

Abstract

The study on impacts of climate variability on fruit cultivation in highlands of persimmon, mango and avocado was studied at 12 locations under Royal Project Foundation areas. The results showed that in each location had differed between the geographic, soil and weather conditions. Weather in each location was varied similarly around the year, but it showed differed by quantitative measurements. Crop evapotranspiration represents the evapotranspiration in mango cultivated area was higher than the rainfall in location for some month and showed amount moreover than persimmon and avocado. Climate model testing found the distinct relation on Southern oscillation index (SOI) with maximum temperature, minimum temperature in the period of August to December and precipitation in the period of March to June, that they must be accuracy under the moderate and severe phenomenon of El Niño and La Niña regimes. Climate model for long period (2531-2564 BE) under the regional level of ECHAM4-PRECIS revealed that maximum temperature and minimum temperature in the studied locations tend to increase but precipitation was uncertainly and highly variability in year.

The developing and testing of plant models were analyzed by SPSS program on the weather data and yield of persimmon, mango 'Chiin Hwang' and avocado 'Buccania'. The result showed that weather variable factors in each location differed on temperature, precipitation, rainy day frequency and air humidity before harvesting period during January to June, which they could forecasted the yield unequal period before harvesting. Analysis of relationship was statistically significant linear regression showed P-value less than 0.05 in all plant models, therefore they had different accuracy. These 12 plant models gave coefficient (R) range at 0.639-0.971, which showing specific acceptable in the location. Study on variable factors of weather impacted on yield by plant models (persimmon) of Ang Khang Royal Agricultural Station / Huai Nam Khun Royal Developmental Center and the plant models (mango 'Chiin Hwang') of Mok Jam Royal Developmental Center were examined by data

decreasing for assessment of yield prediction. The variable factors of meteorological data in these plant models impacted on yield of persimmon and mango ‘Chiin Hwang’ in the studied locations that they could be used as a tool to study the impacts of climate change on plant cultivation in the highland. The survey on farmer’s opinion need to receive weather information for their adaptation and crop management.

Keywords: Climate variability, Weather model, Plant model, Fruit in highland

