



ABSTRACT & SYMPOSIUM SUBMISSION

Title: Scenarios of land use/cover changes in Cerrado under intensified sustainable land systems and food security policies

Abstract No. 0953

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Abstract [Soler_abstract1_Template_WFS_final.docx](#)

Template used Yes

Text Abstract

Land use changes in Brazil are justified to supply national and international demands for food, feeding and energy commodities. The big challenge is to understand how local land systems are able to sustain internal food supplies and at the same time guarantee commodities to international markets and ecosystem services. Scenario development using Fuzzy Cognitive Maps (FCMs) is used allowing semi-quantification of feedbacks and interactions among drivers of change based on a spatial database of 1km grid cells to Cerrado ecosystem, a biodiversity hot spot where deforestation rates have peaked. We adopted a database of land use determinants, food insecurity proxies and land assets values. Non-spatial drivers of climate change, dietary choices and demand for exports are inserted. Scenarios rely on sensitive analysis of relationships among drivers built from comparisons to expert knowledge and literature review. Two scenarios are given based on national projections of changes in crop yields, cropped area and livestock increase up until 2030. First we assume intensification of food security policies, while in the second we assume intensification of sustainable agriculture. Food security policies guarantee small farming land ownership and food production to local markets. Policies of sustainable land systems stand for the increase in consortium areas of pasture, agriculture and forest, known as Low Carbon Agriculture (LCA) within the Brazilian National Plan on Climate Change. In the first scenario shy increases of small scale farming food security levels are observed. Annual crops and pasture area are considered to grow in the second scenario according to yields, as LCA is gradually implemented. However, sensitive relationships within food exports and climate change pressure for stagnation in large scale agriculture, likely prevented by infrastructure and land assets values. Scenarios shall be applied in a spatial explicit model with similar expected results mostly in the MATOPIBA and Mato Grosso regions.

App Yes

Approval Confirm

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Affiliations (1) Brazilian National Institute for Space Research, São José dos Campos, n/a, Brazil

Authors L.S. Soler (1) Presenting
J. Pompeu (1)
G. Arcoverde (1)
E. Albiachi (1)
J. Ometto (1)

Presenter email luciana.soler@inpe.br

Categories Food creation

Keyword1 land use change

Keyword2 Cerrado

Keyword3 low carbon agriculture

Keyword4 food policy

Presentation Oral

AV requirements Computer projection

Registration Confirm

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