

Effects of Meteorological Factors on Rice Yields of Different Seasons in Hualien Area¹

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Abstract

There was a significant difference of rice yield observed between the first and the second seasons in Hualien area. To investigate factors influencing rice yield, the meteorological data together with rice cultivation data collected from 2003 to 2014 at Hualien DARES were analyzed. Results showed that rainfall, solar radiation, and air temperature recorded at four important stages including transplanting to physiological maturity, transplanting to heading, booting and early maturing were significantly different between the first and the second crops. In the first crop, the growing degree days and solar radiation during the transplanting to physiological maturity was significantly correlated with the yield. The correlation coefficients were 0.612 and 0.768, respectively. The spikelet per panicle was negatively correlated with the rainfall in the second crops. However, the growing degree days from transplanting to heading period, the growing degree days from transplanting to physiological maturity period and the average of daily max temperature were significantly correlated with the panicle number per hill. The results indicated that air temperature from transplanting to heading period in the first crop was lower than the second crop in Hualien area. In addition, the high temperature during the early second crop may lead to inhibit tillering. Therefore, the temperature was the major meteorological factor to rice yields of two crop seasons.

Key word: panicle number per hill, solar radiation, growing degree days, correlation coefficient.

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