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OF SUGAR BEET RESEARCH

ABSTRACTS OF PAPERS

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**Innovation: our driver for a profitable
and ecologically balanced
sugar beet production**

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1 Agronomy

Fertiliser use and optimisation

1.1 IVANA BAJIĆ, OLIVERA POPOV, ŽIVKO ĆURČIĆ

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EFFECT OF NITROGEN MINERAL NUTRITION IN EXTREME CLIMATIC CONDITIONS ON SUGAR BEET PRODUCTION

Continuous advancements in plant breeding and the development of new hybrid varieties are occurring alongside the challenges posed by climate change. Consequently, there is an ongoing need to reassess agricultural practices. Fertilisation, particularly with nitrogen, plays an important part in plant production. Nitrogen is a critical element required in significant quantities for optimal crop growth, influencing the yield of various crops. However, it's important to acknowledge that nitrogen is a dynamic element, and substantial nitrogen reserves cannot be retained within the soil. Given the distinct requirements of sugar beet cultivation, where nitrogen not only impacts root yield but also profoundly influences root quality, it becomes important to improve fertilisation management. Therefore in our study we focused on assessing the effects of five different nitrogen fertiliser levels (40, 80, 120, 160, and 200 kg N/ha) on root yield and quality of two commercial sugar beet hybrids. Field trials were conducted over the course of 2022 and 2023, with nitrogen fertilisers applied before sowing. The variable climatic conditions experienced during these two years led to significantly different outcomes regarding the effects of nitrogen fertilisation. In the arid year of 2022, nitrogen fertilisation appeared to have no notable impact. There were no significant differences between the control group and the fertilised variants across all tested properties. However, in 2023, increased nitrogen fertiliser application resulted in higher root yield and sugar yield, although at the expense of sugar content. Among the various nitrogen fertilisation options studied, the application of 120 kg N/ha emerged as the most optimal choice.