Today's world depends largely on information and communication technologies. These technologies are in use in different areas of human life and work. Each day, more examples of possible application of information and communications technology are being discovered. In most cases, computer science is used to solve complex problems which have mathematical background. The most important and challenging job in agriculture is plant protection. This is due to its complexity and the lack of specialized tools that could predict when the conditions for specific infections are fulfilled. In this paper authors use different mathematics-based techniques for data processing and prediction of possible fruit disease infection. Six significant weather variables and one variable representing the month in the year are selected as predictor variables. Implemented techniques are compared with each other in order to select the best. Prediction includes two most important diseases of cherry fruit: *monilinia laxa* and *coccomyces hiemalis*. Data sets used in this research include data of eight year time period, collected over the region of Toplica in Serbia. The best achieved prediction accuracy is 95.8%. Additionally, the same implemented methods can be applied on other fruit species and other diseases for which data are known