

LEIBNIZ-INSTITUT FÜR
PFLANZENGENETIK UND
KULTURPFLANZENFORSCHUNG



IPK LEIBNIZ INSTITUTE DATA PUBLICATIONS

2024/2025

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IPK Leibniz Institute Data Publications 2024 & 2025

Research data as a shared foundation for scientific progress

Research data are the foundation of scientific knowledge and a valuable output in their own right. This documentation of IPK data publications accompanies the Research Report for 2024 and 2025, continuing the compendium introduced for 2022 and 2023. It highlights the contribution of published data to research quality, reproducibility and collaboration within the institute and across the global research community.

Data publications can take many forms. They include genome sequences, phenotypic measurements, microscopy images, field trial observations and curated historical records. Published in repositories with persistent identifiers, they provide citable resources, either alongside research articles or as independent contributions. Their scientific value depends on careful curation, reliable documentation and clear conditions for reuse. The **FAIR principles** - Findable, Accessible, Interoperable and Reusable - guide this work, enabling people and computational systems to discover, interpret and combine data. FAIR does not necessarily mean unrestricted

access. Responsible sharing must also respect applicable rights and ethical requirements.

Publishing well-documented data strengthens scientific scrutiny and enables new analyses beyond the original research question. It can reveal analytical errors, support comparisons across experiments and reduce unnecessary duplication. For IPK, preserving reusable data safeguards institutional knowledge and increases the reach of its research. Globally, it enables researchers to build on existing work and participate in collaborations. Investing in curation and sustainable repositories therefore supports responsible use of research funding. The benefits of costly experiments can extend beyond individual projects. These aims reflect **UNESCO's Recommendation** on Open Science.

Recent international developments also underline the importance of equitable benefit-sharing. The Convention on Biological Diversity's 2024 **decision** on digital sequence information (DSI), followed by the launch

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of the **Cali Fund** in 2025, recognises non-monetary benefits alongside financial contributions. Data sharing can contribute to these benefits when accompanied by knowledge exchange, training and scientific cooperation responsive to partners' needs. Meaningful participation requires both access to data and the capacity to use them, with respect for the rights and interests of Indigenous peoples and local communities.

The rapid development of artificial intelligence adds further value to curated scientific data. Well-characterised datasets support model training and independent evaluation, while documented sources allow AI-assisted analyses and information retrieval to be

checked against scientific evidence. Data quality, provenance and representativeness remain essential. FAIR data alone cannot guarantee reliable models. Transparent methods and expert assessment are therefore central to responsible AI use in research. The **European Commission guidelines** help researchers, research organisations and funders use generative AI responsibly, transparently and in line with research integrity.

This compendium recognises data publication as a lasting scientific contribution, supporting more reliable research, an efficient use of resources and wider opportunities for discovery.



Haupt M, Tikhenko N, Mascher M (2024) Major chromosome rearrangements in intergeneric wheat x rye hybrids in compatible and incompatible crosses detected by GBS read coverage analysis. *e!DAL - Plant Genomics and Phenomics Research Data Repository (PGP), IPK Gatersleben* <https://dx.doi.org/10.5447/IPK/2024/4>

Heuermann MC, Meyer RC, Knoch D, Tschiersch H, Altmann T (2024) High-throughput phenotyping of an Arabidopsis thaliana accession panel exposed to fluctuating light treatment EXP1. *e!DAL - Plant Genomics and Phenomics Research Data Repository (PGP), IPK Gatersleben* <https://dx.doi.org/10.5447/IPK/2024/1>

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