March 5, 2025
Carbon Xtract Corporation
Kyushu Electric Power Co., Inc.
Sojitz Kyushu Corporation
National Agriculture and Food Research Organization

Carbon Xtract, Kyushu Electric Power, Sojitz Kyushu, and the National Agriculture and Food Research Organization have launched a demonstration project to advance next-generation, environmentally friendly greenhouse horticulture.
-Contributing to carbon neutrality by promoting the electrification of greenhouse horticulture-

Carbon Xtract Corporation (headquartered in Fukuoka City, Fukuoka Prefecture; hereinafter "Carbon Xtract"), Kyushu Electric Power Co., Inc. (headquartered in Fukuoka City, Fukuoka Prefecture; hereinafter "Kyushu Electric"), Sojitz Kyushu Corporation (headquartered in Fukuoka City, Fukuoka Prefecture; hereinafter "Sojitz Kyushu"), and the National Agriculture and Food Research Organization (headquartered in Tsukuba City, Ibaraki Prefecture; hereinafter "NARO") have begun a demonstration project (hereinafter "this demonstration project") to lay the foundation for next-generation, environmentally friendly greenhouse horticulture minimizing the use of fossil fuels at Imazu Refresh Farm, owned by Fukuoka City and provided as part of Fukuoka City's Challenge Farm Program.*1

Reducing fossil-fuel derived CO_2 emissions is an urgent issue for the decarbonization of greenhouse horticulture.*2 Through this demonstration project, the four parties involved have committed to reducing CO_2 emissions through the electrification of two types of devices adopted in greenhouse horticulture that use fossil fuels, CO_2 enrichment*3 devices, and heating devices.

More specifically, the project will utilize Carbon Xtract's membrane-based Direct Air Capture (hereinafter "m-DAC®" *4), an electric CO_2 enrichment device that uses a separation nanomembrane to directly capture CO_2 from the air. This will allow CO_2 captured outside the greenhouse to be supplied to the greenhouse, also contributing to reducing atmospheric CO_2. Moreover, Kyushu Electric will provide the heat pump technology it has developed through many years of research to power electric devices used for heating. As for NARO, it will combine the above technologies to establish optimal cultivation techniques and compile manuals for their future deployment in farms.

Additionally, Sojitz Kyushu will be responsible for evaluating the economic feasibility of the demonstration project and considering potential business models and will support the early implementation of the project's results across society at large.

By promoting the electrification of greenhouse horticulture, the four parties are contributing to achieving carbon neutrality in the Kyushu area.

Greenhouse

m-DAC® device

Heat pump

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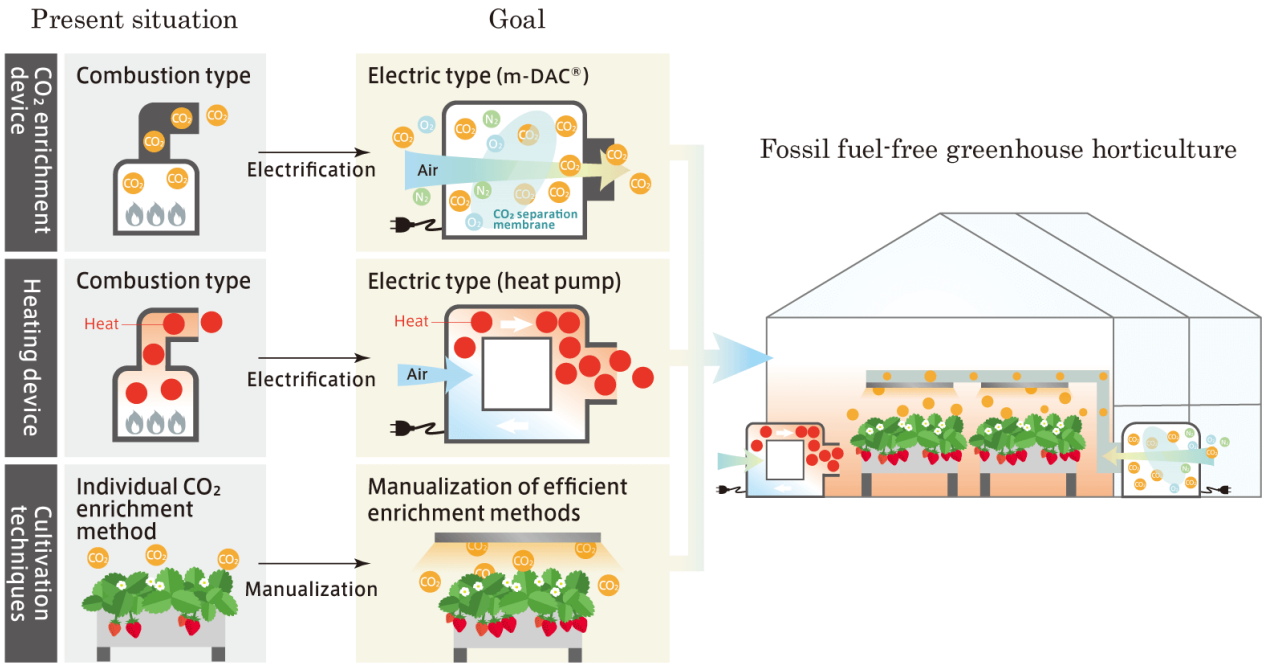
Annex

■Overview of demonstration project



(*1) Challenge Farm Program

An experimental program at Imazu Refresh Farm that aims to implement smart agriculture across society to solve the problems faced by producers in Fukuoka City. Carbon Xtract was selected as the implementing company in August last year.

(*2) Greenhouse horticulture

The cultivation of crops inside a greenhouse, or equivalent facility covered with highly light-transmitting glass, plastic film, or similar materials.

(*3) CO_2 enrichment

A cultivation method that promotes photosynthesis in crops and improves yields by supplying CO_2 to greenhouses and similar facilities. It is gaining attention as a potential solution to the decline in Japan's food self-sufficiency rate. CO_2 enrichment methods traditionally use CO_2 derived from fossil fuels.

(*4) m-DAC®

A technology to separate and capture CO_2 from the atmosphere using a separation nanomembrane (a separation membrane with higher CO_2 permeability than conventional CO_2 separation membranes). This separation nanomembrane is being jointly developed by Carbon Xtract and Kyushu University. Thanks to its small size, it can be used anywhere and makes it

possible to capture CO_2 from the air anytime, anywhere, and by anyone. m-DAC® is a registered trademark of Kyushu University.

Overview of Carbon Xtract Corporation

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Overview of Kyushu Electric Power Co., Inc.

Representative Director, President and CEO	Kazuhiro Ikebe
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Overview of Sojitz Kyushu Corporation

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Date of establishment	November 1, 1997
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Overview of the National Agriculture and Food Research Organization

Chairman	Kazuo Kuma
Location	3-1-1 Kannondai, Tsukuba City, Ibaraki Prefecture
Date of establishment	Aril 1, 2001
Website	https://www.naro.go.jp/index.html