

The potential impacts of climate change on the Malaysian rice economy

ABSTRACT

The economic impacts of climate change on rice production in peninsular Malaysia were evaluated by using a simulation analysis. The crop model ORYZA 2000 was used to simulate rice growth and production. Variety MR 219 was used in the simulation of rice production from eight granary areas of peninsular Malaysia from 1999-2007. With increase in temperature of 2°C and at the current CO₂ level, the model predicted decline in yield. With increase of CO₂ concentration from 383 to 574ppm and with 2°C rise in temperature, the model predicted decline in rice production and also negative effect on rice economy. The findings indicate that the reduction in yield under the scenario of increase in temperature of 2°C was 0.36 metric tonne per hectare and the economic loss of RM162, 530.53 per year. Under the scenario of both increases in temperature and CO₂ level, the reduction in yield was 0.69 metric tonne per hectare. This can be translated to the economic loss of RM299,145.10 per year for the peninsular Malaysia. Some adaptation and mitigation strategies to overcome the adverse effects of climate change on rice production are recommended.