

## **Influence of temperature on the sensitivity of rapeseed varieties and genotypes to turnip yellows virus (TuYV) and animal pests (aphids)**

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Rapeseed is an important, globally grown oil plant, used for food and technical applications. In recent years, turnip yellows virus (TuYV) turned out to be a serious threat to rapeseed production. The ban of neonicotinoids for seed treatment that were able to control insect pests in the past increases the risk of infection by TuYV and infection rates may also be affected by climate change. However, TuYV monitoring for the years 2015 until 2017 already revealed high infection rates in several parts of Germany. Furthermore, TuYV monitoring suggested the presence of virus isolates that may overcome TuYV resistance, a trait of several rapeseed cultivars. By using a collection of different virus isolates from different parts of Europe, this observation was confirmed by greenhouse infection experiments under controlled environmental conditions. In addition, it was shown in temperature tests that predicted climatic changes (temperature) have an influence on the resistance to TuYV. We identified differences within the TuYV genome sequence that might be relevant for the ability of specific isolates to overcome resistance. In combination with the ability of *Myzus persicae* clones to transmit TuYV with a high efficiency, as demonstrated by using feeding behaviour observation as well as infection assays, the spread of highly virulent virus isolates might increase pressure on future rapeseed production.