

Program	Program NUCLEU PN 16 25 01 11
Project title (ENG):	Research on the assessment of the level of greenhouse gas emissions in the agricultural sector
Project title (RO):	Cercetari privind evaluarea nivelului emisiilor de gaze cu efect de sera din sectorul agricol
Duration	2016-2017
Team Leader	Researcher/PhD Valeriu Danciulescu
Summary (short description) ENG	<p>The project presents the results of tests carried out on a Romanian farm with the purpose of assessing greenhouse gas (GHG) emissions specific to agricultural activities. GHG emissions from the agricultural sector come mainly from the livestock sector, manure management, land cultivation and fertilization.</p> <p>The tests carried out mainly focused on the CO₂, CH₄ and N₂O emissions generated from related manure storage activities as well as the emission level identified in animal shelters. For a correct interpretation of the results obtained, at the same time with the measurement of the GHG concentration, the weather parameters were measured: temperature, humidity and wind direction. The results obtained revealed the presence of these compounds in the air in the animal shelters and in the ambient air (CO₂ and CH₄) in concentrations that are in the range identified in similar studies around the world. The pollutant dispersion in the air leads to a reduction in the pollutant concentration with increasing distance from the observed source as well as the measurement points at 50, 100 and 500 m, that reaches values below the detection limit of the instrument for CH₄ and N₂O, whereas in the case of CO₂ it reaches the level of the usual concentration in the ambient air.</p>
Summary (short description) RO	<p>In proiect sunt prezentate rezultatele testelor efectuate intr-o ferma din Romania cu scopul evaluarii emisiilor de gaze cu efect de sera (GES) specifice activitatilor din sectorul agricol. Emisiile de GES din sectorul agricol provin in principal din sectorul zootehnic, gestionarea gunoiului de grajd, cultivarea si fertilizarea terenurilor.</p> <p>Testele efectuate au avut in vedere cu precadere emisiile de CO₂, CH₄ și N₂O generate din activitatile conexe de depozitare a gunoiului de grajd precum si nivelul identificat in adaposturile de animale. Pentru o interpretare corecta si aplicata a rezultatelor obtinute concomitent cu determinarea concentratiei de GES au fost masurati si parametrii meteo: temperatura, umiditate viteza si directie vant stabilindu-se totodata si factorul de emisie specific fiecarui compus. Rezultatele obtinute au evidentiat prezenta acestor compusi in aerul inconjurator in concentratii care se situeaza in domeniile identificate in studii similare din intreaga lume, peste nivelul masurat in zona martor. Masurarile efectuate in zonele sensibile situate la o distanta de 2000 m de ferma s-au situat sub valoarea limitei de detectie a aparatului pentru CH₄ si N₂O, iar in cazul CO₂ valoarea a juns la nivelul obisnuit in aerul inconjurator.</p>
Dissemination of results	
Full-paper ISI	Valeriu Danciulescu , Andrei Vasile, Luoana Florentina Pascu, Bogdan Stanescu, Ileana Nicolescu, The evaluation of the levels of greenhouse gases due to activities carried out on a livestock farm, Revista de Chimie (Bucharest), vol. 68 no. 8, pp. 1700-1702 (2017)
Conferences (platform, poster, abstract / full-paper)	Valeriu Danciulescu , Elena Bucur, Mihai Bratu, Vasile Andrei, Mihaele Petrescu, Raluca Diodiu, Gheorghita Tanase Emissions of greenhouse gases from the livestock sector, The 19th International Symposium "Environment and Industry București, 13 – 14 Octombrie, 2016