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Soil respiration under different agricultural land use types in Croatia

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In order to mitigate climate change and reduce the anthropogenic greenhouse gas (GHG) emissions, the Kyoto protocol has been adopted in 1997 and the Paris Agreement entered into force in 2016. The Paris Agreement have ratified 190 out of 197 Parties of the United Nations Framework Convention on Climate Change (UNFCCC) and Croatia is one of them as well. Each Party has obliged regularly to submit the national inventory report (NIR) providing the information on the national anthropogenic GHG emissions by sources and removals by sinks to the UNFCCC. Reporting under the NIR is divided into six categories / sectors, and one of them is land use, land use change and forestry (LULUCF) sector, where an issue of uncertainty estimates on carbon emissions and removals occurs. As soil respiration represents the second-largest terrestrial carbon flux, the national studies on soil respiration can reduce the uncertainty and improve the estimation of country-level carbon fluxes. Due to the omission of national data, the members of the University of Zagreb Faculty of Agriculture, Department of General Agronomy have started to study soil respiration rates in 2012, and since then many different studies on soil respiration under different agricultural land uses (i.e. annual crops, energy crop and vineyard), management practices (i.e. tillage and fertilization) and climate conditions (i.e. continental and mediterranean) in Croatia have been conducted. The obtained site specific results on field measurements of soil carbon dioxide concentrations by *in situ* closed static chamber method will be presented in this paper.