

## Approaches to assess climate change effects on plant disease: (2) mapping risk in Brazil

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There is a very high confidence that anthropogenic greenhouse gas emission have caused global warming, according to the Fourth Assessment Report (FAR) of IPCC. As agriculture is the most weather dependent economic sector, it is expected that shifts in the relative importance of diseases might occur in agricultural ecosystems throughout the world by climate change affecting the pathogen, the host plant and the host-pathogen interaction. In order to assess the potential impact of climate change on the geographical distribution of diseases in Brazil, studies have been conducted, adopting models of plant disease development based on meteorological data, comparing the climatological norm from 1961-1990 with data for future scenarios (2020, 2050, 2080, A2 and B2 scenarios), provided by General Circulation Models of the Third Assessment Report (TAR). A spatial database of factors including temperature (average, maximum, minimum), rainfall, relative humidity and solar radiation was built and since then maps have been elaborated using a geographic information system. Models were applied to coffee nematode races 1, 2, and 4 (*Meloidogyne incognita*), black Sigatoka on banana (*Mycosphaerella fijiensis*), downy mildew of grape (*Plasmopara viticola*), and soybean rust (*Phakopsora pachyrhizi*), as examples, to assess climate change effects on plant disease development by mapping geographical disease risk distribution in Brazil. Nowadays, an important effort has been made to build a new spatial database with FAR assessment.