Green Biotechnology

R&D Project Title: Development of Rice Varieties that Do Not Flower and their Seed Production System

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Objective: Development of Rice Varieties that Do Not Flower

- **Freedom in Designing Transplantation and Harvesting**: Reduces labor by spreading out efforts.
- **Versatile Applications**: High digestibility WCS feed, raw material for bioplastics, sugar, and SAF.
- **Enhanced Photosynthesis Duration**: Promotes soil carbon sequestration.
- **Utilization of Abandoned or Fallow Fields**: Contributes to carbon neutrality.

Research Overview

Challenges to Address

1.Development of Technology to Identify Non-flowering Rice Seeds.

2.Optimization of Genetic Backgrounds:

- Example: Make feed rice from Hokkaido non-flowering to increase biomass, even though it matures too early for cultivation in the Kanto region.

3.Introduction of Useful Genetic Mutations:

- Enhance nitrogen use efficiency.
- Maintain panicle number with low fertilization.
- Improve drought resistance
- control lignin accumulation for prolonged mid-season drainage.

Scenarios for Contribution to Carbon Neutrality

1.Creation of Non-flowering Rice Varieties with Upland Rice Background:

- Achieve negative emissions by utilizing abandoned or fallow fields.
- Aim for commercialization under the carbon credit system.

2.Prolonged Mid-season Drainage Cultivation:

- Achieve low methane emission cultivation.
- Aim for commercialization as described above