Cellulose-decomposing activity of soil biota in field crop rotations

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Abstract.
The article presents the results of long-term experiments on the study of the biological activity of sod-podzolic soil by the application method in field crop rotations. The experimental part of the work was carried out in the field at the experimental field of the Mari research Institute of agriculture - branch of the fgbnu FANC of the North-East in 1996-2020. The repetition of variants is threefold, the location of plots is systematic. It is established that the activity of soil microflora mainly depends on the presence of organic matter in the soil. The highest activity of cellulose-destroying microorganisms on the natural background of fertility is observed in the second crop rotation, with the introduction of manure for potatoes – 23.9% in the first period of exposure and 54.7% in the second period of exposure. The lowest biological activity of the soil for the first 45 days was observed in the grain-grass crop rotation (83% of cereals) – 17.7% and 43.4% - in the second period of exposure. This is due to the lack of organic matter due to the lack of their supply. The application of mineral fertilizers at a dose of N60P60K60 for pre-sowing cultivation significantly increases the biological activity of the soil in relation to the non – wind background, and a fairly high rate of decomposition of linen was observed in the second fruit - bearing crop rotation – 24.9% for the first 45 days, 56.8% for 90 days. Correlation analysis (1998-2019) between the average decomposition of linen under crops for the entire growing season and the value of the hydrothermal coefficient (HTC) showed a close direct relationship, which in the first period of exposure (45 days) was 0.87... 0.90, in the second period of exposure-0.86 ... 0.89