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### EVALUATION OF AN EARTH HEAT STORAGE SYSTEM IN A SOLAR ENERGY GREENHOUSE

QIANG ZHANG<sup>1</sup>, JORDAN LANGRELL<sup>1</sup>, RAY BORIS<sup>1</sup>

<sup>1</sup>Q. Zhang, University of Manitoba, Department of Biosystems Engineering, Winnipeg, Canada, R3T 5V6,  
zhang@cc.umanitoba.ca

<sup>1</sup>J. Langrell, jordanleel@hotmail.com

<sup>1</sup>R. Boris, rboris@hydro.mb.ca

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**ABSTRACT** A solar energy greenhouse stores solar energy in the north wall as well as in the floor (soil) during daytime and releases the stored energy back to the greenhouse at night. An earth heat storage system was constructed and tested in a solar energy greenhouse for enhancing energy storage. The system consisted of a network of perforated pipes berried in the soil at depths from 0.3 to 1 m. A fan drew the warm air near the greenhouse ceiling to the berried pipes. A network of thermocouples was installed to record soil and air temperatures at various locations. Energy balance analyses were conducted to evaluate the effectiveness of the earth heat storage system. The temperature profiles in the soil were analyzed to determine the recharging (summer) and energy depletion (winter) behaviour of the system.

**Keywords:** Greenhouse, heating, solar energy, soil