

#100

Turnip yellows virus-resistant rapeseed varieties as a possible solution against aphid-borne virus disease

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PLENARY TALKS

Three viral species (i.e. Turnip yellows virus (TuYV), Turnip mosaic virus (TuMV) and Cauliflower mosaic virus (CaMV)) were detected in winter oilseed rape crops in France in the early 1990's. These viruses are transmitted by several aphid species including *Myzus persicae* which is reported to be present at a rate up to 60% on average in rapeseed fields in French production areas. TuYV is the most prevalent virus reported so far in oilseed rape. The ban, in September 2018, of Neonicotinoids (foliar spraying) by the French authorities strongly impact the insecticide-based method used so far as the main strategy to control *Myzus persicae* populations in fields. Thus, TuYV-resistant varieties are of great interest to limit incidence of yellow disease in neonicotinoid-free oilseed rape fields.

Trials carried out with different varieties showed that in both early (i.e. in December) and in late (i.e. in March) growing season infection rates and viral accumulations in infected plants were lower in the several varieties, including cv. Architect, than in the referent cv. DK Exception. Moreover, in the absence of insecticide protection, the partial resistant phenotype was associated to a yield gain when trials were under high viral pressure. However, in trials with low virus pressure no yield gain was associated with TuYV-resistant cultivars. Whatever the viral pressure, no significant yield gain has been observed with foliar insecticide against aphids on the resistant varieties.

Unfortunately, varieties resistant to TuYV are not resistant to the other two viruses (CaMV and TuMV) reported in oilseed rape crops which can occasionally strongly affect rapeseed production.

Several new trials carried out by Terres Inovia in 2018 have been used to complete the characterisation of partial resistant cultivars such as cv. Architect and to study yield variations between resistant and susceptible varieties under different viral pressures.

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