

Effect of phosphorus fertilizers on yield and cadmium content of potato tubers

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Abstract: Research was performed to determine the effect of cadmium-contaminated phosphorus fertilizers on the content of available Cd in the soil, its accumulation in potato tubers and potato yield. The experiment was conducted on a slightly alkaline alluvial soil containing available cadmium at a level of 0.0248 mg/kg. The available Cd content of the soil varied with the type of phosphorus fertilizer used and the degree of its contamination with Cd, ranging from 0.0232 mg/kg on average in the treatment with the Russian monoammonium phosphate containing the lowest Cd concentration to 0.0318 mg/kg under Bulgarian diammonium phosphate treatment. Cd concentration in potato tubers was highest under the Bulgarian diammonium phosphate (0.092 mg/kg), which contained the highest amount of Cd, and lowest under diammonium phosphate manufactured in Russia (0.036 mg/kg). In all treatments, Cd concentrations in potato tubers were within the maximum permissible limits. The average potato yield was highest under monoammonium phosphate and lowest under triple superphosphate, and showed no dependence on the Cd contamination of fertilizers.

Key words: phosphorus fertilizers, available Cd, potato, yield

Introduction

Soil pollution with heavy metals is a serious problem in many countries worldwide. Apart from the soil parent material as the main source of heavy

