

Improvement of quantitative resistance to stem canker in oilseed rape

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Leptosphaeria maculans is one of the most important pathogens on oilseed rape. Using resistant cultivars has been proven to be the best method to manage *L. maculans*. Two types of resistance are generally described, R-gene mediated resistance and quantitative resistance. The latter is known for being more durable and stable.

PhomaDur is a project that aims to improve quantitative resistance and to deepen the understanding of its mechanisms in oilseed rape. Therefore, the objectives of this project are (1) to phenotype a multi parents interconnected mapping population in the field and in the greenhouse in order to identify QTLs, (2) to study blackleg infestation and characterize the range of *Phoma lingam* isolates/races in different regions in Germany and (3) to investigate the quantitative resistance mechanisms. For that, stem canker severity was compared in

four regions in Germany in season 2017-2018. Subsequently, the phenotypic assessment was applied to the oilseed rape mapping population from the field with the highest disease severity. Additionally, *L. maculans* was isolated from phoma leave spots from the four studied fields. Preliminary observations indicate that *LepR1* is still very effective in Hadmersleben and Nienstädt, while the resistance genes *Rlm2* and *Rlm9* are 100% broken in both sites. On the other hand, results from two sites showed that *Rlm7*- breaker isolates' distribution becomes more prominent in some regions in Germany. In order to investigate quantitative resistance mechanisms, different inoculation methods in the greenhouse were tested. Results showed that stem canker severity in greenhouse may vary based on the inoculation method and the placement of the inoculum on different plant tissues.