

Noile tehnici genomice în ameliorarea plantelor

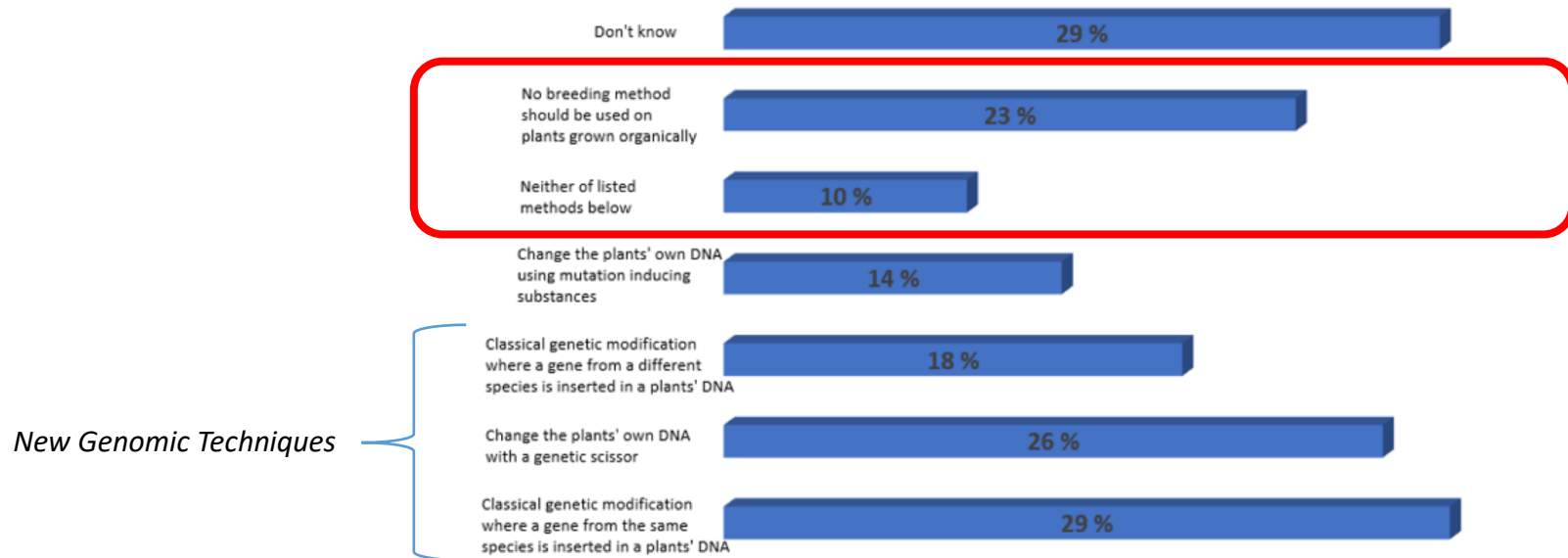
Dr. Iulian GABUR

gaburi@uaiasi.ro

iulian.gabur@agrar.uni-giessen.de

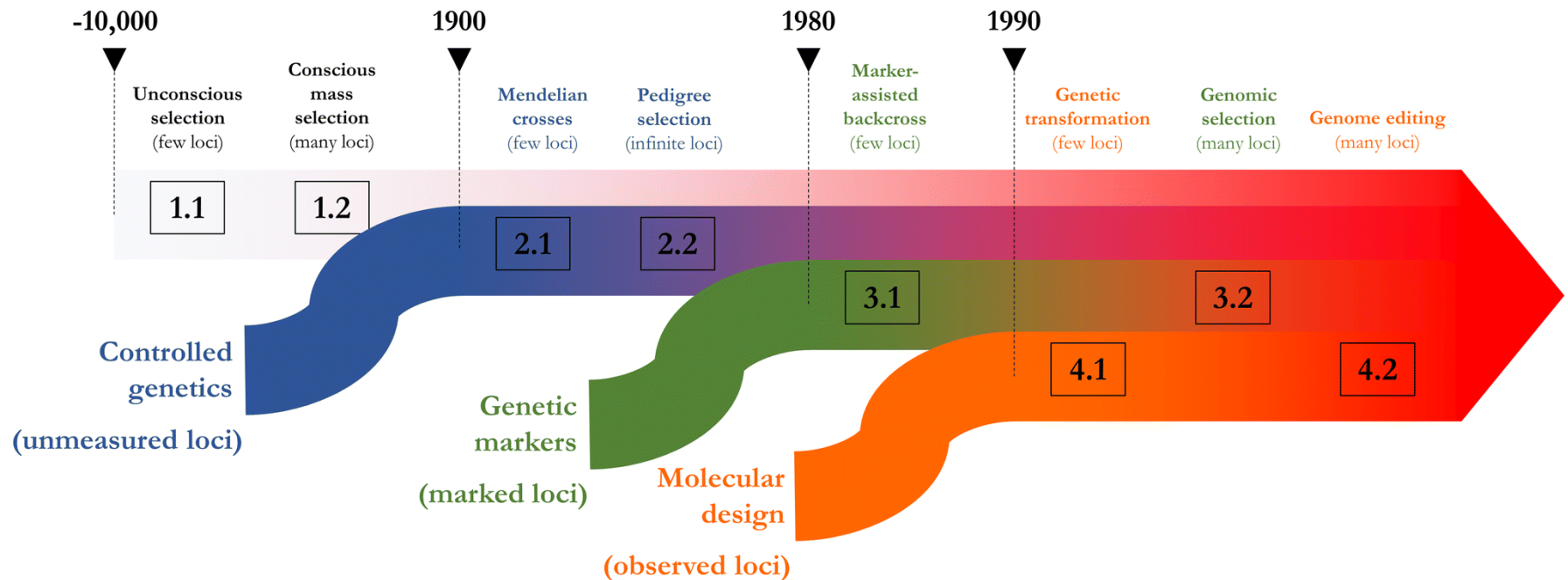
Utilizarea NGTs în ameliorarea plantelor

What/which of the following breeding methods do you think can be used on plants that is grown organic?"



N=1025

Ameliorarea plantelor 4.0



Ramstein, G.P., Jensen, S.E. & Buckler, E.S. Breaking the curse of dimensionality to identify causal variants in Breeding 4. *Theor Appl Genet* **132**, 559–567 (2019). <https://doi.org/10.1007/s00122-018-3267-3>

Obținerea unor noi cultivare prin tehnici convenționale de ameliorare a plantelor



Wheat, rapeseed:
8-10 years

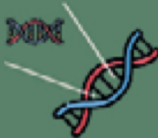


Potato, faba bean:
14-15 years



Grapevine, apple:
20-25 years

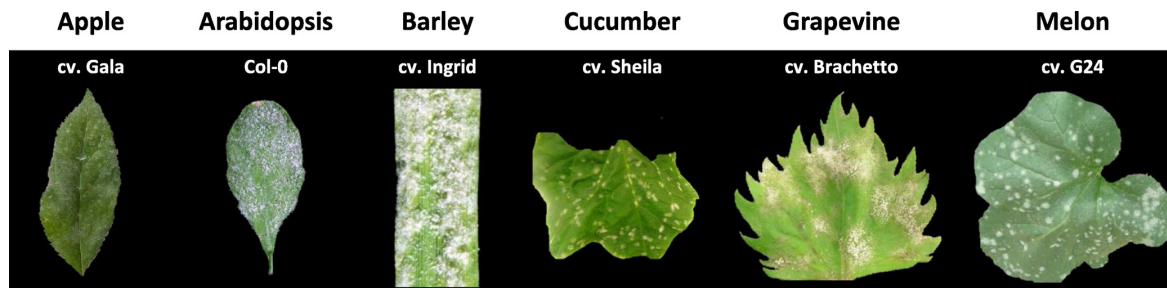


<i>How breeding modifies plant genes</i>				
Traditional Breeding	Classical Mutagenesis	Transgenic	Targeted mutagenesis	Cisgenesis
Crossing plants and selecting offsprings  Desired gene(s) inserted with other genetic material Almost all crops	Exposing seeds to chemicals or radiation  Random changes in genome 	Inserting selected gene(s) from plants, microorganisms, other...  Desired gene(s) inserted 	Making small changes in genomes  Desired gene(s) modified only at known locations 	Inserting selected gene(s) from the same or a compatible plant species  Desired gene(s) inserted 
Number of genes affected: few genes to whole genomes	Number of genes affected: 100s - 1,000s	Number of genes affected: 1 or more, as specifically designed	Number of genes affected: 1 or more, as specifically designed	Number of genes affected: 1 or more, as specifically designed
Conventional product	Exempted GMO product	GMO product	NGT product	NGT product

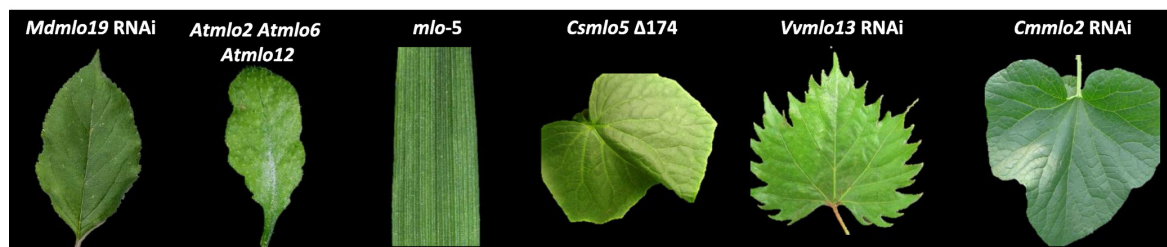
Adapted from the Gene Literacy Project

Toleranță la *Blumeria graminis* (Făinarea) este controlată de *mlo*

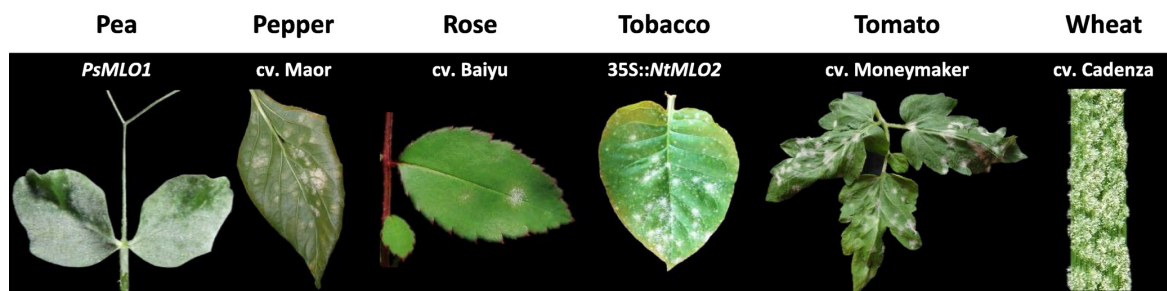
Susceptibil



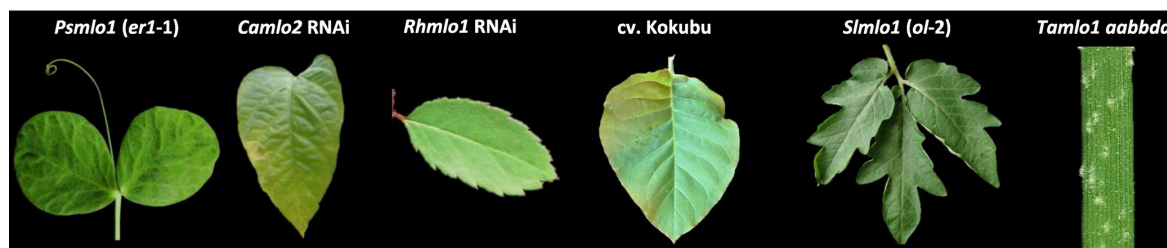
Rezistent (*mlo*)



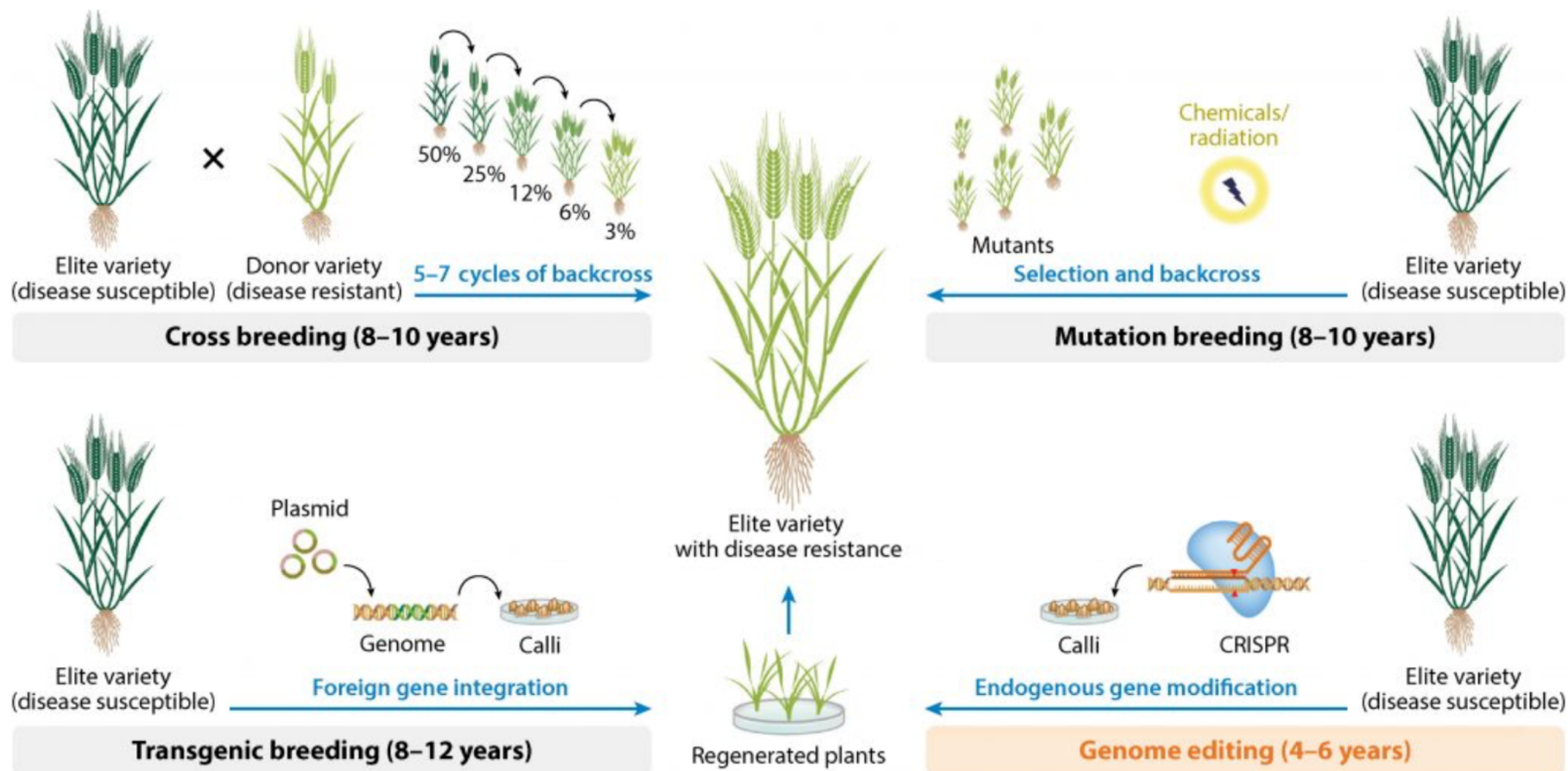
Susceptibil



Rezistent (*mlo*)



Transferul *mlo* în cultivar elită folosind diferite tehnici de ameliorare



Vă mulțumesc pentru atenție!
Thank you!

gaburi@uaiasi.ro
iulian.gabur@agrار.uni-giessen.de

