

## To boost rice productivity under a changing climate

Hiroyuki Shimono<sup>1,2</sup>,

1, Faculty of Agriculture, Iwate University

2, Agri-Innovation Center, Iwate University

Global food demand has been rising to support future population growth under changing climates. My research interest is to increase crop productivity (per unit land area) in response to environmental changes, genotype by environmental interaction, using methods of field phenotyping, mathematical simulation model, QTL and genome-wide association studies (GWAS) for mainly rice (*Oryza sativa* L.), a staple food for the more than half of the world's population. I want to share three topics of my current works, (1) Innovative technology: Early-winter direct-sowing cultivation of paddy rice, (2) Breeding new rice cultivars adapted to future elevated atmospheric CO<sub>2</sub>, (3) Big data analysis for high yielding rice breeding.

Sustainable food production and supply is important issue in the direction of SDGs. I will introduce activities of Agri-Innovation Center, Iwate University, which was reinitiated from 2022.

**Keywords:** Atmospheric CO<sub>2</sub>, Big data, Direct-seeding, Dormancy, Productivity, Rice, SDGs