



## **Effect of exogenous organic matter on spatial distribution of soil physical properties and maize yield**

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Low content of organic matter and the availability of water and nutrients in the soil leads to reduced crop yield. However, the growing demand for food requires improvement of soil quality and crop productivity. Therefore, field studies were undertaken in Poland and Czech Republic aiming to assess the effects of the use of the exogenous organic matter (EOM) considered as the fertilizer and soil conditioner on the selected soil physical, chemical properties of the soil and crop yield. The EOM was applied in the forms: organic compost (Ra), industrial compost (Ag), animal meal (Mb), digestate from biogas plant (Dg). All plots received the same level of nitrogen that is 200 kg ha<sup>-1</sup> of N of which 50, 75 or 100% came from the EOMs and the rest from mineral nitrogen fertilizer. Only mineral nitrogen fertilizer was applied on control plots. The results were analysed using classic statistics and geostatistics by constructing semivariograms and 2D kriging maps. It was shown that the effect of exogenous organic matter on the soil properties was related to the type of the EOM, dose and location of the experimental field. There was a general trend of increasing soil water content and maize yield with increasing quantity of the EOMs, especially in Polish soil of lower water holding capacity. The kriging maps allowed to capture the distribution pattern of the soil properties and maize yield in the study areas.

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