

Excursion

1: Outline of Plant Factory and Orchard in Chiba University

At the plant factory (PF) of Chiba university, seven PFs, five of them for tomato production using sunlight and two of them for lettuce production using artificial light, are under operation. Sufficient amount of light should be supplied as energy source for photosynthesis. The air temperature, moisture contents of air, and air flow should be controlled in the PF so that plant leaves can absorb CO₂ efficiently.

The solar-PFs have shading nets and thermal screens on the roof and side wall for controlling light intensity and keeping temperature. An insect-proof net is also attached on the solar-PFs. Large fans on the gable side and agitation fans inside the PF is used for introducing outside air to inside and making air flow through plant canopy, respectively. All solar-PFs at the campus are installed with heat pumps for such as efficient night-cooling in the summer and warming in the winter, dehumidification and air flow.

The five solar-PFs, all for the nutrient solution, use rain water stored in underground tanks. For soilless cultivation, major methods adopted are NFT (Nutrient Film Technique), DFT (Deep Flow Technique) and spray culture. Nutrient solution is re-used in circulation in order not to exhaust waste fluid outside.

2: Outline of Packing House and Orchard of Japanese Pear in Shiroy city

Chiba prefecture produces the highest yield of Japanese pears in Japan, with Shiroy city being the prefecture's most productive area. The main varieties of Japanese pear in Chiba are "Kosui" (harvest: August), "Hosui" (harvest: September) and "Niitaka" (harvest: October). Being in close proximity to Tokyo, many consumers and tourists visit Chiba's orchards during the fruit season. Visitors can pick the pears in the orchards for themselves and purchase them. During the fruit season, packing houses are very busy from early morning.