

Disease Notes

First Report of Wheat Leaf Rust in the Grand Duchy of Luxembourg and the Progress of its Appearance over the 2003–2008 Period

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Wheat leaf rust caused by *Puccinia triticina* Eriks. was identified for the first time in 2000 in the Grand Duchy of Luxembourg on the basis of orange-to-brown, round-to-ovoid, erumpent uredinia (1 to 1.5 mm in diameter) scattered on the upper and lower leaf surfaces and producing orange-brown urediniospores that are subglobose, approximately 20 µm in diameter, and with up to eight germ pores scattered in thick, echinulate walls. In a second phase, wheat was monitored weekly (starting from Zadoks growth stage 30, pseudo stem erection) during the 2003–2008 cropping seasons for wheat leaf rust. Disease severity (percentage of leaf area with symptoms) was recorded in four, replicated field experiments located in three villages (Diekirch District: Reuler; and Grevenmacher District: Burmerange and Christnach), which are representative of the different agroclimatological zones of Luxembourg. A significant difference in severity was observed between the sites ($P < 0.01$) and the years ($P < 0.05$). Over the 6-year period, Burmerange and Reuler consistently showed the highest and lowest disease severity, respectively. In 2003 and 2007, Burmerange (a southern site with the highest average spring temperatures of 13.6 and 14.0°C, respectively) showed the highest disease severity with 66 and 57%, respectively, whereas the lowest severity (<1% for both years) was observed in the north at Reuler (site with the lowest average spring temperatures of 12.0 and 12.4°C, respectively). Christnach, located midway between Reuler and Burmerange, showed an intermediate disease severity with 7% (2003) and 22% (2007). The disease appeared at growth stages 77 (late milk) and 87 (hard dough) in the period 2003–2005, but at an earlier stage (45, boots swollen) for 2006–2008 ($P < 0.001$). In 2005, low severity was recorded due to a severe drought during May, June, and July. A reason for this earlier appearance of leaf rust occurrences in the two districts may be related to an increase in the average spring temperature (average March to May temperature for Luxembourg was 8.3°C for the 1971–2000 period, 9.5°C for the 2003–2005 period, 9.9°C for the 2006–2008 period, 2007 was exceptional with 11.9°C, $P < 0.01$). In the past, cereal disease management strategies were oriented toward the control of predominant and yield-reducing diseases such as that caused by *Septoria tritici* Desm. Because the succession of mild winters and warm springs during the last 5 years allowed the early occurrence and the fast development of wheat leaf rust in the Grand Duchy of Luxembourg, it is advisable to take this disease into account in fungicide application schemes.