

Plant Breeding Innovation: The Private Seed Sector's Engagement To Contribute To The Achievement Of The UN SDGs



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The UN Sustainable Development Goals

17 Goals, 169 Targets for People, for Planet

- ✓ The UN SDGs are universal call to **end poverty**, **protect the planet** and **improve the lives and prospects** for everyone and everywhere.
- ✓ Adopted in 2015 by all member states to find **shared solutions** to the world's urgent challenges by 2030.
- ✓ To deliver progress on the 17 SDGs, the UN Food Systems Summit was held in 2021 with the aim to launch bold new actions related to Food Systems.
- ✓ “**Food Systems**” refers to all the elements and activities related to producing and consuming food, and their effects, including economic, health, and environmental outcomes.

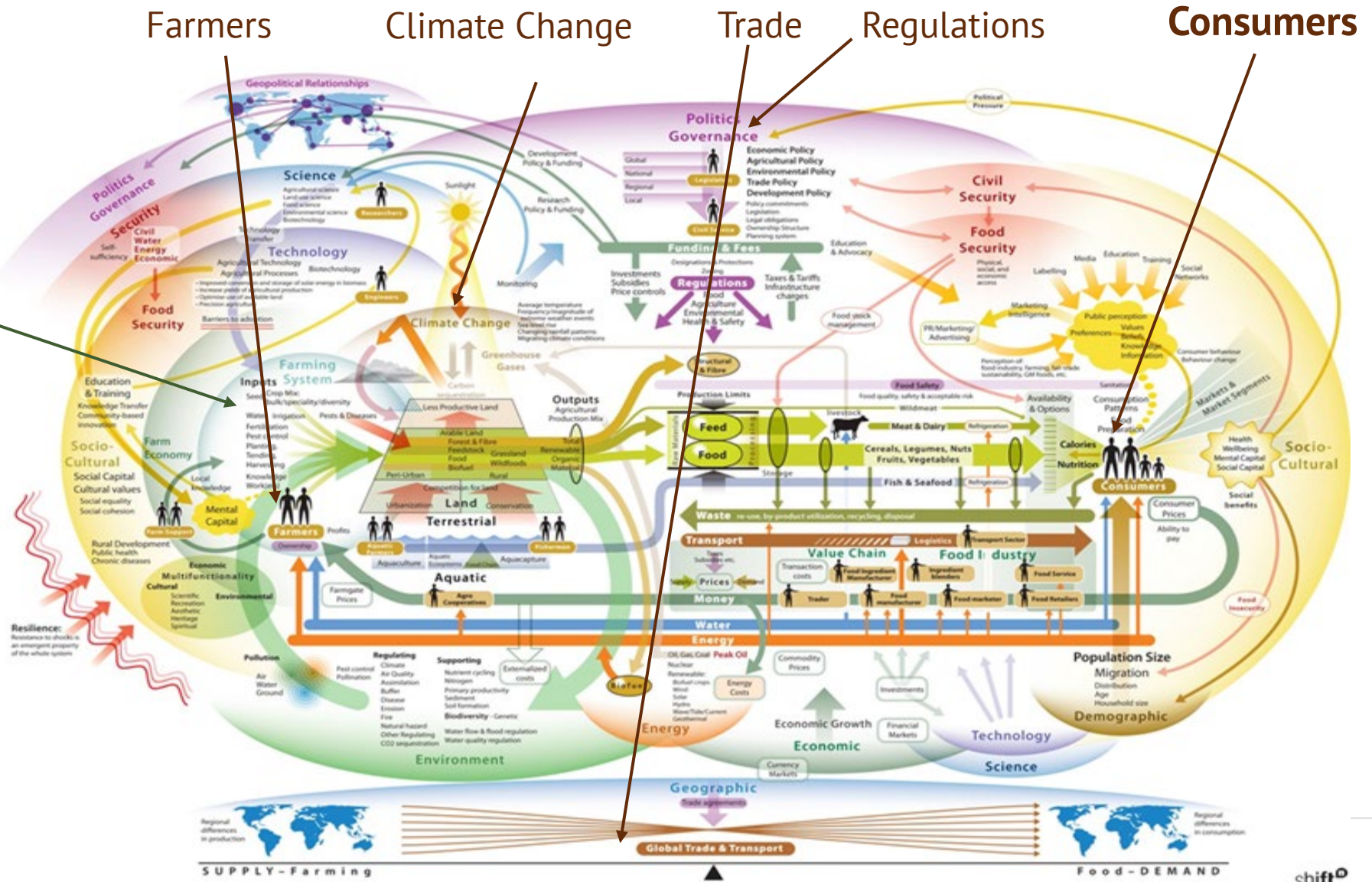
Food System Components, Processes and Activities



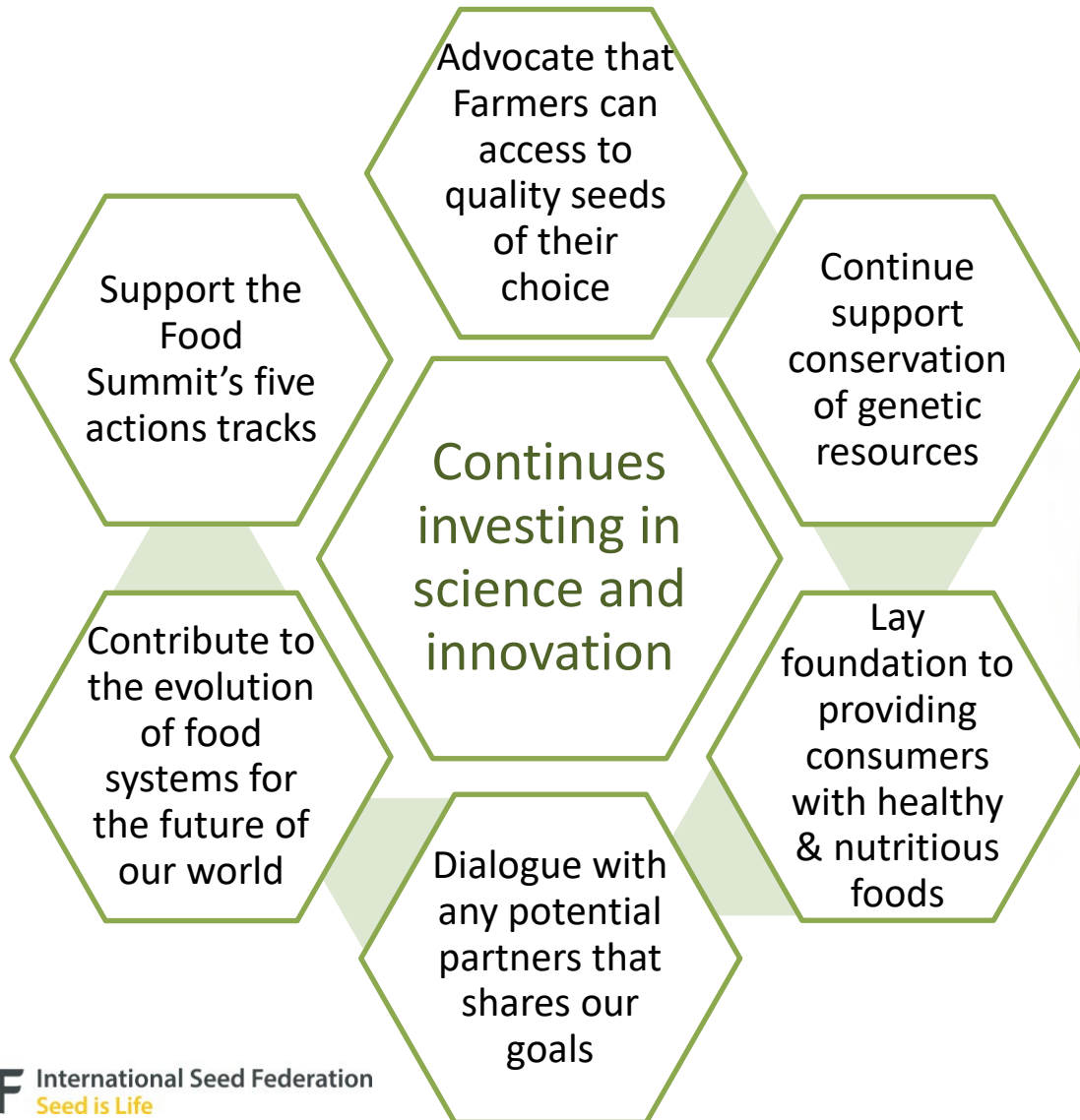
Food Systems is Complex...

Seed is the Most critical input!

No “one-size-fits-all” solution



Global Seed Sector Commits to UN SDGs



Seed as the starting point
Our sector takes part in the journey to the Food Systems Summit 2021

DECLARATION

International Seed Federation
Voice of the global seed sector since 1924

66 National Seed Associations

7500+ companies
91 Countries

1 NO POVERTY

8 DECENT WORK AND ECONOMIC GROWTH

13 CLIMATE ACTION

2 ZERO HUNGER

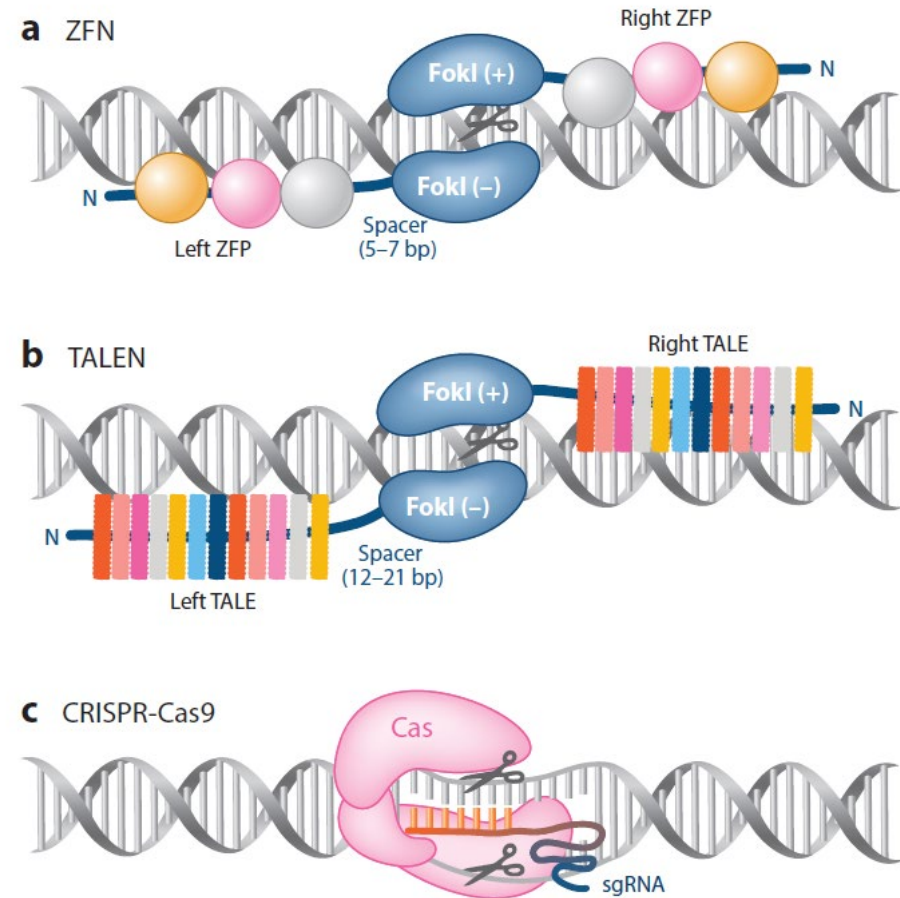
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

15 LIFE ON LAND

17 PARTNERSHIPS FOR THE GOALS

Plant Breeding Innovation

- Breeding is not a new science
 - Yield, taste, nutritional quality, drought, salinity, disease resistances, pests, etc...
 - 80+ of Crops + thousands of researchers + hundreds of breeding programs.
- Breeders' toolbox has expanded
 - Genome editing
 - CRISPR/CAS9 has democratized the technology, ease and robustness
 - The technology is improving fast (tools, deliveries, applications)
 - Use of the technology is orphan crops and in polyploid genomes



Belhaj K. et al., 2018 CRISPR Crops - Plant Genome editing towards diseases resistance Annual Rev Phytopathology



Development of Products is Accelerated via Genome Editing

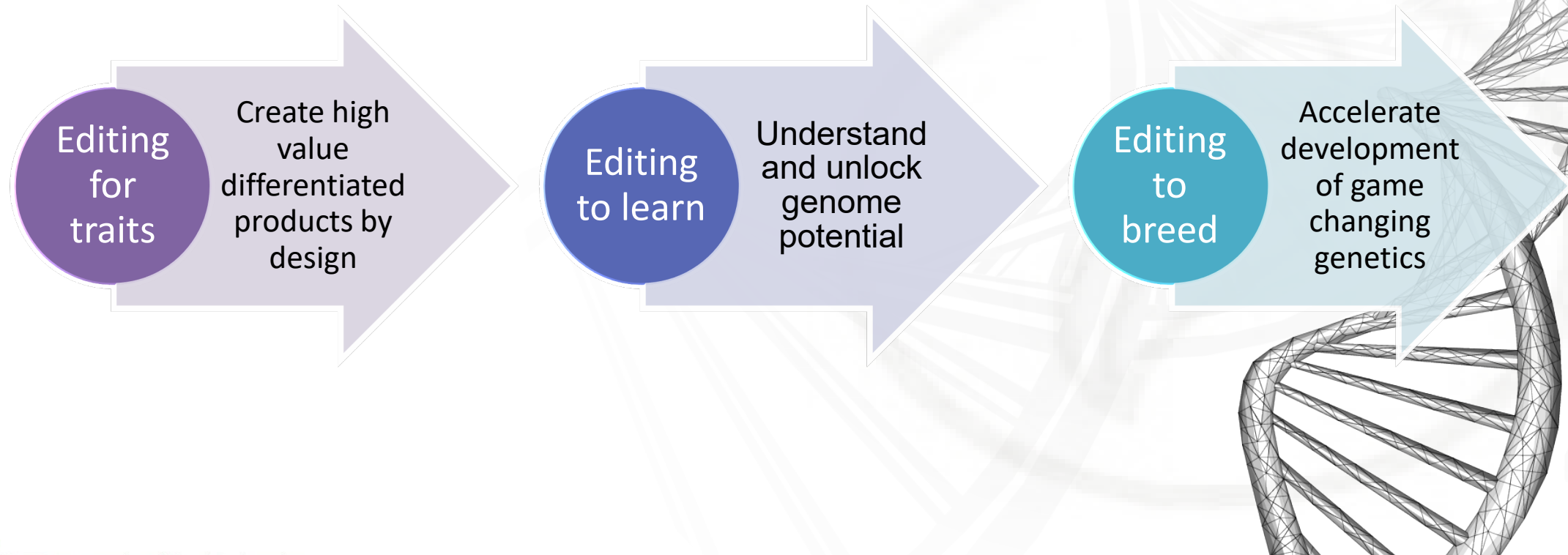


10,000 years of brassica domestication



3 years with gene editing

Three Ways That Genome Editing Will Help Address Global Challenges In Agriculture



The latest breeding methods provide opportunities to target global challenges as well as local needs and can help us achieve sustainable agriculture production and food security.



PBI – Predictable Science Based Regulations are Necessary!

Seed Sector is looking for:

- Consistent, science-based approach for regulatory oversight
- Agreement among governments on the criteria to determine the scope of regulatory oversight

Underlying principle:

“Plant varieties developed through the latest breeding methods should not be differentially regulated if they are similar or indistinguishable from varieties that could have been produced through earlier breeding methods.”

Divergence & Convergence In International Regulatory Policies

CANADA
Product based approach; Health Canada guidance final exempting plants without foreign DNA

US
Final USDA revised biotechnology regulation exempts certain products; EPA proposed rule exempt certain products; FDA conducted request for information from the public, policy TBD

GUATEMALA, HONDURAS, EL SALVADOR, COSTA RICA
Case-by-case approach, excluding certain gene edited products

BRAZIL, COLOMBIA
Case-by-case approach, excluding certain gene edited products

PERU
Discussion started

URUGUAY
Draft regulation excluding certain gene edited products

PARAGUAY, ARGENTINA, CHILE
Case-by-case approach, excluding certain gene edited products

UK
Precision Breeding Bill excluded certain gene edited products

EUROPE
Policy proposal excepted from EU Commission by Q2/2023

SWITZERLAND
Government proposals until 2024 for exempting certain genome edited plants from GMO-moratorium

NORWAY
Discussion of a "tiered" approach

ISRAEL
Guidance that specific techniques outside GMO scope

RUSSIA
Decree for R&D program clarifying that gene editing products are "conventional-like"

CHINA
"GMO-lite" proposal for R&D

CHINESE TAIPEI, SOUTH KOREA, THAILAND
Discussion of options

JAPAN
Excluding certain gene edited products

PHILIPPINES
Excluding non-transgenic products

SINGAPORE
Draft proposal to exempt certain gene edited products under consultation

INDONESIA
Growing consensus to exempt certain gene editing appl.

INDIA
Exemption of SDN 1/2, case by case approach with extensive data requirements

■ Positive decision from at least one regulatory agency
■ No formal decision, but positive direction
■ Discussion started, direction unclear
■ Restrictive decision

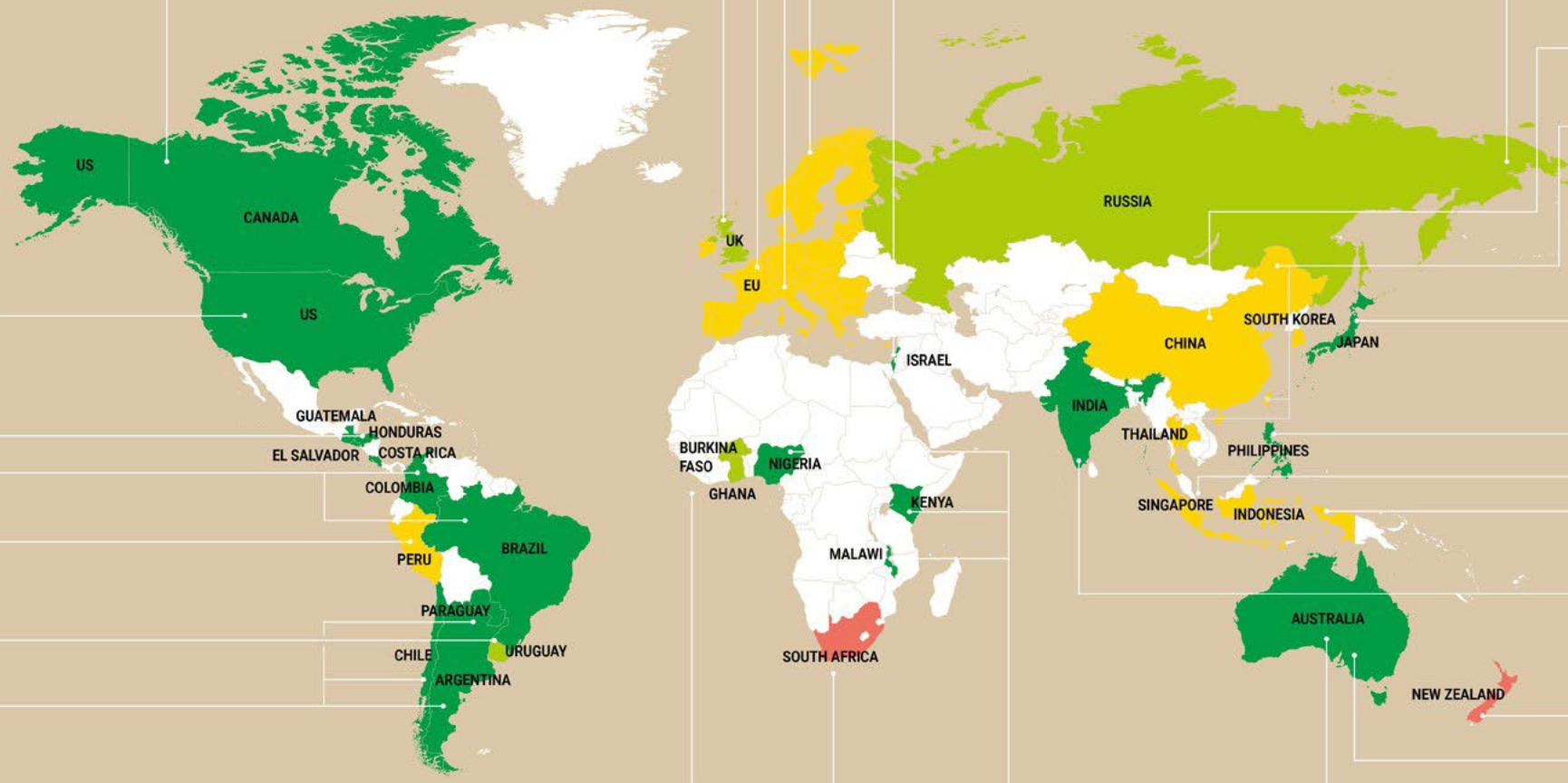
BURKINA FASO, GHANA
Draft guidance excluding certain gene edited PBI products

SOUTH AFRICA
Government notice that NBTs are covered by current GMO regulations

NIGERIA, MALAWI, KENYA
Excluding certain gene edited PBI products

AUSTRALIA - OGTR
Revised gene tech regulation excludes some gene editing applications

AUSTRALIA - NEW ZEALAND - FSANZ
Proposal for updated framework for food/feed expected.



PBI Contribution

Seed Choice for Farmers

- Create the opportunity to make informed seed choices
- Seed needs to be accessible to meet the needs of the farmers!





“A world where the **best quality seed** is accessible to all, supporting **sustainable agriculture** and **food security**.”

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

8 DECENT WORK AND ECONOMIC GROWTH

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

15 LIFE ON LAND

17 PARTNERSHIPS FOR THE GOALS



PLANT BREEDING INNOVATION: HOPES, DREAMS AND REALITY

Tuesday, 6 June 2023, 14:30-15:30, Meeting room 1.40, Level 1, CTICC



Hennie Groenewald
CEO, Biosafety
South Africa



Bernard Slippers
Director, Forestry &
Agricultural Biotech
Institute and Innovation
Africa, University of
Pretoria



Dan Jenkins
Vice President,
Regulatory &
Government Affairs
and Quality, Pairwise



**Stephanie
van der Walt**
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Produce Association
- South Africa



Samuel Timpo
Head of the AUDA-
NEPAD Biosafety
Program and the
African Biosafety
Network of Expertise



**Khaoula Belhaj-
Fraginière**
Regulatory Affairs
Manager, ISF

Stream it
live on  Channel
World Seed

Moderated by **Jean Paul Judson** (Nowmore)

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Seed is Life