Inspire
Implement
Impact

EIB Virtual Meeting

16-24 November 2021

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EiB Virtual Meeting 2021

Inspiring implementation: CGIAR Breeding Goals

Nutrition, health & food security: Affordable healthy diets for 3 billion people.

Climate adaptation & mitigation: Equip 500 million small-scale producers with climate adaptation solutions.

Gender equality, youth and social inclusion: Close the gender gap.

Poverty reduction, livelihoods and jobs target: Lift 500 million people out of poverty.

Environmental health and biodiversity: Zero net deforestation.

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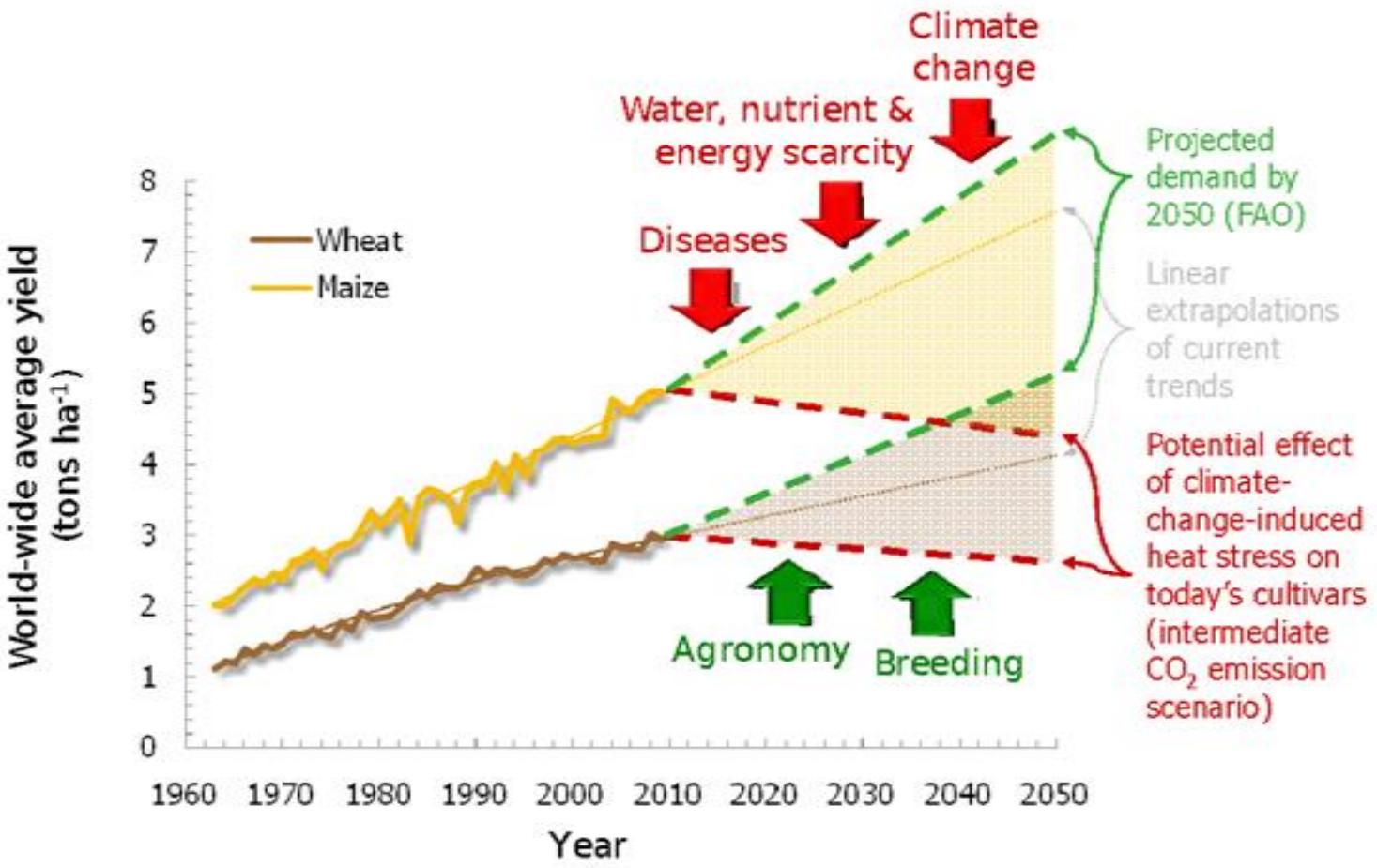
Why? Taking food security as an example…



Source: CIMMYT

- Using maize and wheat as an example, annualised production increases must be >1.7% to prevent catastrophic price rises

- Not only the staples: RTB and legume crops play critical role for poverty alleviation and nutrition

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How do we achieve these goals?

Product and performance oriented focus:

1. Developing the right variety that will be grown by the targeted group of growers to achieve the targeted impact.

2. Performance of product sufficient to both drive widespread adoption and achieve targeted impact.

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CtEH Indicators and Goals

Increased rate of **genetic gain**, in the form of farmer preferred varieties, to at least **1.5 percent per year**.

Area weighted average **age of varieties of less than 10 years**.

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EiB functions in new GI structure

EiB: Five interlinked modules:

Product design & management

Optimizing breeding schemes

Genotyping / sequencing

Operations & phenotyping

Breeding informatics

+ Cross-cutting: CGIAR-NARES Engagement, Tech. Adoption,Toolbox, CtEH etc.

All existing EiB functions will continue within GI Initiatives, specifically;

- Accelerated Breeding Initiative (ABI)
- Network for Enabling Technologies, Tools and Shared Services (N4ETTSS)
- Market Intelligence and Product Profiles (MIPP)

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What to expect from One CGIAR / GI breeding?

A fully integrated global breeding organization with:

1. Resources aligned with potential for impact
2. Stronger CGIAR-NARES-SME breeding partnerships
3. Enhanced use of genetic resources
4. Accelerated and optimized breeding
5. Effective seed delivery and demand creation

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Funders' six requests

To deliver the highest possible rate of genetic gains in farmers' fields, in the form of nutritious, climate-resilient, market-demanded cultivars, CtEH Funders request Centers to:

1. Develop pipeline investment cases.
2. Incentivize management and staff to deliver higher genetic gain.
3. Effective seed delivery and demand creation.
4. Quantitatively optimize pipelines to increase genetic gain.
5. Implement and use shared services.
6. Build CG-NARS breeding networks and NARS capacity.

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Resources aligned with potential for impact

- Being impact driven and demand led.
- Each breeding pipeline presenting a well-defined "pipeline investment case" → supports strategic allocation of resources and resource mobilization.
- Alignment of breeding decisions with drivers of adoption and consumer and stakeholder needs (target product profiles).

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Partnerships - NARES

CGIAR breeding programs that are well integrated and aligned with NARES' goals and ambitions.

- Focus on breeding networks rather than individual CGIAR programs.
- Augment NARES role → Stronger role for NARES in variety development.
- Leveraging CGIAR resources to support and fund greater NARES participation in CGIAR-NARES breeding networks. → More resources for NARES
- A partnership model that supports increased NARES breeding capacity.

***If you want to go far, go together!**

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Enhanced use of Genetic Resources

- Separation of variety development from trait deployment (new germplasm)
- Dedicated trait discovery and trait deployment programs implementing (standardized) current best practices.
- Prioritisation process looking at:
  - Alignment with product profile
  - Expected impact
  - Liklihood of success

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Accelerated and optimized breeding

- Performance management aligned with genetic gain and variety turnover
- Dedicated efforts to better understand impact, measured in a standardized and scientifically robust way.
  - Realized genetic gains and predicted genetic gains
  - Area weighted average age of varieties in farmers' fields
- Optimising breeding schemes – components of the breeders' equation
  - Breeding cycle time (age of parents), data accuracy, selection intensity, genetic diversity

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Tools and services

- Centralised low-cost mid density and low density genotyping
- Breeding data management systems
- Enhanced breeding capacity
  - Mechanisation, digitization, irrigation, soil quality etc.
  - Including with support of Crops to End Hunger funds (BMZ, FCDO, USAID)
- Better understanding of cost of operations
- Separation of breeding operations from breeding science
  - Professionalized operations

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Results to date

1. **Develop pipeline investment cases:** Identified 350 unique sub-regional market segments and 142 breeding pipelines. By better aligning breeding pipelines, market segments and product profiles, investments can better impact food security and livelihoods in priority areas and more effective case be made for funding.
2. **Incentivize management and staff to deliver higher genetic gain:** CGIAR centers are regularly reporting on progress against all 6 funders' requests including genetic gain. Under ABI performance evaluations will be aligned with KPIs related to rate of genetic gain and contributions to variety turnover.
3. **Develop strategic plans for delivery to farmers and varietal turnover:** A whole Initiative dedicated to this (SeEdQUAL).
4. **Quantitatively optimize pipelines for higher genetic gain:** Through EiB-supported practices and technologies, CGIAR breeding programs have been improving parent selection, enhancing accuracy, shortening breeding cycles, and standardizing data management.
5. **Implement shared services:** Services such as EiB's newly launched genotyping, EBS, and informatics networks are moving CGIAR services toward a model that better leverages investment across crops and centers.
6. **Build NARS breeding networks and capacity:** An effective CGIAR-NARS collaborative breeding networks model has been developed and incorporated into Initiative development. Ongoing EiB support and mentoring provided to NARS.

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Conclusion

Our roles as scientists, leaders, managers, technicians, funders, and policymakers is to **drive positive change**!

We are seeing substantive changes. In mindsets and tangible changes on the ground!

Many ways to take large steps toward the goals of increased **genetic gain and increased variety turnover**.

What are **three things** that you will take from this event and implement to **create change** toward your goals?

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Thank you!

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