

**Technical Working Party for Agricultural Crops****TWA/51/4****Fifty-First Session  
Cambridge, United Kingdom, May 23 to 27, 2022****Original:** English  
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**PRESENTATION ON THE USE OF MOLECULAR TECHNIQUES IN DUS EXAMINATION***Document prepared by an expert from Argentina**Disclaimer: this document does not represent UPOV policies or guidance*

The annex to this document contains a copy of a presentation “Use of molecular techniques in DUS examination: Report from Argentina”, to be made by an expert from Argentina, at the fifty-first session of the TWA.

[Annex follows]

# Use of molecular techniques in DUS examination: Report from Argentina

51<sup>st</sup> sesión of TWA  
Cambridge, United Kingdom  
May 23<sup>rd</sup> to 27<sup>th</sup>, 2022

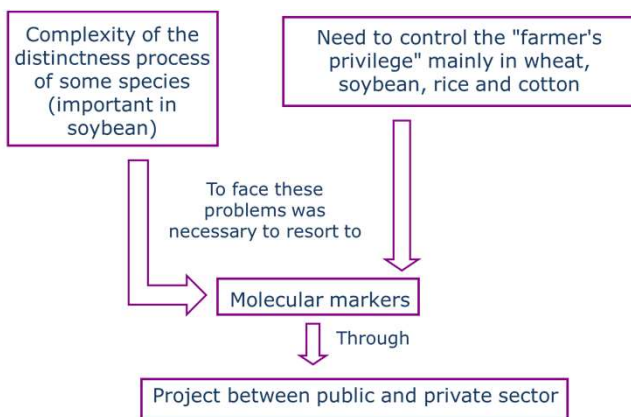
*This work was prepared by experts from Argentina*

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# Soybean *Glycine max* (L.) Merr

## Previous Work

**BMT/18/17** (Document "Use of molecular markers in Argentina", presented at the 18<sup>th</sup> session of the BMT in Hangzhou, China).



BMT/18/17

## Previous Work in soybean

**BMT/18/17**

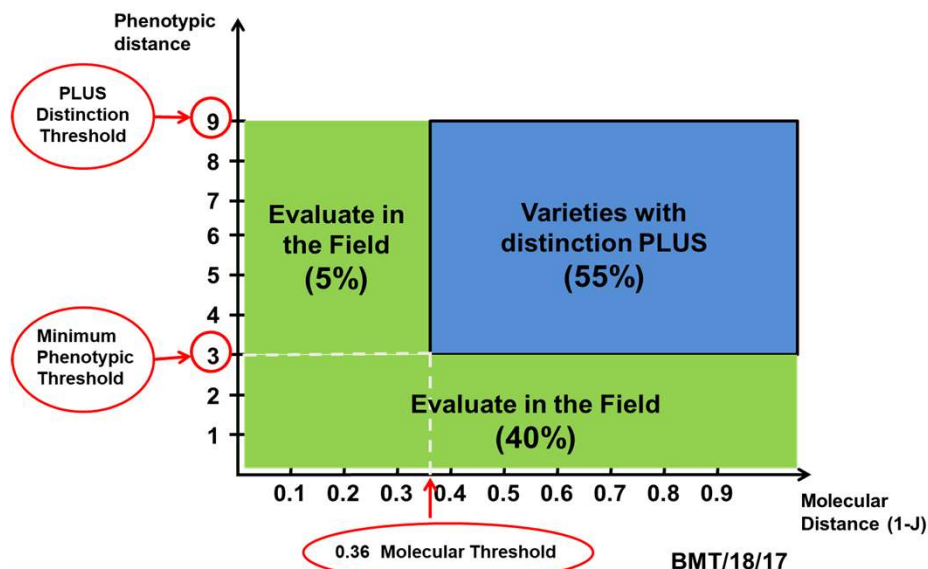
*"Combining phenotypic and molecular distance in the management of variety collections (UPOV Model 2) in soybean".*

## Previous Work in soybean

### BMT/18/17

- Selection of **4004 SNPs** markers from SoySNP6K chip:
  - These markers were distributed in the genome, represents the genetic background and produce efficient discrimination power.
  - This set is **public (RESOL-2019-296-APN-INASE#MAGYP)**, and it is available for UPOV members.
- Determination of the molecular distance threshold and the minimum phenotypical distance threshold, based on 3 years field trials (necessary for UPOV model 2).

## Previous Work in soybean



## **News in soybean**

*Validation of the minimum phenotypic distance threshold and the molecular distance threshold.*

- 160 variety pairs (in registration process) were evaluated at field and classified in two groups:
  - Group 1: variety pairs for which phenotypic differentiation was very difficult therefore, their field evaluation was necessary.
  - Group 2: variety pairs for which phenotypic differentiation was very easy therefore, their field evaluation was not necessary.

## **News in soybean**

*Validation of the minimum phenotypic distance threshold and the molecular distance threshold.*

- 96% of the variety pairs of group 1, and 97% of the variety pairs of group 2 had genotypic distances above 0.36.
- 0.36 was maintained as a molecular distance threshold.

## **Previous Work in soybean**

### **BMT/18/17**

- Guarantee the traceability of varieties identity (PBR enforcement).
  - Selection of 56 SNPs markers that generates a unique DNA profile for each variety.
  - Those markers are the most polymorphic selected on the criteria that, for a given variety pair, the difference is at least 3 SNPs.

## **News in soybean**

- In order to validate the set of 56 SNPs, we take samples of:
  - Original seed (from breeders).
  - Seed of first multiplication (from breeders).
  - Farmers.
- The samples are being analyzed at the laboratory.
- With these results we expect to define the definitive set for guarantee the traceability of varieties identity, and to determine identity threshold.

# Management of the molecular data

## **Molecular data platform**

- It was developed by INASE Argentina.
- The platform allows to:
  - Generate a molecular database of the varieties by species.
  - Calculate molecular distances between variety pairs (necessary for GAIA).

# Confidentiality of molecular information

## **Confidentiality of molecular information**

Article 2 of Resolution 222/95 declares confidential all declared information that is not contemplated in the requirements listed in article 18 of Decree No. 2183/91, once its registration has been made.



## **Confidentiality of molecular information**

Molecular information is not part of the requirements listed in article 18 of Decree No. 2183/91, therefore it is confidential.

## **Confidentiality of molecular information**

In addition to a confidentiality agreement, was signed between the members of the public-private working groups.

**Thanks for your attention!!!**

[End of Annex and of document]