

Thippapa Sukumalchart 2012: Water Footprint of Economic Field Crops in Thailand
Case Study Water Footprint of Maize. Master of Engineering (Water Resources
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From the study of Hoekstra and Hung (2005), Thailand is the world third largest net virtual water exporter in relation to crop trade with the volume of 47 billion m³/yr. The water is used for agriculture sector, which accounts for 91 percent of the demand for water. It is highest part in Thailand. Maize is one of the twelve economic field crops of Thailand, which is essential to the stock feed industry. In this study, water footprint of maize in Thailand was calculated in details by using monthly production statistics, daily meteorological data and crop coefficient experimented in Thailand. There are 3 steps in the computation as follows: 1. Calculate the maize evapotranspiration 2. Evaluate the crop water use by the soil water balance method in root zone 3. With the crop yield and fertilization data, water footprint is calculated. The results of this study show that the country-averaged water footprint of maize in rain-fed area equals to 1,123 m³/ton comprised of 899 m³/ton green and 230 m³/ton grey water footprints. Since maize cultivation is mostly in the rain-fed area (99.2%), the water footprint in irrigated area is not comprised. Comparing with the results of Mekonnen and Hoekstra (2010), this study shows the higher value of country-average green water footprint of maize. Because of the data detail of product, yield and meteorological are different. However, the country-average grey water footprint was found to be about double of the Mekonnen and Hoekstra (2010), due to the high concentration of nitrogen to water are considered in this study lower than in Mekonnen and Hoekstra study. Thus, it can conclude that the water footprint for maize from this study accurate and suitable for maize in Thailand.

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