

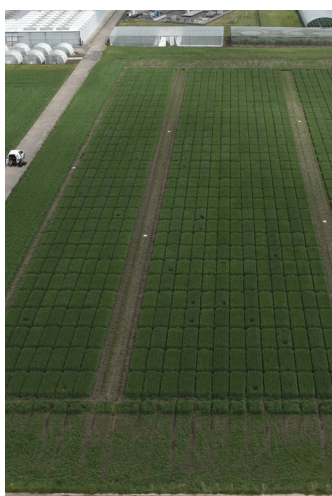
# Genetic Diversity in Barley Photosynthesis and Radiation Use Efficiency

## Background & aim

Increased photosynthetic efficiency represents a promising frontier for achieving substantial improvements in crop yield and agricultural sustainability. However, the underlying mechanisms that link photosynthesis to yield remain unclear. A better understanding of this link has large implications in crop production, management and breeding.

Grain yield is the result of the seasonal integration of light interception, the efficiency of the plant to convert light energy into biomass, and carbon allocation to grain, however, these processes are rarely studied together in the context of genetic variability. Within this project we seek to characterize how the genetic variability in radiation use efficiency and grain yield affect photosynthesis during the season.

The aim of this project is to characterize the relationship between photosynthesis and radiation use efficiency across a wide range of Barley genotypes. Within the project, you have the opportunity to expand on the physiological link between photosynthesis and RUE, the interactions with development, and/or **genetic variability** across genotypes depending on their own interests.



**Institute:** Jan Ingenhousz Institute

**Theme:** Crop Photosynthesis

**Type of experiment:** Field research

**Location:** Wageningen

**Period:** Spring/Summer

## Tasks

You will conduct field research, lab work, and gain hands-on experience on several techniques used to quantify photosynthesis and other physiological measurements. In collaboration across different groups within the JII, you will be involved in different field experiments to quantify:

- Photosynthesis and development
- Light interception and Biomass sampling
- Radiation Use Efficiency

## Jan IngenHousz Institute

The Jan IngenHousz Institute (JII) is an open science research institute dedicated to improving photosynthesis to enhance global crop productivity, sustainability, and climate resilience. JII brings together expertise in engineering, data science, plant biology, biophysics, genetics, and breeding. We develop innovative sensors, research methods, and data analysis platforms that enable collection and interpretation of real-time field measurements of photosynthesis.

Located on the campus of Wageningen University, JII offers a dynamic, interdisciplinary environment where curiosity meets impact. If you're a student eager to apply your knowledge to photosynthetic efficiency challenges, this is your opportunity!

## What you will learn

During this project, you will integrate with the engaging research community in the JII. You will gain extensive hands-on experience in **Plant Physiology and Field Research**. You will also develop skills in **data analysis and visualization using R**, and **scientific communication**.



For more information, contact **Mauricio Tejera** ([mauricio.tejera@jii.org](mailto:mauricio.tejera@jii.org))

