

Uncertainties in the Argentinean Wheat Production due to Climatic Change Scenarios

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Argentina is the most important wheat producer in South America, with an annual average production around 15 millions of tons. Two important wheat production zones: Buenos Aires and Entre Rios, have a wheat production area of 670,000 and 180,000 ha respectively, and together are responsible for almost 18% of the Argentinean production of wheat. The objective of this research was to analyze the potential effects of climatic change in the wheat production of these important wheat producer regions. To reach this objective, field experiments were carried out and used to calibrate and validate the CERES-Wheat model for the Argentinean conditions. After calibrating the model and crop varieties, the model simulated crop yields using previously characterized Vertisols, Alfisols, Mollisols soils in the study area. As climatic input, IPCC scenarios of climate change were adapted to the area. Weather generators were used to produce the daily realizations based on the projected IPCC scenarios used as inputs in the model. As result, average increases of temperature in the range of 0.5°C, together with increases in rainfall ranging from 2 to 5 percent of the total annual rainfall amount slightly affected wheat production in the area. However, possible changes in rainfall distribution that were introduced in the simulation by using multiple weather generated data were the major source of uncertainty.

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