A close-up photograph of a bee on a yellow flower, likely a rapeseed flower, with a soft-focus background. The bee is positioned on the left side of the frame, facing right towards the flower.

Plant breeders are directly or indirectly involved in the conservation and management of plant genetic resources.



Funded by  
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# Breeder's perspective on ensuring the sustainable use of PGRs

Dr. Nick Vangheluwe (Euroseeds)

Workshop on the evaluation and valorisation of PGRs

28 June 2024 - Brussels





**Sustainable use of PGRs is of crucial importance for the plant breeding sector and society**





# Euroseeds is the voice of the European seed sector



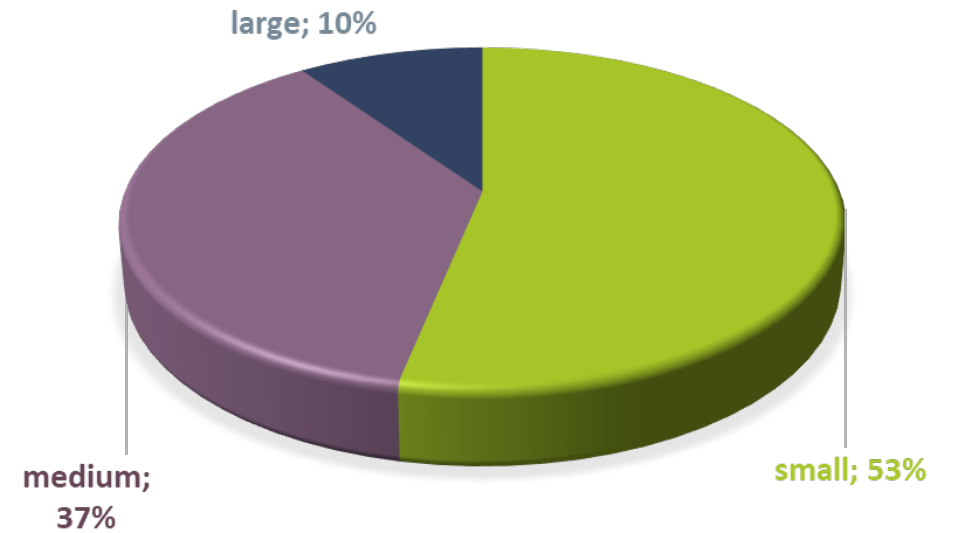
**35** National member associations from EU Member States and beyond, which in turn represent many thousand seed businesses across Europe.

**79** Direct company members from family businesses to multi-nationals, including seed related industries.



Euroseeds has members also in other parts of the world: e.g. **Morocco, South Africa, USA, Canada...**

DIVERSITY OF COMPANIES ACTIVE IN PLANT BREEDING IN EUROPE



# Plant breeding is a reiterative process of recombining plant genetics into new varieties with desirable traits



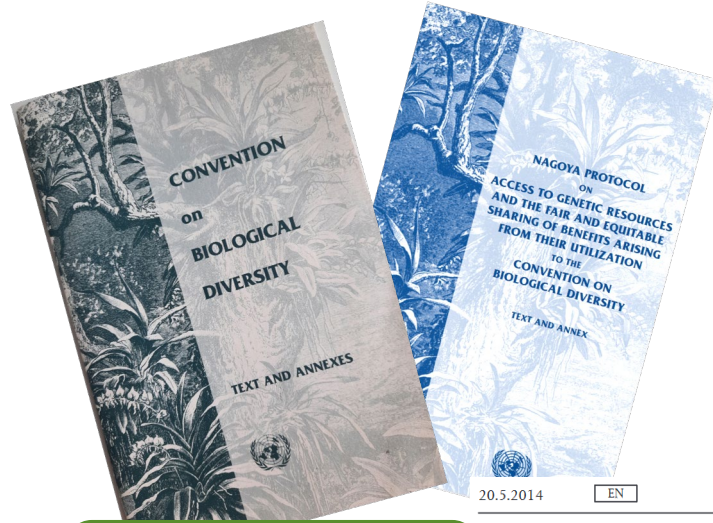


A hand is holding a clear glass vial filled with dried, brownish plant material, likely seeds or small grains. The vial has a handwritten label on top that reads "Burch ... Back", "From: Tulluym. Llanmorran", and "6 hrs @". The background is blurred, showing a person's arm and a white surface.

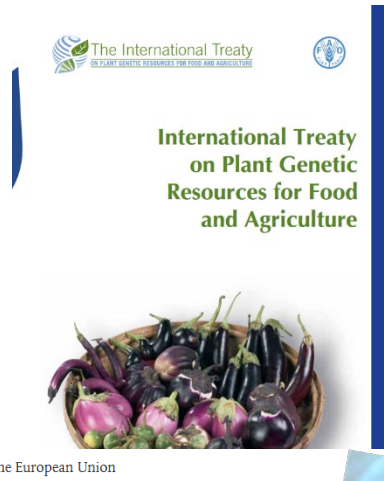
# Consequences of ABS legislation on the access and use of PGRs in plant breeding



# Plant breeders need to comply with multiple ABS legal frameworks:



National ABS laws



Multiple legal frameworks  
High complexity  
New obligations to comply with

20.5.2014 EN Official Journal of the European Union

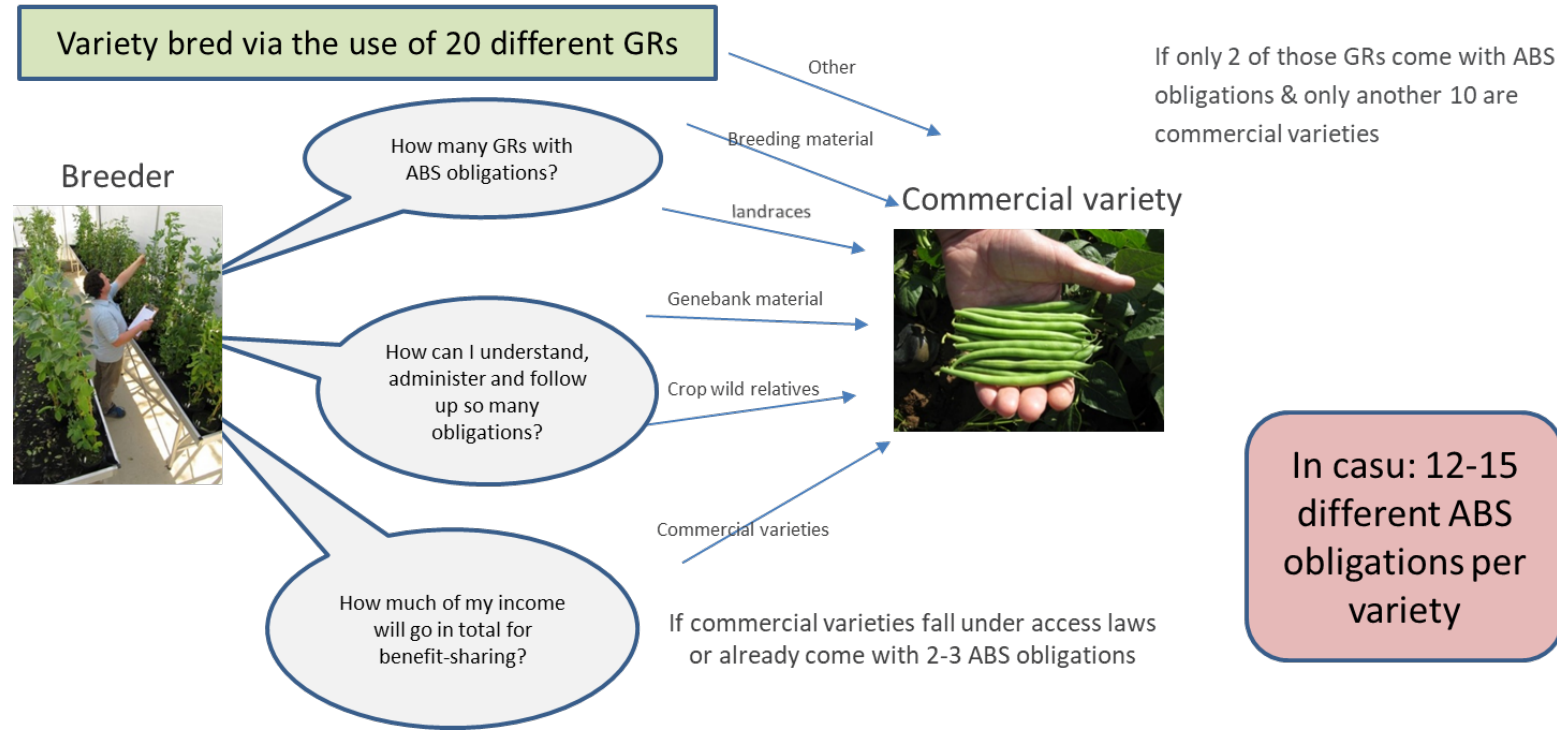
REGULATION (EU) No 511/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union (Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) of that Treaty,

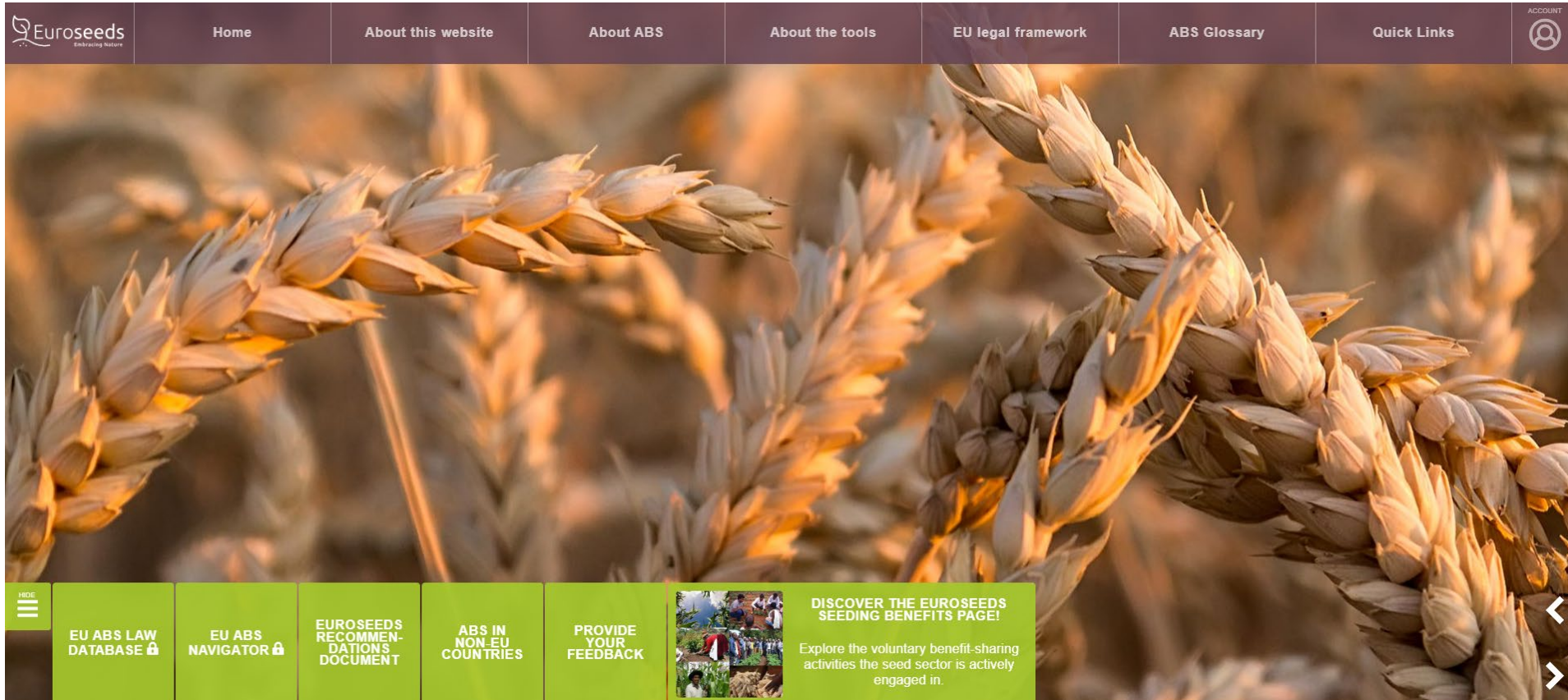


# Breeding activities with non-commercial PGRs complicates developing commercial varieties:





# Recommendations and tools from the industry help breeders to deal with ABS challenges:



# Pre-competitive research on PGRs for sustainable use



# Why are plant breeders interested in non-commercial PGRs?

New PGRs are needed because **new traits are desired**:

- by consumers (taste, convenience etc.)
- by the processing industry (shelf life, commodity market, new processing techniques etc.)
- by the farming community (productivity, different agricultural practices, reducing the needs for external inputs, value chain needs etc.)

# What are the reasons to join forces in a pre-competitive research collaboration?

Breeders need to **access germplasm** to introduce new traits:

- Traits with a complex genetic background
- Traits that are difficult to measure
- Traits that are rare
- Traits that are urgently needed (e.g. CGMMV resistance in cucumber, Bremia-resistance in lettuce)



# What are the reasons to join forces in a pre-competitive research collaboration?

What are the **advantages of public-private partnerships?**

- Bigger PGR collections can be screened
- More reliable results by duplicate tests
- Cost sharing for complex and expensive research

# What are the reasons to join forces in a pre-competitive research collaboration?

What are the **expected outcomes**?

- Improved chances of finding a new trait that could be introduced
- Improved innovation transfer to market, for the benefit of society





# Examples of pre-competitive research for sustainable use



# Pre-competitive research in the Netherlands coordinated by the Dutch seed association:

## Plantum:

- Contracts
- Administration

*Plantum*

## CGN:

- Supply of accessions (cultivated and wild)
- Definition of test protocols
- Collection and sharing of evaluation data

## Seed companies:

- Input to define the most important targets
- Input of technical knowledge to define the test protocols
- Execution of the tests



Centre for Genetic Resources, the Netherlands (CGN)



[wur.eu/cgn](http://wur.eu/cgn)



# European evaluation networks (EVA) coordinated by ECPGR harnessing European crop diversity

## PRIVATE PUBLIC PARTNERSHIPS

Increasing ECPGR knowledge and opportunities on Private Public Partnerships for the use of Plant Genetic Resources for Food and Agriculture



Crop-specific public-private partnerships

Joint phenotyping and genotyping

Evaluations in different European environments

Identification of climate-resilient breeding material

Enriched genebank inventories

# EVA

European Evaluation Network

ECPGR – European evaluation networks

#GrowingTheFuture



# Key takeaways for future collaboration/PPPs

# Breeders need to make a cost-benefit analysis based on market conditions and regulations:



# Public-private partnerships (P3s) are a win-win

- Public sector investments in agricultural R&D are declining.
- Recent increases in ag R&D are due to private sector investments.
- P3s equitably share the costs and risks of innovation.
- P3s offer food security solutions in the face of changing climates.

[Smyth et al., 2021](#)

[Vangheluwe et al., 2023](#)



# THANK YOU

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Euroseeds perspective on PGRs:

<https://euroseeds.eu/subjects/genetic-resources/>

