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# Congress Proceedings

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## Methodology for climate risk assessment of maize intercropped with Brachiaria in the Cerrado of Brazil

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**Introduction** The cultivation of forage-cereal intercrops entails competition between the two crops for nutrients, light and mostly water in the Cerrado of Brazil. Considering water as the main limiting factor, this study aimed to develop a method to identify the areas in a given region of the Cerrado where climate risk (rainfall) for sowing maize (*Zea mays*) intercropped with brachiaria (*Brachiaria brizantha*) is low.

### Material and Methods

The study was conducted in the State of Goiás, using the crop growth model SARRA to determine the optimal dates for sowing maize intercropped with brachiaria (Baron and Clopes, 1996). The following variables were used: seasonal rainfall, potential evapotranspiration, duration of the phenological stages of the maize crop, and the soil water holding capacity of three soil types (sand, loam and clay). The model calculated an index of satisfaction of crop water requirements (ISWR) for each phenological stage over a series of growing seasons. A situation (climate x soil x maize cultivar) was considered as having a low climate risk for the cultivation of the maize-brachiaria intercrop if 80% of ISWR values were > 0.55 at flowering and grain filling stage of maize, and if 80% of the ISWR values were > 0.60 at the stage of germination/establishment of brachiaria. With the use of a geographic information system (GIS) it was possible to map this climate risk information for the cultivation of the maize-brachiaria intercrop.

### Results and Conclusions



Figura 1. Optimal sowing periods for maize (early maturing cultivar on clay soils) intercropped with brachiaria in the State of Goiás.

### References

BARON, C. & CLOPES, A. **System analysis of regional agro-climatic risks (Sarramet/Sarrazon)**. CIRAD, Montpellier, 1996.

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