

# Marker-Assisted Selection (MAS) for *Vf*-scab resistance in apple (*Malus domestica*)

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Apple scab caused by the fungal pathogen *Venturia inaequalis* is one of the most important diseases in all apple growing areas around the world. The infection can cause severe damage to leaves and fruits making them unmarketable. Therefore extensive fungicide applications up to 15 times or more per year with different fungicides are required to prevent economic losses. Due to the demand for more sustainable production fungicide treatments could be reduced by planting scab resistant cultivars. The most commonly used apple scab resistance gene in breeding programs is *Rvi6* (the new denomination of *Vf*), derived from *Malus floribunda* 821. Until now more than 70 scab resistant cultivars are reported carrying the *Rvi6* gene. Planting these *Rvi6* cultivars allows the reduction of fungicide treatment.

The Züchtungsinitiative Niederelbe (ZIN) is an union of apple growers in the North-Western part of Germany focusing on breeding new cultivars. ZIN, together with the FH Osnabrück and the JKI are partners participating in a network called WeGa. The topic of the three partners is to identify *Rvi6* scab resistant apple cultivars with high fruit quality. This project includes the genotyping of apple selections concerning *Vf* resistance, the analysis and identification of aroma compounds by gas-chromatography and the evaluation of inner and outer fruit quality. Here we will present first results of the Workpackage 1.2: "Marker-Assisted Selection (MAS) for *Vf*-scab resistance in apple (*Malus domestica*)" which is part of the cluster "Product Safety by Sustainable Plant Protection" of the WeGa network project.