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Turnip Yellows Virus (TuYV): Incidence and impact on yield in European winter oilseed rape

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The Turnip Yellows Virus (TuYV) is a member of the genus Poleroviruses and is infecting several plant species including Brassica napus L. The virus is transmitted by aphids and is reported to occur in all cultivation areas of oilseed rape worldwide. Originally this virus was integrated in the closely related Beet Western Yellows Virus (BWYV) but later it has been shown that TuYV is an independent species and cannot infect beets. In the past the infestation in European winter oilseed rape was very fluctuating but not crucial in most of the years. With the ban of neonicotinoid seed dressing in the European union in 2014 TuYV infections gained considerably in importance because the crops were not protected against aphids during early autumn any more. In addition, the impact of climate change with milder autumns and winters extended the period of autumn infections.

In order to assess the incidence of TuYV infections a monitoring based on ELISA-tests was performed in several European countries during the years 2015-2018. An overview of infection rates will be given with a focus on France, Germany and Poland. The highest average infection rate was measured in Germany in 2017 with a nearly complete infection of the crop (96% of tested plants infected). Heavy infections of TuYV have a considerable effect on seed yield, plant height, glucosinolate and oilcontent. Estimations on yield losses vary from 5 to 50% in literature. In open field yield trials of winter oilseed rape we have estimated the yield decrease caused by severe TuYV infections to 5-15%.