Title A Model for the Field Drying and Wetting Processes of Cut Flax Straw
Author D. Nilsson, and S. Karlsson
Citation Biosystems Engineering Volume 92, Issue 1 , September 2005, Pages 25-35
Keyword flax; drying

Abstract

Interest in using natural fibres from flax (*Linum usitatissimum* L.) in non-textile applications has increased as a result of the search for new renewable raw materials. The quality of fibres obtained is dependent on the quality of the straw, which in turn is dependent on the duration of field drying and variations of the moisture content in the straw swathes. A model for simulating the drying and wetting processes of cut flax straw in the field environment was developed. The model used air temperature, relative humidity, global radiation, wind speed and cloud cover, all observed every third hour, and precipitation observed at 7:00 and 19:00 hours daily to calculate the moisture content of the flax straw on an hourly basis. The water in the straw was divided into internal water, *i.e*. bound water, and external water, *i.e*. free water from rain and dew. The moisture content of the straw was then calculated depending on the increase and decrease in internal and external water. The model was validated, and it was shown that predicted moisture contents were in sufficiently good agreement with experimental data obtained under normal harvest conditions.