

Tan Spot on winter wheat in the Grand Duchy of Luxembourg: Diagnostics and Evolution

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Tan spot caused by *Drechslera tritici-repentis* was identified for the first time in the Grand-Duchy of Luxembourg (GDL) in 1999 on the basis of morphological characters. In order to optimise disease control measures in the GDL, tillage methods, cultivar resistance, and fungicides effects were investigated during 1999-2009 in four sites. Over this period, only three years (i.e. 1999, 2000, and 2009) with epidemic outbreak were recorded. Field experiments showed a significant difference in disease severity between sites ($P < 0.001$), cultivars ($P < 0.0001$) and years ($P < 0.001$). In years with epidemic outbreak, the interaction of cultivars with non-inversion tillage, intensive winter wheat production, and favourable weather conditions caused an early expansion of the disease and a significant severity at GS 83 (early dough). Non-inversion tillage was found to be a major factor increasing the tan spot severity compared with conventional tillage. Furthermore, the analysis revealed that the disease severity was related to the cultivar's susceptibility. For cultivars with similar phenology, the severity differed between the most and the weakly susceptible cultivar by a factor of two to four. The study also showed that no fungicide (mix of triazoles and strobilurin) effect has been observed in the epidemic years, except in 2000.

Key words: *Drechslera tritici-repentis*, winter wheat, cultivar, tillage methods, disease control.