

## Evaluate the soil water distribution under the crop canopies through a heavy rainfall event using the ERT method.

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The electric resistivity tomography (ERT) method is effective to receive the subsurface information. We can monitor the fluctuation of soil water content by using the repeated ERT observation along the same survey line because the variation of resistivity reflects the change of soil water content. The purpose of this study is to understand the soil water distribution under the crop canopies through a heavy rainfall event using the ERT method.

In this study, we chose corn and soybean fields which have different shapes of leaves. The observation periods was Aug. 9-26 in 2007 for corn including 140mm rainfall event on Aug. 2-6 in 2007, and Oct 10-25 in 2007 for soybean including 113mm rainfall event on Oct. 8-10 in 2007, respectively. At the both ERT surveys, Wenner array was applied and the straight survey line which was 7.05m long was established by 48 electrodes to be perpendicular to furrow directions with 0.15m interval.

According to the cross-sectional resistivity distribution resulting from ERT survey, the obtained resistivity values were different between corn and soybean field after each rainfall event. This was caused by the difference of free-throughfall under the different canopy structure.

To understand the variation of soil water content, we tried to clarify the relationships between resistivity values versus soil water content by laboratory experiment by using the soil canopies collected at fields. The obtained regression lines between resistivity values versus soil water content was used to evaluate the change of soil water content in both fields.