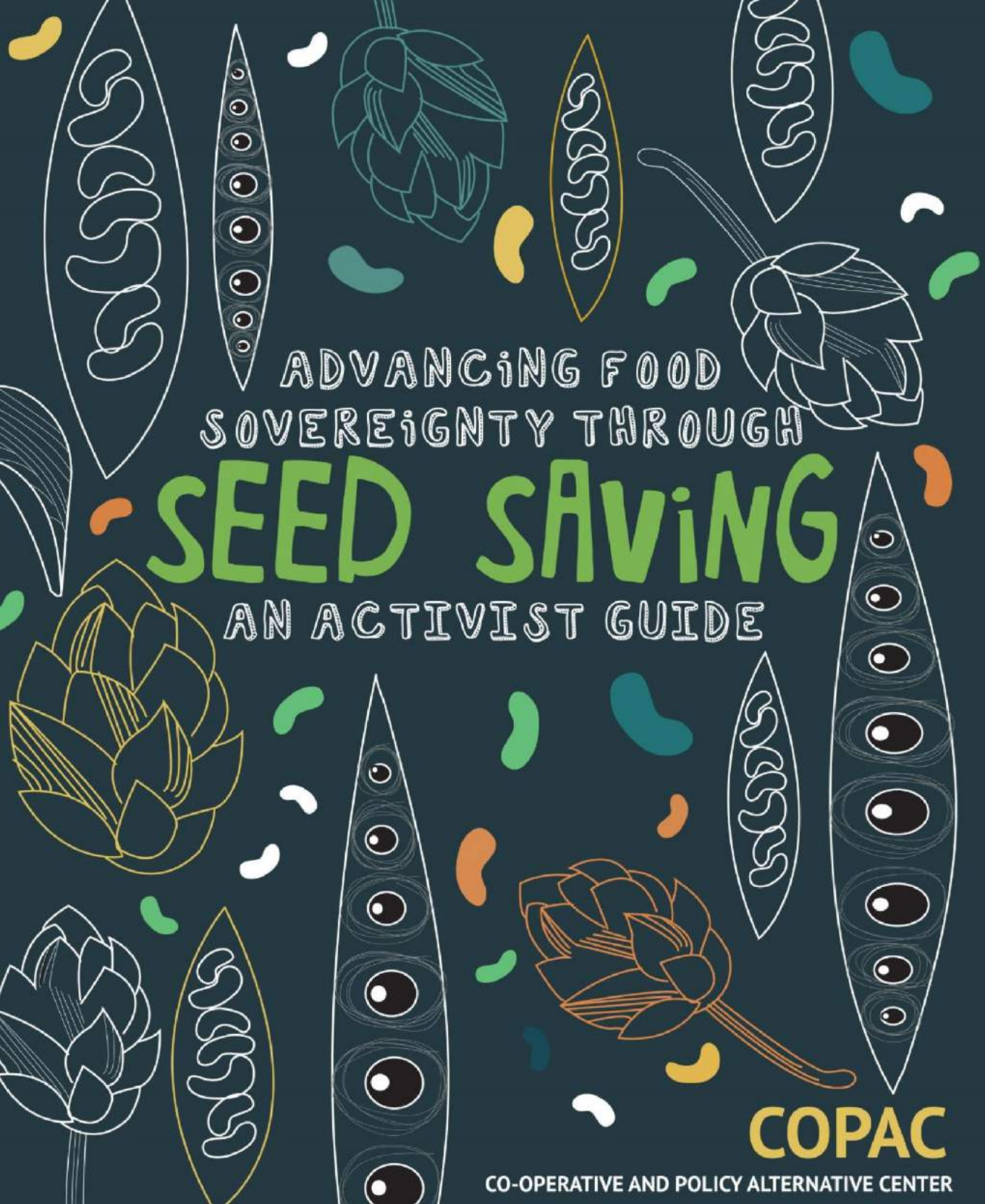
ADVANCING FOOD SOVEREIGNTY THROUGH
SEED SAVING
AN ACTIVIST GUIDE
COPAC
CO-OPERATIVE AND POLICY ALTERNATIVE CENTER

Advancing Food Sovereignty Through Seed Saving
An Activist Guide

Our Seed Bank. Our Power. Our Future.

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Glossary

Agroecology: Agroecology is a way of growing plants and animals that works with nature, and is based on the specific area of farming. It uses local seeds, animals and markets, and attempts to create links between on farm resources. It is a system of farming that selects what will do best in a specific area in a way that will not destroy the natural resources base, but instead if done well, will enhance it.

Climate change: The global warming of the earth's temperature caused by all the carbon dioxide that our factories, coal power stations, transport and agriculture puts into the atmosphere. This causes changes in weather patterns, as well as extreme events like floods and droughts.

Commons: Land or resources belonging to or contributing to the needs of a whole community.

Corporate food system: A food system in which a few corporates are spreading themselves across the world and entering the food markets of countries. These corporations change the food system to serve their own interests or profit and also remove control from existing food producers and local food systems. They seek to control seed systems, make small scale farmers dependent and ensure consumers use only their products.

Dispossession: Taking somebody's belongings or resources away from them, often by force.

Eco-centric: A perspective that places intrinsic value on all living organisms and their natural environment as a whole, regardless of their perceived usefulness or importance to human beings.

Ecology: The study of the interactions of living organisms with each other and with their physical environments. Ecology also refers to the political/environmental movement concerned with protection of the environment.

Farmer's varieties: Farmers have selected their own seed varieties, which they keep and replant.

GM seeds: Seeds that are developed through organisms that have had changes introduced into their DNA using the methods of genetic engineering. These seeds are controlled by corporations for their benefit.

Heirloom varieties: An old variety that is still maintained by gardeners and farmers particularly in isolated or ethnic communities. These may have been commonly grown during earlier periods in human history, but are not used in modern large-scale agriculture.

Hybrids: The offspring of two plants of different varieties.

Indigenous seed: The seeds from local eco systems in that region as a result of only natural processes, with no human intervention.

Industrial agriculture: The system where food is produced using chemical intensive food production methods, high levels of mechanisation and is reliant on inputs that do not come from the farm, e.g. fertilisers and chemicals. This system promotes single crop farming and large animal production facilities.

Mulch: A protective layer, usually of organic matter such as leaves, straw or peat, placed around plants to prevent evaporation of moisture and the growth of weeds.

Open Pollinated Varieties: When the plants of an open-pollinated variety self-pollinate, or are pollinated by another representative of the same variety by wind or insects, the resulting seeds will produce plants roughly identical to their parents.

Pure breed: A plant that has not been cross-pollinated and will grow true to type.

Resilience: The ability of a farming system to absorb a disturbance or shock, adapt to changes, and maintain ecological productivity in the face of these disturbances and changes.

Water harvesting: To capture water/rain from surfaces on which it falls, for example, roof tops or sloping land.

introduction

Module 1
Introduction

1.1. Introduction: The Threat of Climate Change and the Need to Build Resilience

Climate change currently presents the biggest threat to life on earth and to human societies in particular. The emission of greenhouse gases has caused climate change, which in turn means that temperatures are rising, rainfall patterns are changing, sea levels are rising and droughts and 'natural' disasters are becoming more frequent. Rural dwellers and small farmers in the South, especially in Africa, are already and will be the hardest hit by rising temperatures and increased drought and flooding. For producers and consumers of food, these changes could be detrimental as the likelihood of droughts, heatwaves and floods increase, and as hotter temperatures make our climates unsafe for producing food optimally. The truth is that if we do not change, many people will struggle to feed themselves. One of the biggest parts of human societies that climate change poses a threat to is therefore our food systems.

We can argue that capitalism is ultimately the cause of climate change. Through its constant search for growth, it extracts fossil fuels from the earth and spews greenhouse gas emissions into the atmosphere to keep producing for the endless pursuit of profits. So the more we pursue growth and development in this way, the more greenhouse gases are produced, and the more global temperatures rise. This pursuit of growth and profits is the main cause of climate change.

Within the problem of climate change, talking about the food system is crucial for the following reasons:

- The industrial agricultural system, which relies on fossil fuels, machinery, pesticides and chemical fertilisers to produce food, is a major contributor to climate change. As much as fifty percent of global greenhouse gas emissions come from the global food system: from the industrial farming process

itself, transport of food across countries and the globe, processing and packaging, and waste;

- In most parts of the world, the capacity to produce food will be decreased due to rising temperatures, changed rainfall patterns, and increased 'natural' disasters like flooding, drought and violent storms;
- However, different parts of the world will be affected differently. The hardest hit areas will be much of Africa, for example. Even much of South Africa will be heavily impacted, given our drought cycle, and as expressed in the drought that struck in 2014 and spread to five provinces. There is therefore the question of **inequality**, in that those least responsible for causing climate change and who are poor will be hit the hardest. But because of this there is also the need to find solutions to deal with the coming impacts of climate change so that we can continue to produce food and fight for food sovereignty. We need to build **resilience.**

How can we do this? The answer is that we need to produce, consume and live in ways that work with nature and are not depend on fossil fuels. What this also means is that as producers and consumers of food, we need a different type of farming.

What Do We Mean by 'Resilience'?
When referring to farming, resilience is the ability of a farming system to absorb a disturbance or shock, adapt to changes, and maintain ecological productivity in the face of these disturbances and changes. As will be discussed below, various practices can build resilience, such as agroecology and seed saving. Specifically, for example, developing a farming practice that uses less water and locally adapted animals and hence can cope better with drought, builds diversity so that selections can be made for use based on the conditions being faced at a particular time, saving and keeping a high variety of seeds that allow farmers to plant seeds suited to specific weather conditions being faced, and so on.

1.2. Seed Sovereignty to Fight Climate Change and Corporate Power

Many governments and corporations are quite aware of the challenge that climate change poses for our food systems. But corporations who are responsible for climate change are also trying to promote false solutions, like genetically modified organisms (GMOs). These corporations claim that GM seeds are resilient and will help farmers adapt to the impacts of climate change, but what they are really about is taking control over seeds away from farmers, to force farmers to buy their seeds and so feed their profits every year. GMOs are therefore a form of dispossession! GMOs also provide us with false solutions to African problems and displace our traditional farmer varieties, farming patterns, language and culture in its broadest sense. The new word given since the rejection to GM foods is 'genome editing', a precise genetic manipulation of a single genetic 'letter' to make crops and animals more 'suitable' to an environment. This would still be controlled by corporates.

As part of building real resilience in the face of climate change, we need to instead build seed sovereignty, through:

- Increasing the variety of seeds that we use
- Protecting existing farmers' varieties of seeds
- Expanding our stock of such seeds through seed saving, sharing and banking
- Using our own seeds in agroecology farming in our communities

1.3. Agroecology: A Different Type of Farming

Agroecology has been defined as 'the application of ecological concepts and principles to the design and management of sustainable agro-ecosystems'. It has three important aspects:

1. A scientific discipline involving the holistic study of agro-ecosystems, including human and environmental elements
2. A set of principles and practices to enhance the resilience and ecological, socio-economic and cultural sustainability of farming systems
3. A social movement seeking a new way of considering agriculture and its relationships with society.

This type of farming should not be unfamiliar to many of us, for it is the way that our parents or grandparents used to farm. Think about how your grandparents used to grow food. What did they do to save water? To save seeds for the next season. How did they keep pests away from the food garden? How did they exchange and sell their produce?

We are losing these valuable practices that could save our lives in the face of climate change. We need to collectively revive these practices, along with the long lost traditions associated with food. Many technologies and instruments can also help us improve our agroecological practices. Small-scale farmers with knowledge of these valuable practices have an integral part to play in agroecological farming. Furthermore, agroecology can give us a tool and a means to promote a food sovereignty pathway out of the climate crisis. Another tool (and an old tradition), which is integral to agroecology is seed saving. Saving seeds is also a very practical way in which we can fight climate change, and this is by saving natural seeds which are resilient to climate shifts, and which also do not require chemical and synthetic fertilisers and pesticides.

1.4. What is Seed and the Importance of Saving Seed?

Seed is the basic block of all life, it has the ability to multiply plants and to reproduce populations (plant populations and people via food). Seeds are available to humans through nature, but through people they are used to produce food. Nature has given humanity the gateway to life, but if we are not careful it will be lost. This is why seed is essentially sacred, and a vital part of humanity and cultures.

"Whatever happens to seed affects the web of life." - Vandana Shiva

So Why is it Important to Save Seeds?

- To preserve cultural practices and indigenous knowledge
- To build resilience in the face of climate change by selecting our own seeds that do best in our area, soil type and climate

- To maintain yield and reduce or prevent dependency on commercial seed companies
- To select seeds with desired characteristics, that are well suited to our climate and growing conditions, and are more resistant to pests and disease.
- To preserve our local varieties of seed and in doing so enhance our seed genetic diversity and promote the care of the earth
- To build the solidarity economy and food sovereignty (we discuss this point in some detail in Module 5)

Saving seeds is one of the first and most important things we can do to preserve life. In this guide we will undertake a process of learning valuable skills with one another, of how to save seeds, how to establish seed banks, promote household seed saving and in the process, sustain life.

how to use the guide

Module 2
How to Use the Guide

2.1. Purpose of the Guide

This guide is a popular education tool for communities and grassroots activists. It serves to:

- equip people with the basic knowledge of how to multiply and save seeds;
- empower communities to establish seed exchanges and banks;
- provide user friendly and practical techniques for seed-saving;
- protect, value and celebrate local and indigenous seeds and seed knowledge as an alternative to the industrialised agriculture model that is reliant on industrialised seed production and dissemination;
- empower communities to change and build an alternative food system that restores dignity, establishes social justice and sustains life.

Small Group Exercise:
Discuss in groups: why would we want to empower communities, restore dignity and establish social justice… is it not enough to just produce seeds for myself and my family?

2.2. Key Principles for Process facilitation

Learning is a continuous process, an everyday activity and an integral part of what it means to be a human being. Learning is about using knowledge to change and become different from the way we were before.

For real learning and capacitation to take place, a facilitator using this guide cannot behave like a school teacher or lecturer. People cannot be empowered just by lecturing to them. The learning process is about opening and awakening critical consciousness so that fear to live as a full human being, in association with others, is overcome. When using this guide as a learning and training tool the following principles in a collective learning process should be kept in mind:

- *It is people-centred:* it encourages participation, celebrates diversity, and puts people first. It recognizes people's skills and experiences as key resources and it focuses on hearing what people are saying, not just listening to them.
- *It is active:* it involves participating in exercises and activities.
- *It is enquiry based:* it continually tries to uncover why something is the way it is and to explore what is going on under the surface.
- *It is critically reflective:* self-awareness is seen as an integral part of taking action and it is reflection aimed at gaining insights that will inform future actions.
- *It builds on existing knowledge:* it draws out relevant information from the participants about their needs and context and provides processes which encourage people to critically analyse and discuss from their own experiences.
- *It responds and adapts to people's needs:* it is flexible enough, open enough and sensitive enough to recognise people's needs and to change to meet them.
- *It recognises the importance of feelings:* human transformation is as much about what happens to how you feel as it is about how you think.
- *It is NOT neutral:* rather it is clear about where it is coming from, what it is trying to achieve and why, and whose interests it aims to serve. Process facilitation serves to reclaim/reshape the kind of understanding of how to learn about and appreciate a new way of thinking as opposed to the dominant model that has been taught in the past.
- *It is holistic:* it looks at linkages between the past, present and future, between the individual, the group, society and the environment as well as between local, regional and global levels.

2.3. Being a Facilitator

This guide is aimed at being a daily tool for use by those who want to save seeds and establish a community/household seed bank. It is also designed to be used in a workshop setting to build the capacity of people (individually and collectively) to save seeds and establish and maintain seed banks starting at home. Such a workshop requires that someone (or even more than one person) facilitates the workshop. Women are especially encouraged to be facilitators.

In facilitation, the facilitator has a variety of roles such as animator, trainer, skill-sharer, clown, enabler, sharer of real experiences, and theorist. While there are multiple roles to play, ultimately each facilitator will find his/her own style.

It is important for the facilitator not to see themselves as “only” a facilitator. In order to give the training a grounding and relevance, we need real problem-solving leadership experience to confront the hardships and struggles that we have experienced. Thus, the facilitator must share his/her skills and experiences freely. Working closely and generously with other facilitators, whether more or less experienced, builds their capacity and one's own. It allows one to grow and to form genuine teams in every situation. It also protects against the virus of self-inflation (thinking that being a facilitator makes one an expert and therefore unable to learn from others).

It is important to remember that through the process of experiential learning the facilitator learns from the group he/she is working with. In other words, it is important to remember the facilitator may not always have 'all the answers'. It is through this process that active learning takes place. The facilitator must capacitate people to take action, and then reflect on and evaluate the situation in order to draw the right lessons from the action taken. In this way learning becomes a never-ending process.

Some tips for facilitators:

- Encourage engagement by asking people questions and by asking people for their opinions (some people won't speak up unless asked).
- Encourage a free space to share experiences: this can be done by sharing your own experiences first.
- Get people to work in groups to discuss topics if you see it is not working well in a larger group.
- Preparation is key: familiarise yourself with the guide intensively, plan in activities, probing questions and group discussions. Have an idea of how long each module/activity will take, but also leave room for flexibility. The more prepared you are, the more flexible you will be able to be.

2.4. Workshop Guidelines

This activist guide uses a workshop method to ensure two-way learning and to encourage bottom-up movement building. In this approach the facilitator has to put into practice the principles of training mentioned above. The workshop-based learning approach is meant to gather participants into small groups in which they are able to learn together and from each other. This guide sets out a program of workshop-based training that can happen over three days. However, this is just a guideline.

The training content is made up of modules which follow a sequence of building block learning. This means it is important to exhaust and work with the ordering of the training modules. However, this does not mean that the time spent on each module has to be as suggested. Facilitators might find it is necessary to spend several days on one module before moving on to the next one. Facilitators must remember that this learning process requires patience.

The theory content of the modules should be presented by the facilitators. Complimenting this is the **plenary group exercises and small group exercises** in which the participants in the workshop discuss and problem-solve. This ensures a more horizontal and bottom-up process of learning.

The actual location of the training workshop should be guided by the circumstances faced. This requires creativity and adaptability. For example, training might take place in a waste recycling plant, a community hall, on a piece of farming land, under a tree and so on. Workshop-based training is a tool that can be used in various places and settings.

Facilitation tools (e.g. chart paper, pens, slides, audio-visual materials) compliment training, but are not fundamental to it. A lack of facilitation tools should not prevent the training workshop from taking place. In many of our cultures and societies learning has also happened orally – by talking to each other and using whatever is available in the immediate environment like drawing with sticks in the sand or using words, symbols and objects to represent the people, events or ideas. We would encourage trainers to adapt the content in this guide to what is appropriate and necessary in the circumstances.

Plenary Exercise:
Encourage people in the group to talk about their experiences of farming. Some might not have many, some might only have childhood memories and some people might light up at this point and have endless stories to tell. Maybe give people a time limit so that you can be sure to get through the all modules in time.

This activity can also serve as an ice-breaker.

understanding seeds

Module 3
Understanding Seeds

3.1. What Are Seeds?

Seeds are life, they are a source of food, of power and of dignity. They are valuable, hold a promise, are part of our culture and heritage and are embedded in indigenous knowledge, traditions and cultures. Seeds are nature's gifts to her people and all living beings. Importantly, seeds are for free and for sharing – they are a commons.

With the above said, we can see that because seeds are a gift from nature, they should not be viewed as a commodity and sold for profits. Because seeds are part of our heritage they should not be allowed to be patented and owned by large companies like Monsanto, Bayer, Syngenta and ChemChina. In the industrial food system, they are – and this is why protecting and building control over seed by saving our own seeds and establishing seed banks is so important.

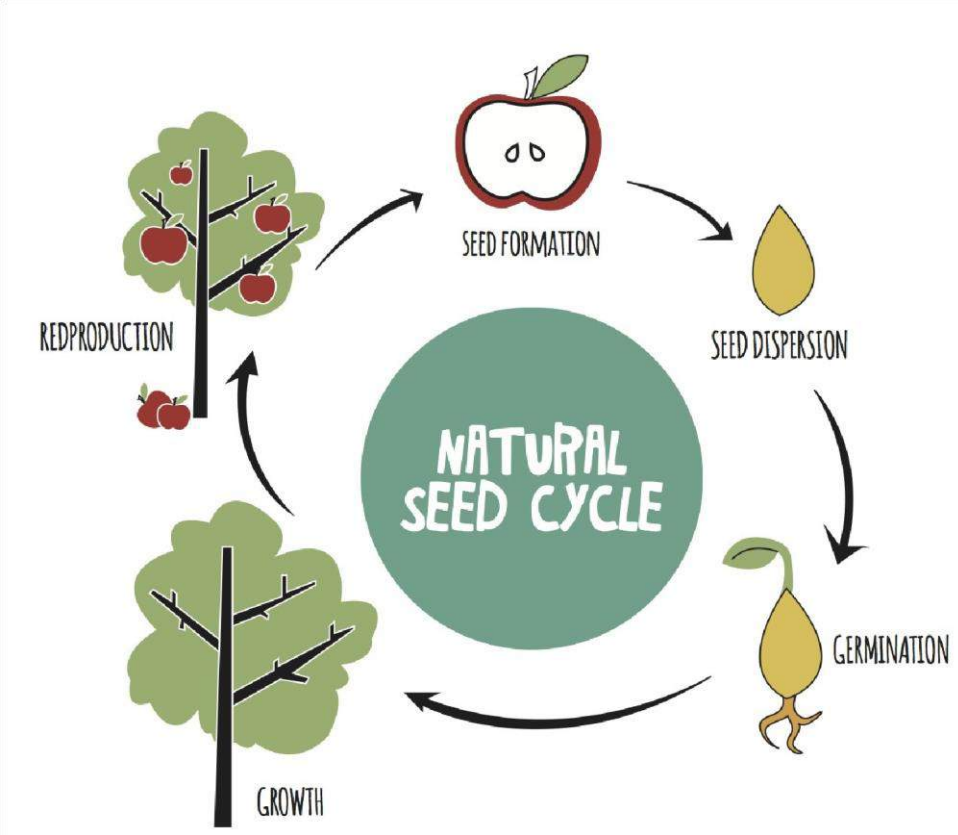
Small Group Activity:
In small groups, workshop participants should discuss:

- What are seeds and what do they mean to you?
- Do you have any traditions or cultures associated with seeds that you have experienced?
- Discuss in groups and compare how understandings of seeds have changed across societies and over time.

3.2. The Cycle of Seeds - The Cycle of Life

The cycle of seeds is like the cycle of life. It is a natural cycle where plants grow from seeds, produce fruit and disperse their seeds. The simple images below show the seed cycle of a familiar fruit, the apple. The cycle that the apple seed takes can represent many of the plants we know today. Compare the first natural picture to the picture following, showing the industrialised cycle of seeds.

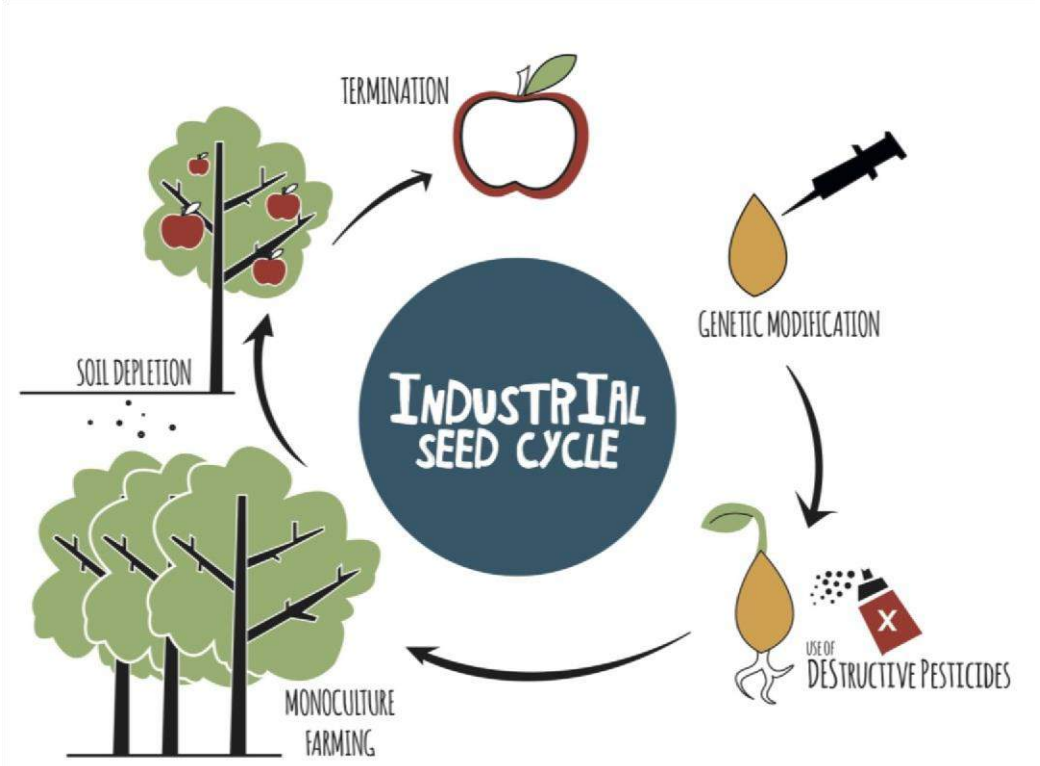
Figure 1. Natural Seed Cycle



In the second cycle seeds are unnaturally modified in laboratories, are planted on large plots of land and make use of excessive amounts of pesticides that destroy nature, harm the farmers and consumers using them and contribute to climate

change. Further, when these seeds that are genetically modified are sold or given to small-scale farmers, they cannot be saved for their yield will decrease dramatically, such that it remains cheaper to continue buying these seeds and various inputs like fertilisers, that have to accompany them. Even though it is cheaper, it is still unaffordable. The second cycle in effect presents a dead end to farmers, communities and to seeds themselves, while benefitting seed corporations.

Figure 2. Industrial Seed Cycle



The natural cycle of seeds can involve minimal human or animal interaction. If we want to promote an alternative model to the industrial seed cycle, we need to begin to actively save seed through our own actions and in interaction with nature. To do this we need to build our capacity. As part of this, we should distinguish between natural heirloom seeds, hybrids and GM seeds, to which we now turn.

3.3. Different Types of Seeds

There are many different types of seeds, varieties, families and species. Seeds also have different genetics and ability to produce plants during different times of the year. In the section following, we provide a brief description of each of these classifications to help seed-savers decide which seeds to plant and ultimately save. In Appendix 1 you can find out more about seed families, when to plant certain seeds and their nutritional value.

The first important distinction to understand as a seed saver is the difference between heirloom/open pollinated varieties, hybrid seeds, and genetically modified seeds (GM seeds). The table on the nest page summarises the key characteristics of each type, thereafter we go into a little more detail describing the strengths and weaknesses of these seeds.

The importance of genetic diversity

The beauty of the natural seed cycle is that seeds are able to adapt to different conditions to secure our food systems and our future. Genetic diversity that occurs naturally is important for maintaining biodiversity, crop resilience and climate-resilience. Genetically modified seeds on the other hand, hold large risks for people producing and consuming them.

	Heirloom/Open Pollinated	Hybrid Seeds	GM Seeds
What:	Our grandparents' seeds. Seeds that have been pollinated openly and naturally by other plants of the same species.	Seeds of different varieties deliberately bred with each other to produce specific traits.	Seeds whose genetics have been directly altered in a laboratory.
How to identify:	Labels indicate that they are Heirloom or Open Pollinated varieties. Or those that have been bred by farmers on their farms or in communities through known techniques of seed saving and multiplying.	Usually have a number after the name, e.g. F-1 or F-2.	In South Africa most maize and soya seeds are genetically modified.
Can I plant them?	Yes! They provide a rich diversity and variety of nutritious food, which is not available in industrial food growing.	You can plant them if you are looking for a good first harvest, but if you try and save and plant their seeds their productivity drops drastically in subsequent harvests.	No, avoid at all costs.
Can they be saved?	YES – you can save the seed and grow the exact same seed every year.	No, seeds from hybrid plants produce plants and yields that are unstable. It is better not to save them if you want to be sure of what you are getting.	No, they cannot be saved. If companies like Monsanto were one day to completely have their way, you could even be arrested for this.

3.3.1. Heirloom/Open Pollinated Varieties

What Are They?

These are seeds that have been around for some time (at least 50 years) and have been handed down from one generation to another. These are the seeds that your grandparents saved, and we continue this tradition if we save Open Pollinated Varieties too. These seeds have proven themselves to be stable varieties. [Note that heirloom/Open Pollinated Varieties can be either traditional or indigenous seeds. For the purpose of this guide we define indigenous seeds as seeds that are indigenous to South Africa, including millet, sorghum, cowpea, amadumbe, jugo beans and peanuts. While traditional seeds are those that are not particularly indigenous to South Africa but have been here long enough and saved long enough to adapt to the climate and have traditions developed around them – these are often heirloom seeds – and include the Gambushe variety of Maize. (Note maize does not originally come from Africa, but from South America)].

Benefits

The seed that the plant of an heirloom/open pollinated variety seed produces is true to type, i.e. it will produce the exact same plant as it grew on. As such, these are the best seeds to save. These seeds can be more stable in a stressed environment because they have adapted to the environment over many years.

Weaknesses

Heirloom or Open Pollinated Varieties might be sensitive to certain conditions, and if not careful when growing, can easily be crossed with other seeds of the same species to create hybrid seeds. For example, a green pepper Open Pollinated Variety could cross with another chilli pepper Open Pollinated Variety and as a result one would not get the same heirloom, but a hybrid instead.

3.3.2. Hybrid Seeds

What Are They?

Hybrid seeds are produced by cross-breeding two different plants (usually of the same family) in a controlled environment. For example, plants are grown in an

enclosed environment, away from insects so that natural pollination does not occur. When the time is right, humans will carefully transfer pollen from one plant to another. Hybridisation is often done to ensure that positive characteristics of two different plants are present in a new plant that has certain valuable traits.

Not all hybrids are bad. Over time mother nature has cross-bred different strains and plants to create stronger plants. Here humans are merely speeding up the process. Nevertheless, this type of seed is typically bred for the industrial model of farming where uniformity and long shelf-life are key.

Benefits

If the seed is planted and it grows (the first generation), it will be what you want it to be. It might even grow stronger and have a greater yield than an open pollinated variety. It will be able to withstand common pests and in some cases be more hardy too. Hybrids can also be very useful if you are doing the crossing and have a clear objective of what you want to breed.

Weaknesses

If you save seeds from the plant that grows from a hybrid seed, the second generation will be very unstable, the yield will decline dramatically and you won't be sure of the fruit you are getting. It also generates reliance on commercial seed producers because you will have to buy seed every season and very soon your traditional seeds will be lost, thus undermining seed integrity and food sovereignty. Remember too, that maize is wind pollinated and your traditional varieties may be contaminated.

3.3.3. Genetically Modified (GM) Seeds

What Are They?

A seed that has been modified or altered by use of genetic engineering. This is done by humans in a lab who take the DNA out of the nucleus of a seed as well as from other organisms and combine all the wanted traits into one seed. This would not normally happen in nature.

Benefits

Promoters of GM seed argue that they increase productivity and will end hunger, but this is heavily disputed and not supported by evidence.

Weaknesses

GM seeds are usually created to be grown on large fields, where one single seed is planted across the entire field. This is referred to as mono-cropping. In addition, pesticides are used to control weeds on these large farms. Pesticides and mono-cropping have negative impacts on the soil and the environment. We are also not yet aware of the long term health impacts of these seeds for humans. However, research is already showing that the pesticide, Glyphosate, used with most GM seeds is potentially cancer causing. These seeds also make small-scale farmers dependent on seed corporations.

3.4. Classification of Seeds

Seeds and plants are classified in many different ways. For example, they can be divided into classes, namely Angiosperms (plants which produce flowers) and Gymnosperms (Plants which don't produce flowers). They can also be divided into subclasses, namely Dicots (plants with two seed leaves) and Monocots (plants with one seed leaf). Subclasses are then divided into superorders, and then into orders. Orders are divided into families and families into subfamily, tribe, subtribe, and then genus, species, variety, form, and finally cultivar. These classifications can get quite confusing and there is no need to remember and study them all. Usually, only the family, genus and the species of plants are of concern to the gardener, while learning about different **plant species is of particular importance** if you want to avoid cross-pollination. Cross-pollination is not disastrous, as it is a natural process in which different varieties with positive or negative traits will develop. But if your intention is to preserve the variety of seed that you have, you need to protect it from cross pollinating with other varieties within its species. Ways to prevent cross pollination are provided in Module 5. In this section we simply introduce you to a few of the families and species.

Families: Plants that have many botanical features in common belong to families. The major vegetable families include:

Crop Family	Plants in this family
Amaryllidaceae	Leeks, onions, shallots, chives, garlic
Brassicaceae	Broccoli, Brussel sprout cauliflower, cabbage, kale, radish, rocket, turnip
Compositae	Artichoke, lettuce, sunflower
Chenopodiaceae	Beetroot, chard, spinach, quinoa
Cucurbitaceae	Courgette, cucumber, marrow, melon, pumpkin, squash
Leguminosae	Pea, mang tout, borlotti bean, runner bean, French bean, broad bean
Solanaceae	Peppers, tomatoes, potatoes, eggplants
Umbeliferae	Celery, celeriac, coriander, fennel, carrot, parsnip, parsley, dill

Species: a species defines the individual plant. The name will often describe some aspect of the plant, for example the colour of the flowers, the shape or size of the leaves. Common species include:

- Brassica oleracea: Brussel sprouts, cabbage, kale, collard greens, broccoli
- Pisum satvium: Pea, snow pea, snap pea

Appendix I: Seed Saving Chart: This chart provides a list of common vegetables and their families and species. The chart is especially useful for identifying species to avoid cross pollination when seed saving, as we will learn in module 5.

3.5. The Nutritional Value of Different Types of Seeds

Seeds also differ in their nutritional value, and the nutritional value of the plants they produce. Open Pollinated Varieties are more nutritional than GM and hybrids. There are also age-old systems of knowledge that have been developed around seed systems and nutrition. These systems of knowledge about nutrition and traditional food preparation are still with us.

Culture and Seeds: Venda Rituals with Millet Seeds

For centuries local seed varieties have been an important part of indigenous communities' traditions and rituals. For such communities, seed is sacred and holds within it the potential for food and abundance. Seeds also represent health, vitality and security, and are used in traditional rites of passage from birth, to marriage ceremonies, to coming of age and finally death. One example is the use of millet seeds in rituals by the Venda people where freshly prepared millet beer is offered to the ancestors during ceremonies to appease them. Another example can be seen in the picture on the left. Here maize seeds are being sacrificed at a sacred Nomkhubulwane ceremony in Kwa-Zulu Natal.

Small Group Exercise:

Participants should discuss in small groups:

- What knowledge do you already have about seeds and saving seeds? How did you learn this knowledge?
- How does seed saving, especially of indigenous varieties, contribute to nutrition?
- How does seed saving contribute to food sovereignty?

Now that we have discussed what seeds are, and the different types of seeds that exist, we turn to learn about the South African seed system in order to contextualise the place and importance of building seed saving capacity in our communities and amongst small-scale farmers.

the importance of seed saving in the South African seed system

Module 4

The Importance of Seed Saving in the South African Seed System

4.1. The Seed System

The seed system in South Africa can broadly be divided into two dominant types. First the commercial seed system, where seed production is regulated, where intensive research and development is undertaken and where seeds are distributed through commercial seed companies. On the other hand, there is the community-based seed system which is comprised of household/farm seed selection and saving, farmer networks, local markets and gift exchanges.

In South Africa the commercial seed system is well established. This commercial seed system is also monopolistic and is based on the private ownership over seed varieties by the commercial breeders. These seeds occupy a firm place in our commercial farming sector, as almost all commercial farmers use commercial seed. These seeds are further spread by government programmes that provide seeds to emerging and small-scale farmers. In this system seeds are a commodity, 'produced' and distributed to make a profit. The community based seed system on the other hand, is inherently different. This system, which is often referred to as the 'informal' system, thus suggesting that it is illegal, is in fact a better alternative to the current dominant model. For while the commercial model is designed to benefit only a few seed corporations, the community based seed system instead values people and nature over profit. In doing so it benefits small-scale farmers, promotes resilience, farmer networks, solidarity and life! Despite its importance in community, for small-scale farmers and for the future of seeds, commercial seeds are still being promoted by government.

Government legislation also grants further rights to commercial plant seed breeders at the expense of common ownership over seed heritage and genetic diversity. This legislation includes the Plant Improvement Bill and the Plant Breeders' Rights Bill. The Plant Improvement Act only allows seed that has been certified to be sold on the commercial market. The Plant Breeders Rights Bill on the

other hand, makes provisions to award strong intellectual property rights to breeders, all in an effort to stimulate innovation in plant breeding. What this also means is that farmers may not recycle or share seeds that have been protected by these rights (some Open Pollinated Varieties already fall into the category of protected seed).

The problem with both these bills is that they work to restrict recycling, sharing, exchanging and trading of farm-saved seed, and they also serve to strengthen the rights of private seed breeders and their profits. They promote industrial agriculture based on monocrops, corporate seed and chemicals. This is a direct threat to protecting seed as a shared heritage and to the ability to build resilience to climate change. This trend of corporate capture of the state and seed system is taking root in Africa more generally. This poses a serious threat to the over 600 million small-scale farmers in Africa.

A further threat to food sovereignty and the ability of small farmers to cope with the impacts of climate change is the mass distribution and government support for GM seeds. Many of the farmers in South Africa and the officials in government have been sold the myth that these GM and hybrid seeds will help us out of our climate situation, and that they will help us feed the millions of hungry people in South Africa. But this is, after all, a myth. First, because the number of hungry people is increasing, and second because evidence of studies done on GM seeds in Africa reveal that they are not at all beneficial for small-scale farmers. Yet despite this evidence, many people continue to hold onto this myth.

One important way to resist is by building alternative seed systems and promoting the informal and people controlled seed system that already exists in South Africa. We can do this by saving our own seeds and establishing home and community seed banks of indigenous and nutritious seeds. As you can see, our role as seed savers is very important.

We are custodians of life!

What we also need to do as seed savers, is to become seed activists, and learn about the seed system, the laws and the rights of seed savers in South Africa. Some of these laws protect seed savers, while others can threaten seed saving practices. It is important to be aware of them.

4.2. The Importance of Saving Seeds

From the above it is clear that we need to create and promote an alternative seed system in South Africa. One that cannot be co-opted by government or seed companies with profit motives.

The importance of saving seeds in South Africa can thus be expressed as follows:

- It builds independence of farmers from seed corporations
- As part of agro-ecology it builds genetic and farm diversity to build resilience to climate change
- It puts control over the food system into the hands of farmers and communities as part of food sovereignty and the solidarity economy
- It helps us safeguard biodiversity
- It keeps indigenous seeds and knowledge alive

Small group exercise:
Can you think of other reasons why saving seeds in South Africa is so important?

4.3. Threats to Saving Seeds

There are a host of phenomena that can threaten our attempts at saving seeds and ensuring an alternative seed system. We need to be aware of these threats so that we can confront them. These are listed and briefly explained below. Read through them and then complete the activity following.

- The **knowledge** we have of saving seeds is threatened by the promotion of industrial agriculture
- **Seed** itself – seeds are living, breathing things that can lose their viability and ability to germinate over time

- **Government** policies that favour conventional agriculture and the development of 'commercial' farmers
- **Contamination** of indigenous and organic seeds by hybrid and GM seeds
- **Climate change** and extreme weather events
- Loss of seed diversity
- **Urbanisation** and **modernisation** threatens seeds as young people increasingly seek to move to cities, to live the urban life and avoid 'traditional' practices.
- **Government policies** can prevent communities and households from saving their own seeds.
- **Ownership patterns** – i.e. people who are supposed to be producing and saving seeds, but have lost ownership of resources such as land and water

Small Group Activity:
Each group choses one or two of the above threats and discusses
1) Why this is a threat
2) How you and your communities can overcome it.

Try make sure all the threats are covered.
Ensure plenary feedback on key discussion points.

4.4. Your Rights and Responsibilities as a Seed Saver in South Africa

In the face of the above threats, we need to be aware of our rights and responsibilities as seed savers.

What Are These Rights?

- To have access to indigenous genetic seed resources
- To save local and indigenous varieties of seeds without external barriers
- To freely share seeds amongst farmers and communities as a commons

- The right to food through food sovereignty and solidarity economy

What Are the Responsibilities?

- Save seeds to safeguard agro-diversity
- Take care of the natural cycle of life
- Share seeds to promote and expand farmer and people-controlled seed systems
- Educate people on their rights as seed savers

Note:
In the process of establishing your own seed bank, you can work together as a group to discuss your rights as seed savers and thereafter devise your own list of responsibilities particular to your seed bank (either household, community or cooperative).

Now that we have established why it is important to save seeds in South Africa, particularly in the face of climate change, in the next module we turn to look at seed saving in the greater picture of food sovereignty and the solidarity economy.

seed saving, food sovereignty and the solidarity economy

Module 5

Seed Saving, Food Sovereignty and the Solidarity Economy

5.1. Introduction

By saving seeds in the South African food system we are promoting both seed sovereignty and food sovereignty. If we save seeds with the intent of benefiting the community, with a sense of solidarity, collective ownership, and eco-centric practice we are well on our way to promoting the Solidarity Economy too. In this module we explain how this can be done by defining relevant terms, and drawing the links between our simple actions of saving the best seeds to the transformation of our food systems and ultimately communities. Simply put, saving seeds can have an impact on not only our household or community seed systems, but also on our local economies, our sense of solidarity and our environment. By saving seeds we can show others that another seed system and food system is possible; that a people's food economy is possible. We begin this module by exploring food sovereignty, but first we will draw on knowledge that already exists in the group about these topics by undertaking the activity below.

Small Group Activity:
In groups define: What is sovereignty, seed sovereignty and food sovereignty? Can you provide examples of each of these in practice? Refer to the following section for some assistance.

5.2. What is Food Sovereignty?

Here are some definitions.

Sovereignty is the freedom of a country or community to govern and control itself, without any interference from outside forces or bodies.

Seed sovereignty is thus the freedom of a country or community to govern and control its seed and seed systems, without any interference from outside forces or

bodies. In addition, seed sovereignty reclaims seed and biodiversity as commons and public good. It emphasises the farmer's right to breed and exchange diverse seeds which can be saved, which are not patented, genetically modified, owned or controlled by emerging seed corporations.

Food Sovereignty is the freedom of a country or community to have control over its food system to realise the right to food. Food sovereignty as defined by the largest social movement in the world, La Via Campesina (meaning *the way of the peasant)* is thus "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. It puts the aspirations of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations."

It is important to note that **food sovereignty is not the same as food security**. Based on the challenges we have described in previous modules we can see that the problem of hunger, climate change and the monopolistic nature of the industrial food system are systemic problems. Solutions like food security interventions (those interventions which often consist of hand-outs, Genetically Modified seeds and government programmes to fortify staple food products with micronutrients, to name a few) are unsustainable solutions because they do not deal with the root of the problem, but merely keep trying to avoid the roots. These interventions also do not ask important questions such as: what type of food is handed out to hungry people? Is it nutritional? How was it produced? Who produced it and under what conditions? Was the environment harmed in the process? Who is in control and why? Why, when there is so much food in the country are there still so many hungry people? The above questions are all important questions that need to be asked if we really want to end hunger. Food sovereignty is an approach that keeps asking these questions. Further, while food security keeps the multinational corporations in power, food sovereignty seeks to put the power back into the hands of the people.

Figure 3. Food Sovereignty Principles

5.3. How to Promote Food Sovereignty

There are two key ways by which we can promote the democratic control of our seed and food systems and put power back into the hands of the people.

1. The first possible approach is to try push back the power of those large food corporations and multinational seed corporations who are gradually and blatantly violating the little bit of control we do still have over the food system. We can do

this by opposing laws that threaten our food sovereignty, by making demands on government and corporations, by challenging unjust structures in the food system and importantly by raising the consciousness of all citizens who believe in the myths that the current system is selling us.

2. At the same time, we can actively build and promote an alternative system. We can do this by promoting eco-centric practices, by saving seeds, growing our own nutritional, indigenous food, by supporting small-scale farmers and by sharing these practices and knowledge with others. In addition to simply undertaking the above activities, we can further institutionalise our actions by initiating community forums to share and impart knowledge. We can also establish household and farm based seed banks. This can be linked to community seed banks, community food gardens and perhaps later these can become worker cooperatives. By undertaking these activities and initiating such institutions, we are able to reveal that another way is possible; that there is an alternative to the corporate controlled seed and food system. This alternative system, of which food sovereignty institutions are good examples of, can also be referred to as the Solidarity Economy, which we briefly discuss below.

5.4. What is the Solidarity Economy?

Remember in the introduction to this guide, we established that the root cause of climate change is a system that values profit over people and the environment. This is a system which capitalism promotes. If we want an alternative to capitalism, we have to convince people that there is an alternative. A good way to convince them is to show them this alternative and display how it works and benefits those involved and their communities. This is where the Solidarity Economy comes in. To understand the Solidarity Economy, we now turn to look at definitions, principles and examples.

Small Group Exercise:
In small groups define: What is solidarity, and the solidarity economy? Can you provide examples of these in practice? See below for assistance.

Here are some definitions and explanations.

Solidarity is unity around a specific idea or cause. It is when people have common interests, share values and they support each other in achieving these. They also build institutions through such solidarity. Solidarity can also refer to the ties in society that bind people together as one.

The **Solidarity Economy** is an economy that is based on efforts that seek to increase the quality of life of a region or community through not for profit endeavours. It mainly consists of activities organised to address and transform exploitation under capitalist economics and the corporate, large shareholder-dominated economy, and can include diverse solidarity institutions.

The solidarity economy is not a predesigned plan that can tell us how to change society, but rather is a set of ethical values, institutions and principles that guide us in how we struggle to change society and define the kind of society that we wish to achieve. These principles can guide institution building in the solidarity economy so that people can set up organisations or enterprises (even seed banks) in which all who partake in it benefit equally - unlike capitalist businesses where the owners take a disproportionate share of the profit.

Figure 4. Solidarity Economy Principles

In South Africa, the Solidarity Economy Movement (SEM) exists as a loose grassroots driven network sharing learning, experiences and resources. This is a grassroots movement that seeks to initiate an alternative type of economy, one which is informed by ethical and social goals and which is 'organised through collective struggle and conscious choice to establish new patterns of democratic production, consumption and living that promotes the realisation of human needs and environmental justice.' Examples include worker cooperatives, the South

African Waste Pickers Association, cooperative bakeries, education and communication cooperatives, local markets organised through cooperatives and farming communities who form into worker cooperatives. A community seed bank that is embedded in such a system can further contribute to the solidarity economy, as we discuss below in the conclusion to this module.

Note:
COPAC has also produced activist guides on the solidarity economy and on food sovereignty. Both are designed to be run in workshops. If participants would like to know more about food sovereignty or the solidarity economy, it is advised that you consider running these workshops too. The guides can be accessed at: www.copac.org.za. Also go to the Solidarity Economy Movement webpage: www.sem.org.za.

5.5. From Seeds to an Alternative People's Food Economy - One Small Seed at a Time

Because seeds play a vital role in growing food, establishing a household seed saving practices that can inspire a community based seed system presents an integral step that communities ought to follow to put them on the path of establishing food sovereignty. For without control of our seeds at a household and community level, we are forced to depend on outside sources or bodies for seeds. This is not sovereignty.

Creating a community based seed system thus has an integral part to play in the food system, in promoting food sovereignty and in building an alternative economic system – one which is not comprised of multinational corporations with monopolistic tendencies and operations, and one which does not rupture social ties, degrade environmental biodiversity and devastate whole communities.

By saving seeds we can promote seed sovereignty, food sovereignty and solidarity economies as 1) we take the power out of the hands of the industrial farmers and

2) as we physically build the alternative in the form of community-based seed systems.

Creative small group activity: A people's food system
Ask participants to think creatively about what a food and seed system would look like if people had control over it. How would such a system promote solidarity and the solidarity economy?

Then give each group or participant a piece of paper and ask them to draw a community seed bank in the middle of the paper. Thereafter ask them to draw a picture of their ideal food system, showing the important links to the seed bank. Their picture should also try show how the seed bank and food system contributes to the solidarity economy. Once each group or individual has drawn their pictures get them to share and describe their pictures in the plenary.

Some additional questions to prompt them as they draw:

- What would the environment and the farms look like?
- What would the food look like?
- What would relationships be like between community members?
- Who would have control in this system
- Who would benefit from the system?

In the concluding module of this guide we explore further the ideas covered in this chapter as we attempt to draw the links between food sovereignty, seed sovereignty and the solidarity economy. However, from the descriptions and activities above, you may already be able to make the links between community controlled seed banks to building an alternative food economy and ultimately to promoting a people's food economy. In the next module we turn to look at some simple, practical steps for saving seeds to help you and your community transform your food system and society one small seed at a time.

seed saving principles and practice

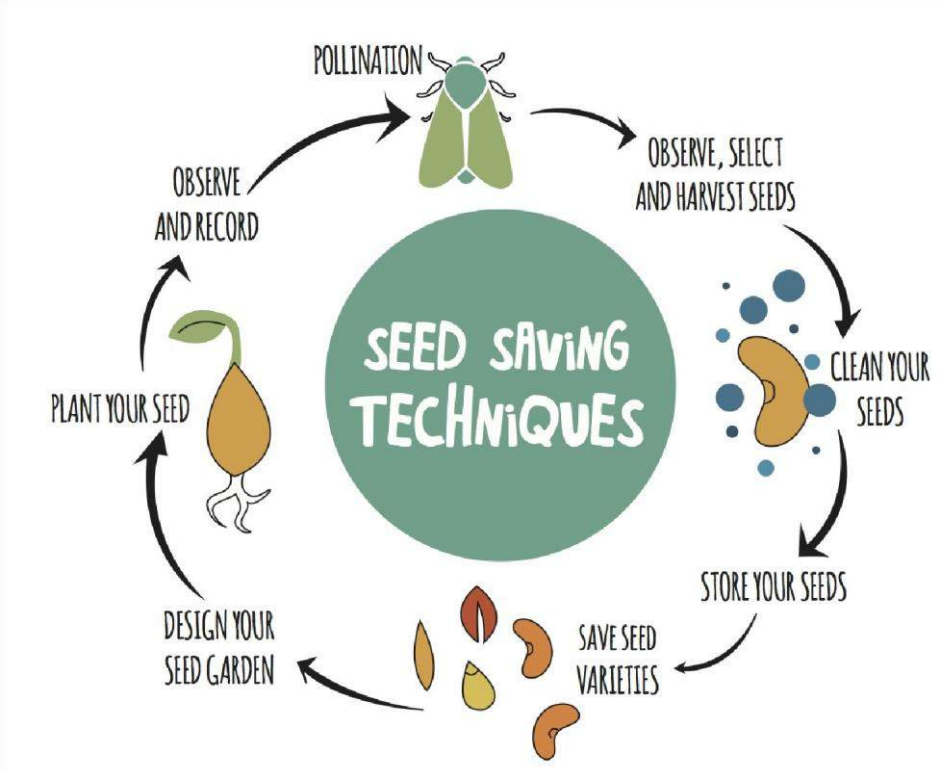
Module 6

Seed Saving Principles and Practice

6.1. Introduction

There are various methods which one can use to save and store seeds. Below we have outlined simple steps for saving seeds on a small scale. These steps are not prescriptive and can be adapted to your situation. It is important to keep the principles of seed saving in mind if you want to maintain seed purity. If you are new to saving seeds, one suggestion could be to practise with saving a few seeds, and when you get the hang of it, you can start diversifying. If you are saving for a community seed bank, why not encourage each member to save a different species of seeds so that they do not cross pollinate in one garden (Learn more about this in step 5).

Figure 5. Seed Saving Techniques



Remember the picture of the natural cycle of seeds? We have adapted it above to show where seed savers can gently intervene in this seed cycle to make sure that the best seeds are selected, saved and stored. There are eight steps in this cycle. Before we look at these steps we will find out what knowledge already exists in the groups by undertaking the following group activity.

Group Activity:
Maybe you or people in the group already have some experience of saving seeds. In groups, ask people to share their own experiences or memories of their parents' or grandparents' seed saving techniques.

1

Rescue Seed Varieties

To save a good quality seed, you need to plant a good quality seed. The first step of sourcing good quality seeds is perhaps the most important step. It is no good undergoing the whole process only to find that you have actually been saving hybrid seeds all along, for example.

Rescuing a good seed variety can be done through exchange, at seed gatherings or by purchasing seeds from a reputable seed saver. Remember that seeds deteriorate and lose their vigour and ability to germinate, so receiving old seed might be very disappointing. This also places an urgency on us as seed savers to protect and defend our agro-diversity, food varieties and culture. It is important that you investigate the person or seed bank that has supplied you with the seed. You can do this by building a relationship with the seed saver and other seed savers in your community and thereafter observing their seed gardens and practices to make sure that they are following sound seed saving principles. At times it can be difficult to know what the true quality of the seed is. You can do the best you can to investigate the seed saver, but sometimes there is no knowing of the quality of the seed unless you plant it and see how it grows. Remember seed saving is about learning from your mistakes too.

2

Design Your Seed Garden

A seed saving garden is often a separate garden from the one where you grow your food. There is great value in separating the garden, but this is not vital. A food garden provides a bounty of seed as well as food. You can even designate a small space of your food garden for saving seeds. Prepare this garden well for saving seeds by ensuring that you protect it from animals, wind and people. You can shelter it with hedges or physical structures.

Conditioning the soil is also important. You can prepare it with compost, and cover it with mulch or cover crops to ensure beds remain moist. The design of your bed is also important to ensure good water management, harvesting and storing; raised beds are ideal for this.

Some seed savers even experiment with different types of soil. You can do this too by creating different seed beds and varying the soil composition slightly in each one. For example, you can vary the manure content (ash increases alkalinity while manure makes the soil more acidic), the soil/sand content, the compost content and even the acidity levels. You can then observe which seeds grow best in which soil composition. Once your garden and various beds are prepared you are then ready to plant your good quality seeds.

3

Plant Your Seed

Sometimes it is advised that one creates a planting schedule (see Appendix I for a planting calendar) if you want to ensure that you plant your plants at the right time, during the right season, and to avoid cross-pollination. In this schedule you can plan in what plants might cross with others during pollination, and make sure not to plant them at the same time. When your schedule indicates that it is planting time, go ahead and get your hands dirty.

4

Observe Your Garden… and Record

This is a very important stage of seed saving. Observe your plants every day. Observe which ones are better suited to different soil types, to

different amounts of water. Also keep an eye on insects and see which ones are struggling in the heat, which ones can do well with less water, and which ones are pest resistant. Take notes of all of your observations so that when it comes to saving seeds you are sure to select seeds from your healthiest and most resilient plants.

5

Pollination

Pollination is an important process in fertilising plants. If you understand how pollination works it will help you grow plants that are true to type. Plants either self-pollinate, wind pollinate or cross pollinate. Plants like beans and peas self-pollinate as the male and female flowers merge on the plant. Plants like squash require that the pollen from the male flower is crossed over to the female flower with the help of an insect (or even a human at times). While plants like maize rely on the wind to pollinate them. We have discussed plant families and plant species above, but it is important to note that members of the same plant species can often cross-pollinate and create hybrids. See the box below to learn about how to avoid cross-pollination.

How to Avoid Cross-pollination:

- Know your plant families and species!
- Use distance: if you have a large space you can separate different species with distance to prevent cross pollination.
- Plant one variety within the species at a time. For example, if you have three different varieties of carrots, rather plant one of them at a time.
- Use physical barriers: you can use hedges, large flowers like sun flowers or even isolation cages to separate plants. This will prevent insects from visiting all of your plants at the same time. An isolation cage can be made out of a wooden frame and fine material. You alternate which species will be caged, while the other is given an opportunity to be pollinated.
- Stagger timing of planting (work this into your planting schedule) to make sure that your plants of the same species do not flower at the same time.

6

Observe, Select and Harvest your Seeds

This is quite obvious, but a seed garden/plant you are saving seeds from is not supposed to give you food. The idea is to save the seed from the fruit of the plant. With most plants that you want to harvest seeds from, you should allow the fruit to grow beyond when you would normally pick them for eating. Like with butternut, pumpkins and squashes, allow the fruit go dry and harden before you crack it open and harvest seeds. With legumes like beans, allow the bean to continue growing on the plant until it becomes dried out and even brown. With plants like tomatoes and peppers, also allow them to grow until they become ripe to over-ripe, even soft and saggy, then remove the seeds from within the flesh, clean them and allow them to dry **out of direct sunlight.**

Each plant has a different way of seeding so it is important to know when it is seeding, and when is the best time to gather the seeds.

7

Cleaning of Seeds

Different seeds require different types of cleaning.

- Firstly, for seeds within pods (like beans, peas, brassicas), remove the seed from the pods. For seeds in clusters (for example, carrots, onion, celery), break up the clusters of seed. For seeds on cobs, like maize, remove the seed from the cobs. It is usually best to take the seeds nearer the middle of the cob, that are larger and stronger.
- Clean away stalks and excess organic matter.
- For seeds from fruits, like pumpkins, peppers, brinjals or cucumber, remove the seeds from the fruits and dry them out of direct sunlight. Tomato and cucumber seeds may require fermenting to dissolve the coating around the seeds. To do this, remove the seed from the fruits, place them in a jar of water and leave them for 2 days. Then rinse them through a sieve until clean. Leave them to dry for a couple of days out of direct sunlight.

- Remove any damaged or diseased seeds (You can even make a game of removing the damaged seeds with the children – in this way you can encourage their interest in saving seeds).
- Ensure there are no insects in your new collection of seeds before you move to storage.

8

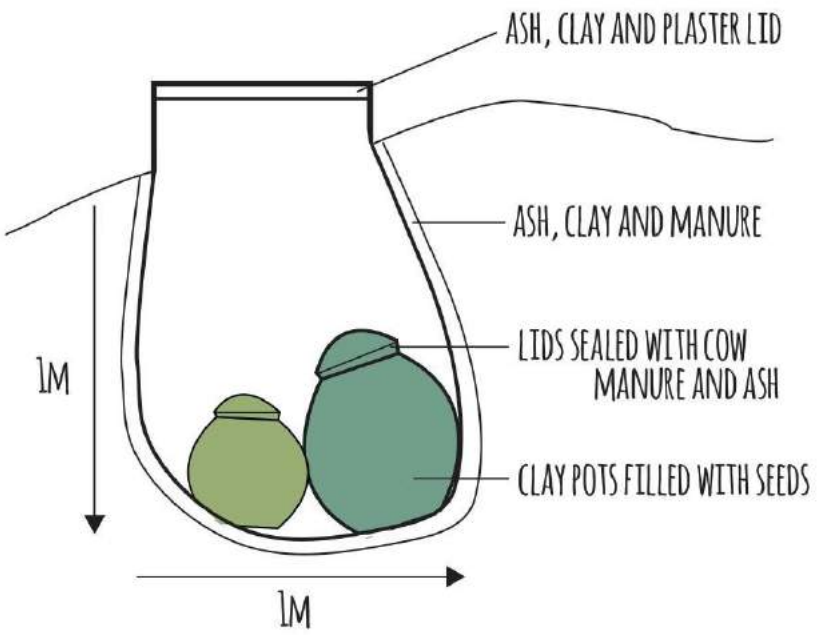
Storing Your Seeds

There are various methods that can be used for storing seeds, but some basic steps usually apply:

- Store your seeds on a warm and dry day. Seed storage is traditionally done during the dry season when there is also less moisture in the air.
- Ensure the seeds are properly dry before attempting to store them. If they are not, mould could develop in your seed container or they could even start sprouting.
- Store seeds in clay pots, glass jars, or paper envelopes. Avoid plastic.
- Consider mixing pure wood ash or dried gum leaves in the container with your seeds, smoke them, or even freeze the seed for 1 to 3 days in order to kill the life cycle of weevils. If you have access to aloe leaves, you can also squeeze out the gel from the leaves, dry it in the sun until it crystallises, then sprinkle it over the container of seeds.
- Store the seeds in a dark, cool, dry environment. Ensure that the containers are well sealed so that no moisture or insects can get inside.
- Ensure where the seeds are being stored is well protected from insects and rodents.
- Be sure to label each container – the harvest date, the farmer it came from, place, variety, common name. Use a lead pencil. Adequate record keeping is crucial. You could also develop code system for each bottle. See Appendix II for an example of a control form for recording seed information (when saving and sharing seeds).

One traditional method of storing seeds is to create a seed saving pit:

Figure 6. Seed Saving Pit



- Dig a hole, 1-metre-deep and 1-metre-wide (the size depends on how much seed you want to save)
- The hole can be on a slope to encourage water run-off away from the seed hole.
- Line the base and sides of the hole with a mixture of ash (ash repels termites), cow dung and clay. Build the walls up a little to direct rainwater away.
- Place the seeds in clay pots.
- To seal each pot, place another upside-down pot over it as a lid, and seal the join between them with a mixture of cow manure and ash.
- Be sure to label – harvest date, farmer, place, variety, common name, use lead pencil. Adequate record keeping is crucial. You could develop a code system for each bottle.

- Make a lid with mud, ash and plaster. Once the lid has set, place it on the hole to make sure it is covered and airtight.

6.2. Principles of Seed Saving

In order to build seed sovereignty and ensure the effective keeping and saving of seeds, as well as the development of farmer-controlled seed systems, the following principles are important to follow when rescuing, saving and storing your seeds:

- Maintain the integrity of your seeds by knowing where they come from
- Grow seeds naturally
- Select the most resilient and adaptable plants
- Keep and replicate diverse varieties of seeds
- Ensure the populations are as large as possible to ensure genetic diversity
- Preserve true to type varieties by protecting them against cross pollination of different varieties within the same species
- Undertake mutual exchange of seeds to ensure regular propagation and continuity
- Create living seed banks by making sure your seeds are grown regularly
- Commit to sharing knowledge about seed saving
- Commit to keeping records
- Commit to having a broad knowledge of the seeds that are in your community
- Continually defend our seeds from corporate capture and piracy
- Promote democratic access and control of seeds
- Link seed saving to promoting food sovereignty and the solidarity economy

By following these broad steps and principles, you will be on your way to promoting seed sovereignty and food sovereignty in South Africa. A second important step to making this process a collective one, is to establish a household or community seed bank. We discuss how to do this in the following module.

how to set up a household or community seed bank

Module 7

How to Set Up a Household or Community Seed Bank

7.1. Different Types of Seed Banks

There are various approaches to seed banks. These include household seed banks whereby one has a small seed garden and stores seeds in a little room or cupboard in one's home. There are smallholder farmer seed banks, where farmers save their own seed for producing crops the following season. Finally, there are community seed banks that are established by a group of people in a community. Below we discuss a few principles to consider when setting up a household or community seed bank. Thereafter we discuss practical steps that can help you design a cooperative seed bank in your community.

One key purpose of this module is to develop a common understanding of a household or community seed bank. This should not only be developed based on the content of this chapter, but through dialogue and discussion on why people want to start a seed bank, what the objectives of a seed bank are and what a seed bank would look like in your specific community.

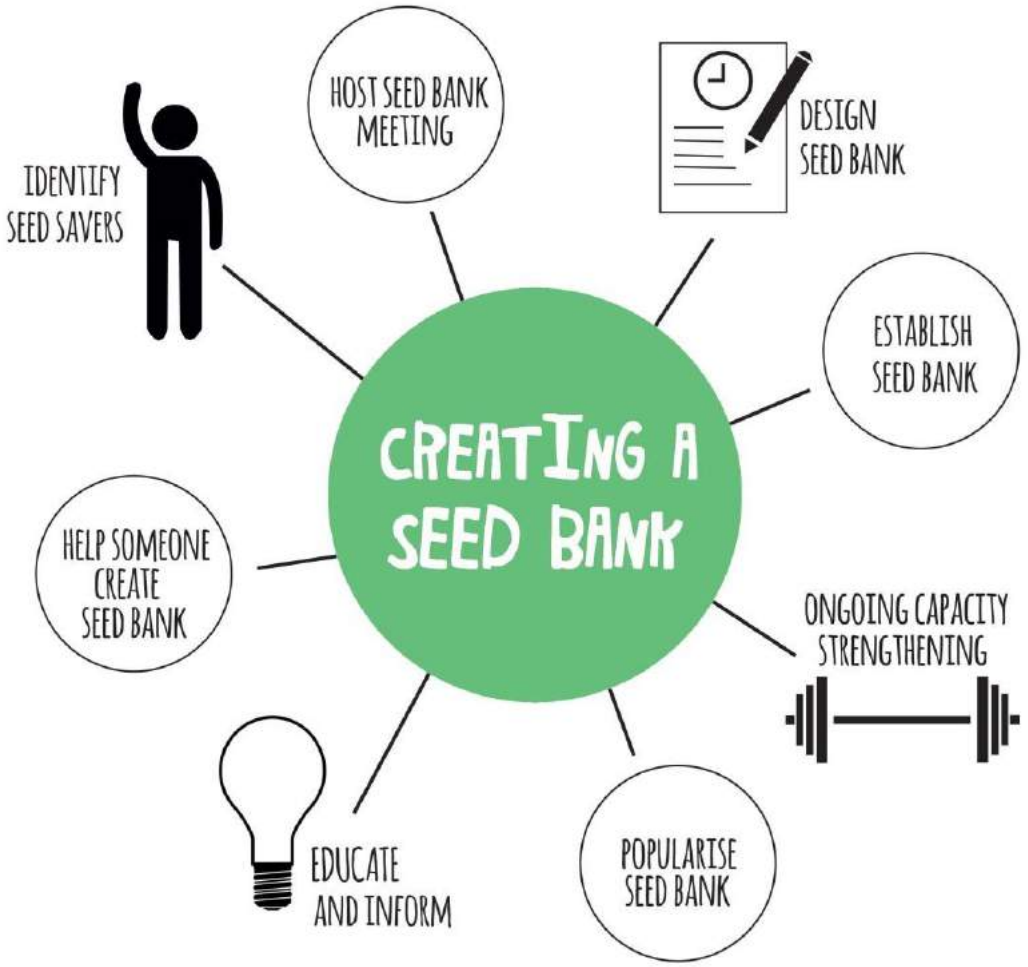
The form a community seed bank takes often depends on the type of community it is being created in, the skills and talents of those heading up the seed bank, and the principles which guide the practices and processes. Before establishing a community seed bank it is important to realise that anyone can be a seed saver; a farmer, a gardener, children, youth, senior citizens, men and women alike. In the process of setting up a household or community seed bank be sure to invite various people to assist you. By involving different people, you are able to encourage relationships between people within a community, and build necessary solidarity.

Types of seed banks can range from very informal systems of networks and exchange where seeds are stored and distributed in a community from a central location (the seed bank), seed savers can also share their seeds at different seed exchange events. More developed seeds banks can take on more formal structures

and be formed into a worker cooperative seed bank, for example. Below we discuss simple steps for designing a household or community seed bank. Thereafter we provide steps for how you can turn a community seed bank into a cooperative that can benefit your community and the cooperative workers.

7.2. Steps for Establishing a Household or Community Seed Bank

Figure 7. Establishing a Household/Community Seed Bank



1

Identify Existing or Aspiring Seed Savers

There may already be established seed savers in your community. Identify these people and interact with them. Ask them to share their experiences with you, ask them what seeds they have, how things have changed and whether they would like to start saving traditional seeds again. Ask them if they have traditional seeds. Do your best to locate as many varieties of seeds as possible too.

If you are establishing a community seed back, try and locate aspiring seed savers; those who want to start saving seeds. This might involve a community meeting or a process of orientation and community sensitisation whereby you educate and instil a desire in people to create seed banks. This might require hosting an activist school using this very guide. Whatever you do, make sure that all interested people are at the first meeting.

2

Host a Seed Bank Meeting and Form a Seed Management Committee

This meeting should comprise of people who are willing or interested in initiating the seed bank with you. If you are starting a household seed bank, this could include your family – if they are interested. If you are establishing a community seed bank this first meeting is a very important meeting where a range of activities and decisions can be undertaken, these include:

- Deciding on the objectives of the seed bank to form a common understanding of why the community/household needs a seed bank.
- Getting to know fellow seed-savers through sharing stories or even a meal.
- Establish a seed management committee (a group of 3-7 people who will be responsible for overseeing the establishment of the seed-bank). For a household seed bank, this could comprise of family members or friends.
- Get to know the skills of the various people in the seed bank. Determine who is good at growing seeds, who is good at organising etc.
- Establish what seeds you have amongst the members and in the community - especially indigenous or traditional seeds.

- Start discussing necessary steps and actions required to establish the seed bank.

Design the Seed Bank

This might involve another meeting with the whole group or only the seed management committee, or household team, to start devising time frames and discussing roles and responsibilities. For community seed banks, this meeting can also clarify the membership of the seed bank, whether it will be an income generating seed bank, whether it will be run by volunteers, or whether you want to establish it as a cooperative. If you choose a cooperative, during this step you will also have to undertake feasibility assessments, create strategy and business plans, develop a constitution and elect leadership during the designing of the cooperative seed bank (see steps for cooperative seed bank below). Once your plan is fully fleshed out, it is time to get to work.

Establish the Seed Bank

Each task team in the community seed bank should be given time frames for their different tasks. If it is a household seed bank, this may take a little longer, but roles can still be assigned to family members, or everyone can agree to do this together. This step will include developing the gardens (on a communal land or on members' own land), planning a planting schedule, sourcing more seed varieties, seed containers, and even establishing a physical seed bank if you don't already have one. This will also involve harvesting and storing seeds.

Ongoing Capacity Strengthening

It is important to continually strengthen the capacity of community members and seed bank members so that they are all at the similar level in terms of technical expertise. This could involve admin people being trained in gardening and gardeners being trained in administration within the seed bank.

Another way in which capacity can be strengthened is through workshops in the community and learning exchanges with other seed banks in other communities or households. This is a great way to learn what is being done and to then return to your own seed bank to implement new practices.

6

Popularise the Seed Bank

You can do this by approaching individual farmers, by hosting a market or a seed festival, by using common advertising techniques like posters, flyers or handing out small packages of seeds.

7

Educate and Inform People

Your responsibility as a seed saver is to promote seed saving practices and knowledge. You can do this by hosting simple seed saving workshops at your household or community seed bank or seed gardens. Be sure to invite the youth, the elderly, the farmers and the business people alike. Anyone can be a seed saver. You can even try go to schools and ask teachers if they will let you teach the children about the importance of saving seeds, nutrition and climate resilience. Make sure that in all you do you are sharing the importance of saving seeds.

8

Help Someone Set up a Seed Bank

Once you have become a successful seed saver, and once your seed bank is up and running, you can assist others to establish household or community seed banks too. You can use this guide and your and their experiences to initiate this process.

9

Diversify

If you are established as a cooperative seed bank, you have the option of diversifying your activities. See below, as we discuss cooperative seed banks, for more on how you can diversify your seed bank.

7.3. Establishing a Cooperative Seed Bank

A cooperative seed bank is an important way of advancing the alternative seed system in South Africa. A worker cooperative, as introduced in module 4, is an enterprise that is owned wholly or fully by those who work in it, namely the worker-owners or worker members. Worker cooperatives are therefore democratically controlled for worker owner benefit, both individually and collectively. Worker cooperatives can be organised around different types of economic activity, including farming, manufacturing, services and social support, as well as seed saving.

Steps involved in setting up a cooperative seed bank are the same as the above, except during *Step 3*: *The design of the seed bank,* additional steps need to be undertaken in the design of the seed bank.

Note:
COPAC has also produced an activist guide on creating work through worker cooperatives, which can be accessed on www.copac.org.za. The guide is also designed to be covered in a workshop setting. Below we simply summarise a few of the phases involved in the design of a worker cooperative. These steps are not comprehensive and we do advise you refer to the Worker Cooperative guide for more detailed steps.

Phases in the design of a cooperative seed bank:

- ***Phase I - Groundwork:*** This phase involves steps of planning the cooperative before actually starting it. This is a crucial phase as it allows the potential worker owners who are wanting to start the cooperative to clearly plan what it is they want the cooperative to do, how they will do it and whether it is likely to succeed. Steps in this phase include exploring the feasibility of the concept, drawing up the strategy and business plan and developing the constitution and electing the leadership.

- ***Phase II - Start-up:*** Once the ground work stage has been completed, the cooperative can actually begin its operations. There are a number of activities to undertake here in order to take the worker cooperative through the start-up phase to consolidation. These include managing finance, building the solidarity economy movement through campaigns, value chains and networks. The start-up phase can last a few years.
- ***Phase III – Consolidation and expansion:*** This phase happens once the worker cooperative is firmly established. It can now look at streamlining its operations and expanding to employ more worker owners. It can even look at diversifying its activities.

Diversifying a Worker Cooperative: Once your seed bank cooperative is up and running, you have the option of strictly remaining a seed bank and becoming real experts at saving seeds. You can then assist other people in your community and other communities establish something similar. This is important for promoting the alternative seed system. It is important to note that you are not restricted to saving and selling seeds alone. The beauty of cooperatives is that there are endless opportunities to further develop your cooperative to fulfil additional and important needs in your community. For example, your cooperative can manage your seed bank, and at the same time initiate saving funds among the members and communities. If you have people in your coop who enjoy baking, you can initiate a baking cooperative. Further, if you already have gardens, why not establish a multi-purpose farming cooperative, supplying seedlings, heirloom seeds and nutritious produce to your communities. It is advisable that you keep these options open and discuss diversification with your cooperative and your community to ensure that you are meeting their needs and using the talents of all the people in your cooperative to the full potential.

Small Group Activity: Design a Cooperative Seed Bank

This activity is aimed at getting you to think through a basic idea of how you could establish a cooperative seed bank in your community. Some key questions to engage on in your group are:

- What are the objectives of your cooperative seed bank?
- What would the basic structure of the cooperative be? You could draw this out on a piece of paper.
- Who can be members of the cooperative? What will their obligations be in order to be a member?
- How will new seeds be brought into the cooperative for storage and how will the system work to manage incoming and outgoing seeds?
- Who will undertake the overall management of the cooperative?

In the final section of the guide we conclude with a brief section on the importance of your efforts of saving seeds and establishing seed banks in the broader picture of food sovereignty and the solidarity economy in South Africa.

conclusion: seed saving and food sovereignty

Module 8

Conclusion: Seed Saving and Food Sovereignty

Traditional and indigenous seeds are life. We have established in this guide that without seeds we will perish. The seeds we know in our culture are around because of our ancestors and their relations. Seeds and people have coevolved in a way that we have selected, planted, cared for, harvested and stored seeds. In this way we have a special relationship with seed. And yet the seed is dependent on us for survival. By having a household seed bank, you are being an activist.

It is thus our responsibility as farmers, activists and community members to ensure that in the face of continuing social, ecological, economic, democratic and climate crises, we can prove that there are alternatives that do work. In this final module we discuss how saving seeds can promote the alternative. We also prompt you to explore how your community can use grassroots movement building, forums and seed banks as a basis for initiating alternative practices and systems to the corporate seed and food system.

With the knowledge you have gained through this workshop, it is time to brainstorm how you are going to promote food sovereignty and the Solidarity Economy. We start this section by asking some questions.

Group Activity: Bringing it all together

This activity is aimed at getting you to think about the links between the issues in your community and how seed saving can form part of the solution to these problems. It is recommended that you group people in their delegations so that they can also begin to make concrete plans together for how they will use this guide practically and effectively in their communities. Let people answer these questions in their groups and then report back in the plenary.

- What challenges do people face in your community? Hunger, unemployment, etc.
- In what ways can seed sovereignty and food sovereignty combat these challenges?

Group Activity Continued

- How does seed saving and seed banking build the solidarity economy, and how can we practically promote the Solidarity Economy through our seed banks?
- How can this guide and seed saving and banking in particular build and promote food sovereignty in South Africa?
- What can you do in your community to raise awareness about seed sovereignty and food sovereignty?
- What steps are you going to take to make the above happen?

There are many answers to the above questions, and these depend on the particular context of the group undertaking the workshop. As such all answers to the above questions will differ. Nevertheless, we conclude this guide by providing some general answers to the above questions, which can be supplemented by answers from the group discussions and built on to provide important ideas and tasks for you to implement to promote food sovereignty and the solidarity economy.

8.1. Conclusion: Growing Seeds, Instilling Dignity

In our communities, many households live below the poverty line. Coupled with unemployment, climate change and lack of service delivery, to name a few, the problem of poverty and hunger will get worse. In this guide we have shown how household community seed banks should not be seen in isolation, but rather as part of the solution to many of these problems.

By establishing a seed bank we are already promoting the alternative, as stressed above. At the same time, we are creating awareness about what this alternative looks like. Household and community seed banks are in their nature grassroots interventions. Rather than an NGO or outside body coming in to define how a community should develop, the revival of traditional seed saving practices, establishing of community seed banks and promotion of food sovereignty is about

a community defining for itself how it will develop, how it will function, what it needs and what principles its food producers and custodians of life will live by.

Seed saving can build solidarity as seed savers and farmers begin to learn and work together. Community seed banks can promote the solidarity economy as they are owned by the worker members, and as they are built on values of democracy, trust, eco-centric practices and solidarity. In addition, seed banks can become sources of discussion and forums for introducing food sovereignty and seed sovereignty. Finally, a household or community seed bank is a real example of food sovereignty in practice as it promotes a seed system that is sustainable and owned by the people. It places value on providers of food and seed and it works with nature. At the same time, reviving these traditional seeds and practices ushers in a new form of resistance in the struggle to defend our seed system from the industrialised system. And as we struggle against the current system, saving seeds is one way of showing others that we have our own peaceful, eco-centric weapons that do not destroy life, but rather preserve it and instil dignity.

Saving seeds is a form of people's power!

APPENDIX I - Planting Schedule

Annual Vegetables

CROP/ VEGETABLE	FAMILY (*GENUS, SPECIES*)	POLLINATION	ISOLATION DISTANCE	NUMBER OF PLANTS	SEED LIFE
Arugula	Brassicaceae *(Eruca sativa)*	Insect	1/2m	40	5 years
Bean	Fabaceae *(Phaseolus vulgaris)*	Self	6m	10	4 years
Bean, Fava	Fabaceae *(Vicia faba)*	Self	15m	20	4 years
Corn	Poaceae *(Zea mays)*	Wind	1m - 2m	100	6 years
Cucumber	Cucurbitacea *(Cucumis sativus)*	Insect	1/2m	10	8 years
Eggplant	Solanaceae *(Solanum melongena)*	Self	15m	10	6 years
Lettuce	Asteraceae *(Latuca sativa)*	Self	6m	10	3 years
Melon	Cucurbitacea *(Cucumis melo)*	Insect	1/2m	10	7 years
Mustard	Brassicaceae *(Brassica juncea)*	Insect	1/2m	40	5 years
Pea	Fabaceae *(Pisum sativum)*	Self	6m	25	5 years
Pepper	Solanaceae *(Capsicum spp)*	Self	30m	10	4 years
Pumpkin	Cucurbitacea *(Cucumis pepo)*	Insect	1/2m	10	7 years
Radish	Brassicaceae *(Rapnanus sativus)*	Insect	1/2m	50	5 years
Spinach	Amaranthaceae *(Spinacia oleracea)*	Wind	2m	50	4 years
Squash	Cucurbitacea *(Cucubita spp)*	Insect	1/2m	10	7 years
Tomato	Solanaceae *(Lycopersicon spp)*	Self	3m	10	5 years
Watermelon	Cucurbitacea *(Citrullus lanatus)*	Insect	1/2m	10	6 years

**adapted from 'Seed Saving Chart' by Seed Matters™*

Biennial Vegetables

CROP/ VEGETABLE	FAMILY, GENUS, SPECIES	POLLINATION	ISOLATION DISTANCE	NUMBER OF PLANTS	SEED LIFE
Beet	Amaranthaceae *(Beta vulgaris)*	Wind	1m	30	6 years
Broccoli	Brassicaceae *(Brassica olercea)*	Insect	1/2m	40	5 years
Brussels Sprouts	Brassicaceae *(Brassica olercea)*	Insect	1/2m	40	5 years
Cabbage	Brassicaceae *(Brassica olercea)*	Insect	1/2m	40	5 years
Cauliflower	Brassicaceae *(Brassica olercea)*	Insect	1/2m	40	5 years
Carrot	Apiaceae *(Daucus carota)*	Insect	1m	60	3 years
Celery, Celeriac	Apiaceae *(Apium graveolens)*	Insect	1/2m	30	5 years
Kale	Brassicaceae *(Brassica napus)*	Insect	1/2m	40	5 years
Kale	Brassicaceae *(Brassica olercea)*	Insect	1/2m	40	5 years
Kohlrabi	Brassicaceae *(Brassica olercea)*	Insect	1/2m	40	5 years
Leek	Amaryllidaceae *(Allium ampeloprasum)*	Insect	1m	20	2 years
Onion	Amaryllidaceae *(Allium cepa)*	Insect	1m	50	2 years
Parsley	Apiaceae *(Petroselinum crispum)*	Insect	1m	30	5 years
Parsnip	Apiaceae *(Pastinaca sativa)*	Insect	1m	20	1 year
Rutabaga	Brassicaceae *(Brassica napus)*	Insect	1/2m	40	5 years
Swiss Chard	Amaranthaceae *(Beta vulgaris)*	Wind	1m	30	6 years
Turnip	Brassicaceae *(Brassica rapa)*	Insect	1/2m	40	5 years

**adapted from 'Seed Saving Chart' by Seed Matters™*

Note:
The isolation distances and plant populations listed above are good guides for seed saving, but gardeners should do the best they can with their available space. The best way to build solid seed skills is a combination of researching the ideal methods and experimenting with your own approach. The only real mistake you can make is to not try. Have Fun.

Isolation Distance: Varieties of the same species can cross-pollinate, producing offspring with new characteristics. To keep seed varieties 'pure', seed savers create 'isolation' - planting related varieties at appropriate distances to minimize the chance of crossing.

Number of Plants: To maintain genetic integrity, it's important to save seed from a diverse population of individual plants. The optimum population size differs depending on whether a variety is wind or insect pollinated, or self-pollinated.

**adapted from 'Seed Saving Chart' by Seed Matters™*

APPENDIX II - Seed Bank Control Forms

Control Form 1: For Taking Seeds Out of the Bank

Name of Seedbank: _____ Date: _____

This form is to be filled in when someone **takes seeds *from* the seed bank**.

Name	
Community	
Cell No.	
Variety Taken	
Quality of Seed	

Signature of Recipient: _____

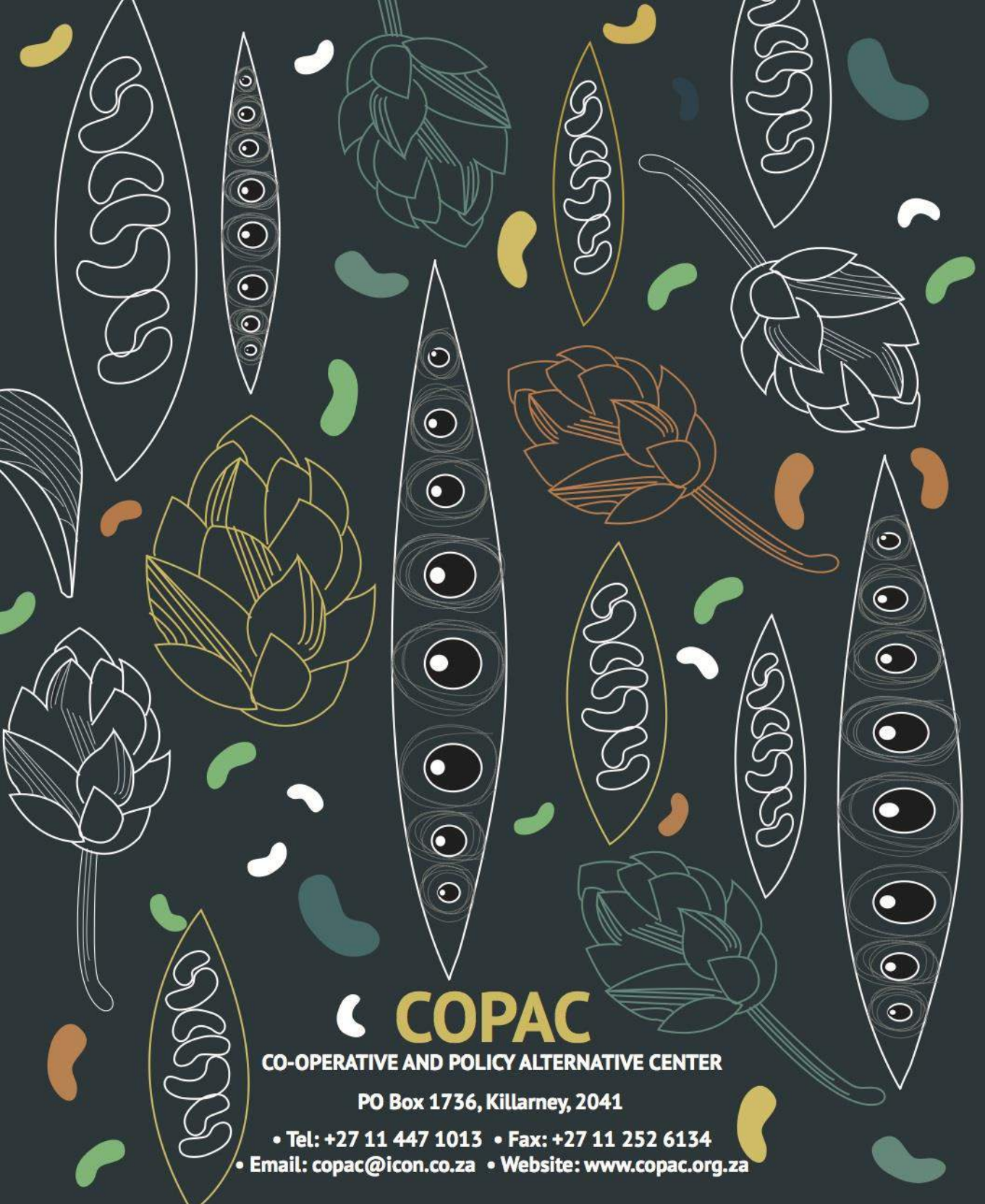
Control Form 2: For Depositing Seeds into the Bank

Name of Seedbank: _____ Date: _____

This form is to be filled in when someone **gives seeds *to* the seed bank**.

Name of Previous Farmer	
Community	
Cell No.	
Variety Received	
Quality of Seed	

Signature of Recipient: _____



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