



POLICY BRIEF: RESILIENT FOOD SYSTEMS BUILT ON BIODIVERSITY USE

The Activated Genebank Network (AGENT) project (www.agent-project.eu) brought together 18 partners including 13 major European genebanks, with the aim to unlock the full potential of the biological material stored in genebanks by using FAIR international data standards and an open digital infrastructure for the management of plant genetic resources. We have worked together over five years and developed tools and methodologies to “activate” the biodiversity stored inside genebanks to be more effectively exploitable by breeders and farmers.

KEY LEARNINGS

- Genebanks are treasure troves of useful biodiversity that can help protect our food systems from biological attacks and climatic shocks.
- Breeders and farmers are seeking opportunities to exploit this diversity, but a gap exists that prevents them from effectively capitalizing on this biodiversity resource.
- The AGENT project was able to “activate” this biodiversity via the recovery of large sets of historical phenotypic data, the use of multi-sites multi-actors evaluation, precise data flow methods (FAIR principles), and the application of artificial intelligence on the latest genomic approaches.
- The methods and approaches developed are now ready for full scaling across all 400+ European institutions conserving more than 2 million accessions of crops and their wild relatives.

POLICY RECOMMENDATIONS

Facing the challenges for European agriculture brought on by climate change and genetic erosion, significant political and financial investments are needed to ensure long-term conservation and sustainable use of plant genetic resources diversity in Europe:

- **Store all biodiversity data:** 40 million Euros should be allocated to transfer all existing historical and legacy phenotypic data on European plant genetic resources into one centralized and accessible digital repository.
- **Genotype all biodiversity:** 60 million Euros should be allocated to genotype all European genebank accessions to unlock all downstream applications.
- **Activate all biodiversity:** 20 million Euros should be allocated to apply analysis tools developed by AGENT to the entirety of the European conserved biodiversity and make it available to farmers and breeders for exploitation.

We firmly believe that activating the biodiversity conserved inside European genebanks is the **ONLY** sustainable solution to adapt our food systems to present and future climatic shocks.

PARTNERS



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