

**Title** Physico-mechanical properties of potato tubers during cold storage  
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**Citation** Biosystems Engineering, Volume 104, Issue 1, September 2009, Pages 25-32  
**Keywords** potato; physico-mechanical properties

#### **Abstract**

Potatoes are usually kept in cold storage until required for the market. Storage conditions and length of time influence potato quality and their consequent susceptibility to handling. It is therefore important to determine how storage might modify their physico-mechanical properties. The aim of the study was to evaluate cultivar and storage time effects on potato physico-mechanical properties. Laboratory tests were conducted using two cultivars (*Solanum tuberosum* L. cvs. Vivaldi and Primura) over two harvest years. Tubers were kept in controlled storage (temperature 4.5 °C, humidity 80%) for a period of 240 days. Quasi-static compression tests were performed periodically, on whole tubers to determine mechanical properties at failure and on cylindrical specimens to evaluate Young's modulus and Poisson's ratio. The two cultivars considered here presented different mechanical properties, but for both cultivars, Young's modulus reduced with the increasing number of days of storage.