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Longan Tree Flowering and Bearing Induction Based on Chemicals and Growing Degree-Days Models

Authors : Hong Li, Tingxian Li, Xudong Wang, Fengliang Zhao

Abstract : Unreliable flowering of chilling-required longan (Dimocarpus longan) due to increased air-temperatures have been the common concerns in the tropical areas. Our objectives were to assess the efficiency of chemicals in longan tree flowering and bearing using Growing Degree Days (GDD). The 2-year study was contacted in the tropical Haihan Island during 2012-2013. At pruning (August) the GDD values were started to count. The KClO3 treatments were applied to the root zones under the canopies at GDD 1300ºC while KH2PO4 rates were applied to the leaves at fruit setting at GDD 3000ºC and GDD 4000ºC. The results showed that total cumulative GDD was 6050ºC for longan. The GDD-guided KClO3 applications induced significant tree budding and flowering. The GDD-guided KH2PO4 applications stimulated higher leaf photosynthesis, carbonxylation efficiency, marketable fruit yield and quality (K+ and sugar) ($P<0.05$). It was concluded that the GDD-based model could efficiently support longan reliable flowering and bearing.

Keywords : canopy nutrition, flowering induction, growing degree days, longan, oxidant KClO3, tree physiology
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