to express particular traits. The traits of interest are typically very different from those of interest to small-holders. The formal sector is interested in varieties that do well in commercial ventures: that provide a quick turn-over, need little labour, and perform well in a highly mechanised environment and a global distribution system. The sort of crop traits they would seek, for example, are a uniform shape and size suited to processing through machinery, long-lasting in storage and transport, tough in handling, a long shelf life, etc.

In contrast, small-holder farmers growing crops for home and community consumption seek to satisfy a range of social, cultural, economic and production needs. The traits they may select for are as diverse as their contexts, and could include: taste and appearance when cooked; ease of cooking; ability to satisfy more than one purpose, such as food and fodder; hardiness in drought; adaptability to particular soils; resistance to pests and disease in the field and in storage; ceremonial and spiritual use; etc.[13] When compared to hybrids, farmer varieties may not yield as well when inputs are provided, but can be relied on for stable yields when conditions are bad. Farmer seeds are also productive indefinitely when they are part of an active system of use that includes the introduction of new germplasm through seed exchanges and ingression from wild relatives.[14] In addition to locally adapted traits, farmer seed has the advantage of being affordable and generally more available to resource-poor small-holders. Often the formal seed sector and even government support programmes are unable to deliver an appropriate quality and quantity of seed to small-holders when they need it, and at an affordable price.[15]

Ironically, the development of proprietary (protected) seeds in the formal system has largely relied on the germplasm from farmer varieties and public sector breeding programmes. Following structural adjustment of developing country economies in the 1980s and 1990s, public sector plant breeding was forced to commercialise and seed development shifted to the private sector. As a result there is very little support for the development of farmer seed, and it is assumed that farmers will access seed from the private sector.[16]

No food sovereignty without restoring seed sovereignty!

Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. However, without the ability to access quality and affordable seed, or the choice to select, save and plant seed that responds to their local environment (cultural, socio-economic and ecological), farmers cannot attain food sovereignty. Seed (including spores, suckers, bulbs and tubers) is the living foundation of agriculture and the food system globally.

Industrial farming has removed choice and control from farmers and communities by: reducing diversity; providing seed that doesn't grow when replanted; and by outlawing the saving and sharing of seed – through private intellectual property rights over seed, and seed laws that make exchange illegal or the conditions under which exchange may take place so onerous that small-holders will never meet these conditions.

To attain food sovereignty we must restore seed sovereignty: the freedom of every farmer to breed, save and exchange diverse seeds as a common right and necessary foundation for healthy, culturally appropriate and resilient food systems.

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Biowatch support for farmer seed systems

Biowatch believes that seed must stay firmly in the hands of farmers. Biowatch puts this into practice by providing training in agroecology and support to small-holder farmers in KwaNgwanase, Pongola, Ingwavuma, Tshaneni and KwaHhohho in northern KwaZulu-Natal who are reviving and conserving their indigenous seed systems.

Several practices are encouraged to assist farmers in this work:

- Saving and storing seeds that are selected on-farm in household seed banks.
- Development of dedicated seed plots for seed multiplication and bulking. Good seed can also be selected from food plots, but food is not harvested from the seed plot. Extra care is taken to protect the seed plot, and ensure good diversity and soil fertility to the best possible quality of seed.
- Seed festivals and rituals where seed is brought out for display and traditional food is prepared and eaten together. These are sacred events to celebrate the diversity of seed held by the community, encourage others to save seed and practice agroecology, and bless the seeds for the next planting season.
- Farmers' exchanges for sharing experiences with other farmers who are finding ways to conserve and use their agricultural biodiversity using agroecological methods based on indigenous knowledge and practice.

Biowatch supports the "in situ" conservation of seed through its use. As noted by the FAO, this allows the "evolutionary processes that shape the genetic diversity and adaptability of the plant to continue" through its interaction with the natural and cultural ecosystem of which it is a part.[17]

The Seed and Knowledge Initiative (SKI)

Biowatch is the lead partner for the Seed and Knowledge Initiative (SKI), which is a regional platform for linking NGOs, farmer organisations and academic institutions that are working on traditional seed and knowledge systems.

SKI aims to strengthen these networks; influence decision-makers to support local control of seed and greater seed diversity; promote socially responsive research that deepens the understanding of seed and knowledge systems; and enable farmers and communities to revive and strengthen their traditional seed and related knowledge systems.

Why Biowatch supports household seed banks

The exchange and saving of seed within a community can take several forms:

- Individual saving on-farm and storage at the household.
- Organised and ad hoc exchange of individually saved seeds within a community.
- Sacred sites where seeds are communally gathered and managed based on cultural customs.
- Organised community seed banks where seed is collected and stored at a designated place, and its distribution and use is formally organised.

Recently there has been increased interest in community seed banks in South Africa. The Department of Agriculture, Forestry and Fisheries (DAFF) commissioned a feasibility study in 2013 to assess the viability of establishing and supporting community seed banks in the country's small-holder farming areas. The Department extended the mandate of the National Plant Genetics Resources Centre (NPGRC) to include community seed banks, and the NPGRC has teamed up with Bioversity International to support their roll-out, starting with two pilot projects which were established in Limpopo and the Eastern Cape in 2015. Their vision is to have a national network of community seed banks, and the next steps include technical training for extension workers across the country.[18]

Biowatch does not support the development of discrete community seed banks as a sustainable method for fostering farmer seed conservation and development. Communal banking requires good management systems to verify the origin of the seed, ensure that seeds brought into the bank are of a good quality and disease and pest free, that contributions and withdrawals are properly documented, and that loaned seeds are replaced. There must also be an adequate turn-over of seeds in the bank to maintain seed vigour and ensure that they will germinate (oil seeds can lose their viability in a few years). This management, as well as the upkeep of the infrastructure, can become a burden for farmers without external support from NGOs or donors. Often community seed banks are established by agencies external to the community and when their support is withdrawn the project collapses.

Biowatch is instead committed to supporting farmers to establish household seed banks and community seed networks.

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Household seed banks and community seed networks

Household seed banks are in keeping with the Zulu cultural traditions where seed belongs to a family; seed is selected from the field and stored at the homestead. A portion of family seeds are gifted to a daughter when she marries to take with her to her new family. Seed serves several purposes – grains for daily consumption; grains held in storage for famine; seed for planting in the next season; and seed for ceremonial uses – and different members of the family have responsibility for the harvesting and safe-keeping of seeds intended for these different uses.[19]

Household seed banks ensure that farmers have both food for their families and food sovereignty because they have control of their food system: the seed belongs to them; they can decide which crops and varieties to grow and save, according to family choice and needs; and they are in control of the way the seed is produced, including managing threats such as cross pollination from undesirable varieties. Biowatch encourages farmers to organise their seeds and document who they receive seeds from and who they give seeds to, which helps to map exchange networks and prevent biopiracy.

Individual farmers are networked with others within and outside their community. Local networking is organised by the farmers, although Biowatch still facilitates networking and exchange between projects and with farmers supported by other NGOs. These seed networks facilitate the exchange of seeds from trusted sources as well as shared learning and exchange of indigenous knowledge and solutions to challenges. They also help the community to identify seed custodians – those elders who save many varieties of seeds and have in-depth knowledge of local seed lore and practices. Because individual farmers can choose if and when to participate, and their seed security won't be compromised by failures in collective organising, this system encourages participation, friendship, sharing and unity.

A household seed bank includes the seed that is in storage, as well as seed reproducing in the field. The community seed network, together with each farmer's seed bank, represents a de-facto or virtual community seed bank. Together, the farmers, their knowledge and ongoing innovation, the community and environment, seed exchange networks, and community culture, spirituality and rituals form a living seed system that ensures food and seed sovereignty into the future.

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