

# Agrometeorological Disaster Protection Techniques for Tropical Fruit Trees in Southern Taiwan

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## Abstract

The southern part of Taiwan is full of agrometeorological resources and suitable for producing tropical fruits. But, many agrometeorological disasters also exist due to the complexity of weather generating system. To fully use the agrometeorological and land resources, farmers often neglected the climatic safety and thus may suffered great economical losses. The purpose of this project is to develop an integrated expert system for protecting agrometeorological disasters of tropical fruit trees. The system will not only provide risk analysis based on climatic record, but can also suggest the best management practices to assist farmers protecting the agrometeorological disasters and reduce their economical losses.

During the first year of this four-year project, the main research goals are to establish required basic databases, and to develop and evaluate protection schemes for waxapple and atemoya, in particular. A climatic database inquiring system was developed to allow easy access of daily climatic data from observation networks of CWB and agrometeorological observation networks. Users can make risk analysis, calculate statistics, or observe continuous records of selected stations. A crop database inquiring system was also developed to help users making decisions.

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Farmer's surveys indicated that cold, typhoon, and rainfall are three major agrometeorological disasters for waxapple and atemoya and require immediate attention in developing protection schemes. Ten micrometeorological stations are also established in major producing areas to observe dynamic changes of various micrometeorological variables during the events of different disasters. Typhoon Dujuan, with maximum wind speed researched  $16 \text{ ms}^{-1}$ , caused severe damages to southern Taiwan in 2003. Field test indicated that vertical steel pole method and wire-net hanger method are two promising methods to protect fruit trees from strong wind damages. Further experiments regarding economical return will be conducted in next three years.

Key words: Agrometeorological Disaster, Protection Techniques, Tropical Fruit Trees, Wax apple, Atemoya