

THE IMPACT OF PLANTING AND HARVEST TIMES ON THE YIELD OF SWEET POTATO [*IPOMOEA BATATAS* (L.) LAM.]

ANDREA BARTÓK¹, ZSOLT GOMBOS², ADRIENN SZARVAS¹, TAMÁS MONOSTORI¹

¹University of Szeged Faculty of Agriculture, Hódmezővásárhely, Hungary
²horticultural engineer, Tiszasziget, Hungary
monostori.tamas@mgk.u-szeged.hu

Despite the growers' continuously increasing interest and decades-long experiences in cultivation, the domestic production of sweet potato [*Ipomoea batatas* (L.) Lam.] still cannot satisfy the Hungarian consumers' demands. Sweet potato research has a century-long history in Hungary but the improvement of the amount and stability of yield still requires the experiment-based elaboration of site- and genotype-specific production technologies.

In our pilot experiments we aimed to determine the effects of various planting and harvesting times on the yield of sweet potato. Data were collected on a commercial field in Tiszasziget, South-East Hungary. Sweet potato was planted with primary slips (20-25 cm, 4-6 leaves) of the registered sweet potato variety 'Ásotthami-12', using a disc planting machine. The row distance was 80 cm, the plant-to-plant distance was 25 cm meaning a density of 50,000 plants Ha⁻¹. Drip irrigation was used according to demands but minimum once per week. For fertilization, only KNO₃ was applied through the irrigation system. Soilborne pests were controlled by the application (2-3x) of a commercial product containing the spores of *Arthrobotrys oligospora*. Manual weed control was performed 2-times. Prior to harvesting, sweet potato foliage was removed with a rotary mower, harvest was made with a shake lifter and manually.

Planting was performed in four periods in 2018: (1) 17 May, (2) 5-7 June, (3) 15-20 June, (4) 22-26 June. Keeping a growth period of ca. 19 weeks (133±3 days) each case, the harvesting dates were the following: (1/1) 27 September, (1/2) 28 September, (2) 20 October, (3) 28 October, (4/1) 5 November, (4/2) 7 November. Storage root yield of 20-20 individual plants from different parts of the field were weighed. In the harvest period No. (1/2) 4 plots, in No. (2) 2 plots, while in the others 1-1 plots of 20 plants were set. The average yields per plant at the given harvest times were (1/1) 2,005 g, (1/2) 2,194 g, (2) 1,570 g, (3) 1,570 g, (4/1) 1,100 g, (4/2) 1,180 g, respectively.

The average yields achieved in our pilot experiment (55-110 tons Ha⁻¹) were by far above the Hungarian average of 18-25 tons Ha⁻¹. The maximum yield per plant (2,355 g) was achieved in the 3rd plot of setup (1/2), at early planting on 17 May and harvesting on 28 September. Our results show, that – regarding the

general tendencies – earlier planting and harvesting can result in higher storage root yields per plant. Late planting paired with late harvesting resulted in the drop of storage root yield. Extrapolating the ‘per plant’ values to tons Ha⁻¹, the difference between the highest (118 tons Ha⁻¹) and lowest (55 tons Ha⁻¹) yields can be even 63 tons Ha⁻¹.

Our results suggest that the Hungarian sweet potato growers’ common practice of extending sweet potato planting until the end of June and harvest until the end of October can result in a lower storage root yield than expected. It is advised to perform planting as soon as the environmental conditions – primarily temperature – make it possible. Keeping the growth period of the given sweet potato genotype, the time of harvesting will be optimally early as well. As officially not determined before, the growth period of ca. 130 days proved to be optimal for ‘Ásothami-12’ in our experiment.