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THE LUCAS 2012 TOPSOIL SURVEY AND DERIVED CROPLAND AND GRASSLAND SOIL PROPERTIES OF BULGARIA AND ROMANIA

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Abstract

As part of the 2012 Land Use/Land Cover Area Frame Survey (LUCAS), topsoil samples were collected in Bulgaria and Romania using the same methodology as for other EU Member States in an equivalent survey carried out in 2009. In total, 664 Bulgarian and 1384 Romanian samples were collected which enabled a comparative assessment of topsoil properties under different land covers within, and between, these countries, as well as in a broader European context. The samples were analysed for basic soil properties, including particle size distribution, pH, organic carbon, carbonates, nitrogen, phosphorus, potassium and cation exchange capacity together with multispectral signatures. The current paper describes the LUCAS Topsoil 2012 project and provides both an overview of topsoil properties of cropland and grassland in Bulgaria and Romania, together with a comparative assessment with earlier findings with the analysis of data from other 25 EU Member States and data from small scale European soil database. Results show similarities with data from Member States with comparable climatic conditions in properties where non-anthropogenic soil forming factors play major role (texture, pH, calcium-carbonate, soil organic carbon content). There are considerable variations in certain soil properties between different land use types, (e.g. soil organic carbon content in croplands and grasslands in Romania; or potassium content in croplands and grassland in both countries). However, the most remarkable facts drawn from the current study are the very low phosphorus content in agricultural land in the two countries relative to other EU Member States, the significantly lower contents of organic carbon compared to modelled data of literature and legacy national data and the difference in the distribution of texture classes compared to European datasets.

Key words: carbonate, land use, pH, phosphorus, potassium, soil organic carbon

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