
Poster

Use of Life Cycle Assessment to assess environmental impacts of sunflower oil production in Brazil and proposition of alternatives for its minimization

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The sunflower is the fifth most important oil crop in the world. In the season 2013/2014 the yield reached 35.2 million tons of seeds worldwide. In Brazil, however, the sunflower production is still relatively small. The last harvest was estimated at 109 thousand tons. The main producing region of the country is the micro-region of Parecis in the state of Mato Grosso, which occupies areas in the Cerrado and Amazon biomes. In this region, the sunflower is grown in succession with soybeans, promoting the use of the land in a small "agricultural window". The grains are mainly destined for the production of oil for human consumption, while the cake derived from oil production is destined for cattle feedlots. Studies of environmental impact assessment in this chain are needed due to the economic importance of products derived from this production system, the potential for expansion of the crop and the vulnerability of the biomes of the producing region. The modal production systems of soybean and sunflower (seed, oil and cake) were characterized and the environmental profile of these products was determined by the approach of Life Cycle Assessment. For building the inventories and the characterization models for the impacts assessment, a great effort has been engaged in the selection of models or emission factors that best represents the climate and soil conditions of the study area. This soybean/sunflower production system is intensive in the use of agricultural inputs, chiefly fertilizers. On the one hand, the supply of inputs ensured good productivity of the crops, which favorably influenced the environmental performance of the whole system. However, the fertilizer in excess, above the crops demand, generated considerable negative environmental impacts, indicating the need for adjustments in the recommendations. This is the first work evaluating the impacts in the sunflower production chain, from the perspective of Life Cycle Assessment in Brazil.
