

**Title** Aeration simulation of stored grain under variable air ambient conditions  
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#### **Abstract**

A simulation model for stored grain aeration was implemented and compared with experimental data. The software, called AERO, is capable of simulating the aeration process in stored grain, with hot spots, using time variant ambient data. Some modifications to the original model proposed by Thorpe [Thorpe, G.R., 1997. Modelling ecosystems in ventilated conical bottomed farm grain silos. *Ecol. Modell.* 94, 255–286] have been presented. The modified model is simpler, less computer-intensive and maintains the accuracy of the results. Comparing the model with data collected between January and August 2005, it was observed that the simulation results agreed well with real conditions, indicating that this software can reliably predict the aeration process for different world regions.