

ACCUMULATION OF CADMIUM AND MERCURY IN WHEAT UNDER LIMING OF SOD-PODZOLIC SOIL

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In a field experiment spring wheat was grown on sod-podzolic medium loamy soil with a low level of cadmium and mercury content in the range of background concentrations. The effect of liming of the acidic sod-podzolic soil with various rates of dolomite flour on the physical and chemical properties of the soil, the productivity of spring wheat and the accumulation of cadmium and mercury in plants was established in the experiment. With an increase in the rate of dolomite flour from 1.0 to 9.0 t ha⁻¹, the exchange acidity of the soil changed from acidic to neutral, the content of mobile phosphorus compounds in the soil significantly decreased (by 2.2 times) and wheat productivity increased. When liming the soil with dolomite flour at a rate of 3 t ha⁻¹, which is 60% of the total dose, a maximum (3-time), decrease in hydrolytic acidity and a significant (2-time) increase in spring wheat productivity were noted. Liming of the soil with dolomite flour in rates of 0.6–1.0 of the total dose led to a significant decrease in the cadmium content in grain and straw of spring wheat. Liming of the soil with dolomite flour in doses exceeding the total dose of ameliorant contributed to an increase in the concentration of Cd in wheat grain in comparison with the minimum achieved in the experiment. A significant correlation between the coefficients of Cd accumulation in wheat straw and the indicators of soil acidity was established in the experiment. The decrease in soil acidity contributed to a slight increase in coefficients of Hg accumulation in wheat straw.

Key words: sod-podzolic soil, liming, cadmium, mercury, wheat.

