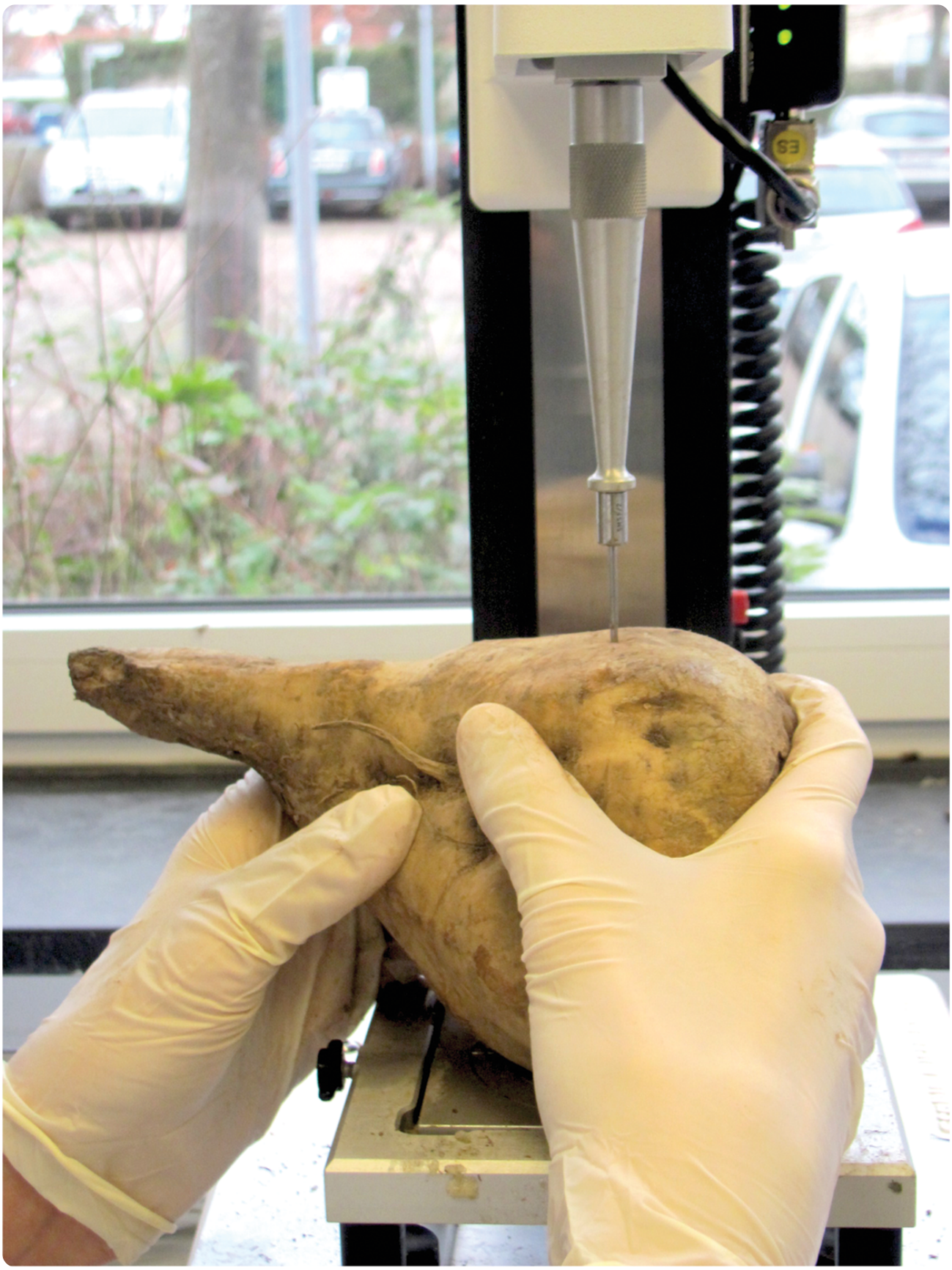
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Sugar beet root tissue strength determined by genotype

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Measurement of the tissue strength of sugar beet with a texture analyzer. Photo by Gunnar Kleuker.

During sugar beet harvest, tissue damage can serve as an entry point for storage pathogens. These pathogens break down sugars, resulting in sugar loss. Since sugar beet roots are stored in piles for a considerable time between harvest and processing, damage and sugar cleavage can result in high financial losses for growers and processors.

Tissue strength of sugar beet roots is a possible indicator for storability and influences the manufacturing process. As such, it could be an interesting breeding target. However, the importance of genotype and environment on sugar beet tissue strength has been unclear.

In a *Crop Science* study, researchers analyzed the effect of different sugar beet genotypes on root tissue strength. These sugar beets were grown in different growing regions in Germany. They found a distinctly higher genotype effect for tissue strength than for yield and quality parameters of sugar beet, whereas the genotype × environment interaction was negligible. Commercial genotypes also covered a wide range of tissue strengths. These differences might affect harvest damage, storage losses, and subsequent processing steps in the sugar factory. The researchers suggest considering tissue strength as a focus of future breeding efforts.

Dig Deeper

Kleuker, G., & Hoffmann, C.M. (2021). Tissue strength of sugar beet root genotypic variation and environmental impact. *Crop Science*, *61*, 2478–2488.

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