A Fundamental Study on Improvement Method for Agricultural production Environment of Saline Soil Areas.

Makoto Anase*, Rokuro Yasutomi**, Fusakazu Ai*
Hajime Narioka* and Shuichi Sugi**
*Tokyo University of Agriculture
**Tokyo University of Agriculture and Technology

Summary

The purpose of this study was to test an environment improving technique for regaining the agricultural productivity of saline soil areas.

To determine the best position of the cut-off zone between the plowsoil layer and subsoil layer of the soil profile structure the study employed the soil column experiment.

The characteristics of water movement (capillary water and percolation) were obtained at different underground water levels, cut-off zone thickness and material (rice husk, gravel; ϕ 30mm, and grass beads; ϕ 1.5mm,) of the cut-off zone. The effect of plant mulching (*Clotararia* sp.) on preventing of water evaporation and salt accumulation was also investigated.

It was found that when the pore size of the subsoil layer is smaller than the the pore size of the cut-off zone material up ward movement of the underground water is discontinued. In addition the greater the cut-off zone capillary tension the less the under layer capillary tension. Higher position of the cut-off zone and a greater high of the under layer and as a resulted in a less water infiltration in the plow layer. Salt accumulation on the soil surface is reduced with plant mulching.

Further development of study will be focused on achieving a smooth disposal of water (irrigation and rain fall water) from the plowsoil layer to the subsoil layer.