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<u>Juergen Derpmann</u> Andreas Mehl

Bayer AG, Division Crop Science, Monheim, Germany

Fungicide sensitivity of Sclerotinia sclerotiorum and consequences for stem-rot control in oilseed-rape

Sclerotinia sclerotiorum is a fungal pathogen infecting more than 400 hosts, under which economically important crops such as oilseed-rape. Since S. sclerotiorum is a monocyclic pathogen not possessing asexually produced conidia, it's epidemic in oilseed-rape is relied on ascospores infecting susceptible floral parts. After dropping of colonized petals, mycelium can infect leafs and stems leading to the stem rot disease symptoms observed in unprotected fields. Therefore, application timing as well as choice of fungicides has a significant impact on the efficacy to control Sclerotinia stem rot.

Samples were collected in important oilseed-rape growing regions in Germany, France and Great Britain from 2016 to 2018. Subsequently, the sensitivity towards different compound from the group of SDHIs, DMIs and QoIs was determined. In case decrease sensitivity was observed, molecular tools were applied in order to identify mutations responsible. Cross-resistance studies were conducted to demonstrate the impact of detected mutations on selected compounds. Lastly, greenhouse experiments were conducted to elucidate the impact of the detected mutations on the efficacy of commercially available stem-rot solutions and the implication on fungicide resistance management is discussed.