

Genesys Strategy 2023-2025

For public release

The Genesys Advisory Committee in their meeting in Bonn in October 2022 discussed the strategy for further development of Genesys. Genesys is a broker of information between genebanks providing data on one side, and the users of data and material in genebanks on the other (i.e. breeders, researchers and others). While both sides are important, they have different, sometimes conflicting requirements and expectations of the platform. Considering that Genesys cannot exist without the steady flow of data from genebanks, the overarching goal for Genesys must be to meet the needs of partner genebanks, while developing and improving the utility and usability of the website.

This document provides guidance to the Genesys Team at the Crop Trust for the prioritization of activities in the coming three years, building upon the existing solid base.

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List of acronyms and abbreviations

BrAPI	Breeding API (application programming interface) project
CAPGERNET	Caribbean Plant Genetic Resources Network
CG(IAR)	Consultative Group (on International Agricultural Research)
EURISCO	European Search Catalogue for Plant Genetic Resources
GAC	Genesys Advisory Committee
GLIS	Global Information System for PGRFA
MIAPPE	Minimum Information About Plant Phenotyping Experiments
PDCI	Passport data completeness index
PGR(FA)	Plant Genetic Resources (for Food and Agriculture)
SADC	Southern African Development Community
WIEWS	FAO's World Information and Early-Warning System on Plant Genetic Resources
SWOT	Strengths-Weaknesses-Opportunities and Threats analysis

Summary

The Genesys Advisory Committee in their meeting on 24-25 October 2022 discussed and conceptualized an updated strategy for Genesys development. The concept is based on a mapping of the characteristics of the existing partnerships of Genesys, possible entry points for attracting new partners, and on a SWOT analysis that explored internal strengths and weaknesses of, and external threats and opportunities to, the platform.

The Committee sees Genesys as the broker of information between partner genebanks supplying data on one side, and the users of data and material in genebanks on the other (i.e. breeders, researchers and others). Both sides are important for Genesys, and they have different, sometimes conflicting requirements and expectations to the platform. Genesys hence needs to anticipate the needs of these two groups by addressing first the acquisition of more relevant data from existing and new genebank partners, as well as improving the website to provide the information and tools that the users expect. Considering that Genesys cannot exist without the steady flow of data from genebanks, the primary goal for Genesys must be to meet the needs of partner genebanks.

This document provides guidance to the Genesys Team at the Crop Trust for the activities in the coming three years, building upon the existing solid base provided by Genesys to date.

Key activities for the Genesys Team at the Crop Trust in the medium term should include:

(1) The **sourcing of more data** from existing genebank partners and encouraging, via various paths, new genebanks to contribute accession data. A key element here is improving the understanding amongst genebank curators of the usefulness of Genesys to their day-to-day activities. While the efforts of the Genesys Team in communication were highly praised by the GAC, the Team was requested to **provide training**, both in person during workshops and via case studies ("use cases"), **and further develop communication materials** and other information on the website. It was recognized that there are important bottlenecks in the engagement of some genebanks, due to a variety of reasons, which may



include political will, personnel and financial capacity shortages. These factors are outside the possibilities of Genesys staff to change. In this respect, **recruiting external consultants** to assist genebanks in developing concept notes to donors that help to strengthen their capacities for improved data flows to Genesys was seen as a promising way forward. Where appropriate, Crop Trust management and Genesys Advisory Committee members should also be encouraged to play facilitating roles in the engagement of new national and regional genebanks in Genesys.

(2) Including **new elements for the presentation and analysis of data** in the website user interface, along the lines of the 3D visualization of the genetic diversity of the cassava and wheat collections of the CGIAR. Already a very useful set of climatic and soil indicators has been added to the website user interface, allowing users to explore and identify the georeferenced accessions that match criteria of interest. This should be continued and updated with **new functions** upon interaction with potential users to address their needs, including providing information about possible collection duplicates. A user survey to this effect should be carried out in the short term. Additionally, translating the website into additional languages should be moved forward.

(3) Strengthening the **connection with the breeder community** (e.g. via CGIAR and USDA breeding programs and initiatives, and other PGR networks and societies) in order to understand their needs better, and also addressing the needs of specific user groups, such as researchers that may be interested in genebank data, but not in access to the plant material itself.

It is now upon the Genesys Team, together with the Genesys Advisory Committee, to implement the Strategy.

Towards a Genesys 2023-2025 strategy

To conceptualize the Genesys strategy for the next three years, it is useful to think of Genesys as the interface between genebanks on one side and the users of genebanks on the other (breeders, scientists, and others with interest in genebanks; it was acknowledged that this is a rather diverse group with diverse needs) (Figure 1).

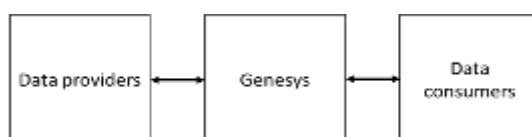


Figure 1: A simple concept for Genesys interaction with its partners

Both data providers and data consumers are external partners who need to “be happy” with Genesys for it to fulfill its mission, but it is the partner genebanks that deserve priority attention, because they provide the data without which Genesys is just a website. This concept allows us to focus better on Genesys goals, related activities, indicators of achievement and needed resources for the three elements. We agreed that farmers are unlikely to be among the priority users of Genesys considering that genebanks primarily distribute small amounts of material for research and breeding purposes only.

The framework for further development of Genesys that resulted from the discussions is presented below.



Data providers (genebanks, genebank curators, data managers):

Goal: Increased data availability	
Activities	- Source more high-quality data from genebanks (focus on national genebanks with whom Crop Trust has projects and a few others), increase coverage of existing data (e.g. USDA) - Relay to genebanks the user feedback about the types of data they seek - Attract new genebanks: embracing regional networks (e.g. SADC, CAPGERNET) by capacity building/training (opportunities exist through upcoming workshops etc.) - Increase data completeness and quality by direct communication with genebank curators (e.g. PDCI)
Indicators of achievement	- Number of existing partners who advocate for Genesys - Number of workshops and events carried out/where Genesys was presented - Number of partners/genebanks sharing data - Number of accessions - Number of trait observations - Percentage of WIEWS genebanks that participate in Genesys - Number of genebanks with data updated per year
Resources	- Genesys team and GAC (all members) - Other Crop Trust staff - Existing partners (e.g. CGIAR genebanks) - Consultants to draw up concept notes to strengthen data flows from genebanks to Genesys - 3rd Report on State of the World of PGRFA (upcoming 2023) - Sufficient funds

Genesys:

Goal: Make data from partner genebanks visible and accessible to users, with appropriate recognition, through a versatile and intuitive Genesys website	
Activities	- Improve presentation and analysis of data on Genesys website (e.g. work with genebanks on 3D visualization) - Provide information about duplicates - Consider including information on health status of accessions, understanding that it requires expansion of data exchange standards - Translate interface into other languages - Engage with communities that set standards (MIAPPE, BrAPI, MCPD) to represent the interests of the genebank community and Genesys
Indicators of achievement	- Number of new data visualizations available - Number of languages supported - Number of new functionalities provided
Resources	- Genesys team and Advisory Committee - Sufficient funds



Data users (breeders, scientists and others who access data):

Goal: More researchers and breeders use Genesys	
Activities	- Establish a connection with the breeder community and research institutions - Invite curators and breeders (and other users) to participate in certain GAC meetings - Focus on user groups that are interested in just genebank data rather than germplasm - Engage partners in development of functionality - Document and collate use cases - Promote Genesys in multiple forums
Indicators of achievement	- Number of workshops and events carried out/where Genesys was presented - Number of registered users/requests
Resources	- Genesys team and Advisory Committee - Existing partners - Sufficient funds

The group agreed that the structure and content arrived at appeared to be a workable basis to develop the strategy further and fill it with “life”. It gives the Genesys team a framework within which to develop more specific workplans for the coming years, including further or more detailed activities/outputs and corresponding budgets and medium-term outcomes. The Genesys team and GAC will discuss and refine the Strategy at upcoming GAC meetings.

– END.