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Comparison of the content and uptake of selected macronutrients in relation to the yield of potato tubers with different flesh colours*

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Abstract

The aim of this study was to compare the content and uptake with tuber yield of selected macronutrients (nitrogen, calcium and phosphorus) in potato tubers of different flesh colours: Eurostar (light yellow), Rote Emma and Herbie 26 (red flesh), Provita, Salad Blue, Blaue Annelise, Vitelotte Noire (purple flesh) and Bora Valley (dark purple flesh) in three growing seasons from 2021-2023. The content of Ca and P was analyzed using Inductively Coupled Plasma – Optical Emission Spectrometry (ICP-OES). The macronutrients were quantified by reference to the calibration curve of a multi-element standard solution Standard in its linear range. Total nitrogen was determined with the Kjeldahl's method on a 2300 Kjeltac Analyser Unit (ISO 1871 2009). Macronutrient intake was calculated as the product of the potato tuber dry matter yield and the content of each element. Potato varieties with red and purple flesh accumulated similar or higher amounts of selected macronutrients (nitrogen, calcium and phosphorus) than those with light flesh. The content and uptake of the analyzed macronutrients were influenced by the weather conditions during the study years.

Keywords: potato, flesh colour, nitrogen, calcium, phosphorus

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