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Impact of Different Agricultural Practices on Soil Organic Matter Content in Chernozems of the Vojvodina region

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Vojvodina is the northern province of Serbia and the chief agricultural centre of the country. The main soil type in Vojvodina is Chernozem (60% of total area), and it is under heavy anthropogenic pressure. Vojvodina is the main agricultural region of Serbia, with characteristic dichotomy between agricultural practices used by small producers and those of big agricultural corporations. The main issue is practically complete lack of application of manure or any other organic fertiliser, both with small farmers as well as with producers with intensive agricultural production. Also, issue is burning of harvest residues by small farmers, which is legally prohibited, but still wide practised. To obtain data on soil organic matter content under different agricultural practices, research has been carried out during July 2016 at Nature reserves Čarnok and Rimski šanac (as a control), experimental fields of Institute for Field and Vegetable Crops, Novi Sad (IFVC)(intensive agriculture with inadequate application of manure and with harvest residues incorporation; previous crop – barley), field of the typical small farmer (SF)(maize monoculture), and location T–49 of the biggest agricultural corporation in Serbia (intensive agriculture with irrigation, no application of manure, but with harvest residues incorporation; previous crop – wheat). The results showed significant reduction of soil organic matter content (SOM) between natural and agroecosystems, but also between different agricultural practices. On locations near Rimski šanac (SOM content 2,69%): experimental field IFVC – 2,21%, field SF – 1,87%; on location near Čarnok (SOM content 5,33%): Ò–49 field – 3,47%. From results we can see that SOM content at field IFVC is 18% lower than in natural ecosystem, at field SF 30,48% lower and at field Ò–49 34,9% lower. According to data, combination of intensive agriculture, irrigation and total absence of manure or organic fertilizer application is resulting in the greatest reduction percentage of soil organic matter content, even greater than in traditional small farm agriculture with burning of harvest residues.