

Name of Technology	Regulation of micrometeorological conditions of the lettuce field by irrigation water	Agriculture, Forestry and Fisheries
Name/Post/Faculty	Eiichi Kurashima / Professor / Environmental Sciences for Sustainability Academic Group	
Key words	lettuce, high-temperature damage, heat balance	

What kind of technology is this?

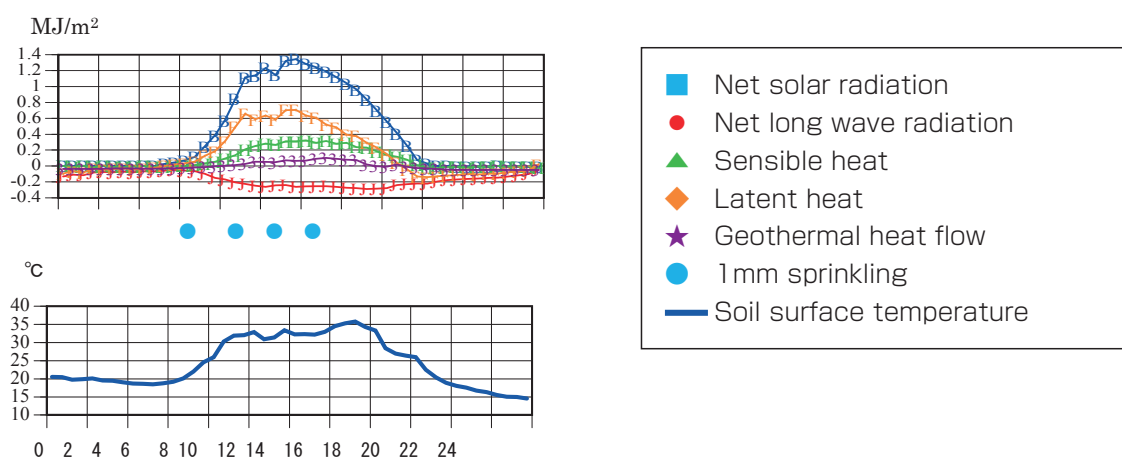
## Outline

**At the Okunakayama kogen, Ichinohe-machi, Iwate, vegetables such as lettuce suitable for cool weather conditions have been produced. It has been pointed out that the recent global warming causes the decrease in the yield of such vegetables because of the high-temperature damage. In such circumstance, taking into consideration the multiple applications of the irrigation facilities, the field test on the repression of high-temperature damage by irrigation was performed.**

### 【Research output contents】

Figures show the changes of heat balance elements and soil surface temperature on August 10, 2008. Soil surface temperature was obtained by calculating based on the upward long-wave radiation  $L \uparrow$ , assuming that the ejection rate ( $\varepsilon$ ) from the soil surface is 0.96. The values of temperature thus obtained are hardly affected by the local conditions such as the setting condition of a thermometer, so average temperature in relatively large area can be obtained.

It can be estimated that sprinkling repressed an increase in soil surface temperature, though it could not be clearly concluded because of relatively low temperature from the middle of August. The treatment tends to inhibit the heat radiation by upward long-wave radiation and sensible heat. It can be, however, considered that rapid evaporation is induced by sprinkling water.



Changes of heat balance elements and soil surface temperature for 30 minutes, and sprinkling (August 10, 2008)

What are its applications?

Prevention of high-temperature damage in highland vegetables

Related patents	None
Related materials	