

Soil quality and pesticide residues in soils on organic and conventional farms in Serbia

Maja MANOJLOVIĆ¹, Darinka BOGDANOVIĆ¹, Sanja LAZIĆ¹, Ranko ČABILOVSKI¹, Klara MARIJANUŠIĆ¹, Zdenko LONČARIĆ²

¹University of Novi Sad, Faculty of Agriculture, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia, (e-mail: maja.manojlovic@polj.uns.ac.rs)

²University of Josip Juraj Strossmayer in Osijek, Faculty of Agriculture, Kralja Petra Svačića 1d, 31000 Osijek, Croatia

Abstract

Study was carried out in the framework of the IPA project Agriculture Contribution towards Clean Environment and Healthy Food on seven pilot farms located in Srem and Bačka, the border region of Serbia. The investigation was conducted at three representative farms certified for organic production and four conventional farms, and within them 96 production fields with different history of farming practices. The aim was to compare the impact of organic and conventional farming systems on soil quality and to evaluate the content of pesticide residues in soil. The results showed high variability in soil fertility not only between the farming systems (organic/conventional), but also within the same production system - between different locations and even between plots on the same farm. Soil samples taken from conventional farms had lower pH values and lower humus contents compared to the samples from the organic farms. The results of the analysis of pesticide residues in soil samples from the conventional farms have shown the presence of sulphonylurea herbicides, metolachlor, terbuthylazine and pendimethalin, as well as the residues of some fungicides (difenoconazole, flusilazole, folpet, chlorothalonil, trifloxystrobin, epoxiconazole, pyrimethanil) and some insecticides. Soil samples originating from farms certified for organic production were pesticide free, or residues were below the LOD.

Key words: soil fertility, herbicides, fungicides, insecticides

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