

**Wheat blast, a menace for tropical agriculture**

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Wheat blast was recorded for the first time in 1985 in Brazil. To date, it is spread to Bolivia, Paraguay and Argentina. *Magnaporthe oryzae* can infect wheat seedlings and adult plants but the most severe symptoms are observed in spikes which become bleached. The fungus prevents grain-filling or destroys the grain-bearing structures. Few wheat cultivars have been identified as resistant, depending on natural inoculum pressure. Since 2009, Embrapa coordinates a national program turned to the identification of resistance sources for blast disease and elucidation of mechanisms of plant-pathogen interaction exploring genetic resources under controlled and field conditions. Phenotyping activities under controlled conditions have been conducted with 80 wheat lines and cultivars originated from different countries in the world. Since blast is highly dependent on temperature and humidity, methodological procedures of spikes inoculation were standardized. After the identification of resistant wheat genotypes to blast disease submitted to high inoculation pressure, molecular approaches have been conducted to characterize differential expression profiles at transcriptional and translational levels. In 2010, the first nurseries of wheat blast were conducted in three locals in Brazil: Dourados-MS, Londrina-PR and Planaltina-DF, where high temperature and high humidity conditions are favorable to the occurrence of blast disease. Two-hundred wheat genotypes could be evaluated under natural infection conditions. Although 2010 was not a year with high blast incidence levels in wheat fields, the hot spots experimental design worked as well as it was possible to identify resistance differences among the genotypes evaluated. The same group of cultivars showed different disease incidence depending on the location: we speculate the occurrence of divergent pathogen population in three Brazilian regions. Another group of cultivars revealed the best performance in different sites: probably these genotypes present resistance to a broad range of *M. oryzae* isolates. First crosses among wheat resistant genotypes were made to obtain wheat lines with better resistance levels and to generate mapping populations to study the genetic basis of disease resistance. The wheat blast hot spots are being conducted in 2011 and are to be established in other sites of evaluation in Brazil in the next years.