



A Data-Driven Decision Support Platform for Protein Crops Variety Selection

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Problem Statement

The growing demand for plant-based proteins across Europe presents a critical challenge in selecting protein crop varieties suited to diverse climates, farming systems, and market requirements. While crop production systems are evolving, the integration of agronomic performance with nutritional quality remains underexplored, leading to the risk of suboptimal crop and variety selection in rotations. The lack of decision support platforms to guide farmers in making evidence-based decisions hinders the potential for improving protein crop production efficiency, climate-resilient crop rotations, and regional plant-based protein self-sufficiency.

Solution

This varietal selection platform aims to assist farmers' awareness of the diversity in both agronomic performance and nutritional profiling of protein crop varieties based on their climate and specific regional requirements. This platform combines agronomic performance data with nutritional composition, allowing for a more adaptive selection of crops for varying end-use needs. By integrating multi-country trial data on yield, protein content, and climatic conditions, the platform lists the performance of crop varieties for different regions and hence potential markets.

Benefits

- **Smarter crop choices:** The platform helps make evidence-based decisions, allowing farmers to select crops based on multiple criteria rather than yield alone, thereby providing a more holistic perspective on what can be achieved to meet market needs.
- **Better regional performance:** The platform's adaptability ensures that the most suitable varieties for each region studied are selected.

- **Science meets sustainability:** The platform combines scientific research with practical farming decisions, such as selecting varieties better adapted to local environments, supporting resilient crop rotations, and improving regional plant-based protein production.
 - **Support for climate-adapted production: For crop species with relevant multi-environment data, the platform may assist in identifying varieties better adapted to specific climatic conditions.**
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Practical recommendations

- **Tailored varietal selection:** Farmers should review the information to support their decision on variety selection based on their region's specific climate conditions and production goals.
 - **Diversify crop production:** The platform may support farmers in comparing varieties across different regional conditions based on available agronomic and nutritional datasets.
 - By selecting varieties well-suited to local conditions, farmers can diversify their protein crop production and mitigate risks posed by climate variability.
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Environmental Impact

The varietal selection platform supports evidence-based variety selection by integrating agronomic and nutritional datasets across multiple environments. The database enables comparison of crop performance under different regional conditions and supports more informed decision-making for protein crop production systems.

Weblinks (FSH will incorporate the links once the Practice Abstracts are posted online)

<https://valpropath.eu/>

About this practice abstract and VALPRO Path

These practice abstracts were elaborated in the VALPRO Path project based on the EIP AGRI abstract format. VALPRO Path, a Horizon Europe project spanning 4 years, from September 2022 until August 2026. With the participation of 22 partners from 9 countries, VALPRO Path is developing fresh possibilities, validating and showcasing ways to enhance plant protein production for food and feed in the EU.



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Project website: <https://valpropath.eu/>