Agricultural activities are co-responsible for the emission of the three most important GHGs: CO₂, CH₄ and N₂O. In particular, agricultural sector in Italy accounts for around 70% of the N₂O total emissions.

The aim of the underway LIFE+ "Improved flux Prototypes for N₂O emission from Agriculture"- IPNOA project (LIFE/11 ENV/IT/302, www.ipnoa.eu), is to improve monitoring instruments and methodology for measuring nitrous oxide emissions from agriculture and to identify the best management practices for reducing N₂O emissions from the main-arable crops at regional scale (Tuscany, Italy). To achieve this goal, a mobile instrument equipped with multiple gas detectors linked with a temperature and moisture soil probe has been developed and validated to measure N₂O fluxes with high sensibility, directly in the field in a short lapse of time.

In addition, from November 2013 field trials have been set up in two sites for the most representative crops of the Tuscan agriculture: durum wheat, maize, sunflower, tomato, clover and faba bean. The influence of the main factors affecting N₂O emissions such as tillage intensity, nitrogen fertilization level, irrigation and crop residue management have been tested. For the growing season 2013-2014, we present preliminary results on N₂O fluxes of durum wheat cultivated in the two sites under different soils, tillage practices and nitrogen fertilization intensities.