

# Study of the transmission efficiency of *Wheat dwarf virus* with different geographic origins of the leafhopper *Psammotettix alienus*

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Due to the climate changes insect-transmitted viruses become more important. The leafhopper species *Psammotettix alienus* is the vector of the *Wheat dwarf virus* (WDV). Higher temperatures in autumn advantage the infection of cereals with WDV. For resistance tests it is important to know the transmission efficiency of WDV with *Psammotettix alienus*, which are living in the experimental rearing. Three different geographic origins of the vector (Quedlinburg, Beijing and Prague) were used for the transmission tests. To make sure that the origins belong to the species *Psammotettix alienus*, the *aedeagus* must be dissected. Two viruses are distinguished: the Wheat dwarf virus (WDV) and the Barley dwarf virus (BDV). One isolate of each virus was taken for transmission test. ELISA was used to detect the virus in the plants.

The leafhoppers were divided in body and head. The heads were tested by quantitative real-time PCR, the bodies by qualitative PCR with subsequent gel electrophoresis. The results show that the transmission efficiency is different between the three origins. The origin Beijing has the highest transmission efficiency (WDV 75%, BDV 77%); the transmission efficiency of the origin Quedlinburg (WDV 58%, BDV 63%) is nearly as good as the origin Beijing; the origin Prague showed heterogeneous test results between both viruses (WDV 76%, BDV 23%). In most of the leafhopper bodies WDV/BDV were detected. Also some heads were positive tested with WDV/BDV, although the DNA isolation from the heads was difficult. There is more investigation necessary to secure the present results.