Seed sector perspective on the Treaty's Multilateral System

Informal MLS meeting

Frascati, December 13-15, 2024

Questions we were asked

- How does industry use the MLS?
- What value does industry see in the MLS?
- What does the MLS allow industry to do that it otherwise might not?
- What services do they provide to the MLS? What services do they get from the MLS?
- How does the industry use DSI related to (or derived from) PGRFA in concert w/ physical material?

The process of plant breeding

Types of material used in commercial breeding

- Modern varieties } 90-95% improved PGR

- Genebank material
- Landraces
- Wild relatives

} 5-10% unimproved PGR

Hundreds to thousands of crosses/selections are necessary for a new variety development

What is the potential of PGRFA for commercial breeding?

- Improved breeding material (incl. own germplasm) – potential is clear, preferred for the most profitable crops where breeding with unimproved germplasm has adverse effects

- Unimproved breeding material – potential depends on several factors
  - How much information is available on the PGR
  - How easy/difficult it is to work with the PGR, can a breeder work around undesired genes/alleles
  - Can advanced breeding technology tools be applied
  - How can the PGR be accessed and used

- What does it mean for MLS material?
  - MLS material is unimproved – which has consequences for its potential commercial value
  - Potential value depends on crop – used more for certain crops than for others
  - The more well-characterized material made available, the more value

How does industry use the MLS?

Small ISF survey:

- 20 companies asked – 16 answered
  - How many SMTAs signed since 2006?
  - For which crops: maize/other; Annex I/non-Annex I?
  - For what purpose: in-kind services/R&D incl. commercial use/both?

Answers in brief:

- In total less than 1500 SMTAs for the 16 companies since 2006
- SMTAs signed: between 2 -240/company
- NB: number of SMTAs is not indicative of number of accessions

CROPS

- maize: between 2%-50%
- other Annex I: between 12%-100%
- non-Annex I: between 0%-100%

PURPOSES

- In-kind only: between 0%-57%
- R&D: between 70%-100%
- both: between 0%-30%

What does the MLS allow industry to do that it otherwise might not?

MLS is:

- a pool of plant genetic resources (and derived DSI?)
- a legal framework for facilitated access

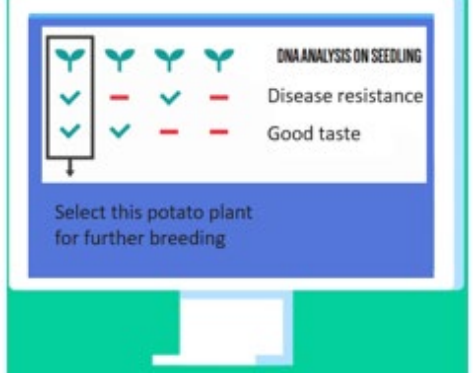
- In theory, the MLS simplifies the process for accessing Annex I PGRFA from the gene banks of all Contracting Parties to the Treaty
- the SMTA allows companies to access MLS material with minimal administrative burden (standard contract terms) avoiding negotiating bilateral agreements (multilateral nature of the system)

What services do we provide and what services we get from MLS?

Services provided (in-kind and free of charge)		Services received (depending on collection)
Provision of material to the MLS		Facilitated access to material
Regeneration/multiplication work for genebanks		Access to passport data & basic descriptors
Evaluation/characterization work for genebanks		Standard, predictable contractual terms
Funding and supporting collection missions		

How does industry use DSI in concert with physical material?

Screening



Characterization

Marker-assisted selection

Genome editing

Use of non-plant DSI for resistance breeding, identification of pathogens, developing testing kits etc.

These activities are also clearly reflected
In CGIAR policy brief.

Summary of Key Points

- Currently, the MLS is underutilized by industry.
  - Relatively few SMTA's have been signed by the "bigger" companies.
  - The most profitable crops (mostly field crops) primarily use improved PGR for breeding accessed outside the MLS.
  - Not all genetic diversity is "good" genetic diversity in commercial breeding.
  - The primary value of MLS material for major field crops is mostly in niche markets.
  - Currently, the MLS is used more for lesser commercial value crops, many of which are non-Annex 1.
- The MLS must be enhanced to function as intended.
- Members of industry provide invaluable support to gene banks and thus to the MLS.
- Currently, DSI has minimal profit potential absent the plant material.

Seed is Life