



## **Evaluation of the greenhouse-gas reduction efficacy of a rapeseed (*Brassica nap* L.) biofuel crop and impact of agronomic techniques.**

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The need of using ecologically friendly fuels as a remedy to tackle climate change effects and as an answer to growing costs of petroleum, has encouraged the production of biofuels in the latest years (Farrel et al. 2006). If most of biofuels were found to reduce green-house gas emissions by more than 30% relative to gasoline (Zah et al., 2007), the debate about the production of biofuel crops should also focus on the overall assessment of its environmental costs and benefits. Such an analysis should take into account a comparison between a land dedicated to energy crops and traditional land-use scenarios, especially whether native ecosystems are destroyed to produce biofuels, but also verify the balance of green-house gases for a determined biofuel crop along its whole productive cycle.

Under the framework of the CARBOITALY project, two paired experimental sites for the monitoring of CO<sub>2</sub> fluxes by eddy covariance technique over rapeseed (*Brassica nap* L.) biofuel crops in the province of Viterbo (Italy) were established in fall 2007.

The experimental activities aim at the comparison between a tillage and no tillage agricultural managements in respect with the greenhouse gas balance of the crop systems accounting for all removals and emissions (direct and indirect) during the productive cycle. Moreover the activities cover a wide range of observations of biophysical parameters in the soil, plant, atmosphere compartments to evaluate the effect of the two agricultural managements.