

## THE STUDY ON COW FARM AIR POLLUTION FROM DIFFERENT POLLUTION SOURCES

Rolandas Bleizgys, Indrė Bagdonienė, Vilma Naujokiene

*Aleksandras Stulginskis University*

*Studentų str. 11, LT-53361 Akademija, Kaunas distr., Lithuania. Tel. +37037752240*

*E-mail: rolandas.bleizgys@asu.lt; indre.bagdoniene@asu.lt; vilma.naujokiene@asu.lt*

**Summary.** The objective of this study was to determine the sources and intensity of cow farms air pollution from different air pollution sources. The main gas emission sources in cow farms were estimated, samples were taken and under laboratory conditions gas emission intensity was determined. The highest CO<sub>2</sub> emission was found in solid manure –  $4065 \pm 59$  mg / (m<sup>2</sup> · h). In semi-liquid and liquid manure amount of CO<sub>2</sub> was significantly lower –  $2340 \pm 39$  mg / (m<sup>2</sup> · h) and  $1490 \pm 34$  mg / (m<sup>2</sup> · h), respectively. The highest ammonia emission was estimated in liquid manure –  $194 \pm 6$  mg / (m<sup>2</sup> · h) and the lowest in solid manure -  $85 \pm 4$  mg / (m<sup>2</sup> · h). The time of gas excretion was significantly dependent on the materials of farm construction, e.g. from concrete gases were excreted for 99 h, from different sources of wood from 25 to 71 hours and from rubber coverage only for 8 hours. It was determined, that according to the regression equation is possible to predict the intensity and duration of CO<sub>2</sub> emission from the different construction materials contaminated with manure. It was concluded, that in order to reduce gas emission in the cow farm, it is inappropriate to use concrete waterproofing layer on the surface.

**Keywords:** ammonia, carbon dioxide, emission, manure, construction, cow farm.