

The Potential for Growing Coffee in the Extreme South of Brazil in a Warmer World

Jurandir Zullo Junior¹, Hilton Silveira Pinto¹, Eduardo Delgado Assad² and Ana Maria Heuminski de Ávila¹

¹Center for Meteorological and Climatological Researches in Agriculture, University of Campinas, São Paulo, Brazil

²Brazilian Agriculture Research Corporation, Center of Information Technology Applied to Agriculture, Campinas, São Paulo, Brazil

The high frost risk during fall and winter makes the production of coffee impossible in the coldest Brazilian region located close to Uruguay and Argentina. According some papers available in literature, the global warming will lead to decrease and changeover to other regions the current suitable areas for coffee production located in the southeast and center parts of the Country. On the other side, the possibility that current unsuitable areas become suitable if the temperatures rise according the IPCC reports can help the adaptation of national agriculture to a warmer World. This work has the main objective to contribute to this task, assessing the potential for growing coffee in the state of Rio Grande do Sul, located in the extreme south of the country. The methodology was the same used to locate the suitable areas in the current production regions, being based in three climate parameters: average annual temperature, frost risk and annual water deficit. The results show that the average annual temperature must rise at least 2°C so that current unsuitable areas become suitable in the center-east of Rio Grande do Sul. If the temperature rises 3°C the south half part of Rio Grande do Sul becomes suitable for growing coffee. When the temperatures were risen by 4°C the size of suitable areas were greater than the simulation of 2°C and less than the simulation of 3°C. Even without a specific simulation it seems according to these results that Uruguay and the north of Argentina can become suitable for coffee production if the average annual temperature rise 3°C or 4°C. Others climate scenarios must be used to detail the results presented here.

Contact Information: Jurandir Zullo Junior, Centro de Pesquisas Meteorológicas e Climáticas Aplicadas à Agricultura (CEPAGRI), Universidade Estadual de Campinas (UNICAMP), Cidade Universitária Zeferino Vaz, 13083970, Campinas, São Paulo, Brasil;
Phone: 55-19-35212461; Fax: 55-19-35212463; Email: jurandir@cpa.unicamp.br