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The influence of nitrogen fertilizer application on soil changes and raspberry fruit quality

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Abstract

This paper presents the results of the application of KAN nitrogen fertilizer (27% N) on soil changes and raspberry fruit quality in two orchards of Willamette and Tulameen cultivars in trials established during two growing seasons, 2020 and 2022. The experiment was laid out in six variants, with three replicates. Soil samples for agrochemical analysis were taken in both raspberry orchards before and after the trial was laid out to determine the effects of applying increasing doses of KAN on soil fertility parameters. At the raspberrie technological maturity stage, fruit physical and chemical properties were measured. For physical properties, the following were measured: fruit weight (g), fruit length and width (cm), and for chemical properties: total soluble solids (%), total organic acids (%), vitamin C (mg/100g), total phenols (mg GAE/100g), total flavonoids (mg QE/100g) and total antioxidant capacity of the fruit (µg AA/1 g). The obtained results indicate that raspberry nutrition with NPK compound fertilizers and KAN had a positive effect on changing in the agrochemical properties of the soil. The content of primary and secondary chemical compounds increased with the application of increasing doses of nitrogen. Under the agro-ecological conditions of Ivanjica, Willamette showed better fruit quality.

Key words: soil, KAN, raspberry, Willamette, Tulameen