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# Long-term changes in the chemical composition of soil organic matter, depending on fertilization and crop rotation

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The objective of this study was to determine whether it is possible to assess the impact of different management practices (crop rotation, fertilization (organic and mineral fertilizers) on the chemical composition of soil organic matter, using Fourier transform infrared spectroscopy (FTIR). The study is based IOSDV long-term (established in 1989) three field crop rotation (potato-wheat-barely) experiment located in Tartu, Estonia. Soil samples (Stagnic Albeluvisol) were collected from the 0-20 cm depth in the autumn of 2015, air dried, sieved to 2 mm and grinded to obtain homogeneous samples. The content of soil organic matter was measured by the dry combustion method in a varioMax CNS elemental analyser (ELEMENTAR, Germany). The samples were analysed using Thermo-Nicolet iS10 Fourier Transform Infrared Spectrophotometer (FT-IR) and OMNIC software. An intense and sharp peak was recorded in the region of Si-O vibrations of clay minerals and polysaccharides in all samples analysed. The volume of the peak correlated with the quantity of fertilizers administered