



Assessing the nutritional and technological quality of legumes

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OVERVIEW

Work Package 4 (WP4) aims to generate a comprehensive characterisation of **INCREASE's Intelligent Collections**.

A wide range of the most advanced genotyping and phenotyping approaches will be used along with classical and high through-put phenotyping.

Task 4.4 specifically, is under the leadership of the **UCP** team, this was entitled as *“Nutritional and technological quality”*.

We will focus on the assessment of the nutritional quality of plants grown under different environmental scenarios, and generate evidence for protein, amino-acid, starch, and mineral quality in seeds of the H-CORE collection and in the domesticated subset of the H-CORE from MLFTs. Several analyses such as 20 mineral elements, moisture, nitrogen, crude fibre and amino-acid content will be performed.

This screening will provide data to integrate along with other WPs for ultimate incorporation into breeding programmes to enhance adoption of nutritionally rich crops.

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INITIAL PHASE

50 grams of each harvested bean replicate were collected, packaged and identified.

Seeds were harvested at the fields of:

- University of Basilicata, Italy
- Plant Breeding and Acclimatization Institute, Poland
- Regional Service for Agrofood Research and Development, Spain

During the months of **May-July 2022**, seeds were delivered at the laboratories of Universidade Católica Portuguesa, Portugal.



2



CURRENT PHASE

Samples were classified and a total of **2,502** samples of seeds are being pulverized in order to be analysed.

Simultaneous analyses using infrared technology (e.g. **GrainSense**) were developed in order to quickly identify seed traits such as protein, moisture, carbohydrates and fat content.

Once the supernatant of pulverized samples is obtained at the laboratory, the processing time of each sample is considerably reduced.



3



FUTURE PHASE

Analysis to be performed include:

- Mineral
 - Moisture
 - Nitrogen
 - Crude fibre
 - Amino acid
 - Flavonoids
 - Anthocyanins
 - Tocopherol
 - Phytosterol contents
- Along with the determination of seed's technological traits

Result dissemination will integrate data relating the nutritional quality of legumes with different growing conditions and location in the European continent.

