

# THE BIO-EFFECT ON COMPLEX OF DIFFERENT CHARACTERISTICS OF SOIL, TILLAGE AND YIELD IN CROP PRODUCTION †

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**Abstract:** Different environmental analyses show that agricultural activities are one of the many local and global emissions sources (Notarnicola et al., 2017; Robertson et al., 2000). The agricultural sector is facing increasing public expectations regarding global environmental impact (Houshyar et al., 2017; Chen et al., 2010; Williams et al., 2011). Agriculture, forestry and other land use (24% of global greenhouse gas emissions): greenhouse gas emissions from this sector mostly come from agriculture (cultivation of crops and livestock) and deforestation. This estimate does not include the CO<sub>2</sub> that ecosystems remove from the atmosphere by sequestering carbon in biomass, dead organic matter, and soils, which offset approximately 20% of the emissions from this sector. Crop production – one of the most important, expensive and fuel-consuming processes in agriculture. Thus, the use of strategically mixed compositions replaces the properties of soil and reduces fuel consumption during soil tillage and environmental pollution. The application of an innovative method in crop production can reduce the GWP (kg CO<sub>2</sub> eq) (Fig. 3) and contribute to the implementation, renewal and development of EU environmental and climate policies and legislations, which would create added value for Europe. There are many specialized researches on the influence of different bio-impact on the various parameters in agriculture. Different bio-impact effects various properties and the composition of soil, plant residues, harvests, and technological processes, total Global warming potential (GWP) as well as the interactions between different parts of the soil, working machine tools, energy consumption and environmental pollution with harmful gases. To summarise wide coverage investigations of various aspects of different bio-impact parameters the main objective – to identify the best-case bio-impact scenario by accounting for many criteria in several aspects. Experimental research shows that different bio-effects of agricultural practices can be oriented towards a reduction in fuel consumption, followed by reductions in CO<sub>2</sub> emissions from machinery and changes in soil properties, dynamics of composition, yield and other parameters. A multicriteria assessment of the essential parameters would give farmers new opportunities for reducing fuel consumption and increasing agricultural production, thereby reducing the negative environmental impact of soil cultivation processes, increasing yields and improving soil. Of all the properties investigated, from a practical point of view, the selection of the most important of all the essential links, such as reducing energy and expenditure, reducing environmental pollution, improving soil, and increasing yields and productivity, is reasonable. The evaluation of the bio-impact effects in agriculture by accounting many criteria in several aspects was the main objective of the multicriteria assessment

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