

CHIBA UNIVERSITY
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on Controlled Environment Technology and Use
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New facilities A growth chamber (Koitozon FR9108A) was installed. It consists of nine compartments (650 x 400 x 300 (H) mm) and air temperature (15 - 35 °C), relative humidity (50 – 80%), CO₂ concentration (ambient - 1800 μmol mol⁻¹) and PPF (0, 140 – 350 μmol m⁻² s⁻¹, on empty surface) of each compartment can be controlled and monitored. Six cool-white fluorescent lamps (55W) were installed in each compartment. This growth chambers are currently used various experiments using small plants on plug trays and pots.

Technology transfer A transplant production system (2700 x 3600 x 2663 (H) mm) using artificial lighting was developed and installed. This system was designed to produce plug transplants of leafy vegetables (e.g., spinach and lettuce), fruit vegetables (e.g., tomato, egg plant, and cucumber), potting flowers (e.g., pansy) and others with a minimum usage of energy, material and labor. Transplants with high quality are produced as scheduled by adapting pre-determined environment control including automated irrigation. With cooperation of a private company who has been co-worked with us, we are providing these systems to transplant production companies and growers who produce their own transplants in greenhouses.

New control systems As we reported last year, we developed a pilot plant (500 m²) of closed-type system for producing virus-free transplants of sweetpotato. The plant operating system was developed and installed for operating our pilot plant. It consists of 1) Production planning system that helps operator make a long-term planning, 2) Production simulating system, a kind of virtual factory that simulates all operational processes of transplant production using actual information and data, and 3) Operation system that actually operates the facilities and monitors the actions of the facilities.

Internet site <http://www.h.chiba-u.ac.jp/kanko/englishtop.html>

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