

## **Introduction to**

# **Soil sampling Protocol to Certify the Changes of Organic Carbon Stock in Mineral Soils of European Union**

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The IPCC (2003) proposes to assess the changes of C stock in soils as a difference between two independently estimated spatially-averaged C contents of mineral soils for the reference (baseline) and new (current) observation. The uncertainty of the estimate arrives from the variability of soil parameters, which demand considerable amount of samples to reach required (95%) confidence level of the C stock changes detection. This makes soils involvement in C account expensive and impractical.

The suggested method of soil sampling is different. It introduces area frame sampling combining traditional in agrochemistry composite sampling with random geopositioning of the sampling sites in the field. This method insures a reproducibility of the sampling sites in the followed up samplings, which allows to minimize the amount of the samples to the practical level. In addition, this method substantialises difference in soils by LULUCF categories, e.g., IPCC oversimplifies representation of soils by viewing only one soil layer (0-30 cm) for cropland, pastures and forests. The change of C stock is proposed to be certified by the weight of C and standard error.

The sampling protocol supplements Good Practice Guidance for LULUCF (IPCC, 2003) in line with development of higher order methods related to inventory measurement systems at Tier 3 level for the European Union.

## **References:**

Intergovernmental Panel on Climate Change (IPCC), 2003. Penman J., M. Gytarsky, T. Hiraishi, T. Krug, D. Kruger, R. Pipatti, L. Buendia, K. Miwa, T. Ngara, K. Tanabe and F. Wagner (Eds). Good Practice Guidance for Land Use, Land Use Change and Forestry. IPCC/OECD/IEA/IGES, Hayama, Japan.