



Environmentally Adaptive Agricultural System

Globally adaptable artificial-light agricultural systems, which can produce stable yields in quality and quantity with minimal energy, water, and labor.

Background or Challenges

In response to the risk of food shortages as the global population grows, agriculture also needs to increase production. However, agriculture around the world is becoming difficult to sustain due to water shortages, poor harvests caused by global warming, and a declining farming population.

Solutions to Challenges

- 1 With a simple structure equivalent to a steel-frame greenhouse, this system can be constructed on the registered farmland without land-use conversion. It can reduce initial costs, and in Japan, construction application procedures can be also omitted.
- 2 By utilizing various heat sources such as groundwater heat, factory waste heat, and solar heat for air conditioning systems, and securing power for LEDs through solar power generation, energy consumption is reduced, enabling operations even in regions with unstable infrastructure.
- 3 "Moisculture", a humidity-based cultivation system, can grow crops using only 1/10 the amount of water compared to hydroponics, making it possible to achieve stable farming in areas where water resources are scarce.

