

Abstract

The validation of climate model had shown the differences no more than 5% of maximum temperature for forecasting only in March, May, and June of Ang Khang Royal Agricultural Station, but the rainfall was very high the errors. The effects of El Niño and La Niña phenomena at the severe level decreased the yields of mango and avocado when compared with the normal year. All levels of La Niña phenomenon did not affect the yield of avocado. Forecasting the level of phenomena at the beginning of the year may as a guideline for estimating the yield in advance. The results of the evapotranspiration of three kinds of fruit crop had tended to increase every year. It was found that the water balance in persimmon and avocado was also lower than in mango. The validation of plant model in station/center for forecasting in year 2559 and 2560 showed that the results of persimmon models of Ang Khang (YPA₅₉) and Mae Hae (YPM₅₉), the mango 'Chiin Hwang' models of Mok Jam (MJ3) and Nong Kaew (NK3), and the avocado 'Buccania' models of Nong Kaew (YV_{NK3}) and Thung Rueng (YV_{TR4}) gave the reasonable deviations and predicted for about 2-6 months before harvest.

A study on the impact of climate on the critical stage of the development of 'P2' persimmon was not found to correlate with flower dropping, but the young fruit was related to the daily maximum temperature on day 3 before the drop. The daily temperature influenced floral sex expression of mango 'Chiin Hwang', according to the daily minimum temperature correlated with the young fruit on day 2 before the drop, but there was no correlation in the other stages of fruit growth. Similarly, the floral sex expression of avocado 'Buccania' was correlated with daily maximum temperature on day 4 before blooming and the daily mean temperature was recorded on day 3 before the young fruit drop. Climate impacts the fruit dropping at the young fruit more than the fruit growth periods. The equation of correlation used to predict the impact of climate on the fruit drop results.

Utilization of climate models and plant models should be designed to facilitate easy access to information and timely situational awareness, especially at the critical period of the crop developmental stage that affected the yields. Preparation of a meteorological monitoring and information system implements by the directly responsible officers for the development of preparedness for the impacts of climate variability on fruit growers in the Royal Project areas.

Keywords: Royal Project, climate change, model, persimmon, mango, avocado