

Title Modelling of soybean seed drying in concurrent sliding bed dryers: Effect of the number of stages on the seed quality and drying performance

Author A.A. Pfeifer, V.V. Murata and M.A.S. Barrozo

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Abstract

Sliding bed dryers have been frequently studied for the drying of seeds because they cause less mechanical damage to seeds than other types of moving bed dryers. The effect of the number of stages of a concurrent sliding bed dryer on the soybean seed quality and drying performance was studied. The so-called two-phase model was used to describe heat and mass transfer between air and soybean seeds. The constitutive equations of the model were taken from specific studies. Seed quality was evaluated by vigour and non-fissured seed indices. The simulated results show that by dividing the air supply in several stages (2, 3 or 4) the drying performance and the seed quality could be improved.