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ORIGINAL PAPER

The effect of weed control method on the macronutrient content in tubers of two potato cultivars*

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Abstract

The aim of the study was to determine the effect of different types of sprayer nozzles on the content of selected macronutrients (phosphorus, potassium, calcium, and magnesium) in the tubers of two table potato cultivars (Jurek and Finezja). Field experiments were conducted in the years 2018–2020 at the Agricultural Experimental Station in Zawady, on slightly acidic soil belonging to the very good rye complex. The experiment was established in a split-plot design with three replications. The study included two factors: potato cultivar (Jurek, Finezja) and the method of herbicide application using four variants: (1) control object with mechanical weed control (four cultivations with harrowing before emergence, and one cultivation after emergence), (2) flat fan nozzles (AP12003), (3) hollow-cone nozzles (HCI8003) - the applications carried out with the same pressure and flow rate, and (4) 3D Hypro nozzles (3D100-03), also operated under identical parameters (4 bar; 1.39 L min⁻¹). The results showed that a weed control method had a significant effect on the content of phosphorus, potassium, magnesium, and calcium in potato tubers. The highest phosphorus and calcium contents were recorded after the use of 3D Hypro nozzles, whereas the highest potassium content was observed in the control object. Magnesium content differed significantly depending on the type of a sprayer nozzle used. A significant effect of cultivar on potassium content was also found. The results confirm that proper selection of sprayer nozzles can influence the quality of the raw plant material in terms of its nutritional value.

Keywords: Solanum tuberosum L., sprayer nozzles, macronutrients

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