BSc. or MSc. internship

Are yield, yield components and photosynthetic traits influenced by sowing density and plot size in barley?

Background & aim

Every year the JII conducts field trials to screen for naturally occurring genetic variation for photosynthetic traits in large panels of barley genotypes as well as to develop protocols and methods for the use of various devices for high throughput agronomic, physiological and photosynthesis data collection under field conditions. Currently, the number of available seeds heavily drives the decision on sowing rate (g of seeds sown per m^2), sowing density (number of plants per m^2) and plot size (area in m^2) in the various trials conducted throughout the trial pipeline. Since field photosynthesis measurements are heavily influenced by the crops' environment, understanding the contribution of these factors to variation in photosynthetic and physiological traits including yield and yield components in our barley trials is crucial for quality data collection and decision making.

This study aims to **optimize** sowing density and plot size for the various field trials conducted at different stages in our trial pipeline. This will help tailor decisions on reliability of various types of data collected under varying densities or plot sizes as well as help define optimal densities and plot sizes for various research trials.

Institute: Jan Ingenhousz Institute

Theme: Agronomy, Crop photosynthesis

Type of experiment: Field experiments

Location: Unifarm, Wageningen

Period: March – September 2026

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!

Useful skills

- Basic statistical skills
- Eagerness/experience to perform field experiments
- Skills/knowledge in field data collection

For more information, contact **Olivia Kacheyo** (olivia.kacheyo@jii.org)

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