Soil physical and agrochemical properties changes, weediness and yield of crops in a long-term tillage experiment in Lithuania

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The investigations on reduced primary tillage were carried out on Endocalcari-Epihypogleyic Cambisol clay loam soil at the Lithuanian Institute of Agriculture since 1956. The results of the 5th (1992-2000) crop rotation period revealed that no primary tillage method had an influence on crop yielding during a 9-course crop rotation. Soil aggregate stability was higher by reducing ploughing depth. Soil bulk density, total and air-filled porosity was close to its optimal dimensions in spite of ploughing depth. The changes in amount of phosphorus and potassium in soil did not depend on ploughing depth on nutrient-rich soil of the location. Reduced primary soil tillage methods have increased weediness in cereal stand before crop harvesting and in the stand of sugar beet before herbicide application in spring, while weediness was not affected by primary tillage by growing vetch-oat mixture and perennial grasses.