

SUMMARY

Simplified numerical processor of degree-days development for use in horticultural production activities

Degree days of development (GDD) or thermal units (UT) are one of the most commonly used indexes to estimate the development of plants and to predict the harvest date, as well as other activities that are based on temperature. The most used device to register data is the data logger that is an electronic device that records data in time or in relation to location by means of own or externally connected instruments and sensors. However, its use requires some knowledge for a correct determination. In this regard, the objective of this work was to develop a simplified processor of degrees days of easy access and use for producers, using spreadsheets, dynamic tables, data segmentation and dashboards. This simplified processor will allow to take advantage of information that is generated with a datalogger, an arduino or well the direct data register by the producer. The different formulas for calculation of the degree days of development were analyzed and it was determined, based on the ease or difficulty of use by the producers, that the formula that uses the average and that was modified by Ojeda (2011) is the more useful. On the other hand, once the formula was applied to temperature data, a hypothesis test was made to compare the results generated by the data logger and the ones estimated by the numerical processor. For anthurium, it was found that the means for the months of September and October were not equal, this was because in September only three data were taken; while for October the average of T_a exceeded the upper threshold of the cultivation of anthurium in three days. For the rest of the months recorded there were no statistical differences in the means of the degree days of development of the datalogger and the simplified numerical processor. Finally, the simplified numerical processor composed of a dashboard, allows to observe graphically the temperature and the degree days of development on phenological stages. In addition, this method allows to make estimates for degree days of development easily and reliably and to program agricultural activities in different species or a species with different varieties.

Key words: Dashboard, Growth, Phenology, Heat units