Title Development of web-based software for MAP design

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Abstract

PACK-in-MAP is a web-based (www.packinmap.com) software tool that helps in designing modified atmosphere packages for fresh and fresh-cut fruits and vegetables. The user-friendly online software determines the needs for packaging of fruits and vegetables in order to maintain the high quality and extend the shelf-life. The software contains a database on information on product respiration rate, optimum temperature, and optimum range of O_2 and CO_2 concentrations as well as permeability of different packaging materials, including micro-perforated films. The database can be accessed online and even user can configure it to their product/package requirements. In the PACK-in-MAP software, the user defines the type of product and the software selects the optimum temperature, O_2 and CO_2 and caculates respiration rate for that product. The system then selects the best possible packaging material and/or amount of product required to achieve the desired gas exchange and simulates the O_2 and CO_2 atmosphere inside the package. It helps to design and simulate the package atmosphere without knowledge of mathematical models, and modified atmosphere packaging itself. It has capability of simulating the package at varying temperature set according to the real-life distribution chain and also evaluates the impact of product and package variability on internal package atmosphere. The software has been successfully used to designing MAP of mushrooms, carrots, cheese, mango and onions and the results have been validated with the experimental data.