

Title Effect of some physical properties on fluidisation stability of grain products
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Abstract

In this research the fluidisation behaviour of grain samples (millet, barley, paddy and soya bean) was investigated with respect to their physical properties. An experimental fluidised bed system was used to fluidise the grains. Wallis's criterion and fluidisation pressure drop index (FPDI) were used to analyse fluidisation stability of the samples. Wallis's model was calculated using some physical properties of grains such as sphericity, bulk density, porosity and geometrical mean diameter. The FPDI was the difference between the minimum and maximum static pressure drop at the fluidisation stage. The results of Wallis's values showed that barley had the lowest (-0.9335) and millet had the highest (-0.912) fluidisation stability. The FPDI had converse relationships with sphericity and bulk density of the grain samples, but had no obvious relationship with the other physical properties. The FPDI was highest for paddy (0.45) and lowest for millet (0.19). The FPDI for all the grain samples agreed with Wallis's model, except for paddy grain, because of low sphericity.