



Quality aspects in open-pollinated onion varieties from Western-Europe

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Commercial onion breeders limit their selection criteria by focusing almost exclusively on conventional farming. This raises the demand for certain well known varieties, but lowers the general diversity available on the mainstream market. A way to maintain biodiversity is to preserve old open-pollinated varieties. Through their distinct aroma and flavor, these plants are again drawing the interest of farmers and consumers alike, making them a viable alternative to commercial varieties. To assess yield and quality aspects of west-European open-pollinated onions, we have evaluated nine varieties and compared them against two of their commercial, well-established counterparts. The study included onion production on the field in South-West Germany, evaluation of the quality and flavor parameters, as well as a trained sensory taste panel. Results showed high diversity in yield and chemical properties of the studied onion varieties, where two varieties have, in particular, stood out significantly. Compared to the control, the variety "Birnförmige" performed best and demonstrated high concentrations of fructan and pyruvic acid, both known to have curative and medicinal properties. On the other end of the spectrum, the variety "Jaune des Cévennes" demonstrated low dry matter content, low concentration of enzymatically-produced pyruvic acid and a high bolting percentage. The study also confirmed the link between individual quality components in onion bulbs, including the significantly negative correlation between minerals (such as calcium and magnesium) and fructan.