

# Digestible Energy Content of Wheat for Grower Pigs can be Predicted Using an *In Vitro* Digestibility Procedure

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Wheat is an energy feedstuff for swine; however, the energy value of wheat such as DE content can vary up to 28% due to changes in energy digestibility. Thus, prediction of DE content is important to properly balance feed formulations and to determine the economic value of individual batches of wheat. Previously, the energy digestibility of barley for grower pigs was accurately predicted using a cost effective and 3-day in vitro digestibility procedure; however, it is not known if the same procedure can be used to predict energy digestibility and thus DE content of wheat samples.

This study was conducted to evaluate the existing in vitro digestibility procedure to predict DE content of wheat in grower pigs. Twenty wheat samples with a wide variation in physical and chemical characteristics (56.0 to 77.3 kg/hL test weight, 13.4 to 22.8% CP, 3.1 to 6.4% ADF, 10.3 to 19.7% NDF, and 1.8 to 2.9 % EE) were collected from Western Canada. Energy digestibility of the samples was analyzed using the in vitro procedure that involved subsequent digestion of the samples with pepsin (6 h), pancreatin (18 h), and cellulase (24 h). In vitro energy digestibility ranged from 79.8 to 91.0 %, and in vitro DE content ranged from 3.90 to 4.33 Mcal/kg DM. Total-tract energy digestibilities of the samples were determined using 60 crossbred barrows. In vivo energy digestibility ranged from 72.7 to 83.7%, and in vivo DE content ranged from 3.55 to 4.06 Mcal/kg DM. In vivo DE value had a strong linear relationship with in vitro DE value.

**Implications:** These results indicated that the existing in vitro digestibility procedure can be used to predict DE content of wheat for grower pigs. The procedure might also be useful in calibrating rapid analytical equipments such as Near Infrared Spectroscopy to accurately predict DE contents of wheat samples.