Research Project Network: Greenhouse Gas Emissions and Carbon Balance in Crop Production Systems in Brazil (Fluxus)

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Climate change caused by human activities is a reality that can affect agricultural production, including small agribusiness and family farming. Thus, it is a phenomenon that should be considered in strategic decisions for the next decades, especially in regions whose economies have strong adherence to agriculture. Land use change, especially deforestation and burning and land degradation are generating greenhouse gas (GHG) emissions, but agricultural production, in its different modalities, and livestock are also seen as one of the major causes of global warming. Each year the countries prepare the inventory of GHG emissions. For this to be done in a representative manner to actual emissions, accurate information is needed, obtained using methods approved by the IPCC and on the basis of systematic surveys. Agricultural production systems has great potential to combine food production with environmental services, including mitigation of climate change and preserving biodiversity. In this context it is strategic to know the productive capacity of current systems and alternative technologies to accumulate and sequester C in soil and to prevent GHG emissions (direct or indirect). Understanding the social and economic dynamics related to production systems and management processes relevant in the accumulation or sequestration of C and GHG emissions is also important for developing policies and strategies, relevant and innovative for socioeconomic and environmental sustainability. This knowledge is essential for research and forecasting future scenarios and the planning of public policies to encourage adoption of practices for mitigating global warming. This project will address research and analysis of production systems of grains, especially of soybean, corn, rice, common beans, cowpea, wheat and cotton. In this way it is complementary to two other project networks that investigate GHG emissions and C balance in livestock production systems and planted forests in Brazil, Pecus (Livestock) and Florestas (planted forests). The structure of the project was also elaborated to be able to effectively harmonize data flow among these projects.