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## **GENOTYPE × ENVIRONMENT INTERACTIONS IN SUGAR BEET AND IMPLICATIONS FOR VARIETY CHOICE IN GERMANY**

### **ABSTRACT**

Differences in performance among sugar beet varieties are caused by genotype and environment (combination of site x year). To assess the influence of these factors on corrected sugar yield, data from 79 variety trials in Germany conducted from 2011 to 2014 were evaluated. Environment had a significant and predominant effect on corrected sugar yield. The influence of variety was also significant, but much lower. By contrast, the interaction of environment and variety was not significant. During the last years, occurrence of the fungal disease *Cercospora beticola* has increased in German production areas. Differences in variety ranking in corrected sugar yield were mainly evident in trials with high infestation of *C. beticola* without the application of fungicide. The less susceptible varieties showed an increase in corrected sugar yield under disease free conditions compared to susceptible varieties. Furthermore, the calculation of heritability proved that 20 assessed trials are sufficient to gain a reliable estimate of variety performance.

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