

Severe epidemics of wheat yellow rust in Argentina

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In 2017, Argentina faced the worst epidemics of yellow rust since the 1930s. Based on samples collected at 22 epidemic sites in September, the Global Rust Reference Center (GRRC) has identified at least three distinct yellow rust genotypes. Two of these were identical to genotypes first detected in Europe and North Africa in 2015-16.



Figure 1. Rust contaminated machinery early in the growing season, September 2017, Los Cisnes, La Carlota, Cordoba province, Argentina. Photo: Ing. Agr. Juan Pablo Ioele. Click on the photo to enlarge.

The Argentina epidemic in 2017

The epidemics affected more than three million hectares resulting in high inoculum load that could pose a threat to surrounding wheat areas in the forthcoming 2018 crop season, in case of rust-conducive environmental conditions.

For the first time, yellow rust epidemics spread to warmer areas such as Santa Fe, Córdoba, Entre Ríos and Buenos Aires provinces in 2017. Seven of the most susceptible wheat varieties had average leaf coverage of almost 50% already at early crop growth stages. Field trials in epidemic areas showed average yield losses of 3.7 t/ha (53%) and up to 4.7 t/ha (71%) in severe cases, where the disease was not controlled.

In recent years, the occurrence of yellow rust in Argentina has only been sporadic and confined to regions with cooler temperatures in the southeast of Buenos Aires province. However, during the last two agricultural seasons, yellow rust has spread to regions with higher mean temperatures, where the yellow rust has not previously been reported a problem.

Race and genotype analysis

Samples of rust infected wheat were sent to the Global Rust Reference Centre (GRRC), Aarhus University, Denmark, for molecular diagnostics, recovery and parallel race analysis. Genotype results based on SSR genotyping is now available for 38 samples.

The results showed that a single genotype of the genetic lineage, **PstS13**, was prevalent in most areas. This genotype was first detected on triticale in Northern Europe in 2015-16, and a single race of the same genotype caused severe epidemics on durum wheat and bread wheat in Italy in 2017. Field trials at epidemic sites in Argentina in 2017, where **PstS13** was prevalent, demonstrated yield losses of up to 4 t/ha in case of no or insufficient disease control.



Figure 2. Early epidemics of yellow rust in a field plot of bread wheat, without application of fungicide; September 2017, south of Córdoba province, Argentina (Photo credit: Ing. Agr. Javier Rocha, Laboratorio NOVA).

Further information:

Global Rust reference Centre (GRRC) - wheatrust.org

See results on maps and charts produced by GRRC [here](#)

Read the full report from GRRC about race phenotyping and genotyping, 2017 [here](#)

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