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INFLUENCE OF THE SOIL MANAGEMENT SYSTEM ON SOME CHEMICAL COMPONENTS IN 3 SOIL TYPES FROM A HIGH DENSITY APPLE ORCHARD

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Abstract. Among technological measures practiced in intensive orchards the soil management systems presents a special importance both because of modification of soil properties and because of their evident influence of trees behaviour. To quantify the effects of soil management system from an apple intensive orchard with the Starkrimson cultivar grafted on MM 106, on some soil chemical components, in the period 1985-2005, some investigations were done inside of Research Institute for Fruit Growing Pitesti, Romania. It was organized the following experimental scheme: A Factor, soil type, with 3 graduation; B Factor, soil management system, with two graduation on average on the two soil management systems and 0-60 cm soil depth, on the eutricombosol with colluvic characters, versus typical eutricombosol, the humus content was higher by 23%, the potassium content by 57%, the base exchange materials by 69% and hidrolytic acidity by 33%. On average on three soil types and 0-60 cm soil depth, maintenance of sod strips versus cultivated soil, determined an increase of humus content by 17% and of base status by 8%. Between the studied 8 soil chemical components significant correlations were established with a higher intensity on 0-20 cm soil depth.

Key words: humus, phosphorus, potassium, mowed sod strips

1. Introduction

Among the technological practices applied in the high density orchards, the soil management systems are particularly important both due to the modification of soil properties and also for the obvious influence on the trees behavior. The effects of the soil management systems on the soil chemical modification in the fruit orchards were reported in many works (Haynes, 1980; Haynes and Goh, 1980, 1980 a; Hogue and Nielsen, 1987; Merwin, 1991; Welker and Glenn, 1988; Merwin and Stilles, 1994, Lipecki and Berbec, 1997, Scribbs and Scroch, 1986, etc.).

The studies of the authors above – mentioned dealed generally with one type of soil found particularly on flat lands, the investigations taking a relatively short time. To sum up the effects of soil management systems for a longer period (20 years) on the chemical components some investigations on 3 soil types in a high density apple orchard located on a slope land were carried out (at the Research Institute for Fruit Growing Piteşti - Mărăcineni).

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