



18

ANNUAL
REPORT



**CROP
TRUST**

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WELCOME

KEY FIGURES



ACCESSIONS ADDED TO SVALBARD

▶ **92,638**



ACCESSIONS DISTRIBUTED BY CGIAR GENE BANKS

▶ **66,930**



CROP WILD RELATIVES SAMPLES COLLECTED

▶ **4,452**
Since 2014



VALUE OF GRANTS PROVIDED FOR CONSERVATION

▶ **USD 34.2M**



ACCESSIONS CONSERVED

▶ **773,112**
in CGIAR collections



CROP ACCESSIONS IN GENESYS

▶ **1,960,941**
accession records updated



COUNTRIES RECEIVING SAMPLES FROM CROP TRUST-SUPPORTED COLLECTIONS

▶ **87**



NEW CONTRIBUTIONS RECEIVED

▶ **USD 17M**

LETTER FROM THE CHAIR OF THE EXECUTIVE BOARD

TIM FISCHER



Feeding a growing population is one of the most pressing issues of our time. In the coming years, the world's farmers will need to produce more, and more nutritious, food – on less land, with less water, and with fewer inputs. I know. I am a farmer. And things certainly have changed since I began working the land in Boree Creek, Australia. Agriculture will only get harder and harder. But the one thing that cannot – and will not – change is our dependence on crop diversity.

Crop diversity provides farmers and plant breeders with options for adapting our food crops to present and future challenges. This is why the work of the Crop Trust is fundamental to our survival. It is also why I agreed to join the Crop Trust Executive Board in 2013, and why I readily assumed the role of Board Chair in 2017.

During these years, I have seen how a small, multicultural and multi-talented team of dedicated people based in Bonn, Germany, has been fighting the good fight. For them, every day is a crop diversity day. And this Annual Report provides an overview of their efforts to build and sustain, long-term, a global system for ex situ conservation. But what does this mean?

Be it working with the 11 international CGIAR centers that together hold and make available some of the world's largest collections of crop diversity; or providing quality management training and equipment upgrades to national genebanks; or investing in improved data systems so crop collection curators can keep better track of the diversity they hold – it all leads to the development of a rational system of conservation that benefits us all.

Last year we also celebrated the 10th anniversary of the Svalbard Global Seed Vault, the ultimate back-up for the world's crop genebanks. The Seed Vault is also a universal symbol of humanity's common goal: to secure crop diversity now, for a sustainable, food-secure future.

In March 2018, the Crop Trust Executive Board met in Saint Petersburg, where we were hosted by the N.I. Vavilov Research Institute of Plant Industry (VIR). There is so much history there – of the man, Nikolai Vavilov, who developed the concept of the centers of origin of cultivated plants – but also of the hundreds of thousands of seed samples stored at the Institute. These include seeds collected by Vavilov and his team that will serve us in the future.

Later in the year, the Crop Trust took the historic decision to fully fund the essential operations of the genebank of the International Rice Research Institute – the world's largest rice genebank – forever. This proves that the Crop Trust's endowment fund works and I am sure that, in the years to come, this unprecedented achievement will expand to many other important crop collections.

Whether you realise it or not, we all depend on crop diversity – from my fellow farmers in Australia or the Andes, to consumers in Sydney or Stockholm. The same holds true for nations across the globe. Indeed, we live in an interdependent world. We must work together to make sure the basis of our food is not only secure, but within the reach of farmers and plant breeders everywhere.

That is why I commend in particular the governments of Germany, the United States of America, Switzerland, Finland, India, and Australia, for their generous support to the Crop Trust in 2018. The European Commission, the CGIAR Fund Council, Unilever, and Corteva Agriscience also contributed to the Crop Trust's mission last year.

I must also applaud the many individuals who have taken it upon themselves to help us raise awareness on this issue. Among them, His Royal Highness, The Prince of Wales, global patron of the Crop Trust, who kindly hosted a "Forgotten Foods" reception at his London residence in February.

For me, it has truly been a great privilege to be a part of the Crop Trust. Regrettably, earlier this year I stepped down as the organization's Executive Board Chair. I made this decision with some reluctance, but needed to follow my doctors' advice. But rest assured, I will continue supporting Sir Peter Crane, the newly-elected Board Chair; the Crop Trust's tireless Executive Director, Marie Haga; and the many dedicated, determined staff and partners who help keep that irreplaceable crop diversity alive and available for all of humanity.

LETTER FROM THE EXECUTIVE DIRECTOR

MARIE HAGA



Looking back at 2018, it is clear the future has arrived. In Argentina and Uruguay, a drought damaged maize and soybean, driving up prices around the world. In sub-Saharan Africa, India and Japan, record-breaking rains, floods and cyclones destroyed fields and displaced thousands of people. Europe was hit by extreme cold weather in February and heatwaves in July. California suffered its worst-ever wildfire. In the Philippines, Typhoon Mangkhut caused devastation. The list, sadly, goes on.

We are living through troubling times. And without a doubt, what we collectively do today in response will impact our lives and those of future generations. But it's not all gloom and doom.

2018 also gave us proof that there is hope for a better future. Around the world, people are not only demanding change, but actively striving for it. At the Crop Trust we are doing our part to make sure the foundation of our food security – crop diversity – is safeguarded and made available forever. Without it, we simply won't be able to adapt the world's food production to the challenges of the future, including those caused by climate change. Our 2018 Annual Report highlights a small selection of the activities carried out by our staff and partners around the globe.

Here, I would like to mention two exceptional milestones we reached this year:

- The signing of a Long-term Partnership Agreement between the Crop Trust and the International Rice Research Institute (IRRI). This provides financial support – paid from the Crop Trust endowment fund – for the essential operations of IRRI's genebank, which safeguards the world's largest rice collection, forever.
- The Svalbard Global Seed Vault celebrated its tenth anniversary. Who would have thought that the idea of backing-up our crop collections inside a cold mountain in the Arctic would not only become a reality, but an indispensable part of the global system for ex situ plant conservation? In February 2018, representatives from 23 depositing institutions carried boxes full of seeds into that now iconic building. With their contribution, the total number of unique seed varieties stored in the Vault reached nearly 1 million.

Behind every historic moment there is a long list of people who, more often than not, go unacknowledged. The Seed Vault's anniversary gave us the perfect opportunity to launch the Crop Trust Legacy Award. We saluted seven leaders in the field of crop conservation who have selflessly dedicated their careers to protecting our agricultural history as a way of safeguarding our future.

Our work would be impossible without the support of our partners, donors and collaborators. These include our Crop Wild Relatives Project colleagues who, on any given day, from Kenya to Kazakhstan, Brazil to Bangladesh, are collecting the wild cousins of our food crops, or crossing them with domesticated varieties. It's part of a global effort to conserve and use of the wealth of traits these plants contain, to enable food production to respond to a hotter and drier world.

Vitally important too, are our partners at the 11 international genebanks who, under the CGIAR Genebank Platform, are conserving some of the world's most important crop collections.

Putting crop diversity to good use is determined by the data that accompanies each packet of seeds or plantlet in a test tube, especially when collections run into the thousands of samples. In 2018, we saw the culmination of an information systems pilot project which supported six genebanks to prepare and publish important datasets in Genesys, the global online portal to information about plant genetic resources for food and agriculture) conserved in genebanks.

Ultimately, these activities will feed into the development of more resilient crops that will thrive in increasingly inhospitable environments.

The importance of crop diversity is acknowledged in the UN's Sustainable Development Goals. Under Target 2.5, the global community has committed to safeguarding this global common good by 2020. This has given us the inspiration to ramp up our efforts – beyond the support we provide to genebanks, we are also actively raising awareness, and involving more diverse actors in this global endeavour.

- In London, our Global Patron, His Royal Highness The Prince of Wales, kindly hosted a reception of "forgotten foods" to help raise awareness of the importance of crop diversity and the need to safeguard it.
- In New York City, the Food Forever Initiative took us to Google's offices, where a group of notable chefs delighted guests with dishes that showcased uncommon ingredients, such as the colorful Andean tuber ulluco; and Bambara groundnut, a superstar among neglected crops.
- We also launched the second phase of our #CropsInColor campaign, which explores the role crop diversity plays in the lives of people around the world.

Over the course of 2018, the community of crop conservationists grew stronger; the work they do being appreciated and understood by more and more people. There is no doubt that great progress has been made, yet there is still more to be done. We are losing crop diversity every single day – in fields and forests, and even in genebanks. The Crop Trust is committed to doing its part to support national, regional and international genebanks in their efforts to safeguard the wealth of diversity that underpins our food systems. Every farmer in every country, and every meal that is served in our dinner tables, ultimately depends on this.



WHAT
WE DO

CGIAR GENE BANK PLATFORM



After six years of CGIAR and the Crop Trust working together to support some of the most important genebanks in the world, the CGIAR Genebank Platform has built up steam and is forging ahead like a well-oiled express train.



*Charlotte Lusty,
Head of Programs and CGIAR Genebank Platform Coordinator, Crop Trust*

The CGIAR Genebank Platform is a program led by the Crop Trust and managed together with CGIAR genebanks. It aims to ensure those genebanks are running efficiently, that their crop collections are conserved to a high standard, and that as many samples as possible are immediately available upon request by scientists, farmers and others.

The CGIAR Genebank Platform supports the essential operations of CGIAR genebanks and improves their performance through strengthening quality management systems, optimizing facilities, processes and methods and improving data management systems. It also supports modules on promoting the use of collections, germplasm health and compliance with international policy.



ACCORDING TO FIGURES FOR 2018:

- CGIAR genebanks manage 773,112 accessions, including 25,576 *in vitro* and 32,212 in the field. These include the world's most important staples like rice, wheat, maize and potato, and many others.
- 81% of accessions are immediately available for international distribution.
- Duplicates of 57% of seed accessions are safely conserved at two locations; 72% of accessions in clonal crop collections are duplicated in the form of *in vitro* or cryopreserved samples.
- 96,556 germplasm samples were distributed to users in 2018, including 56,393 sent to requesters from outside the CGIAR in 87 countries. Requesters included national agricultural research systems (31%), universities and advanced research institutes (58%), and farmers and the private sector (11%).

MEASURING DIVERSITY

The CGIAR Genebank Platform is pursuing the ambitious goal of quantifying how much crop diversity is held in genebank collections and how much is missing. In 2016, the International Center for Agricultural Research in the Dry Areas (ICARDA), the International Center for Tropical Agriculture (CIAT) and the Crop Trust worked together to develop and apply methods for analysing the diversity held in *ex situ* collections for 22 crops. One technique involves developing "genepool diversity trees". These show all the known cultivar groups and their relation to one another in a family tree. Once accessions in crop collections are mapped onto the tree, we can start to see which branches are well covered and which are missing. Diversity trees for banana, bean, lentil, and pearl millet are well underway.

NEW GENE BANK AT AFRICARICE

The Côte d'Ivoire civil war in 2004 forced AfricaRice to move out of the country. That meant transporting the center's rice samples to Benin for medium-term storage and Nigeria for long-term storage. By 2015, Côte d'Ivoire was able to welcome back AfricaRice. The CGIAR Research Program on Managing and Sustaining and Crop Collections (2012-2017), helped fund construction of a new genebank for the center in Côte d'Ivoire and in February 2018 AfricaRice began transporting its samples back home. In December, the final samples arrived from the International Institute of Tropical Agriculture (IITA) in Nigeria. After a long period of separation all accessions are now safe and sound in one place.

INTO THE DEEP FREEZE

Some crops cannot be safely conserved as dried seeds in genebank cold rooms and must be conserved using cryopreservation techniques. This involves storing plant samples at ultra-low temperatures. But cryopreserving material can be painstakingly slow and requires highly skilled technicians. A CGIAR Genebank Platform-supported project at the International Potato Center (CIP) is reaching rates of cryopreservation rarely seen before. CIP has trained a team of technicians who can now prepare more than 500 potato accessions in a year. The team is also studying the long-term viability of cryopreserved accessions. The project is testing the mobility of some of these samples, which is key to ensuring duplicates can be stored elsewhere. In a trial, CIP sent 25 cryopreserved potato accessions in a tank called a "cryoshipper" to Belgium, and back to Peru. The next step is to test the samples to see how they fared.



IMPACT FELLOWS BOOTCAMP

In July, seven early career professionals met at the Crop Trust offices for the first Genebank Impact Fellows Bootcamp. Hailing from Kenya, the Philippines, Colombia, USA, Italy and Morocco, the fellows were tasked with finding ways to document the impact of the genebanks of CGIAR and the Centre for Pacific Crops and Trees of the Pacific Community. The fellows embarked on a six-month program that gave them hands-on experience in evaluating impact, while working with some of the world's experts on genebanks. Some of their work includes determining the contribution of genebanks in the development of new varieties, assessing the impacts of taro leaf blight-resistant germplasm and studying the impacts of maize "rematriation" to farming communities.

COLLECTING CROP WILD RELATIVES



After eight years of scouring the far reaches of the planet, our partners have ensured that the crop wild relatives they have collected are conserved and will be available to everyone.



*Hannes Dempewolf,
Senior Scientist - Head of Global Initiatives, Crop Trust.*

Crop wild relatives are cousins of our domesticated food and forage crops that still grow in the wild. Many have evolved to survive tough conditions, like drought, flooding, high temperatures or poor soils. But more often than not, they are untapped sources of genetic diversity. Some of this diversity is useful to plant breeders searching for ways to make food crops more resilient.

The Crop Wild Relatives Project is a global, ten-year effort to collect, conserve, and use crop wild relatives. The ultimate aim is to contribute to the development of crops that don't just survive, but thrive under climate change. The initiative is in its eighth year and is supported by the Government of Norway. It is managed by the Crop Trust with the Millennium Seed Bank (MSB) of the Royal Botanic Gardens, Kew and involves many partners around the world.



COLLECTING

“Did we get them all?” As teams wrap up their missions to collect and conserve endangered crop wild relatives, that is the question on their lips. We should know the answer soon. By the end of 2018, our partners in 24 countries had completed their collecting activities. They collected more than 4,400 samples from locations as different as along the side of a busy highway to a remote pocket of a tropical rainforest. Collecting is no easy task and conserving the samples is just as challenging. The MSB has now received about 70% of the collected samples for safety duplication. The material at MSB is processed for long-term storage and sent to national and international genebanks for conservation and distribution to other users.

The collecting activities were preceded by a “gap analysis” – an assessment of important crop wild relatives missing from genebanks. This helped project staff prioritize plants for collection. In 2018, we started to re-run the gap analysis to establish to what extent the collecting missions have helped to fill the gaps.

USING CROP WILD RELATIVES

“

Our partners make it all happen. For our pre-breeding projects we are now working with nearly 100 national and international partner institutions in 48 countries.

”

*Benjamin Kilian,
Plant Genetic Resources Scientist, Crop Trust*

Using wild plants in crop breeding is much more difficult than using domesticated crops. So, the Crop Wild Relatives project includes a strong program to ensure that as many of their beneficial traits as possible will be available to breeders. Pre-breeding aims to identify those traits and introduce them into breeding lines that are easier to cross with farmed varieties.

The Project is focusing on 19 crops, with the aim of creating new pre-bred materials derived from crop wild relatives.

Together with our partners, we are expanding the pre-breeding work to include evaluation of germplasm derived from crop wild relatives with breeders and farmers. In some instances, the project integrates promising materials into crop breeding programs.

Our project partners are already making some of their pre-breeding materials available for breeders and researchers. Ultimately, the most promising material will be deposited in genebanks so they are accessible to anyone who would like to use them under the terms of the International Treaty on Plant Genetic Resources for Food and Agriculture.





HERE ARE SOME EXAMPLES FROM OUR PARTNERS:

Common Bean: Partners at the International Center for Tropical Agriculture (CIAT) have identified two wild *Phaseolus acutifolius* accessions that can tolerate high night-time temperatures – a trait of significant interest in a changing climate. These have been used in breeding programs for improving heat tolerance in farmed common bean. Researchers have also found that some bean wild relatives can tolerate waterlogging and root rot pathogens.

Pearl Millet: Blast is an emerging disease that is devastating pearl millet production in India and Africa. Researchers at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) discovered that some populations of a pearl millet subspecies found in Niger and Chad have resistance to multiple forms of blast. They crossed them with domesticated pearl millet and developed four pre-breeding populations for further testing.

MANAGING AND PRESENTING THE DATA

Pre-breeders generate a lot of data. They can make thousands of crosses between wild and domesticated food crops and evaluate the results under various conditions, in different climates and countries. Collecting and managing the data is hard work and analyzing it is an even bigger challenge – it is but one that must be addressed if pre-breeding is going to contribute to the development of sturdier “climate-proof” crops.

The Project has teamed up with the James Hutton Institute in the UK to ensure the project’s pre-breeding data is made publicly available in a format that allows breeders and scientists to view and analyze it as easily as possible. Hutton is developing software called Germinate 3, which can handle complex data from the use of plant genetic resources collections. Germinate 3 databases are currently being developed for 14 crops.

CELEBRATING A DECADE OF THE SVALBARD GLOBAL SEED VAULT

The Svalbard Global Seed Vault marked its tenth anniversary on 26 February 2018 by receiving shipments of over 70,000 crop varieties. These deposits took the total number of unique crop varieties received by the Seed Vault in the last decade to over 1 million.

Depositors from genebanks around the world delivered duplicate seeds of vital global staples like rice, wheat and maize to the Seed Vault. Other more regionally important crops were also deposited, including sorghum, pearl millet, black-eyed pea (cowpea), and pigeonpea.

Several lesser-known crops also made the journey to the Seed Vault. These included Bambara groundnut, which is being developed as a drought tolerant crop in parts of Africa, and the unusually named Estonian onion potato, which was deposited together with varieties of beans unique to the country.

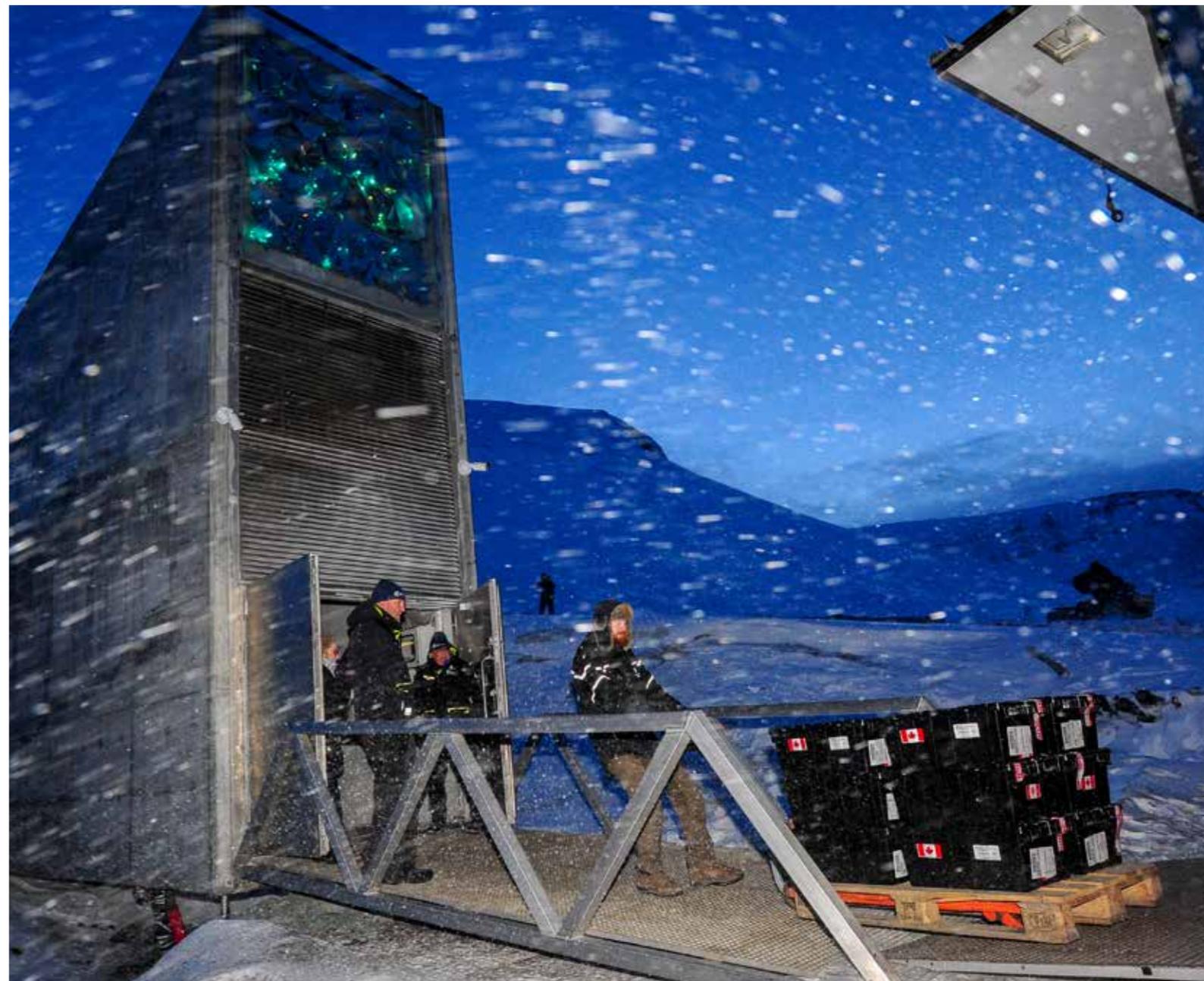
The event also marked the largest number of institutions (23) depositing seeds at one time.



The Svalbard Global Seed Vault is an iconic reminder of the remarkable conservation effort that is taking place every day, around the world and around the clock - an effort to conserve the seeds of our food crops.



*Marie Haga,
Executive Director of the Crop Trust, in the lead-up to the anniversary event.*



“

The tenth anniversary of the Seed Vault comes at a time when agriculture is facing multiple challenges from extreme weather and the demands of a world population expected to reach 10 billion people by 2050. This means it is more important than ever to ensure that seeds – the foundation of our food supply and the future of our agriculture – are safely conserved.

”

*Marie Haga,
Executive Director of the Crop Trust, in the lead-up to the anniversary event*

The Seed Vault first opened its doors in February 2008, as a backup facility for the world's seed banks. It received deposits of over 300,000 different kinds of seeds in its first year and deliveries have continued several times a year ever since from countries far and wide, including Australia, Burundi, Colombia, Germany, India, Japan, North Korea, Russia, the USA and many others.

LEGACY AWARDS

As part of the tenth anniversary celebrations, the Crop Trust announced the inaugural recipients of its Legacy Awards. These recognize people who have dedicated their careers to crop conservation. Several award recipients were retiring managers at the genebanks of CGIAR, which conserve and share hundreds of thousands of seeds of food and forage crops. Duplicates of seeds from CGIAR genebanks make up the majority of varieties currently backed up in the Seed Vault.

A Legacy Award was also given to Cary Fowler, one of the visionaries behind the Svalbard Global Seed Vault who

worked tirelessly for its creation. He is currently a special advisor to the Crop Trust after serving as the organization's Executive Director from 2007-2012, a period that saw the Vault being designed and constructed, as well as receiving its first shipments of seeds in 2008.

All recipients received a personalized award featuring specially commissioned artwork by Sophie Munns.

PREPARING FOR THE FUTURE

In 2018, the upgrade of the Svalbard Global Seed Vault continued. This has seen the installation of a new cooling system and a new watertight access tunnel. Funded by the Norwegian government, work also includes construction of a new service building. The work is due to conclude in 2019. Throughout, the seeds continue to be secure, with new deposits arriving as usual.



THE CROP TRUST LEGACY AWARDS 2018

(left to right)

- ▶ **Jean Hanson**
International Livestock Research Institute (ILRI), Ethiopia
- ▶ **Dave Ellis**
International Potato Center (CIP), Peru
- ▶ **Ahmed Amri**
International Center for Agricultural Research in the Dry Areas (ICARDA), Morocco
- ▶ **Cary Fowler**
Crop Trust special advisor
- ▶ **Daniel Debouck**
International Center for Tropical Agriculture (CIAT), Colombia
- ▶ **Hari D Upadhyaya**
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India
- ▶ **Ruaraidh Sackville Hamilton**
International Rice Research Institute (IRRI), the Philippines

SAFEGUARDING RICE: NOTHING LESS THAN FOREVER

October 2018 marked an important milestone in the history of the Crop Trust. The organization took the decision to fully fund a genebank with the longest possible time horizon – forever.

The partnership agreement with the International Rice Research Institute (IRRI), a not-for-profit international agricultural research organization with its headquarters in the Philippines, was the first of its kind. It guarantees permanent, full funding for the essential operations of IRRI's genebank which, with around 136,000 different kinds of rice, is the largest and most important rice collection in the world.

Many samples from the genebank have already been used to help rice producers respond to the challenges of climate change; others hold promise for improving rice production in the coming decades. With around 3.5 billion people around the world consuming rice each day – a number that is expected to rise – safeguarding IRRI's rice collection is an important step towards ensuring a more sustainable and resilient food system.





The agreement was made possible only through the combined efforts of Crop Trust and IRRI. Our coordination of the CGIAR Genebank Platform supports the operation and upgrading of the 11 CGIAR genebanks, ensuring that they meet international standards, as published by the United Nations Food and Agriculture Organization, and specific performance targets.

Over several years, the IRRI genebank has maintained these performance targets, which include being able to make more than 90 percent of its rice samples immediately available to requesters, and ensuring they are safely backed up and properly documented.

As well as great news for IRRI, the agreement was also a proof of concept for the Crop Trust endowment fund, which was established in 2004 as a mechanism to provide stable, long-term funding for crop conservation. Ensuring the other CGIAR genebanks are similarly supported will require USD 500 million in the endowment fund.

This is also an important contribution by the Crop Trust and its partners to Target 2.5 of the United Nations Sustainable Development Goal on Zero Hunger, which seeks to safeguard “seeds, cultivated plants, farmed and domesticated animals and their wild species” by 2020.



INFORMATION SYSTEMS



Each sample conserved in a genebank has a story to tell, a story which has been documented by the guardians and users of this crop diversity. Our task is to preserve those stories and share them with the world.



*Matija Obreza,
Information Systems Manager, Crop Trust*

Collections of crop diversity are there to be used, but how can a user choose what they need from thousands of samples? The answer is data. For collections to be used efficiently, the data about them needs to be complete, of high quality and easily accessible – like the seeds and other breeding material themselves. The Crop Trust is building information systems to help genebanks manage their data and users to search the crop collections they hold.

GENESYS

Crop breeders can be overwhelmed with the sheer number of samples stored in a single genebank. And they certainly don't have time to mine the databases of dozens of different individual genebanks worldwide in search of samples that meet their requirements. Genesys is a free-to-use, publicly accessible, online database of plant material held in genebanks around the world. Launched in 2008, it contains information on about four million samples, roughly half of the estimated total number globally.

Genesys received a big boost in 2018 thanks to the addition of almost 200,000 records from EMBRAPA, Brazil; 50,000 from the Genetic Resources Research Institute of Kenya; 3,000 from the

National Genebank of Tunisia; and 2,500 from the National Plant Genetic Resources Laboratory of the Philippines.

This is a tremendous boon to researchers, breeders and even farmers who want to explore some of the largest and most diverse collections of crop diversity in the world.

Data needs to be accurate and up to date, though. Genesys provides online services for genebanks to check their data for spelling errors or invalid geographic references. In 2018, about 50% of the records on Genesys were updated by data providers.

Work on Genesys never stops. In 2018, we began building a new website with numerous enhancements to make it even easier for users, and backend improvements to help data providers. It will be launched in mid-2019.

GENESYS CATALOG

Genebanks and researchers generate large volumes of data when they multiply seed, regenerate samples and screen plants for different characteristics. This data can be vitally important to other researchers. But, often, it isn't readily available to breeders. In 2018, we completed the Genesys Catalog, a two-year project

funded by Germany's Federal Agency for Agriculture and Food (BLE). The Catalog makes this additional data about genebank samples accessible to everyone via Genesys.

To kick off the Genesys Catalog, the Crop Trust team worked closely with staff from six genebanks to prepare, annotate and publish pilot characterization and evaluation datasets. The genebanks published 79 datasets when the project closed in August 2018. We have also supported other genebanks in publishing their data and now have more than 2,100 trait datasets of different kinds and on different crops available on Genesys.

GRIN-GLOBAL

The days of managing data for large genebank collections on paper or spreadsheets are long gone. GRIN-Global is an advanced



genebank data management software package and one of the best options for genebanks to efficiently document and manage their collections.

Nearly 30 genebanks have adopted GRIN-Global or are evaluating it. But it can be challenging to learn new software, so the Crop Trust helps users get a head start by conducting workshops. In June, the CGIAR Genebank Platform funded a week-long workshop in Portugal to provide training on GRIN-Global to 40 participants from 20 countries.



The Genesys Catalog enables genebanks to publish additional information about their samples, like the size and shape of leaves, the color of seeds and flowers, even data on yield or drought tolerance. This helps users find the most appropriate samples for their needs..



*Nora Castañeda-Álvarez,
Genesys Catalog Coordinator, Crop Trust*

Total number of accessions in Genesys from 460 institutes:

4,011,087

Number of datasets:

2,187





SECURING
OUR FOOD
FOREVER

GLOBAL STRATEGIES



The Crop Trust has been leading the development of global crop conservation strategies since 2004. These assess how different crops are coping with the challenges they face, whether enough is being done to conserve their diversity and whether users like crop breeders have easy access to it. They also provide action plans for improving conservation efforts. To date, the Crop Trust has coordinated the development of 21 global and eight regional crop conservation strategies.

A STRATEGY FOR TEA

In 2018, the Crop Trust developed a global conservation strategy for tea, which was launched in early 2019. The world's favorite

beverage, tea is grown in 62 countries with an estimated two billion consumers globally. But many factors, including climate change, can lead to the irretrievable loss of tea diversity from farmers' fields and in the wild. That means crop breeders have fewer options to develop more resilient plants in more sustainable production systems and to meet demand for new teas with specific flavors, aromas or health properties.

One way to hedge our bets is to protect tea diversity by conserving all types in genebanks and encouraging those genebanks to share their samples freely. But tea lacks the conservation and distribution infrastructure that other major crops enjoy. For example, there is no comprehensive system to document tea collections nor a failsafe way to back them up.

The tea strategy, developed by the Crop Trust and the Tea Research Institute at the Chinese Academy of Agricultural Sciences, outlines the need for a robust, well-financed, global system for conserving the many kinds of farmed and wild tea to ensure all tea diversity is conserved in perpetuity. This could help ensure that tea drinkers can continue to enjoy their favorite drink, and that the tea industry can meet the growing demand for tea that is produced sustainably and equitably.

During 2019, the Crop Trust will complete work on a conservation strategy for various fruits in the citrus family.

ILRI AND CIAT GENE BANK STAFF MEET TO DISCUSS FORAGES

The Crop Trust-supported Global Strategy for the Conservation and Utilization of Tropical and Sub-Tropical Forage Genetic Resources recommended that the International Center for Tropical Agriculture (CIAT) and the International Livestock Research Institute (ILRI) join forces to harmonize the curation of their separate forage germplasm collections. For the first time, technical teams from the two centers came together for a workshop in October 2018 in Addis Ababa, Ethiopia. The participants made plans to improve both the efficiency and quality of operations of these two genebanks for enhancing germplasm conservation and using tropical and sub-tropical forages.



FOOD FOREVER

The United Nations SDG2 is commonly known as the goal for “zero hunger.” But there’s much more to it than feeding the world: It identifies a range of issues affecting our food systems, with specific targets to address them. Target 2.5 calls for the international community to safeguard and share the genetic diversity of both crops and livestock by 2020.

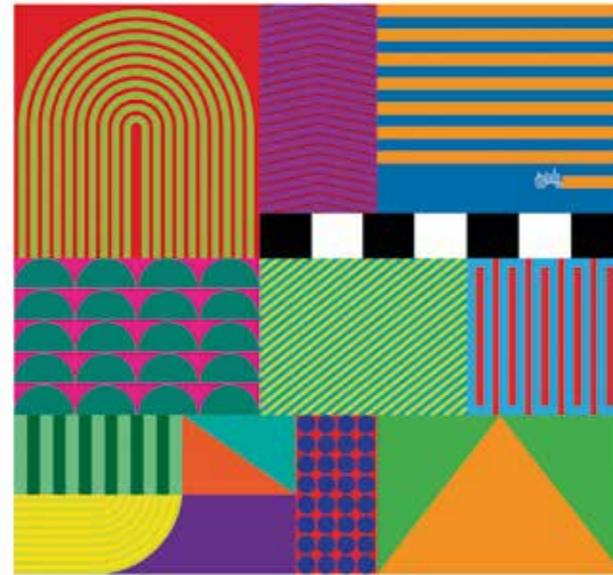
The Food Forever Initiative aims to raise awareness of the work going on around the world in support of this target. In 2018 it continued to rally politicians, farmers, chefs, business people and others to lend their voices and help drive positive changes in the way we conserve, grow, sell and consume crop and livestock diversity.

Mercedes Aráoz, Vice President of Peru, became the new Chair of Food Forever in June. She has a background in development economics and public policy and has held several ministerial positions in the Peruvian government, including that of Prime Minister. She has been Vice President and Congresswoman of Peru since 2016, and is strong advocate for biodiversity.

THE FOOD FOREVER EXPERIENCE

This is Food Forever’s flagship event series, created to give the public a glimpse of the future of food. By working with innovative chefs to cook up delicious dishes using lesser-known ingredients, the Food Forever Experience aims to plant the seed for important conversations about a more diverse, sustainable, and exciting food future.

The inaugural event – the Food Forever Experience NYC - was hosted by Google in New York City, USA, in September. It challenged ten chefs to work with fascinating foods currently on the margins of the country’s culinary mainstream. These included



the African grain teff, Bambara groundnut, tepary bean, breadfruit, jackfruit and even crickets.

The event was organized in partnership with Google, Tender Greens co-founder and Food Forever Champion Erik Oberholtzer, and the Rediscovered Food Initiative. It was also an official event of the United Nations Global Day of Action on the SDGs. A number of Food Forever Experiences will take place in 2019, in cities around the world.

Immediately prior to the NYC event, Food Forever hosted its annual meeting in Wilmington, Delaware, USA. It brought together some of the initiative’s Champions and Partner Organizations to learn more about the campaign, find ways to work together, and to pledge action in support of SDG 2.5.

CLOSER TIES

Food Forever strengthened its ties with key institutions connected to SDG Target 2.5. It now has a close relationship with FAO, the official custodian of SDG 2, and a strategy for engaging with the UN Convention on Biological Diversity (CBD), the central legal framework for all biodiversity-related targets in the SDGs and the Aichi Biodiversity Targets.

In September, Food Forever held the first session of its Board of Overseers, a consulting body whose main objective is to approve new Champions and Partner Organizations, and the yearly workplan. FAO was welcomed as an official member of the Food Forever secretariat, joining the Government of the Netherlands and the Crop Trust.

The following month, Food Forever participated in the Committee on Agriculture (COAG) and the Committee on Food Security (CFS) at FAO. Together with Bioversity International, the SDG2 Advocacy Hub, FAO and the Future Food Institute, it organized side-events on the importance of agrobiodiversity in relation to food and nutrition security and facing climate change. The same month, Vice President Aráoz represented Food Forever at the Borlaug Dialogue International Symposium of the World Food Prize in Des Moines, Iowa, USA. This included giving a keynote speech to 1,200 people, around half of whom were students.

At the 14th Conference of the Parties to the UN Convention on Biological Diversity (CBD-14) in Sharm El-Sheikh, Egypt, in November, Food Forever presented to over 100 communications professionals from the biodiversity and sustainability sectors. It was part of a Communications Forum for Mainstreaming Biodiversity, organized by the World Wildlife Fund and the CBD. At the event, a task force was formed to kickstart a chef-engagement program, called 2020 for 2020. This aims to reach 2,020 chefs willing to advocate for greater food diversity by the year 2020.



GOVERNANCE

THE EXECUTIVE BOARD

St. Petersburg, Russia (March)

In the spring of 2018, the Executive Board met at the N.I. Vavilov Research Institute of Plant Industry (VIR) in St. Petersburg, Russia for its first meeting of the year. The Board welcomed Timothy Fischer, former Deputy Prime Minister of Australia, and Sir Peter Crane, President of the Oak Spring Garden Foundation, to serve in their first Board meeting as Chair and Vice-Chair, respectively.

At VIR, Board members had the chance to tour the museum, long-term seed store, and tissue culture and cryopreservation labs. They also had the opportunity to meet Nikolay Dzubenko, the outgoing Director, and hear him speak about its history and the present status of its historic collection.

In addition to approving revisions to the Crop Trust's Investment Policy Statement and Institutional Risk Matrix for 2018, Board members reiterated the importance of moving towards a more diversified and sustainable funding base. They also expressed strong support for the development and implementation of appropriate innovative finance mechanisms. Finally, they encouraged the Crop Trust Secretariat to continue pursuing endowment fund contributions from both public and private donors.

Bonn, Germany (October)

The Executive Board's second meeting of the year was held at the Crop Trust Headquarters in Bonn, Germany. The previous month, the Board had approved the historic Long-term Partnership Agreement with the International Rice Research

Institute (IRRI), and this agreement was officially signed during the 5th International Rice Congress in Singapore, on World Food Day. It guarantees sustainable, long-term financial support for the essential operations of one of the world's most important food and agriculture genebanks. As part of the Long-term Partnership Agreement, IRRI will provide expert advice and other support to five national genebanks to help their conservation efforts. Providing permanent funding to the world's most important crop collections is at the core of our mission, and the Board recognized this agreement as an important milestone in the history of the Crop Trust.



THE DONORS' COUNCIL

The 18th meeting of the Crop Trust Donors' Council, held in June, agreed to establish an *ad hoc* Working Group on Innovative Finance (IFWG). The purpose of the working group is to analyze and review possible innovative finance mechanisms that could help the Crop Trust ensure sustainable, long-term funding for crop conservation, and reach its fundraising target of USD 850 million. The IFWG, chaired by Stefan Schmitz of Germany's Federal Ministry of Economic Cooperation and Development (BMZ), is comprised of representatives of the Donors' Council.

In 2018, the Crop Trust welcomed two new members to the Donors' Council: the Republic of Finland and the European Commission, both of whom made significant financial contributions to the work of the Crop Trust in 2018, for which we are extremely grateful. We look forward to building on these new partnerships in the time ahead.

04 FINANCIAL



FINANCIAL SUMMARY

THE ENDOWMENT FUND

At the heart of the Crop Trust's work is its endowment fund. Investment income generated by the fund is used to support genebanks that conserve crop diversity – the biological basis of agriculture. The Crop Trust's endowment fund target is USD 850 million, which would generate enough income to provide stable, permanent financial support to the world's most important crop genebanks. In 2018, donors contributed USD 17 million to the fund.

The value of the endowment fund, including the KfW loan proceeds and less amounts to be withdrawn to fund the genebank platform commitment, amounted to USD 273 million as at 31 December 2018 (2017: USD 285 million).

Endowment Fund



SIZE OF THE ENDOWMENT

The annual return of the endowment fund in 2018 was -8.2% as a result of poor market performance, specifically in the fourth quarter of the year. Since the beginning of 2019, markets have recovered and the endowment fund returned +8.5% in the period from 1 January to 31 March 2019, taking its value to USD 292 million.

The Crop Trust is fortunate to have strong liquidity and a very long-term perspective. The endowment fund is highly diversified and structured for the long-term so that short-term market dislocations, whether positive or negative, do not trigger structural changes to the asset allocation of the portfolio.

The investment objectives and policies of the Crop Trust permit the annual withdrawal of up to 4% of the endowment fund's average market value over the previous 12 quarters. In 2018, 2.5% (USD 5 million) was withdrawn, of which 91% was provided in long-term grants to the international genebanks of CGIAR. Combined with bilateral contributions from donors, the total contribution to CGIAR amounted to USD 9 million - up from USD 2.4 million in 2016 and USD 6.75 million in 2017. In 2019, this annual contribution to CGIAR will rise to USD 11.5 million.

The Crop Trust is an official signatory to the United Nations Principles for Responsible Investment (UN PRI), an international framework for incorporating sustainability into investment decision-making. The Crop Trust believes that the application of the UN PRI improves alignment of its investment portfolio with its overall mission and with the broader objectives of society. As part of its commitment, the Crop Trust undertakes annual PRI reporting and achieved an overall "A" rating for its UN PRI 2017/18 assessment.



The Crop Trust's Executive Board-approved Responsible Investment Policy also ensures the investment portfolio of the endowment fund is aligned with the organization's overall mission.

PROGRAM AND OPERATIONAL EXPENDITURE

In addition to building up its endowment fund, the Crop Trust supports the conservation of crop diversity in genebanks with annual funding.

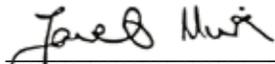
In 2018, the total expenditure of the Crop Trust was USD 36 million, of which USD 34 million related to program activities. The Crop Trust continues to follow a course of cost-effectiveness, which is vital in order to achieve its objectives and maintain the trust of donors and partners. In 2018, the Crop Trust secretariat incurred expenditures for management and general services of USD 1.6 million, or 4.6% of total direct expenditures. Fundraising expenditure amounted to USD 0.42 million or 1.2% of total direct expenditure. Overall operational expenditures accounted for 5.9% of total direct expenditures in 2018, down from 8% in 2015.

FINANCIAL AUDIT

The Financial Statements for the year ending 31st December 2018 were prepared in accordance with International Financial Reporting Standards (IFRS). They were audited by PriceWaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, which issued an unqualified audit opinion.

The full Financial Statements and Independent Auditor's Report can be downloaded from the Crop Trust website.

We thank all our donors and partners for their continued support, and for understanding the need for, and urgency of, safeguarding crop diversity.


 Janet Muir
 Director of Finance, Crop Trust



THANK YOU

THANK YOU

The Crop Trust donors include developed and developing country governments, civil society (foundations), the private sector, farmers' organizations and individuals. We are deeply grateful to all our supporters who have helped make the work we do possible.

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