

Thesis Title	Mathematical Model of Soil Solarization on Soil- microorganisms
Thesis Credits	6
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Degree of Study	Master of Science
Department	Energy Technology
Academic Year	2001

Abstract

This thesis investigates the possibility of develop mathematic model of soil temperature at a depth of about 0, 0.1, 0.2, 0.3 and 0.5 meter. First, we studied to cover the soil by a transparent plastic. The structure was a dimension of 1 meter wide, 1 meter long and 0.3 meter high. The soil temperature was increased and its was constant at a depth of about 0.5 meter. Its was varied year round between 30-33 degree celcius. A computer of mathematic model was developed to predict the soil temperature. Its outputs were close to measurements the validated it and its was to error about 2-3 percentage. Its was compared the soil temperature of no cover area at every of depth. The soil temperature was increased about 4-6 degree celcius. Second, we studied to a life of a microorganisms contained a quantity, a temperature and a time for killed a microorganisms. This temperature was measured from the experiment more than the temperature for killed a microorganisms (35 degree celcius) at a soil depth not over 0.2 meter. Hence, a time for kill a microorganisms was decreased. Third, we studied to used a mathematic model to calculated a soil temperature for a change of parameter contained a thermal conductivity at 1.4, 2.04 and 2.9 W/m-K, a water content at 20, 30 and 40 percent by weigh, a high of plastic for cover at 0.3, 0.4 and 0.5 meter and the soil of cover by plants and the soil of no cover.