



## FOOD SECURITY AND CROP DIVERSITY

Thematic background to the event on 27 September 2022 in Bonn

### Why crop diversity?

Global crop diversity is a prerequisite for future food and nutrition security. Only by safeguarding crop diversity in perpetuity, and making it available for use by researchers, plant breeders and farmers, can we adapt agriculture to the climate crisis, improve livelihoods and feed everyone adequately.

Wheat, maize and rice - these three crops alone account for more than 60% of the world's food supply. Many other crops, which are often overlooked, neglected and even threatened with disappearance, could enrich our menus, and provide a more varied and healthier diet. Some of these crops also require less water and other inputs, making them more economical to grow. And new varieties of both staples and orphan crops, developed using diversity conserved in genebanks, can be more resistant to heat and drought, and to new pests and diseases.

To adapt our food systems to local conditions, taste preferences and environmental challenges, we must use this diversity both between and within crops. Only then will many countries be able to develop self-sufficient and productive agricultural systems and reduce dependency on food imports. Food security is increasingly becoming a geopolitical and security problem, and crop diversity is an important solution.

Crop diversity, both rediscovered and newly developed, can contribute to overcoming poverty in the rural areas of many countries in the Global South. Examples include the use of varieties that deliver higher yields in extreme conditions, have better storage and processing properties, or have better nutrient efficiency and thus require less fertilizer. Crop diversity can also be used to produce foods that are richer in micronutrients and therefore more valuable for human nutrition. This is becoming increasingly urgent as some crops tend to decrease in nutritional value under rising temperatures. Crops with higher protein content can advance the shift from a heavily meat-based to a predominantly plant-based diet. These are all crucial contributions to agriculture that feeds people within our planet's limits.

### Threats to crop diversity

Crop diversity is thus an insurance policy for all of us. Unfortunately, it may be expiring. **Firstly**, the diversity of the wild relatives of our current crops is threatened in natural habitats. Priceless diversity of crop wild relatives is disappearing with every square kilometer of tropical rainforest that is cleared, of grassland that is degraded, of natural landscapes that give way to human settlements and infrastructure. And that disappearing diversity might have helped us breed new crop varieties that are more resistant to harsh climates or new pests and diseases.

**Secondly**, crop diversity is under threat in farmers' fields. Across the world, a once great diversity of old varieties resulting from thousands of years of agriculture is giving way to a small number of modern, high-performance varieties. While old heirloom varieties (also called landraces) were genetically very variable today's modern cultivars are genetically quite



homogeneous. This is part of modern breeding, and has contributed significantly to the success of industrialized agriculture - and thus to economic development and prosperity in large parts of the world. However, the downside of the resulting genetic erosion cannot be ignored.

We must preserve crop diversity on farms and in the wild. But that won't be enough. It is highly unlikely that loss of diversity can be stopped completely. What can still be saved must be saved, and safeguarded in genebanks. Such genebanks exist all over the world. In total, there are by one count more than 1,750, of which about 130 store more than 10,000 accessions (samples). But, unfortunately, many of the genebanks in the Global South are chronically underfunded and in need of support.

**So, thirdly**, crop diversity is endangered even where its protection should be guaranteed, i.e. in genebanks. Irreplaceable diversity is in danger of being lost due to insufficient financial support and disasters of various kinds. As funding dries up, basic conservation activities in genebanks suffer, diversity is lost, and cannot therefore be used for breeding and cultivation in farmer's fields.

### The role of the Crop Trust

The Global Crop Diversity Trust (Crop Trust) is an international non-profit organization dedicated to conserving and making crop diversity available for use globally, forever and for the benefit of everyone. Our work supports adaptation of our food systems to the climate crisis, ensures better nutrition and health, and provides the basis for sustainable agriculture.

The Crop Trust can help strengthen the global food system, if it is given the means to do it. Unfortunately, it is currently only able to fulfill about one-third of its mandate. Further strengthening the Crop Trust and its financial capabilities can secure the conservation and equitable use of one of the most important global public goods.

### Conservation of crop diversity as part of sustainable and equitable global policy

International cooperation is vital for the conservation and use of crop diversity. The International Treaty for Plant Genetic Resources (Plant Treaty), under whose umbrella the Crop Trust operates, is key to this. But work remains to be done, in particular when it comes to ensuring a fair sharing of benefits that arise from the use of crop diversity and associated data. At the same time, there must be better coordination of global policy: agricultural policy, development policy, foreign and security policy, research policy, and economic and climate policy must all align if we are to have a world without hunger.