

THE INFLUENCE OF STOCKBREEDING DEVELOPMENT ON FARMLAND AND RIVER WATER POLLUTION WITH NITROGEN IN LITHUANIA

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Summary. The present study was designed to analyse and evaluate stockbreeding development according to requirements of environment in different regions of Lithuania. Stockbreeding development was analysed on the background of data of crop declaration, animal registration, biogenic pollution of rivers and the amount of nitrogen in the superficial layer of soil. Furthermore, according to the environmental requirements to the quantity of nitrogen in soil (not exceed 170 Nkg/ha⁻¹) the possibilities of stockbreeding in different regions of Lithuania were calculated. The rivers water quality evaluation in Lithuania was performed according to the data of rivers monitored in 2008-2010. Excreted nitrogen in farmland areas was calculated based on crop declaration data.

This study demonstrated the correlation between quantity of nitrogen in soil and quantity of nitrogen in the water ($r=0.66$; $p<0.001$). It was shown significant influence of farmland on the quality of water ($r=0.59$; $p<0.001$). However, the correlation between the stock density and quality of water was lower ($r=0.5$; $p<0.001$). The quantity of nitrogen in farmland have no significant influence on rivers water quality, where estimated 13.45 to 71 N kg/ha⁻¹ ($p>0.05$). In conclusion, the results from this study indicate, that the density of stock animals in Lithuania not exceeded environmental requirements and stockbreeding development could be increased without possible significant influence on the amount of nitrogen in farmland and rivers.

Keywords: nitrogen pollution, farmland, river water, biogenic materials, stockbreeding development.