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Virus Yellows resistant/tolerant varieties for sustainable sugar beet production, when seed treatments are banned.

Virus Yellows is caused by several aphid-transmitted virus species. For many years, the disease was successfully controlled by neonicotinoids, but as insecticides were banned in the EU in 2018, Virus Yellows has again evolved to become one of the major threats to the sugar beet crop in Europe. Breeding has continued for many decades with the development of hybrids with resistance and/or tolerance to Virus Yellows. Evaluation of new lines and hybrids is continuously done in greenhouse, semi-field and field trials for both single virus infections, as well as multiple virus infections. Tests are done in quarantine conditions to check the sustainability of resistance/tolerance by using several virus isolates with different origins. New hybrids are successfully developed with low or no yield gap. Additionally, hybrids with green canopy also have a robustness against different leaf diseases.