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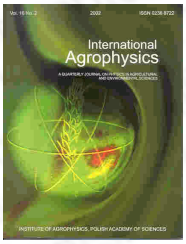

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Pressure ratio of cereal grains determined in a uniaxial compression test

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abstract The pressure ratio of cereal grains was determined in a uniaxial compression test. Experiments were performed according to Eurocode 1 recommendations. The tester was 210 mm in diameter and 100 mm high. The specimen was loaded to the reference vertical stress of 100 kPa using a universal loading frame at a constant displacement rate of 0.35 mm min-1. Lateral to vertical pressure ratio was found dependent on procedure of the sample deposition. The pressure ratio of cereal grain generally decreased with an increase in moisture content. Experimental results were compared with theoretical consideration based on Janssen' s method of pressure calculation in grain bins and with simplified approximation recommended by Eurocode 1. Significant differences between theoretical and experimental values were obtained.

keywords pressure ratio, cereal grain, storage structures