Abstract

An aim of stored-grains technologists has been to develop robust and flexible mathematical analyses of the heat and moisture transfer phenomena that occur in bulks of stored grains. A requirement has been that the models are able to simulate the wide range of storage geometries and operating conditions that occur in practice. Software packages developed from the discipline of computational fluid dynamics offer these possibilities. Such packages can be used to attack an extremely wide range of problems by solving the equations that govern the conservation of heat, mass and momentum. However, they need to be customised if they are to calculate velocity, temperature and moisture distributions in bulk stored grains. This paper demonstrates how these modifications can be made and how the results can be portrayed graphically in a way that permits insights into the processes that occur in grain stores.