

## Streszczenie rozprawy doktorskiej w języku angielskim

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### **The influence of crop production system on selected quality characteristics of strawberry fruit**

**Key words:** strawberry, organic system, integrated system, conventional system, food quality

The aim of the research was to determine the impact of various agricultural production systems: conventional, integrated and organic on selected quality characteristics of strawberry fruit. The research was carried out in 2015-2016 among farmers from the Lubelskie Voivodship, powiat Puławy, cultivating strawberries of the Honeoye variety, in the three farming systems mentioned above. Each farm group was represented by 11 producers. Physico-chemical analyses of strawberry fruit were performed (the content of dry matter, sugars, vitamin C, polyphenols, anthocyanins, nitrates V and III, macroelements and microelements, and pesticide residues). Sensory and microbiology tests were also carried out of strawberry fruits from various agricultural production systems.

It was found that the organic system favors the accumulation of a higher content of certain bioactive substances, including total sugars, glucose and fructose, calcium and magnesium (2016) compared to other agricultural production systems. The advantage of the organic system over other production methods was not confirmed in the following properties of strawberry fruit: dry matter content, organic acids and vitamin C content, phosphorus, potassium and iron content. Intermediate levels of substances such as polyphenols, phenolic acids, fumaric acid and flavonoids, have been shown in organic fruits, with the lowest content in the integrated system, and the highest in the conventional extensive system. Nitrate and nitrite contents in strawberry fruit did not differ significantly between agricultural production systems. All the samples met the standards for the maximum allowable concentration of nitrates for food for infants and young children. None of the samples of strawberry fruit exceeded the maximum permissible levels of pesticide residues (MRL) and no active pesticide substances were found in organic fruit samples. Fruits from the organic system received the highest marks in the consumer sensory assessment. They were characterized by a significantly more intense strawberry aroma and intense sweet and strawberry flavor compared to fruits from the conventional and integrated system.

Due to the proven significantly higher content of some compounds with a beneficial effect on human health and no pesticide residues, fruits from organic farming can be recommended as potentially health-promoting products.

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