

Project Climapest – Global climate change impacts on agricultural pests

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The climate change is expected to interfere on the current scenario of pests-plants interactions of Brazilian agriculture. Therefore, the objective of the present project is to evaluate the impacts of climate change on plant diseases, pests, and weeds of important crops for Brazilian agribusiness. These studies intend a long range results in order to develop adaptation alternatives for the control of plant diseases, pests and weeds which are likely to predominate in the future climate scenarios, as well to support elaboration of public policies. Climapest project was started in January 2009, and is comprised of five Component Projects: 1) technical and financial administration, 2) impacts of rising atmospheric CO₂ concentration in two types of facilities (FACE - Free Air Carbon Dioxide Enrichment and OTC - Open Top Chambers), 3) impacts of temperature increase, 4) impacts of UV-B enhancement caused by O₃ depletion, under controlled and field environment, over the organisms and selected crop systems, and 5) simulation studies performed using temporal and geographic maps of main diseases, arthropod-pests and weeds incidence in the future weather scenario based on the climate variables predicted by the Intergovernmental Panel on Climate Change (IPCC). The project involves the participation of 134 researchers from 37 institutions, comprising 17 Embrapa's Units, 15 universities and research institutions, and 5 private companies, spread throughout all regions of Brazil in 12 different states. The study encompasses 85 plant diseases, pests, and weeds among 20 major crops: apple, banana, bean, cassava, castor bean, coconut, coffee, corn, cotton, forage, forest species, grape, mango, orange, palm oil, peach, peanut, rice, soybean and sugar cane. The main results up-to-date are the installation of the first FACE facility in South America; installation of six OTC experiments throughout the country; facilities for UV-B studies in the field; data about the impacts of high temperature on pests; results about effects of increased UV-B radiation on the interaction between pathogens and plants as well the interaction between insects, plants, and entomopathogens; and maps of potential geographical distribution of plant diseases, pests, and weeds of important crops of Brazil in the future climate. For more information, the website of the project is:

<http://www.macroprograma1.cnptia.embrapa.br/climapest>

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