Optimal prediction of walnut harvest dates using thermal time model

In highly complicated systems, like the biochemical system of fruit ripening, our knowledge of the system is insufficient to develop useful mechanistic models. Instead we rely on statistical models that are informed by our understanding of the biology (Crepinsek et al 2006). Generally speaking, there are three steps in specifying these statistical models: (1) selection of thermal time model functional form, (2) selection of cardinal temperatures for calculating thermal time, and (3) selection of thermal time accumulation length These methods have been extensively applied to flowering and harvest prediction for a variety of fruit and nut crops over the past 15 years (various papers). However,

Phenology tells us that trees will stop fruit development if temperatures get too low or too high.

Normally in statistical analysis