

## THE INFLUENCE OF EDIBLE POTATO CULTIVAR ON YIELD SIZE AND QUALITY

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The study material included five cultivars of edible potato (Jurek, Laskara, Satina, Tajfun, Jelly) cultivated between 2018–2020 in a commercial farm in Żyżnów (49°49' N, 21°50' E), in soil with valuation class IVb, defective wheat complex, and slightly acidic pH. The planting material included class O – Original potatoes purchased in the Seed Centre. Potatoes were planted manually in the third decade of April with 75 × 33 cm spacing and harvested in the third decade of September. During harvest, the study focused on the general yield of tubers, yield structure, the share of tubers with external defects in the yield, starch content, dry mass in tubers and flesh browning in raw tubers after 1 h and 2 h from cutting. Individual cultivars of edible potato differed in terms of general yield size. The percentage of commercial tubers in individual cultivars was at a similar level. The highest value was observed in the Satina cultivar, followed by the Tajfun and Jelly cultivars, whereas the Laskara cultivar demonstrated the smallest percentage of commercial tubers. The tuber fraction mass in general yield of the 5 potato cultivars was differentiated. The studies revealed a small percentage of deformed, mechanically damaged, diseased or rotting tubers. The individual cultivars under study differed significantly in terms of the content of dry mass and starch in tubers. The highest starch content was noted in the Tajfun cultivar, and the lowest in Jurek. After 1 h from cutting, the most browning was found in the Satina cultivar, and after 2 h from cutting – in the Jelly cultivar.

### References

1. Boguszewska D. 2007. Impact of water shortage on the content of selected chemical components in potato tubers. *Food. Science. Technology. Quality*, 5(54), 93–101.
2. Bienia B., Sawicka B., Krochmal-Marczak B. 2019. The effect of foliar fertilization on browning of tuber flesh of selected potato cultivars. *Agronomy Science*, 4, 61–71.
3. Grudzińska M., Zgórska K. 2006. Enzymatic darkening of potato tuber pulp depending on the variety. *Problem Notebooks of Progress in Agricultural Sciences*, 511, 579–584.
4. Kołodziejczyk M. 2014. Impact of precipitation and thermal conditions on the chemical composition and selected quality parameters of medium and late tubers of edible potato varieties. *Annales UMCS, Sectio E, Agricultura*, 69(3), 1–10.

5. Lenartowicz T. 2009. New varieties of Potato. *Polish Potato*, 2, 2–5.
6. Leszczyński W. 2012. The importance of potato as a food product and in industrial processing. *Polish Potato*, 1, 38–43.
7. Nowacki W. 2013. Factors determining the quality of potato. *Bulletin of the Institute of Plant Breeding and Acclimatization*, 17–31.
8. Nowacki W. 2015. Chances and threats to the potato market in Poland. *Annals of The Polish Association of Agricultural and Agribusiness Economists*, 17(2), 169–175.
9. Roztropowicz S. (ed.). 1999. Methodology of observation, measurements and sampling in agrotechnical experiments with potato. *Collective work. IHAR Oddz. Jadwisin*, 50.
10. Sawicka B., Kuś J., Barbaś P. 2006. Darkening of potato tuber pulp under the conditions of an ecological and integrated cultivation system. *Polish Journal of Agronomy*, 445–457.
11. Sołtys D., Zarzycka H. 2013. Production and quality of edible potato in the opinion of consumers in Poland and Ukraine. *Notebooks of the University of Natural Sciences and Humanities in Siedlce*, 309–310.
12. Trawczyński C., Prokop W. 2016. Yield and quality of potato tubers depending on the applied fertilization with the use of soil and foliar multi-component fertilizer preparations. *Polish Journal of Agronomy*, 24, 23–29.
13. Wierzbicka A. 2012. Influence of cultivar, nitrogen fertilization and harvesting date on dry matter and starch content in early potato tubers. *Fragmenta Agronomica*, 29(2), 134–142.
14. Wroniak J. 2006. Nutritional Advantages of Potato. *Biuletyn Hodowli i Aklimatyzacji Roślin Oddział w Jadwisinie. Polish Potato*, 2, 19–23.
15. Wszelaczyńska E., Pobereźny J., Gościnną K., Chmielewski J., Łabas S. 2017. Darkening of potato tubers and the possibilities of its reduction. *Food Industry*, 71(11), 31–34.
16. Zarzecka K., Antolak M., Pszczółkowski P. 2004. Dry matter and starch content of ten medium early potato varieties. *Notebooks of the University of Natural Sciences and Humanities in Siedlce*, 59–63.
17. Zarzyńska K., Golszewski W. 2016. Development and yielding of potato plants grown in two production systems in years with extremely different vegetation conditions. *Ziemiak Polski*, 1, 13–20.

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