

Evaluating crop management options in the Spanish cereal production under climate change conditions

PARTICIPANT(S)

Blanca del Río, Angel Utset¹

1 ITACyL, Spain

in cooperation with the RegCM3 producers at ICTP in Trieste, Italy; DSSAT specialists at *Universidad Politécnica de Madrid* (UPM); as well as CROPSYST model developers Marcello Donatelli, ISCI Italy and University of Lleida, Spain

AIM AND OBJECTIVES/TASKS

- Evaluating the 1960-1990 REgCM3 outputs as predictors of the weather conditions in the cereal cropped area of the Northern Spanish landplane.
- Calibrating and validating DSSAT and CROPSYST for cereals in the conditions of the northern Spanish landplane.
- Estimating the climate change effects on the cereals production of the northern Spanish landplane.

(EXPECTED) OUTPUTS

- Evaluation of spatial accuracy of the RegCM3 grid sizes regarding the weather variability within the areas dedicated to wheat and barley in the Northern-Spanish Plateau.

This could point out in which extent the RegCM3 scenarios for the 2070-2100 period can fulfil the spatial accuracy requirements for this agricultural-oriented application. A relatively accurate spatial data (within a GIS) comprising the cereal-cropped area is available. Besides, monthly values of the relevant meteorological variables as temperature and precipitation can be obtained in many local stations all over the Plateau. A GIS analysis will decide if the RegCM3 grid-size is spatially accurate enough to capture the monthly-weather spatial variability within the cereal cropped area.

- Comparing DSSAT and CROPSYST and eventually other models regarding their use as Barley and Wheat predictors in the conditions of the northern Spanish landplane.

Particular emphasis will be made on the variety effects on the relationship between simulated and actual data. A relatively large database of cereals experiments conducted by ITACyL is available. Calibrations for the most relevant varieties and cultivars will be made, considering especially those showing quite different behaviour regarding weather variability.

- Simulation study aimed to determine the effects of the RegCm3 downscaled climate-change scenarios on the cereal production of the Northern-Spain Plateau.