



**GLOBAL CROP
DIVERSITY TRUST**
A FOUNDATION FOR FOOD SECURITY

CROP DIVERSITY

IN THE

SUSTAINABLE
DEVELOPMENT GOALS

Eradicating hunger & malnutrition

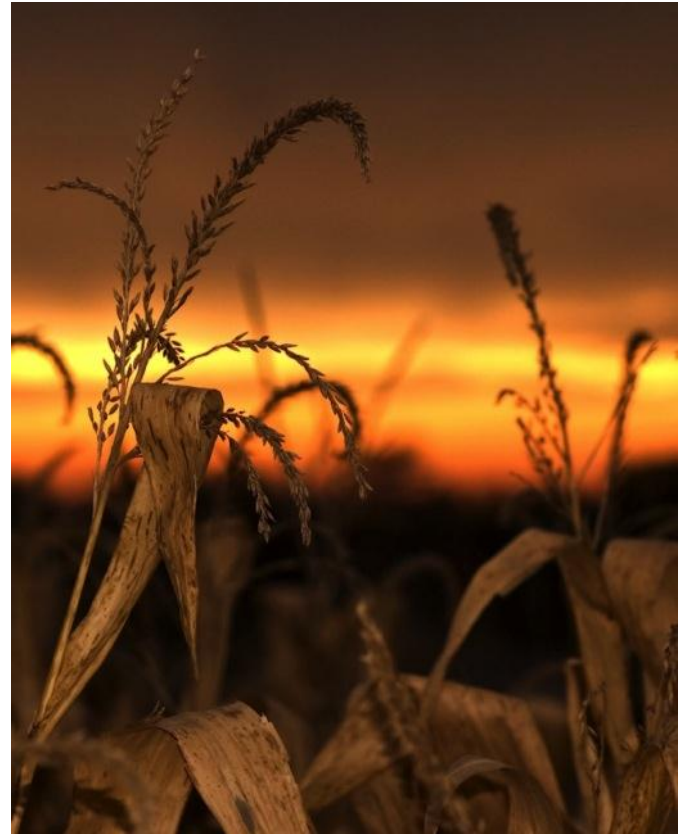
The biggest challenge of our time

Agricultural biodiversity is a prerequisite
for sustainable agriculture and food security



Agriculture

- Facing its biggest challenge ever, due to population growth and climate change
 - IPCC: 2% reduced agricultural output per decade
 - FAO: 50% increase in cereals required before 2050
- **We have to find a way out**



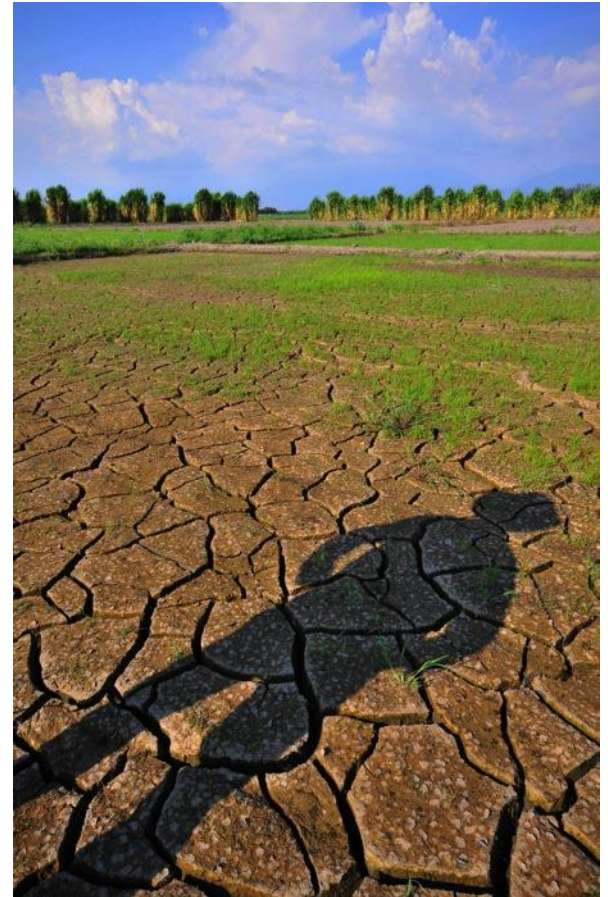
Pests and Diseases

- The Irish Potato Famine
 - The Southern Corn Leaf Blight
 - Genetic uniformity the primary cause
- **New challenges due to climate change**



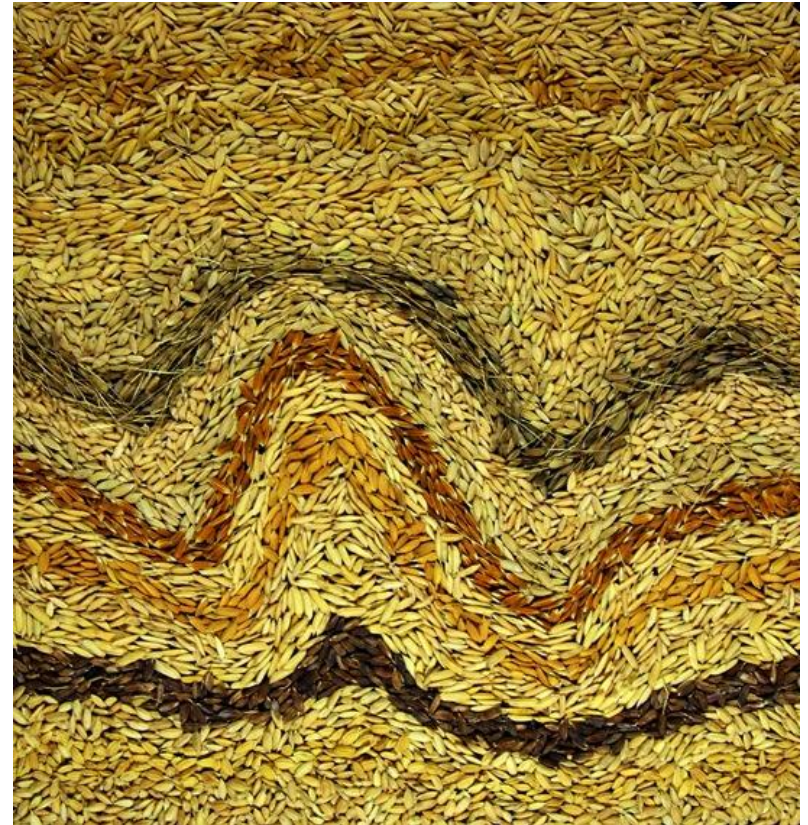
Rice

- Plus 1°C could result in a decrease of yield by 10%
 - Plus 2°C is potentially catastrophic
- **We need to make crops climate ready**



Rice

- More tolerant to submergence
 - More tolerant to salinity
 - More nutritious
 - Higher yields
- **Not possible without crop diversity**



Diversity

- 200,000 varieties of rice
- 120,000 varieties of wheat
- 4,000 varieties of potatoes
- 35,000 varieties of finger millet
- 3,000 varieties of coconut



- **All are important because *one* might have the trait to increase nutritious value, fight disease, adapt to new climates, or produce higher yields**



Loss of diversity

- Spain: had 400 melon varieties in 1970, only 12 today
- Germany: all apples grown now originate from only 6 varieties
- China: lost 90% of rice varieties since 1950
- Mexico: lost 80% of corn varieties since 1900
- India: lost 90% of rice varieties since 1900
- USA: lost 90% of fruit and vegetable varieties since 1900



The Future

We can't retrieve what we have lost, but we can protect what we have and make it available



The Green Revolution is running out...

Diversity is available in:

- Farmers' fields
- Plant gene banks
- **International crop collections are located mainly in the South**



AfricaRice



CIAT
Centro Internacional de Agricultura Tropical
International Centre for Tropical Agriculture



CIMMYT^{MR}
International Maize and Wheat Improvement Center



Research to Nourish Africa



ICRISAT
Science with a human face

ILRI

INTERNATIONAL
LIVESTOCK RESEARCH
INSTITUTE



Bioversity
International



A member of the
CGIAR Consortium



IRRI

Interdependence

- No country is self sufficient in crop diversity
 - The US has only 10% of the crop variety found in the world's plant gene banks in its own collections
 - Soybean does not originate from Brazil, yet Brazil has the second largest production of soybean in the world
 - Wheat variety 'Veery': bred with genetic resources from 26 countries
- **Crop Diversity – a true global common good**



Reasons for Optimism

Crop Wild Relatives

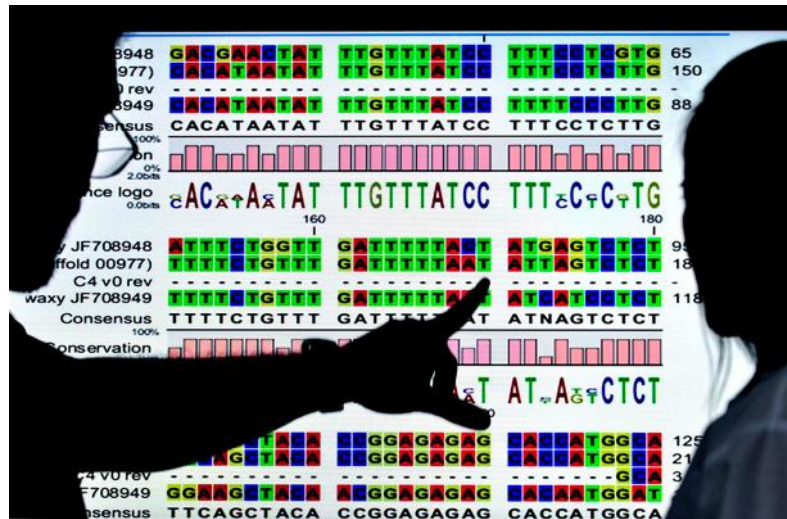
- Tough — with traits we don't find in domesticated varieties
- **We broaden the genetic basis where we can search for traits**



Reasons for Optimism

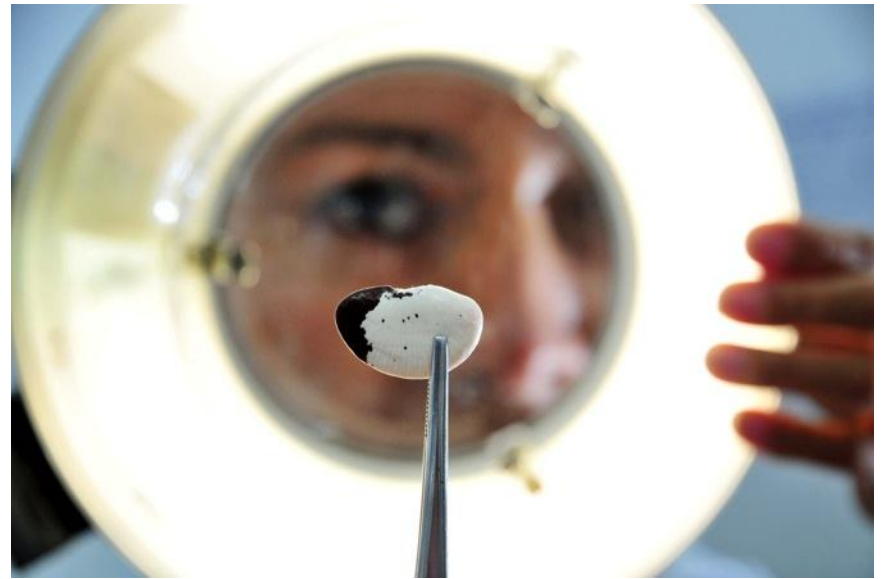
Big data

- Sequencing of the plant DNA, physically characteristics, and passport data
- **We get faster to results and speed up breeding processes substantially**



Transfer of Technology

CGIAR centers should be viewed as repositories not only of seeds but of technology, which is publicly generated, available to everybody in the service of agricultural development



Crop diversity

A prerequisite
for a sustainable food system
which brings about
livelihoods and more and more nutritious
food
in spite of climate change



Goals and Targets

Recognize the importance of crop biodiversity as a basis for food security and sustainable agricultural development

- **General target: Crop diversity be urgently and effectively conserved**



Goals and Targets

Aichi Biodiversity Target 13:

Target 13. By 2020, the genetic diversity of cultivated plants and (farmed and domesticated animals and) of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.



Goals and Targets

Target 9 of the Global Plant Conservation Strategy:

Target 9. (That by 2020) 70% of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local knowledge.



Goals and Targets

By 2018, the crop diversity collections under Article 15 of the International Treaty on Plant Genetic Resources for Food and Agriculture are permanently secured

It is doable!



Thank you

