SeedChange
Formerly USC Canada

# Innovating from the ground up

**THROUGH OUR SEEDS OF SURVIVAL** program, SeedChange supports farmers and communities to find innovative solutions and processes that reflect and respect diverse knowledge systems. Farmer-led research can find innovative solutions to problems like soil fertility, water access, plant and animal health, seed security, and sustainable livelihoods.

These innovations fit within the framework of agroecology, a holistic approach to food production that works with natural systems, empowers women, provides nutritious food for families, protects agricultural biodiversity and the environment, and builds community. We work with more than 35,000 farmers around the world to help them bring agroecological innovations to fruition.



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**Innovation in agriculture contributes to food security and nutrition, economic development, and sustainable natural resource management. Innovations ought to be both technical and social, and should therefore recognize and integrate social, cultural, and economic factors in the innovation process. It is increasingly acknowledged that if innovations are not sensitive to local needs, they become techno-fixes and can do more harm than good to local communities by providing false solutions that do not take local circumstances into account (see IPES-FOOD 2016). For example, techno-fixes in agriculture often emphasize chemical-intensive, monocultures that are dependent on external inputs, which can threaten local biodiversity, reduce household food security and increase vulnerability to climate change hazards.**

# Agroecological innovations

Smallholder farmers, pastoralists, gardeners, Indigenous peoples, and fishers, including women and youth, have been growing the agroecology movement around the world. Through extensive research and practice, they are showing that agroecological practices can feed the world's growing population (see De Schutter, 2010).

**Agroecology** is a systems approach that takes into account human, animal, environmental, social, economic, political and cultural dimensions of our food. It relies on farmers' time-tested and innovative methods of land, water, biodiversity and natural resource conservation and management. The farmers working with SeedChange partners use a variety of these techniques, anchored in participatory research for the enhancement of on-farm diversity of locally adapted crop varieties.

Agroecology thrives on farmer-to-farmer learning to build long-term health and sustainability. It values the co-creation of knowledge and adapting practices from around the world by sharing experiences directly from farmer-to-farmer and community-to-community.

## The SeedChange approach to innovation

For decades SeedChange has been innovating using the following set of principles. We were inspired by the Whistler Principles to Accelerate Innovation for Development Impact to develop a typology to list the key principles that inform how we pursue innovation within a community, including:

1. **Participatory**
   Decision-making that is democratic, with control placed in the hands of farmers, leads to community-oriented innovations.

2. **Locally-driven and adapted**
   Farmers are always innovating and they like to look beyond their local communities to learn from other farmers and build on innovations that have worked elsewhere.

3. **Appropriate**
   Innovations that are affordable, usable, and do not place a financial or time burden on farmers minimize the risks of adoption to farmers.

4. **Evidence-based**
   We integrate learning throughout the innovation process in order to verify that innovations fit a local context.

5. **Inclusive**
   Adopting a social justice approach ensures that the rights of marginalized groups, including women, youth, and Indigenous farmers.

6. **Supportive of gender equity**
   Supporting equal access to productive and financial resources and providing opportunities to engage in decision-making and leadership recognizes women's knowledge as well as their productive and reproductive work.

## Types of innovation



**Biodiversity innovations**
Biodiversity is our best insurance against climate change because diversity in species and varieties gives us more options when it comes to dealing with climate shocks. We are working with our partners to implement specific innovative methodologies to build agricultural biodiversity and resilience that support food security and food sovereignty.



**Production innovations**
Farmers are constantly innovating on their farms, often with the goal of maximizing efficiencies, improving health, building agroecosystem capacity, and enhancing yields. These innovations are often small-scale and easy to implement, resulting in significant impacts.



**Environmental and climate resilience innovations**
With climate change increasing uncertainty and risk for extreme weather events, innovations that reduce these risks are critical. Building soil fertility and improving water quality not only helps farmers adapt and mitigate the effects of climate change, it helps wild plants and animals as well.



**Economic and marketing innovations**
Farmers are working together and with organizations to access just markets and fair financing. Improving livelihoods and supporting economic justice results in better household nutrition, more children going to school, resilient rural communities, and greater human dignity.



**Process-based innovations**
Improving decision-making, leadership, and building research capacity are long-term investments that require carefully thought-out processes that work in specific contexts and are flexible to community needs. Our partners have worked to implement programs and processes that integrate farmer knowledge as a key component of agricultural research and science.

# Innovations in the field



## Farmer-led research

In Honduras, FIPAH (Fundación para la Investigación Participativa con Agricultores de Honduras) helps hillside farmers organize into community-based agricultural research teams, known locally as CIALs, and partners them with the technical support of FIPAH agronomists. The CIAL method uses participatory research and learning methods, and strengthens social organization. This enables small-scale farmers to conserve a diversity of native seeds and enhance crop varieties that perform well in local conditions and strengthen the resilience of local food systems and farming communities. A CIAL manual has been developed to help other communities establish ongoing innovative practices.

**Marco Tulio Nolasco in Honduras:**
Previously, Marco received technical assistance from another project. There were issues with the use of agrochemicals; Marco was left with debt and a failed crop. In contrast, he describes his experiences with the CIAL Las Flores (in Colomoncagua, Intibucá), as contributing to greater on-farm diversity, soil and water conservation, and seed security in the community.

*"FIPAH did not come here to tell us how to do things. We have had support – a small amount – but importantly, they respect the way we do things. We know our lands, our dry season."*
*—Marco Tulio Nolasco (above in hat and green shirt)*



## Participatory varietal selection

This farmer-led research practice helps farmers select new crop varieties for their community and adapt them to meet their needs and production conditions. Farmers produce seeds of these new varieties and save, exchange, and sell them locally.

Our partner in Mali, Cab Demeso, succeeded in helping farmers to select good quality Violet de Galmi onion seeds, and obtain official certification for marketing.

**Sitan Diarra seed producer in Safo, Mali:**
With support from SeedChange, Sitan has learned how to produce onion and forest plant seeds, new practices that have changed her life.

*"I used to be a merchant for agricultural goods. I would walk every day to the Bamako market, carrying goods on my head. I have stopped this because I earn much more with my seed production. This year I earned 75,000 CFA ($167 CAD) selling my production of amaranth, eucalyptus and orange tree seeds and 90,000 CFA ($200 CAD) for onion seeds.*

*"Today, I can't spend a day without going to my garden."*
*—Sitan Diarra*

# Recommendations

Long-term, participatory innovations need more attention and funding. Rather than focusing on short-term techno-fixes, we need to support communities in establishing local, sustainable processes to help them find their own innovative solutions on an ongoing basis.

## Share the tools

Establishing participatory processes requires ongoing, meaningful, and participatory consultation, assessment, and evaluation. Sharing tools to support the tracking and monitoring of baselines and changes over time is a critical first step in finding innovative solutions. Other tools and methodologies should also be shared between organizations working in different contexts and regions.

## Invest in learning

More support is needed to encourage organizations to share learnings, including learning from failures. Learning exchanges between communities, even when their contexts are different, gives farmers a chance to learn from each other and be inspired to find creative and innovative solutions to local problems. Learning exchanges should feature learning from mistakes.

## Scale-up appropriate innovations

While not all innovations are appropriate for all contexts or regions, more support is needed to share and promote successes. Training, ongoing accompaniment, and education on how to integrate innovations successfully can have a positive impact on people's lives.

## Support traditionally marginalized innovators

Supporting women's knowledge and economic participation means supporting women in leading and developing innovative practices. Rural and inner city youth, people of colour, Indigenous people, and others need access to land and finances to help them reach their full innovative potential.

## Increase support to farmer-led research

Investments in farmer-led research helps ground innovations in the local context, create community leaders, and enhance resilience. By supporting community organizing and research at the local level as well as farmer research networks at regional and national levels, farmer-led innovations are able to be successfully and sustainably scaled-up.

## For more information


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**SeedChange's innovative work in agroecology helps meet 15 of the 17 Sustainable Development Goals.**


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Canada

SeedChange

# Seeds of Survival

## Innovations 2015–2020



## Biodiversity innovations

| Innovation | Description | Country |
|---|---|---|
| **Seed security assessments (SSA)** | This participatory planning methodology helps communities identify and address problems with seed security both in normal and difficult years. *29 SSAs have been conducted in 6 countries.* | Burkina Faso, Cuba, Guatemala, Honduras, Mali, Nicaragua |
| **Community seed banks (CSB)** | This provides farmers an institutional mechanism to protect agricultural biodiversity and improve food security by saving, producing and exchanging seeds in their communities. *72 CSBs and 22 field gene banks have been opened and established in 9 countries.* | Bolivia, Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nicaragua, Timor-Leste |
| **Growing new or previously 'lost' varieties** | Providing farmers access to seeds from crop varieties previously lost from the community helps on-farm conservation of agricultural diversity. | Bangladesh, Burkina Faso, Ethiopia, Honduras, Nicaragua |
| **Participatory varietal selection (PVS)** | This tool enables farmers to access and test crop varieties new to the community which are adapted to their ecosystem and meet their preferences. *4,823 farmers have participated in PVS.* | Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nicaragua |
| **Participatory plant breeding (PPB)** | This tool helps farmers and farmers' groups to develop new crop varieties in collaboration with public and/or private sector plant breeders. *500 farmers have participated in PPB.* | Honduras, Mali, Nicaragua |
| **Agroforestry** | Integrating perennial (including trees) and annual crops improves biodiversity, builds soil fertility, and increases water retention. Agroforestry innovations combine traditional practices with practices that are new to a region. *4,420 households have been supported in agroforestry projects.* | Bolivia, Burkina Faso, Guatemala, Honduras, Mali, Nicaragua, Timor-Leste |
| **Enhancing wild biodiversity** | Smallholder farmers, especially women use a number of wild and uncultivated plant species as food, medicines and other household uses to support their livelihoods and household food security. *76% of participating households report using wild and uncultivated plants.* | Bolivia, Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nicaragua, Timor-Leste |



## Production innovations

| Innovation | Description | Country |
|---|---|---|
| **Vegetable seed production** | Training and technical support is helping farmers to produce good quality vegetable seeds in the community reducing their dependency on more expensive commercial seed varieties. *2,784 farmers have been trained in vegetable seed production.* | Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nicaragua |
| **Improving land access** | Women and youth often have limited access to agricultural land, but by finding creative solutions, they are engaging more in agriculture and becoming more self-reliant. *6,467 women and 2,138 youth have gained access to land from 2015–2020.* | Burkina Faso, Ethiopia, Guatemala, Honduras, Mali |
| **Reducing crop loss** | Farmers are able to reduce crop losses by using ecological practices in the field and applying both new and traditional knowledge and practices to grain and seed storage. | Bangladesh, Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nicaragua |



## Environmental and climate resilience innovations

| Innovation | Description | Country |
|---|---|---|
| **Water-harvesting structures and design** | Low cost and locally designed water harvesting structures have helped farmers improve access and availability of water, particularly in dry period, thus increasing crop production and resilience to climate change. *1,054 households have been supported in the establishment of water harvesting structures.* | Guatemala, Honduras, Nicaragua |
| **Soil conservation practices** | Using locally prepared organic manures and fertilizers, terracing, and mulching are all part of building soil quality, which reduces erosion and improves soil fertility to improve and sustain crop production. *10,523 households have been supported in soil conservation and land rehabilitation projects.* | Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nicaragua, Timor-Leste |



## Economic and marketing innovations

| Innovation | Description | Country |
|---|---|---|
| **Women-led collective marketing** | By marketing together, women farmers can aggregate and market their fresh and value-added products to improve their incomes and broaden their economic impact. *101 women's groups have been established.* | Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nepal, Nicaragua |
| **Market literacy funds** | *15 value chain and feasibility studies have been conducted to enhance marketing strategies.* | Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nepal |
| **Production and marketing of agroecological inputs** | The production and marketing of good quality agroecological inputs not only increases their availability and access, but also provides farmers an additional income source. This includes vermi-compost, liquid biofertilizers, mineral mixes, biopesticides, and insect repellants. *205 farmers groups sell the agroecological inputs they make.* | Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nepal, Nicaragua |
| **Community and local seed certification** | Innovative and participatory mechanisms for local seed registration and certification for the production and marketing of farmer seed varieties. *Local Seed Certification Committees have been established in 15 municipalities.* | Cuba, Honduras, Nicaragua |



## Process-based innovations

| Innovation | Description | Country |
|---|---|---|
| **Farmer-led research** | Methodologies and structures that bring farmers together to learn from each other, plan together, and conduct research have resulted in increased economic opportunities while protecting and enhancing biodiversity. *110 farmer-led research groups (CIALs) have been established.* | Cuba, Guatemala, Honduras, Nicaragua |
| **Gender analysis and leadership in farmer research** | Supporting participation and decision-making opportunities for women, youth, and Indigenous farmers in agricultural research and development. *Women hold between 45-60% of leadership positions within the program* | Burkina Faso, Ethiopia, Guatemala, Honduras, Mali, Nicaragua |
| **Assessment methodologies for climate resilience** | Climate vulnerability assessment (CVA) is a participatory tool which helps farming communities to identify areas of vulnerability and community-based solutions. *11 CVAs have been conducted.* | Guatemala, Honduras |