

Realization of a low carbon society through game changing technologies

Creation of nitrogen fixing plants

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Summary :

- Current agriculture deeply depends on chemical nitrogen fertilizer, which is produced by industrial nitrogen fixation with massive amounts of fossil fuel consumption.
- Excess apply of chemical fertilizer causes serious environmental pollution.
- Conferring nitrogen fixing ability to crops may solve these issues.
- However, extreme oxygen sensitivity of nitrogenase and requirement of many genes to be expressed hamper the creation of nitrogen fixing plants.
- We try to overexpress nitrogenase genes in a tissue-specific or time-specific manner in model plants.
- Reduction of CO₂ by 280 million tons can be expected if nitrogen fixing plants reduce 40% of nitrogen fertilizer in the world.

