

COMPLEX SYSTEM FOR MONITORING OF AGRICULTURAL SOIL STATE BASED ON RESULTS OF SOIL MAPPING AND GREENHOUSE GAS EMISSION

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Development of monitoring system of agrophysical soil state has been induced by a need to create the agrotechnologies for controlling quality and productivity of soils on ameliorated territories managed by the Agrophysical Research Institute. The system of monitoring includes three stages: 1. enlarged soil mapping; 2. studies on agrophysical soil properties; 3. studies of direct greenhouse gas (N₂O, CO₂) emissions and subsoil fluxes. The results are being used for assessing ecological and economic efficiency of agricultural measures for mitigating gaseous losses of nitrogen and carbon using information on crop yields and relationships of soil genetic and agrophysical properties with subsoil fluxes and direct emissions of greenhouse gases. The results of complex monitoring of agrophysical soil state and direct greenhouse gas emissions are combined into registered databases. The application of the monitoring system enables to: assess with a more validity the efficiency of drainage systems; obtain more qualitative results of inventory of agrophysical soil state; improve the inventory of nitrous oxide and carbon dioxide emissions from arable soils.

Key words: *soil mapping, agrophysical soil properties, monitoring of direct emission of nitrous oxide and carbon dioxide, databases.*