

# **GSB-LACAf**

# **Environmental Project Report**

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CENA – 29 August 2014

Piracicaba, SP

- **Morning meeting with profuse brainstorming**
- **Presentation by Carla Piriz about Odebrecht efforts on sustainability**
- **Outline of monitoring experiments**
- **Afternoon meeting divided in two concurrent sessions to advance monitoring and modeling efforts in parallel**
- **Final group meeting**

- **Bioenergy systems, with emphasis on sugarcane, in a broad sustainability context that considers explicitly:**
  - **Pasture management intensification**
  - **Transition to bioenergy crops and potential biomass production**
  - **Landscape scale responses (GHG footprint, chemical footprint, hydrology, biodiversity ...)**
- **Modeling the potential responses to pasture intensification and biomass based production at relevant global scales**

- 1) Field scale monitoring focused on Sao Paulo environments with synergistic use of models at many scales and potential collaboration with industry partners**
- 2) Global scales modeling to gain a robust understanding of the impacts / benefits of pasture intensification and bioenergy potential at planetary scales**

## **Field Scale Monitoring**

- Network of experimental sites with specific treatments addressing the transition to pasture intensification and sugarcane
- Long term outlook
- Broad view of sustainability towards “smart landscapes” that enable both high productivity and environmental integrity
- Early interaction with modeling to address parameterization and other modeling needs

**Focus on locations in Sao Paulo but possibly extending to other environments (relevance – resource availability balance)**

- **Refine concept of intensification**
- **Define sites and treatments, integrating valuable prior and ongoing work**
- **Define phases in the project**

## **Modeling** (the goal is to be strongly task and paper oriented)

- (paper 1) Definition of “elements” or how to represent global pastures/bioenergy, modeling approach testing focusing on C, N, and edge of field water; multiple models if feasible
- (paper 2) Aggregation into regional and global scales
- (paper 3) Impacts of climate (which can be folded into 2, in flux)
- (paper 4) Return to hypothesis to integrate field / modeling
- Next conference call Monday 8<sup>th</sup> of September, 11 AM ET

- **Discussion needed on effective definition of modeling unit:**
  - Model everything and aggregate?
  - Define “points” (climate x soil) representative of larger clusters with a given expansion factor area
  - Climate binning
  - The point is to define quickly the best approach for the goal
- **Definition of intensification can be site-specific**
- **Need testing that models are able to capture relevant environmental response variables**



- **Submit a proposal on December, 2014**