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Heavy metal dynamics in the soil–leaf–fruit system under intensive apple cultivation

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Abstract: One of the major problems confronting agricultural production is heavy metal contamination of agricultural soils, which imposes considerable limitations on productivity and leads to great consumer health and safety concerns about the products obtained on these soils. The objective of this study was to evaluate heavy metal dynamics in the soil-leaf-fruit system in an intensive apple cv. 'Idared' planting located in the Municipality of Goražde. Heavy metal contents in the soil samples and plant material were determined by atomic absorption spectrophotometry using a Shimadzu 7000 AA device, according to the instructions specified in the ISO 11047 method. The dynamics of the heavy metals analysed, excepting zinc, in the soil-leaf-fruit system was characterised by relatively high total levels of heavy metals in the soil and a very low degree of their accumulation in the leaves and in particular the fruits. No fruit sample was found to have toxic levels of any of the heavy metals analysed. In terms of soil contamination, this suggests the suitability of the study location for safe apple fruit production.

Key words: soil, leaf, fruit, heavy metals

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