

The economic impacts of climate change on the rice production in Malaysia.

Abstract

This study attempts to estimate the potential impacts of climate change on the rice production in Malaysia. The crop model ORYZA2000 was used to simulate rice yield of MR 219 variety in eight granary areas of Malaysia from 1999-2007. The model predicted a reduction in rice yield of 0.36 t ha⁻¹ under the scenario of an increase in temperature by 2°C and at the current CO₂ level of 383 ppm. With the reduction in rice yield, the economic loss to the Malaysian rice industry was estimated at RM162.531 million per year. Under the scenario of increase of CO₂ concentration from 383 to 574 ppm and with 2°C rise in temperature, it can be predicted that there will also be a decline in rice yield by 0.69 t ha⁻¹ and consequently the economic loss will be at RM299.145 million per year for the rice industry. With the above potential impacts, some adaptation and mitigation strategies to overcome the adverse effects of climate change on rice production were recommended.

Keyword: Economic impacts; Carbon dioxide; Climate change; Rice production; Temperature.