

A photograph of a smiling woman with dark hair, wearing a pink shirt and a light purple jacket, standing in a lush green cornfield. The image is partially overlaid with a teal-colored graphic on the left side, which features stylized wave patterns at the bottom.

# Farmer seed systems

**A CRITICAL CONTRIBUTION TO FOOD  
SOVEREIGNTY AND FARMERS' RIGHTS**



**SeedChange**

Formerly USC Canada



“Our local varieties are ours  
and we must protect them.  
The weather has changed, so  
when we have losses, here in  
the community seed bank we  
have seeds.”

ISIDORA GARCIA (COVER),  
*Lenca seed guardian, Ojo de Agua*  
(Jesús de Otoro, Intibuca, Honduras)

This report was made possible by the work of our partners.





# Farmer seed systems

## A CRITICAL CONTRIBUTION TO FOOD SOVEREIGNTY AND FARMERS' RIGHTS

**F**ARMERS KNOW THAT GOOD FOOD comes from good seeds. Since crop domestication began over 10,000 years ago, it has been farmers who have produced seeds and created and conserved the incredible crop diversity that most of the world relies on today. Most Indigenous and rural communities in the Global South rely on their own sources of seeds year after year. However, farmers' varieties have become increasingly vulnerable due to climate change, loss of small farms, market pressures, and seed privatization. As a result, farming communities have seen their local seed systems eroded, with grave repercussions on food production. Meanwhile, most commercial seeds are not well adapted to the diverse and often marginalized conditions of smallholder farms and often require the use of expensive agrochemicals that are fossil fuel-intensive and damaging to ecosystems and human health.

To address these challenges, SeedChange supports actions by communities to produce, save, exchange, and sell locally-adapted and preferred seeds, also called farmers' seeds. Regulatory frameworks and policies often favour the commercial seed actors and ignore farmers' seeds, thus impeding the scale-up of this work. Based

on the experiences of SeedChange partners in 11 countries, this document outlines the importance of farmer-led solutions including the conservation of traditional varieties, the participatory development of new varieties through selection and breeding, and ways to support farmers exchanging and selling their seeds. We advocate for greater support and recognition of farmers' seed systems in order to strengthen seed security, food sovereignty and farmers' rights.

This document begins with a description of how farmers' seed systems and formal systems interact. Then we discuss some of the challenges facing farmers' seed systems including climate change, the private ownership of seeds, the difficulty of registration and certification for farmers' seeds, and the role of international treaties on national laws and the impacts they have on farmers' rights. Fortunately, the farmers that SeedChange works with have solutions to these problems and are building resilient food systems with farmer's seeds at the core of their work. In the second section, we present some of the key farmer-led solutions they are using and conclude with several recommendations that would help support the work that these farmers are engaging in around the world.

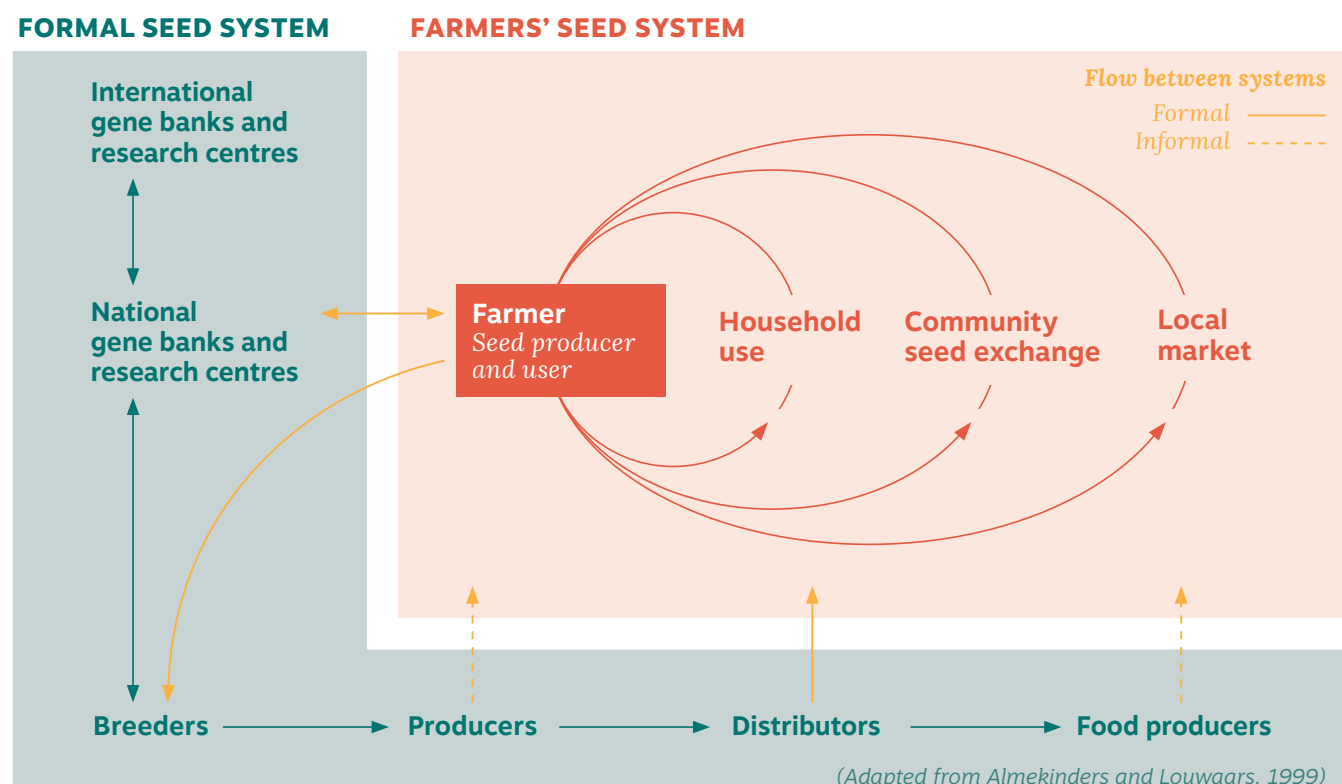
### Who we are

SeedChange, formerly USC Canada, is a leading Canadian charitable organization founded in 1945, rooted in the notions of human dignity, social justice, and equality. Today, we are part of a global movement fighting for justice, health, and sustainability by shifting the way we grow our food. We work with farmers, including women, youth and Indigenous communities, to strengthen the agency and rights of those most marginalized by structural inequality in the food system. By harnessing the power of good seeds, farmers' leadership, and global solidarity, we help to build food sovereignty and spread agroecological solutions around the world.

## What is a seed system?

Seed systems are the ways in which seeds are produced, saved, exchanged, and sold in a community and country. Seed systems were first developed by farmers who nurtured plant diversity by breeding and saving seeds to sustain their households and communities. Research and development institutions emerged over time and contributed to seed systems. Together, the farmers' and "formal" seed systems determine the seeds that are available to farmers, although the formal system may be largely absent in some contexts. These two systems are interdependent and it is important that farmers are able to make full use of both farmers' and formal seed systems to strengthen their seed security. The diagram below shows how these systems can coexist under ideal circumstances. Unfortunately this is rarely the case, as is discussed in this section.

### Linkage between farmers' and formal seed systems in the Global South



### Farmers' seed systems

Smallholder and Indigenous farmers maintain high seed diversity for both crop species and their varieties. Communities are continuously selecting and conserving seeds to suit their production conditions and meet their food preferences and cultural needs. Varietal diversity is especially high in the centers of origin of crops around the world. This diversity is essential to feeding humanity. Smallholder farmers produce about 70 per cent of the world's food with these crops (ETC Group 2017). Diversity also reduces risks from crop loss since if one crop or variety fails, others can be used to help meet household seed and food needs. Keeping seeds in farmers' hands and maintaining

agricultural biodiversity are thus critical to food system resilience in the face of climate change.

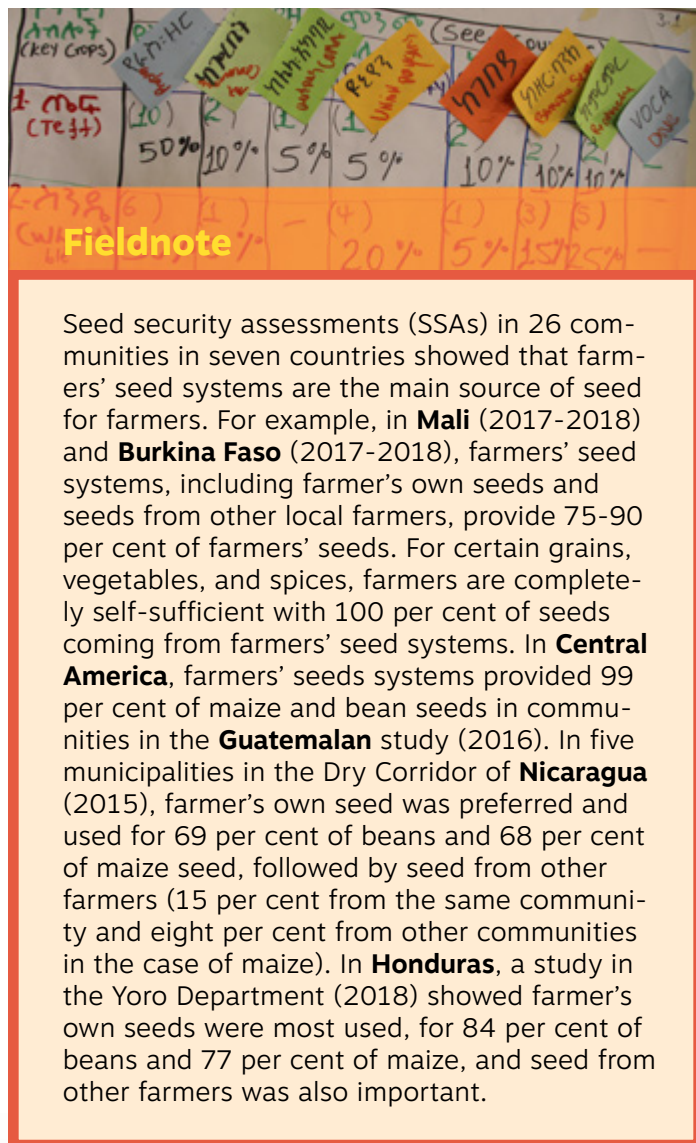
Farmers' seed systems contribute 80–90 per cent of farmers' seed requirements, depending on the crop (IPES-Food 2017). Local varieties and traditional crops have special importance for farmers growing food in marginal agroecosystems, including high altitudes and dry areas. Local seeds are selected and adapted to their local soil and climatic conditions. This has been well-documented by SeedChange through our programs with communities in hillside and high altitude areas of Guatemala, Honduras, Bolivia and Ethiopia, in the Sahel of West Africa, and in the Dry Corridor of Nicaragua and Honduras.



Smallholder farmers generally produce seeds for their own needs, and also exchange seeds with each other in their communities and other territories, while selling a small part, using diverse mechanisms according to the cultural and economic context. This increases access for all farmers to new diversity and strengthens the overall seed supply. It also helps to share knowledge and build community.

Seeds and the knowledge associated with them are transmitted between generations. This essential cultural heritage is needed for the survival and well-being of farmers and humanity. Seeds are not just a “resource” but an essential part of ecological and human relationships in the cosmovisions of many Indigenous peoples. For example, maize is considered an ancestor by many Indigenous communities in the Americas, and seeds are considered living beings with whom reciprocity must be maintained.

Smallholder farmers also access seeds of crop varieties from development programs and various market channels. They may gradually integrate these seeds into their systems. These seeds are often called “improved,” “modern” or “commercial” seeds, and come from what is usually referred to as the formal, or conventional, seed system. We will look at this system now and how it interacts with farmers.



“A seed is a living being that we must take care of. How could we not take care of what our grandparents passed down to us?”

SANTOS LUIS MERLO  
PPB farmer specialist, Pueblo Nuevo (Esteli, Nicaragua)



## Formal seed system

The “formal” seed system centers on the development and registration of new plant varieties, and the production and marketing of certified seeds. It involves public and/or private research institutions that breed and maintain new crop varieties, national seed authorities that set and monitor quality standards, and commercial seed farms and marketing outlets. The formal seed system is regulated by seed policies and laws. Farmers’ seeds are often not formally regulated and are generally not allowed to be legally sold through formal marketing systems.

Formal and farmers’ seed systems have much to offer each other and ideally, would work together in complementary ways. Unfortunately, this is not the case in most countries. The formal seed system relies on the crop diversity preserved by farmers for the development of new varieties, but rarely acknowledges or rewards farmers for their innovation and contributions. Agricultural research and academic institutions also tend to reinforce the knowledge and technology-transfer approach of conventionally-trained agronomists rather than participatory approaches.

Additionally, some types of commercial seeds (e.g., hybrids) cannot be saved and used, and are sold with legal restrictions on seed-saving, discussed further below. They also depend on high levels of agrochemical inputs, which have health and environmental impacts. Furthermore, seeds that are developed in laboratories and isolated research stations or farms, outside of local contexts, may not be able to adapt to a rapidly changing climate. In short, the seeds developed in the formal system are best suited for agro-industrial production, rather than the heterogeneous landscapes of smallholder and agroecological farms.

Despite the critical role of farmers’ seed systems, the majority of public and private investments, public policies, and legal frameworks support the formal seed system.



MARIA TRAORÉ  
Mali

# Challenges facing farmers' seed systems and farmers' rights

## Climate change

Climate change is impacting smallholder farmers, as drastic temperature changes and increased vulnerability to pests and diseases affect harvests. Due to the ongoing legacies of colonialism and the dispossession of land and territories, Indigenous and smallholder farmers are often forced onto the least favourable lands, while industrial farms and plantations that produce for export occupy the best lands. Many smallholders work at high altitudes and in drought-prone areas, and are the most impacted by climate change. In Mali and Burkina Faso, rainy seasons have been marked by shifts in the start and cessation of rains, poor rainfall distribution, and fairly long drought periods, coupled with higher risks of attacks from pests. Farmers are forced to change their sowing cycles as seasons have changed and become more unpredictable. Communities in Nicaragua's Dry Corridor have been facing increasing droughts and higher temperatures, leading some to largely abandon maize production, despite its importance as a staple crop. In Bolivia, farmers are experiencing seed loss from increases in temperature. In Guatemala, the effects of frost, torrential rains and drought periods caused important losses to the production of basic grains and potatoes in recent years. The resulting climate-induced crop failures and loss of household seed supply can lead to the disappearance of local varieties. Some traditional varieties also struggle under the new conditions created by climate change. Fortunately, the agricultural biodiversity produced and maintained by Indigenous and smallholder farmers is essential to mitigating and adapting to climate change.

## Privatization of seeds

The formal seed system is increasingly dominated by large private sector actors. Corporate ownership is becoming concentrated, with ten seed and agrochemical companies controlling 73 per cent of the commercial seed market (IPES-Food 2017). International trade agreements have increasingly integrated various forms of Intellectual Property Rights (IPR) frameworks on new plant varieties. The World Trade Organization (WTO) through its

Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS, 1995) explicitly states that the member states shall provide for the protection of plant varieties either by patent or by an effective *sui generis* system (national law of its own kind) or by any combination thereof.

One of the IPR frameworks that has been promoted in the WTO and increasingly imposed in other trade agreements is the International Union for the Protection of New Varieties of Plants (UPOV). Member states of UPOV adopt laws that assign Plant Breeders' Rights (PBRs) to the breeders of new registered plant varieties, which limits the access, availability and use of these seeds by farmers. The latest version (UPOV91) is more restrictive than previous versions and criminalizes seed saving of these varieties. Many countries, such as Honduras, are not UPOV members but have adopted similar seed laws. By restricting seed saving, exchanging, and selling, these laws implicitly create farmer reliance on purchasing commercial seeds and the agrochemical packages those seeds require.

Private seed companies utilise the genetic diversity of farmers' varieties to breed new varieties. Local varieties are adapted to a number of biotic and abiotic stresses, and possess valuable traits useful for the development of new varieties. Farmers are therefore contributing to the development of new varieties, but losing their rights in return. Local varieties may even be appropriated outright or with few changes. There have been several cases of "biopiracy" in which traditional varieties were patented by corporations (La Via Campesina and GRAIN 2015). TRIPS and UPOV do not include recognition of the communities from which varieties originate, nor the "fair and equitable sharing of the benefits arising out of the utilization of genetic resources" as stipulated under the Convention on Biological Diversity (1992). Communities and farmers that wish to register their own local and new plant varieties to prevent biopiracy face significant challenges.

**BIOPIRACY** refers to the appropriation of the knowledge and genetic resources of farming and indigenous communities that seek exclusive monopoly control, through the use of patents or intellectual property, over these resources and knowledge. (ETC Group)



## Registration and certification

Registration essentially aims to publicly affirm a variety's distinct identity, but the formal system processes are complex. National registration procedures are designed for varieties developed by formal research institutions with capacity to comply with associated breeding methods and technical requirements. The variety proposed for registration must meet NDUS criteria (new, distinct, uniform, and stable) in terms of genetic, morphological and agronomic traits. While farmers select and maintain high quality seeds, and can maintain these criteria, the registration process is challenging to follow as it is data intensive, bureaucratic and centralised. For example, if farmers' organizations wanted to begin the process, they may lack the conditions required, such as multi-location testing sites and the type of data presentation required. Farmers organizations recognize that local varieties have high genetic diversity and may choose not to register these varieties because they are undervalued by the formal registration process due to the focus on uniformity.

**FORMAL REGISTRATION** of varieties is governed by national seed laws and regulations. **LOCAL RELEASE** or registration of varieties often involves municipal representatives and filing documentation on the variety, as well as a blessing of the seeds by a religious or community leader, and gifts of seeds. **CERTIFICATION** is used to help assure buyers that they are purchasing high quality seeds.

Formal marketing and public distribution of seeds often requires seed certification. Here too, the process tends to exclude small-scale seed producers. The purpose of seed certification is to safeguard against the sale of poor quality seeds, especially in formal seed systems where vendors and buyers often do not know each other. However, certification is usually only permitted with registered varieties, which excludes most local and farmer-bred varieties. It therefore limits options to varieties produced by conventional breeding, which rarely takes smallholder preferences into account and produces seeds with low genetic diversity and high

dependence on agrochemicals. Certification also tends to apply standards oriented to large-scale production and not small farms or agroecological practices. However, some countries have successfully implemented simplified registration procedures for farmers' varieties, as well as decentralized certification protocols, as described further below.

## Farmers' rights in international treaties

Several international agreements on genetic resources and seeds recognize and value the contributions and rights of farmers. Social movements and civil society organizations have worked tirelessly to gain this recognition. Implementation of these rights is impeded by the above-described IPR frameworks, and more broadly by ongoing repression and dispossession faced by smallholder and Indigenous communities around the world. However, these treaties often help provide another point of basis for advocacy for the recognition and protection of farmers' seeds systems in national policies and laws.

In 1992, the Convention on Biological Diversity (CBD) affirmed the knowledge and practices of Indigenous and local communities for the conservation of biodiversity. Using the spirit of CBD, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, 2001, Article 9) of the Food and Agriculture Organization (FAO) has further defined and outlined Farmers' Rights to seeds. It includes the rights to protect traditional knowledge, participate in decision-making, share in the benefits arising from the utilization of plant genetic resources, and to save, use, and exchange or sell seeds and propagating materials, as subject to national law.

Most recently, the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP), adopted in December 2018, includes farmers' rights to save seeds, tenure rights and sovereignty over their territories and resources, protection against violence and human rights abuses, as well as economic, social, cultural and political rights. It notes that States shall undertake measures to support and promote peasant seed systems, ensure that agricultural research and development responds to their needs, and "ensure that seed policies, plant variety protection and other intellectual property laws, certification schemes and seed marketing laws respect and take into account the rights, needs and realities of peasants and other people working in rural areas" (Article 19-8).



## Farmer-led solutions

SeedChange works with smallholder and Indigenous communities to strengthen farmers' seed systems by supporting farmers to produce, save, exchange, and sell their own seeds. We support farmers' organizations to advocate for their rights and ensure that seed systems are resilient in the face of climate change. We also recognize the intersectional effects of inequality and patriarchy with gender, age and ethnicity, and support women-led and youth-led initiatives as well as crucial joint work between women, men and youth.

### Producing seeds

Farmers improve and produce seeds of traditional varieties through selection and breeding to meet their production and food security needs. This includes the need to reduce risks to climate change impacts such as higher temperatures, droughts, heavy rainfall, and new pests and diseases. SeedChange supports farmers and farming communities to produce high quality seeds at household and community levels. This begins with local training for seed multiplication to recover ancestral seed-saving practices and share practices that can help improve seed quality. We promote participatory plant breeding (PPB) and participatory varietal selection (PVS). These proven methodologies are built on the importance of farmer-led research and traditional knowledge for enhancing agricultural biodiversity and supporting food sovereignty.

According to the International Panel on Climate Change (Porter et al. 2014), adjustment of the crop variety contributes to median yield increases of 23 per cent. Using continued, biodiversity-based crop enhancement, farmers are best able to develop resilience strategies that also preserve ecosystems, food security and livelihoods. Locally adapted varieties require few external inputs, favouring ecological practices in agriculture that significantly reduce greenhouse gas emissions.

Participatory Plant Breeding (PPB) promotes the leadership of women and men farmers in breeding locally-adapted and preferred new plant varieties. Drawing on their knowledge of how different varieties perform under different conditions and their preferences for different traits, farmers are able to breed and select varieties to enhance performance and yields under variable conditions. They also breed

**PARTICIPATORY PLANT BREEDING (PPB) and PARTICIPATORY VARIETAL SELECTION (PVS), provide a venue for agronomists, farmers, and scientists to work together to improve and develop varieties according to local criteria and conditions, including adaptation to climate change impacts such as high temperatures, drought, and new diseases.**

and select for traits related to taste, colour, nutrition, cooking, and storability. Criteria often vary between communities and by preferences according to gender in many cases (see Humphries et al. 2015).

Participatory varietal selection (PVS) allows farmers to test and select new plant varieties (including formally released new plant varieties and local varieties that are new to the community) using their own preference criteria and production practices. PVS is highly innovative and adaptive to local needs. It is also used in conjunction with PPB to test adaptability and farmer preferences of PPB-developed varieties or advanced breeding lines. For example, the Triadic Comparison of Technologies (TRICOT) (Steinke and van Etten, 2016) is an extension of PVS designed to test and disseminate new plant varieties over large geographical areas, allowing farmers to have access to new diversity.



### Fieldnote

PVS methods have sped up the dissemination of varieties with tolerance to diverse environmental stresses. Triadic Comparisons of Technologies (TRICOT), an extended form of PVS, is a low-risk, effective method in which each farm household receives three small, numbered samples to try out. In **Honduras**, FIPAH and Bioversity International documented the results of this work in seven municipalities in Yoro Department in 2017. The method resulted in wide dissemination of nine bean and five maize varieties in 76 communities, reaching more than 1,300 farmers. TRICOT also generates information for community seed banks and farmer seed producers on local needs and demands.



## Fieldnote

FANTA TRAORÉ  
Mali

Farmers have developed locally adapted and preferred new varieties of basic food crops. All of these varieties can be freely saved and exchanged.

In **Honduras**, farmer research committees (CIALs) and their partners have developed nine varieties of maize and 11 varieties of beans through PPB. They are named in honour of special people and places of significance to the process, such as the Macuzalito bean named after a mountain, and Cayetana 85, named after the eldest woman of the CIAL that developed it. Of these, one bean and five maize varieties were released nationally through the formal system, in collaboration with research and government institutions.

In **Nicaragua**, FECODESA and local farmers' cooperatives have used PPB and PVS processes to develop and locally release one sorghum, three maize and 15 bean varieties and lines. These include a sorghum variety for tortillas (*sorgo blanco tortillero*), and a bean variety that were also registered by cooperatives in the formal system in 2007, with the support of an NGO technician and a bean breeder from the Agricultural Research Institute of Nicaragua.

In **Guatemala**, there have been high rates of adoption of PPB varieties in maize, including five popular varieties improved by Indigenous farmers over 18 years. These varieties (named after the farmers), are now part of the local seed system and strengthen community adaptation capacities to climate change.

In **Burkina Faso's** Sahel area, climatic conditions remain very unpredictable, with recurrent droughts and irregular rainfalls contributing to increased pest problems, particularly from birds. The reintroduction by APN Sahel of a hairy millet variety has proven to be more efficient against bird attacks. Farmers who cultivated hairy millet have experienced fewer crop losses and reduced their vulnerability to food shortages.

In **Mali**, USC Mali and CAB Dèmèso, have supported farmers in participatory varietal selection (PVS) in testing varieties that were threatened with disappearing due to climate change. This began with 35 varieties of millet, sorghum and niébé that were tested in three different agroclimatic areas of the country. The objective was to enhance diversity in farmer fields while selecting the varieties that met farmers preferences in terms of taste, nutritional value, and suitability for cooking, often following women criteria.



Improved seed selection and PPB varieties, together with agroecological practices, boost food security. In Honduras, hillside communities that had become unable to grow beans or maize well due to climate change successfully restored their seed sovereignty with locally-adapted varieties resulting from PPB and PVS. The popularity of these PPB varieties means that they often spread quickly across communities through exchange and informal sales. Research in Honduras shows that PPB and local varieties are greatly preferred by hillside communities, over the external commercial varieties that often fail in those conditions (Humphries et al. 2015).

## Saving seeds

There are two main ways to conserve seed diversity: *in situ* or on-farm which includes seeds planted in the field, saved in the households and in community seed banks (CSBs); and *ex situ*, away from the farm, in national and international gene banks. SeedChange advances both methods by promoting on-farm crop diversity, household seed saving, local and regional seed networks, and developing CSBs and establishing community linkages with genebanks. Farmers' access to seed diversity in CSBs and national genebanks are important for recovery from extreme climate events.

CSBs are community-based institutions collectively managed by farmers to ensure conservation, and timely availability and access to diverse, locally-adapted, quality seeds. Community seed banking consists of three main elements: documentation and characterization of local crops and varieties; conservation and maintenance of seeds at the household level and in CSB storage; and seed production, exchange, and loan or sales. This can encompass vegetative materials such as tubers or work with true potato seed, as seen in Bolivia. In some countries, such as in Burkina Faso and Mali, community gene banks (holding larger crop and varietal diversity) are established alongside the CSBs (located in the same premise) to conserve seeds. CSBs and CGBs complement each other and are managed and governed by local farmers' committees. Seed Guardians - dedicated farmers who maintain high on-farm genetic diversity and safeguard endangered varieties - and local seed producers are crucial to CSBs and CGBs.

CSBs are increasingly recognized as an important *in situ* conservation strategy that complements household seed-saving. They are an important



## Fieldnote

The Safo Community Seed Bank in **Mali** (above), with support from the NGO CAB Dèmèso, served 480 people during the last agricultural season, producing and disseminating onion and legume seeds as well as purchasing market garden seeds. Their strategy, based on community preference and demand, helps provide seeds to the community and create market opportunities for seed producers.

component of farmers' seed systems and provide an institutional mechanism to achieve Farmers' Rights. By supplying locally adapted varieties at the appropriate time, CSBs provide a crucial service to communities affected by climate change, especially in post-disaster recovery where seed supply and food security are threatened. They are often combined with other functions, especially grain banks for improved food security in times of scarcity, reserve space for households to store seeds, and income-generation and microenterprise development. CSBs are also crucial for conserving the genetic materials for community PPB activities as well as conventional plant breeding.

## Exchanging seeds

Informal seed exchange happens regularly in farmers' seed systems at individual and community levels. It is common to share seeds from one region with farmers with similar growing conditions in another community. Farmers' seeds are in high demand because they meet diverse needs. Farmers exchange and market their seeds using diverse mechanisms including cultural practices and networks, such as seed swaps, barter, and donations;



## Fieldnote

In **Guatemala**, the agrobiodiversity fair in 2019 (above) showcased 16 maize types and 35 potato farmer varieties to 3,000 farmers. It was also an opportunity to follow up on two PVS varieties that were being developed by local farmer committees.

In **West Africa**, APN Sahel and regional network COASP, coordinated a seed fair in 2019 that showcased the strengths of farmers' seed systems and also provided a venue to discuss the next steps in addressing the ongoing threats of seed laws and policies on farmers' seed systems.

social networks, including relatives and neighbours; local markets and fairs; community seed banks; and seed savers networks. Seed fairs are a very effective and increasingly popular method for seed exchange. These events are often organized by local farmers' committees, farmers' cooperatives, or community seed banks. Seed fairs are cultural events where farmers bring their seeds and share knowledge with other farmers. These events encourage and celebrate the exchange of farmers' seeds.

## Selling seeds

Farmers may choose to sell their surplus seeds directly to other farmers or at local markets. Farmers usually know where to find and how to select good seeds and rely on their trust in the vendor. However, in many countries, farmers are not allowed to legally sell their seeds without formal registration and certification. They may face repression if they sell or label their packages as seeds without certification. SeedChange has been working with partners and farming communities in finding innovative ways to enable farmers to sell their quality seeds.

Seed varieties developed through PPB have been registered in the formal seed system in some countries, such as Honduras and Nicaragua, through the collaboration of farmers' organizations, state agencies, and research institutions. However, the process is lengthy, top-down and complex. In many cases, national seed regulations do not consider farmers' fields and production techniques as suitable for the production of certified seeds. For this reason, in Central America many new varieties resulting from PPB are released locally outside the premise of national seed laws through a municipal ceremony to promote wider dissemination and recognition, including protection from biopiracy. All the PPB varieties are open-pollinated and the seeds can be freely shared, saved, multiplied and sold. However, because these varieties lack formal recognition, farmers can only sell these seeds in informal markets.

As a result, many farmers organizations are also developing mechanisms for local registration and certification of seeds. This could involve diverse alternative approaches (see the box below) that serve farmers' practical needs and interests without subjecting them to the greater costs or requirements of more formal registration processes. Local certification can allow farmer plant breeders, farmers' seed producer groups, and cooperatives to produce and sell their seeds in formal markets. This would widen the dissemination of popular local and PPB varieties to benefit a greater number of communities. The livelihoods of local seed producers would also improve, as would the economic stability of rural communities more broadly.





## Fieldnote | Local registration and certification systems

TARA GURUNG  
Nepal

In **Nepal**, it is possible for farmers, communities, and CSBs to register their local and PPB varieties. Registration is done by the National Seed Board, but registration criteria have been adapted and relaxed, in particular with respect to uniformity and stability for local varieties. This recognizes the rich genetic diversity and plasticity of local varieties and gives credit to farmers' abilities to recognize how a variety performs in different environments and altitudes.

Seed certification is also fully decentralised in Nepal, enabling farmer seed producer groups to get their seeds locally certified. The process is also simplified with a farmer-friendly certification category called Truthfully Labelled Seeds. It requires minimum seed inspection, relies on farmers' trust and makes farmer seed producers accountable for the quality of their seeds. Community-produced Truthfully Labelled Seeds now contribute more than 40 per cent of the total certified seeds for basic food crops in Nepal (maize, rice and wheat).

**Costa Rica** successfully adopted a decentralized seed certification system. Farmers' organizations, research and university institutions, and state agencies work together in this system. Their Bean Seed Protocol is now being adopted by farmers' organizations in other countries of Central America and is used as an example for policy advocacy in favour of local certification.

In **Cuba**, 10 municipalities have developed pilot Local Seed Certification Committees in areas that experience seed insecurity. The committees integrate farmers, researchers, and state certifiers working at municipal levels. They are successfully using the Bean Seed Protocol from Costa Rica, and are adapting it for use with other crops such as rice. SeedChange is providing support to a national methodology for local seed certification in Cuba.

The National Bean Chain in **Honduras**—a platform with 160 smallholder bean producers' organizations—launched a pilot project in 2019 in four municipalities for local seed certification, also using the Bean Seed Protocol. These pilots involve technical committees composed of farmer organizations and research committees (CIALs) and non-governmental organizations, the Zamorano Pan-American Agricultural School, and state agricultural agencies.

In **Nicaragua**, cooperatives with the FECODESA association produce certified seeds at the local level of their formally-registered PPB varieties using state certification processes. FECODESA has also been using the municipal release of PPB varieties to promote the production and sale of seeds through their cooperatives and CSBs. The urgency to concentrate efforts on the dissemination of adapted seeds due to climate change, and a low level of need for formal registration, have informed this strategy.

SeedChange partners in **Mali**, USC Mali and CAB Dèmèso are working on processes to develop catalogues of farmers' seeds as part of a community registration practice.

In **Burkina Faso**, SeedChange provided support to the development of COASP Burkina (a smallholder farmer NGO based network chaired by APN Sahel) proposals that have been incorporated into the new draft seed law, which included recognition of the peasant seed system and recognition of the role of women in protecting biodiversity and promoting agroecology.



## Gender equality and women's empowerment

It is important to note that both women and men are engaged in seed production, although decision-making power can vary greatly by culture. Due to the historical and current causes of inequality and patriarchy, women farmers generally lack the same level of resources, access to land and finances, and are often less visible as farmers. However,

women farmers play a crucial role in maintaining seed diversity because women are often the main managers of food in households and they know that diversity lowers the risk of food insecurity for their families. Women's decision-making and access to productive resources is therefore crucial to strong local seed systems. Additionally, when participatory practices and the solutions listed here are gender-sensitive, it can result in transformations for entire communities.



### Fieldnote

SITAN DIARRA  
Mali

Across the world, women do not have the same access to technical assistance or resources for agriculture as men. They can rely on precarious work, like selling goods at market for little money, simply because most training and support is geared toward men. However, community seed producer groups in many countries are an income-generation source for families and provide an important service by selling seeds to neighbours and in local markets. Seed production can be an important livelihood for women. On limited land, growing crops for seed requires less space and provides a higher income than growing crops as food.

In **Mali**, SeedChange partner CAB Dèmèso has promoted women's seed production livelihoods. Sitan Diarra (above), in Mali, tells her story of how training in onion seed production provided her with economic stability (full story here: [bit.ly/2yRA8l4](https://bit.ly/2yRA8l4)).



# Recommendations

Supporting and investing in farmers' seed systems is key to sustaining food production in a changing climate and to advance food sovereignty. It also requires strengthening farmers' rights, which are being eroded. Members of the formal seed system, including the policy and legal decision-makers that uphold it, need to recognize the crucial role of farmer's seeds systems through policy changes, and offer technical, infrastructure, and financial support.

SeedChange works with partners and networks to promote and advocate for food sovereignty and farmers' rights. We recognize that we are building on the work of the global peasant movement, La Via Campesina and the Declaration of Nyéléni (2007), which declared that 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."

We support farmers' proposals for more inclusive and flexible legal frameworks, including *sui generis* systems and national laws that recognize smallholder farmers' contexts, needs and rights, including the following:

1

National seed legislation must protect Farmers' Rights to use, save, and exchange or sell seeds. Governments must implement measures to support farmers' seed systems and farmers' rights as indicated in the United Nations international conventions and declarations, including UNDROP and ITPGRFA, working with Indigenous and farmers' organizations and in consultation with civil society platforms for food sovereignty.

2

National seed laws and policies should provide spaces and mechanisms for farmer-led registration of varieties and local seed certification to allow for smallholder seed producers and communities to benefit from the sale of quality, diverse, adapted seeds.

3

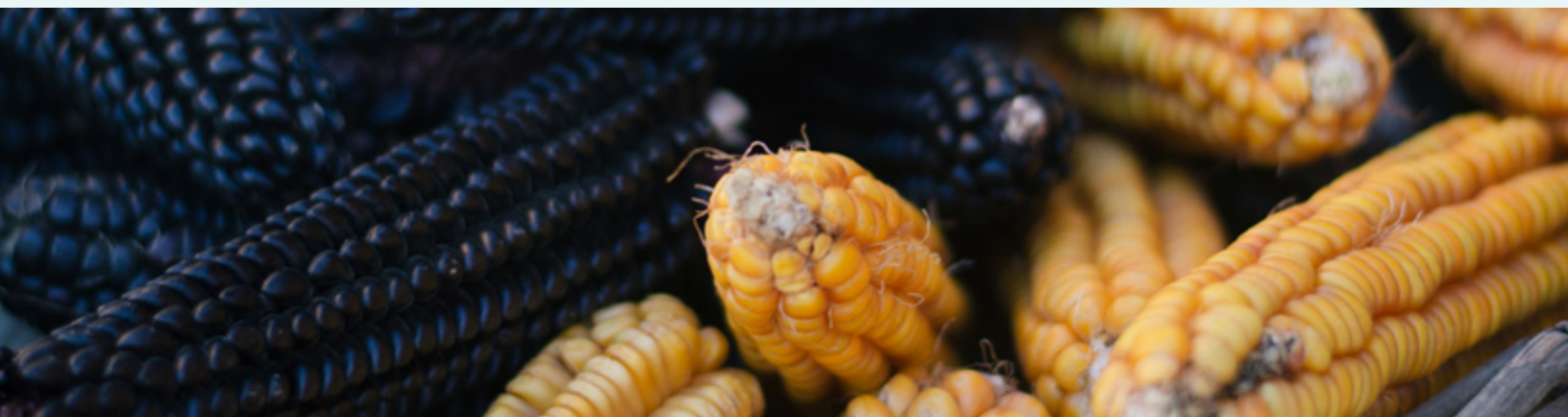
More public investment in farmers' seed systems including in participatory research to develop crop varieties that are locally adapted, grown agroecologically, meet farmers' needs, and are climate resilient. Investments should also consider support for the registration and certification of farmers' seeds, community-based seed production and marketing, community seed banks, and seed fairs.

4

Greater support is needed for programs to promote on-farm agricultural biodiversity to increase choice of seeds necessary to provide food security, climate resilience and economic opportunities for rural communities.

5

Greater investment and opportunities are required to recognize and boost women's roles and leadership as seed guardians, food and seed producers and entrepreneurs. This includes initiatives to end gender-based violence and discrimination, and supports that enhance women's access and control over productive resources (including farm land, financial resources, agroecological inputs and crop seeds prioritized by women), which is critical to women's empowerment.



## Further reading

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## Sustainable Development Goals

SeedChange's work in ecological agriculture helps meet 15 of the 17 SDGs. For instance, here's how farmers' seed systems contributes to the following SDGs:



Supporting farmers' seed systems ensures sustainable food production systems and resilient agricultural practices that increase productivity and production, help maintain ecosystems, and strengthen capacity for adaptation to climate change.



Women's knowledge and priorities are key to strong seed systems. By working with women seed guardians, plant breeders and CSB managers, SeedChange and partners are promoting women's empowerment and their social, economic and political inclusion.



Supporting farmers' seed systems includes promoting fair and equitable sharing of the benefits arising from the utilization of genetic resources and promoting appropriate access to such resources. At the same time, farmers' seed systems are integrating ecosystem and biodiversity values into national and local planning, development processes, and poverty reduction strategies.

## Learn more about SeedChange

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