

## **THE INFLUENCE OF NUTRIENT SOURCES ON THE YIELD AND MARKETABILITY OF SWEET POTATO [*IPOMOEA BATATAS* (L.) LAM.]**

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The consumers' continuously increasing demands for sweet potato [*Ipomoea batatas* (L.) Lam.] during the last decades have considerably stimulated the producers' interest in numbers of European countries. Besides the decades-long experiences in production, development of each steps of technology based on experimental results can significantly improve yield stability of sweet potato also in Hungary.

Our experiments were performed with the Hungarian certified cultivar 'Ásotthalmi-12' in Hódmezővásárhely on sandy soil in 2017. We examined the effects of various fertilizers, a plant conditioner and their combinations on the yield of sweet potato as well as on the proportion of first- and second-class storage tubers and foliage mass. Altogether, 18 treatments were applied in four repetitions set up in randomized block design. The products involved were: (1) Phylazonit soil inoculant (*Pseudomonas putida*, *Azotobacter chroococcum*, *Bacillus circulans*, *Bacillus megaterium*); YaraMila (2) 8-24-24, (3) 8-11-23 (N-P-K) and (4) YaraLiva NITRABOR (N, Ca, B) fertilizers; (5) YaraVita BORTRAC (N, B), SENIPHOS (N, P, Ca) and SAFE K (N, K) foliar fertilizers. The treatments were: untreated control; 1; 2; 3; 1+2; 1+3; 2+4; 3+4; 1+2+4; 1+3+4; 2+5; 3+5; 1+2+5; 1+3+5; 2+4+5; 3+4+5; 1+2+4+5; 1+3+4+5. At the harvest, the storage root yields, the amounts of 1<sup>st</sup> and 2<sup>nd</sup> grade storage roots and the mass of foliage were determined per plot.

The highest yield (708.75 g) per plant was achieved with Yara 8-24-24, followed by Yara 8-11-23 (700 g) and Phylazonit (692.25 g). The highest rate of 1<sup>st</sup> grade storage roots (78%) as well as the biggest foliage mass per plant (326 g) was also achieved with Yara 8-24-24. The usual benefits of the combination of plant conditioners and fertilizers were not observed here. The complex application of foliar fertilizers had negative effect on each parameter determined. The extrapolation of 'per plant' results to one hectare (33,333 plants per hectare) showed that the application of the bacterial soil inoculant 'Phylazonit' resulted in a yield (23.1 tons Ha<sup>-1</sup>) only 0.5 ton lower than that of

the Yara 8-24-24 (23.6 tons Ha<sup>-1</sup>). The differences between the yields, however, can even reach 9 tons per hectare, depending on the treatments.

Based on our results, it can be concluded that bacterial soil inoculants can successfully replace fertilizers if organically informed cultivation is preferred. Further experiments are needed to explain the benefits of a fertilizer of higher phosphorous content on a soil of exaggerated phosphorous content - contradicting the general information about the moderate needs of sweet potato for this element.

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